

From: s47F
Sent: Monday, 21 July 2014 3:23 PM
To: Species Consultation
Cc: s47F
Subject: RE: Hammerhead shark threatened species listing consultation [SEC=UNCLASSIFIED]

Hi s22 ,
Thank you for allowing us to submit the attached additional information to your review, much appreciated.

The NT related information and advice contained in the attached sheets are self-explanatory and I hope your Committee conducting an assessment of three species of hammerhead shark for potential inclusion on the list of threatened species under the Environment Protection and Biodiversity Conservation Act (1999) (EPBC Act) find them useful. Note; only advice to the two Hammerhead species found in the NT is provided here.

If you have any further queries on the advice, please contact the Department's Principal Research Scientist, s47F in the first instance.

Kind regards
s47F

From: s47F
Sent: Friday, 18 July 2014 4:40 PM
To: 'Species Consultation'
Cc: s47F
Subject: RE: Hammerhead shark threatened species listing consultation [SEC=UNCLASSIFIED]

Hi s22 ,
Thanks for the extension, much appreciated.
I won't be able to get out advice to you today, just finalising the submission.
However it will be with you on Monday before cob.
Regards
s47F

From: Species Consultation s22
Sent: Friday, 4 July 2014 2:24 PM
To: s47F ; Species Consultation
Cc: s47F
Subject: RE: Hammerhead shark threatened species listing consultation [SEC=UNCLASSIFIED]

Hi s47F ,

Thanks for the email. Yes, I think we can accommodate a short delay – 18 July should be fine.. I'll look forward to receiving your input.

Cheers,
s22

s22
Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
Department of the Environment

s22

From: s47F
Sent: Wednesday, 2 July 2014 10:10 AM
To: Species Consultation
Cc: s47F
Subject: Hammerhead shark threatened species listing consultation

Hello there,

The Northern Territory Department of Primary Industries and Fisheries will be submitting a formal response to your information request. We feel that as the custodians of the largest commercial data set on these animals in the NT, we will be able to provide relevant information and advice to assist your assessment process.

However, we are in the middle of s22 workshops (organised by the NT this time) at the moment and our researchers are unable to spend the time required to extract and analyse the relevant datasets in order to provide you with a considered response by the 7th July. I have spoken to s47F s47F about our resource problem and he suggested to seek an extension in order to provide the best response.

Can I ask that we are given a small time extension till say....18th July to provide you with our submission?

Please advise this is satisfactory to your assessment timelines.

Regards

David

s47F

s47F

[Department of Primary Industry and Fisheries](#)
[GPO Box 3000 Darwin NT](#)

s47F

Our Vision: Creating a public sector that provides the highest quality service to Territorians

Our Values: [Commitment to Service](#) | [Ethical Practice](#) | [Respect](#) | [Accountability](#) | [Impartiality](#) | [Diversity](#)

 **Think B4U Print:**

1 ream of paper = 6% of a tree and 5.4 kg CO2 in the atmosphere;

3 sheets of A4 paper = 1 litre of water

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1. Has the conservation advice considered the appropriate geographic extent to describe the Australian stock over a relevant timeframe (3 generations or 60 years)?

The generation time used in the Draft Conservation Advice for *S. lewini* is conservative for tropical Australian regions, as it fails to take into account differences in age and size of maturity between tropical and temperate areas (Harry, A. V. et al. 2011).

Although the Draft Conservation Advice does not define its meaning of “generation time”, the definition provided Food and Agriculture Organisation (FAO) is “mean generation length is the mean period between birth of a parent and the birth of their offspring” (Musick & Bonfil 2005).

There is a large variation in size and age of maturity of *S. lewini* throughout its worldwide range which results in different generation times for different regions (Nance et al. 2011). In northern Australian waters male *S. lewini* reach maturity at 150 cm, while females are 200 cm (Stevens, J.D. & Lyle 1989). There is no age at sexual maturity information for the Northern Territory, although there is information available from the Australian east coast, where the age and size of maturity of male *S. lewini* was compared between temperate and tropical regions. For east coast tropical regions, male *S. lewini* were found to mature at 5.7 years, and 147 cm, while in temperate waters *S. lewini* matured later, at 8.9 years and at a larger size, 319 cm (Harry, A. V. et al. 2011). The Draft Conservation Advice lists the female *S. lewini* age at maturity as 12 years, which appears to be a realistic assessment based on the most relevant growth model (Harry 2011), but it should be noted that this growth model pools samples from both tropical and temperate regions and included no females.

It is important for the Draft Conservation Advice to define and document the methods used to calculate generation time as this is an important parameter in assessing likely changes in the *S. lewini* population. The lack of stock assessments hinders the ability to determine any population change, but it is expected that *S. lewini* has undergone some rate of recovery in northern Australia since the intensive Taiwanese gillnet fishery ceased operating in the north Australian Exclusive Economic Zone (EEZ), 28 years ago. The Taiwanese fishery was replaced by a much smaller, strictly managed, domestic fishery, with catches an order of a magnitude lower (Field et al. 2012) and under this lower level of fishing recoveries of several shark populations have been well documented (Bradshaw et al. 2013; Field et al. 2012; Grubert et al. 2013). To what level *S. lewini* has recovered is debatable and highlights the urgent need to undertake stock assessments on this species in order to make better informed management decisions, but in the meantime it is important that the Draft Conservation Advice uses a clearly defined and spatially appropriate estimate of generation time in its assessment so that informed decisions can be made by stakeholders.

2. Are you able to provide any additional information or clarification of the range of the scalloped hammerhead within Australian waters? If so, please mark those changes on the map included in the conservation advice document for the species.

We can confirm that *S. lewini* is found in the waters adjacent to the Northern Territory coastline.

3. Are you able to provide any further information, either in support of or contrary to, the interpretation that mature female scalloped hammerheads from the Australian stock reside for much of the time in waters exposed to Indonesian or other international fisheries? If you oppose the hypothesis contained within the advice, where would you estimate adult female scalloped hammerheads reside when not in Australian coastal waters to give birth?

There is no direct evidence to support hypotheses that mature female *S. lewini* reside outside Australian EEZ waters and are exposed to Indonesian or other international fisheries. In Northern Territory waters, the Offshore Net and Line Fishery (ONLF) has the most significant interactions with *S. lewini* (Koopman & Knuckey 2014). Gear used in the ONLF is limited to pelagic gillnet or demersal longline. Effort in the fishery is constrained by gear restrictions and the number of days that can be fished (Northern Territory Government 2012), although it should be noted that the ONLF is currently under review and it is likely that new management arrangements will be introduced in early 2015, capping shark catches, including *S. lewini*. Through detailed fishery logbooks and scientific monitoring programs, the Northern Territory Department of Primary Industry and Fisheries (DPIF) has a good understanding of where and how the ONLF operates and a verified knowledge of its catch composition.

S. lewini is not specifically targeted in the ONLF. In correlation with other fisheries there is a lower proportion of female *S. lewini* in the catch and almost no large mature females. This is not particularly surprising given the well documented spatial separation of adult and juvenile *S. lewini* (Clarke 1971; Harry, A. V. et al. 2011) and that the majority of ONLF fishing effort is confined to within 15 nautical miles from the coast (Northern Territory Government 2012). A single longline vessel, constrained to a maximum of 234 fishing days, did operate in the Northern Territory waters until 2012. This vessel typically operated further offshore and caught larger *S. lewini*, although it was rare to catch individuals over 200 cm during monitoring trips.

The absence of mature females in any part of the ONLF catch is puzzling and highlights our limited understanding of the complex sex and age based spatial structuring of this species. Presumably these larger females travel inshore to give birth to their pups during October to January (Clarke 1971; Stevens, J.D. & Lyle 1989) which coincides with a peak period of pelagic gillnet fishing in the ONLF. Despite this, adult females are not captured while they make this

presumed migration. This could indicate that gear selectivity, particularly in the net component of the fishery, makes the female proportion of the population resilient to capture (Clarke 1971; White, Bartron & Potter 2008). This was supported by observations made while the intensive Taiwanese gillnet fishery operated off northern Australia. Despite the high levels of fishing pressure, it was observed that adult females were not a significant part of the Taiwanese catch (Stevens, J.D. & Lyle 1989). As a result, the adult female proportion of the “Australian” *S. lewini* stock may not have received as much intensive Taiwanese fishing pressure as other shark species during the period of Taiwanese fishing between 1974 and 1986 (Stevens, John. D. & Davenport 1991). This would partially explain why such an apparently susceptible species (Harry, A.V. et al. 2011) is still relatively common in Northern Territory waters.

The Draft Conservation Advice uses White’s observation of the presence of adult females *S. lewini* in the Indonesian catch to validate the movement of these females from Australian to Indonesian waters. However at no point in the paper does White give any indication that the animals he is seeing in the Indonesian catch are “Australian” *S. lewini* females (White, Bartron & Potter 2008). The results of Whites paper point to significant differences in the size at maturity between Australian and Indonesian *S. lewini*, with Indonesian female *S. lewini* maturing at 229 cm, while maturity in northern Australian waters is 200cm. Males mature in Indonesia at 176 cm while in north Australian waters maturity is reached at 150 cm. These distinct differences in the size at maturity provide an indication that the Indonesian and the Australian populations of *S. lewini* are probably reproductively isolated.

If mature “Australian” *S. lewini* females were being caught in large numbers outside Australian waters it would be expected that there would be a significant fall in ONLF catches of juvenile *S. lewini*. While total catches of “hammerhead” have dropped since 2003, this is a response to a change in management arrangements which have resulted in a significant reduction of effort. Since 2006, catches have been stable, with no alarming decrease in the catch. At the same time catch per unit effort (CPUE) has continued to increase despite this species not being targeted. If any part of the *S. lewini* population, in particular the large mature females, were exposed to high levels of fishing pressure in Indonesia, it would be expected that catches and CPUE would be decreasing.

Movement data also suggests that effective reproductive populations operate on much smaller spatial scale than the distance than between Australian waters and Indonesia. While no genetic distinction between Australian and Indonesian stocks, based on mitochondrial DNA, was identified (Ovenden et al. 2009), this techniques only provides broad scale stock structure, and can be influenced by small numbers of individuals moving over large time frames i.e. 1000’s of years (Welch et al. 2009). Tagging studies, including one undertaken by DPIF, suggest that effective movements by individual *S. lewini* are much smaller. Vertebrae microchemistry also suggest that movement is on much smaller scales than reported in the Draft Conservation Advice (Welch et al. 2011), while a study on the eastern Pacific using coalescent

genetic techniques also showed that “stocks” of *S. lewini* operate on much smaller spatial scales than previously thought (Nance et al. 2011).

DPIF is unable to provide an alternative location for the adult female *S. lewini*, as they do not occur in ONLF catches, or any other fishery operating in Northern Territory waters. This is despite these large females apparently spending at least short periods of time during pupping, being exposed to areas where fishing occurs. DPIF agrees that this is an area that requires further research and understands that knowledge of where adult females reside has important implications to ensuring that any *S. lewini* harvest is sustainable. Until this work is undertaken, DPIF suggests that there is sufficient evidence that indicates that *S. lewini* stocks in northern Australian waters are not strongly linked to those in Indonesia. Consequently, any management arrangements implemented in relation to Indonesian stocks should not be directly applied to stocks in northern Australia.

4. Can you provide an estimate of the relative sizes of the Australian and Indonesian components of the scalloped hammerhead stocks (as defined/described in the draft conservation advice) at the beginning of the assessment period (approximately 60 years ago, or prior to commercial exploitation)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):

Upper bound (estimated maximum):

Best estimate (most plausible):

Confidence : %

We have no estimates of the stock size prior to exploitation. We agree that this is an urgent priority for research in order to quantify the impact on the *S. lewini* stock caused by the Taiwanese fishery and later the domestic ONLF.

5. Can you provide an estimate of the population trend of the scalloped hammerhead in Australian waters (or any smaller region within Australian waters)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):

Upper bound (estimated maximum):

Best estimate (most plausible):

Confidence : %

In Northern Territory waters there is sufficient evidence to suggest that the population of *S. lewini* is at least stable and probably increasing. Management measures for the domestic Offshore Net and Line fishery have been in place since 1984 and are extremely conservative. There is now a considerable body of peer reviewed work that has been undertaken in the north of Australia over the last decade that indicates recovery of shark stocks after the period of intense fishing by Taiwanese fisheries. Interestingly much of this information was not referenced in the draft conservation advice, and we encourage you to obtain this and incorporate this in any future advices. Further supporting evidence for the stable or increasing population size of *S. lewini* is the data obtained from Offshore Net and Line logbooks and fisheries monitoring program in the Offshore Net and Line Fishery.

There is little doubt that over the period of the Taiwanese gillnet fishery the shark resources of Northern Australia were heavily exploited, resulting in declines in many species, probably including *S. lewini* (Davenport & Stevens 1988). Once this fishery ceased in 1984 it was replaced by a much smaller domestic fishery with catches that are an order of magnitude smaller (Field et al. 2012). There is evidence that under these significantly lower levels of effort, and the tight management regime, many shark species stocks have recovered. As there is no direct measure of the stock status of *S. lewini* in the Northern Territory, the Draft Conservation advice uses work undertaken on other species, specifically a stock assessment undertaken in 1997 which indicates a decline in several shark species in northern Australia. However, this work has been superseded by more recent assessments that have indicated recovery of stocks of s22

While these assessments are not specifically on *S. lewini*, the declining effort patterns in fishing for all shark species in northern Australia is the same so these assessments can be used as a broad indicator of the general health of shark stocks in these waters.

Further evidence of stable or increasing stocks is provided by logbook data obtained from the Offshore Net and Line fishery. While the Draft Conservation Advice suggests catches are falling, what this document fails to mention is that a number of management practices have had a significant impact on catches of *S. lewini*. Inferring catches have reduced simply because of overfishing is misleading, and not making use of the available information. While it is true that catches of “hammerhead” have reduced in the ONLF, there have been a number of factors that have influenced this. After 2006, when there was a review of the fishery and tighter management measures were put in place, catches of “hammerhead” in the Northern Territory Offshore Net and Line Fishery have remained relatively stable, while Catch per Unit Effort has actually increased, despite this species not being specifically targeted. It is important that the Draft Conservation advice look carefully into any catch trend for this species in order to determine if declines in catches are because of declines in populations or are merely reflecting changes in management practices, such as in the ONLF.

From our data and the available published information we are unable to see any evidence of a recent decline of *S. lewini* in Northern Territory waters as reported in the Draft Conservation Advice and there is in fact contradicting evidence supporting an increase population levels in recent times under contemporary management regimes. We agree with the draft Conservation advice that the lack of a direct stock assessment of *S. lewini* hampers this assessment and that it is an urgent area for research. However the draft conservation advice should recognise that there is evidence available suggesting that stocks of other shark species off northern Australia have recovered since the Taiwanese fishery, that domestic fishing arrangements in the Northern Territory are conservative and that *S. lewini* numbers in Northern Territory waters have probably also increased in recent years.

6. Are you aware of any additional evidence/data which show that the population is stable, increasing or declining?

The Northern Territory Department of Primary Industry and Fisheries are custodians of Offshore Net and Line Fishery logbook data which should form an important part of any assessment of *S. lewini* in Australian waters. DPIF also runs a scientific monitoring program for the ONLF, which routinely collects information on *S. lewini*. As stated earlier, our records show consistent catches over recent years and an increasing CPUE, suggesting that the *S. lewini* population is stable, and probably increasing.

DPIF has also been involved in a number of research projects which has demonstrated the recovery of several shark species in Northern Territory waters. The conservative management of the domestic fishery, since the Taiwanese, and the growth of shark populations since this time should be important information captured in any further Conservation Advice on *S. lewini*.

7. The attached draft conservation advice presents tables representing possible combinations of trends in the Australian and Indonesian components of the shared scalloped hammerhead population (Tables 2a-e). Which, if any, of these scenarios do you believe is the most plausible representation of that population's circumstances?

There is no direct evidence suggesting that the Australian component of the *S. lewini* population is strongly linked to the Indonesian component. While it has been demonstrated that there is no significant genetic difference between Australian and Indonesian *S. lewini*, as described previously, several other studies have shown that effective populations of this species operate on much smaller spatial scales (Nance et al. 2011; Welch et al. 2011). Significant differences in the size of maturity between Indonesian and Australian *S. lewini*, also suggest that while they are genetically similar, they may be separate “biological” populations (Harry, A. V. et al. 2011; Stevens, J.D. & Lyle 1989; White, Bartron & Potter 2008).

Until evidence which quantifies the exchange between Australian and Indonesian stocks is produced, for the reasons stated above it should be assumed that there is limited exchange between the two regions.

8. Can you provide any references, information or estimates on longevity, average life span or generation length?

The Northern Territory Department of Primary Industry and Fisheries has no additional information to assist with estimates of longevity, average life span or generation length, although we have collected vertebrae and genetic samples as part of our scientific monitoring program and do have the capacity to assist research into this important life history information.

9. Do you know of other threats, past, current or potential that may adversely affect this species at any stage of its life cycle?

None within waters adjacent to the Northern Territory Coast.

10. If the scalloped hammerhead is found eligible for listing in a threatened category, subsection 179(6) of the EPBC Act allows for the species instead to be included in the conservation dependent category if it is the “focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised”

Do you, or do you not, support the option of including the scalloped hammerhead in the conservation dependent category? In either case, please briefly explain your reasoning. The Committee would particularly like to hear suggestions for appropriate measures to ensure that management allows for the species’ recovery nationally.

It is our view that if it is deemed warranted listing this species under the EPBC Act, then Northern Territory Department of Primary Industry and Fisheries (DPIF) would support the ‘Conservation Dependant’ category listing. Whilst the Northern Territory stocks are considered healthy, DPIF is proposing to implement a range of conservative management measures that ensure shark species identified as being the most vulnerable to fishing (through ERA’s etc.) maintain their healthy status in the Northern Territory.

Specific management measures are to be included into a harvest strategy management Framework document including Operational Decision Rules. Under this framework, it is proposed that greater monitoring coverage will be required for those vessels equipped with fishing gear most likely to catch Hammerheads (i.e. long-lines). The Decision Rules outline fishery Objectives, Performance Indicators, Trigger Points and Management Actions for the Key Shark species group which relate to Hammerheads and are likely to include mitigation measures such as;

- Cap the permitted catch of Hammerhead species
- Ensuring fishing effort is appropriately spread over fishery

- Hammerheads are correctly identified and reported accurately on logbooks
- Confirmation of an appropriately determined Total Allowable Commercial Catch
- No reported incidences of discarding or high grading occurring
- Observer data validates catch composition and catch returns
- Length frequency analysis shows no anomalies
- Breach of performance Indicators by operators triggers additional observer trips to evaluate fishing operations at operators cost
- Trigger points are conservatively set well below the TACC and when met initiate Management Actions such as:
 - Data gathering by observers (genetic samples if required, lengths etc.) to address higher harvest risks
 - Detailed analysis of all gathered data is undertaken. Fisheries to investigate species and compile and review biological data, this may require modelling, spatial analysis and stock assessments
 - Assessment surveys (may include tagging, stock structure work etc.) initiated as per agreed methodology
 - A review of the appropriateness of the current TACC is undertaken using all data
 - A review of the fisheries operating practices
 - Gear in the fishery to be reviewed by ONLAG (the established advisory group) to evaluate impacts. Gear may be modified or abolished to address identified issues
 - If TACC is reached, all activity in the fishery is halted until next allocation period.

DPIF is confident that with the proposed management measures in place, fishing related risks to Scalloped Hammerhead will be immediately contained and reduced over time.

11. Can you provide additional data or information relevant to this assessment?

The Northern Territory Department of Primary Industry and Fisheries provided all logbook and scientific monitoring information from all Northern Territory fisheries that interact with *S. lewini*, to Fishwell consulting, who produced the report, Advice on CITES Appendix II Shark Listings. This report was referenced in the Draft Conservation Advice.

If further use of this information is required in the EPBC listing assessment process, access may be sought from the DPIF on the condition that the appropriate confidentiality agreements are in place.

Bradshaw, CJA, Field, IC, McMahon, CR, Johnson, GJ, Meekan, MG & Buckworth, RC 2013, 'More analytical bite in estimating targets for shark harvest', *Marine Ecology Progress Series*, vol. 488, pp. 221-32.

Clarke, TA 1971, 'The ecology of the scalloped hammerhead shark, *Sphyrna lewini*, in Hawaii', *Pacific Science*, vol. 25, no. 2, pp. 133-44.

Davenport, SR & Stevens, JD 1988, 'Age and growth of two commercially imported sharks (*Carcharhinus tilstoni* and *C. sorrah*) from northern Australia', *Marine and Freshwater Research*, vol. 39, no. 4, pp. 417-33.

Field, IC, Buckworth, RC, Yang, GJ, Meekan, MG, Johnson, GJ, Stevens, JD, Pillans, R, McMahon, CR & Bradshaw, CJA 2012, 'Changes in size distributions of commercially exploited sharks over 25 years in northern Australia using a Bayesian approach', *Fisheries Research*, vol. 125-126, pp. 262-71.

Grubert, MA, Saunders, TM, Martin, JM, Lee, HS & Walters, CJ 2013, *Stock assessments of selected Northern Territory fishes*, Northern Territory Government Darwin.

Harry, AV 2011, 'Life histories of commercially important tropical sharks from the Great Barrier Reef World Heritage Area', Doctor of Philosophy thesis, James Cook University, Townsville.

Harry, AV, Macbeth, WG, Gutteridge, AN & Simpfendorfer, CA 2011, 'The life histories of endangered hammerhead sharks (Carcharhiniformes, Sphyrnidae) from the east coast of Australia', *Journal of Fish Biology*, vol. 78, no. 7, pp. 2026-51.

Harry, AV, Tobin, AJ, Simpfendorfer, CA, Welch, DJ, Mapleston, A, White, J, Williams, AJ & Stapley, J 2011, 'Evaluating catch and mitigating risk in a multi-species, tropical, inshore shark fishery within the Great Barrier Reef World Heritage Area', *Marine and Freshwater Research*, vol. 62, pp. 710-21.

Koopman, M & Knuckey, I 2014, *Advice on CITES Appendix II Shark Listings*, Report to Department of Sustainability, Environment, Water, Population and Communities, Fishwell Consulting, Queenscliff.

Musick, JA & Bonfil, R (eds) 2005, *Management techniques for elasmobranch fisheries*, vol. Fisheries Technical Paper 474, Food & Agriculture Organization, Rome.

Nance, HA, Klimley, P, Galván-Magaña, F, Martínez-Ortíz, J & Marko, PB 2011, 'Demographic processes underlying subtle patterns of population structure in the scalloped hammerhead shark, *Sphyrna lewini*', *PloS one*, vol. 6, no. 7, p. e21459.

Northern Territory Government 2012, *Fishery status reports 2011*, Northern Territory Government, Department of Primary Industry and Fisheries, Darwin.

Ovenden, J, Kashiwagi, T, Broderick, D, Giles, J & Salini, J 2009, 'The extent of population genetic subdivision differs among four co-distributed shark species in the Indo-Australian archipelago', *BMC Evolutionary Biology*, vol. 9, no. 1, p. 40.

Stevens, JD & Davenport, SR 1991, *Analysis of catch data from the Taiwanese gill-net fishery off northern Australia, 1979 to 1986*, Report (CSIRO Marine Laboratories) no. 213.

Stevens, JD & Lyle, JM 1989, 'Biology of three hammerhead sharks (*Eusphyr a blochii*, *Sphyrna mokarran* and *S. lewini*) from northern Australia', *Marine and Freshwater Research*, vol. 40, no. 2, pp. 129-46.

Welch, DJ, Buckworth, RC, Ovenden, JR, Newman, SJ, Broderick, D, Lester, RJG, Ballagh, AC, Stapely, JM, Charters, RA & Gribble, N 2009, *Determination of management units for grey mackerel fisheries in northern Australia, Final Report, Fisheries Research and Development Corporation Project 2005/010*, Fishing & Fisheries Research Centre Technical report No. 4, Fishing & Fisheries Research Centre, James Cook University, Townsville, Australia.

Welch, DJ, Ovenden, JR, Simpfendorfer, C, Tobin, A, Morgan, JAT, Street, R, White, J, Harry, AV, Schroeder, R & Macbeth, WG 2011, *Stock structure of exploited shark species in north eastern Australia*, James Cook University, Townsville, Australia.

White, WT, Bartron, C & Potter, IC 2008, 'Catch composition and reproductive biology of *Sphyrna lewini* (Griffith & Smith) (Carcharhiniformes, Sphyrnidae) in Indonesian waters', *Journal of Fish Biology*, vol. 72, no. 7, pp. 1675-89.

From: s47F
To: [Species Consultation](#)
Cc: s22 ; s47F s47F s47F
Subject: Hammerhead sharks - EPBC listing assessment [comments QLD DAFF]
Date: Tuesday, 2 September 2014 1:44:40 PM
Attachments: [DAFF comments - Hammerhead Questions.docx](#)
Importance: High

To whom it may concern,

Please find attached comments / information from the Department of Agriculture, Fisheries and Forestry (Queensland) regarding Hammerhead sharks and their potential inclusion in the EPBC Act. The comments relate to a previous request from the Commonwealth Government's Threatened Species Scientific Committee for stakeholder feedback on the draft listing advice s22 of the respective Hammerhead species (S. lewini, s22

If you have any questions or concerns please do not hesitate to contact me on the following information.

Regards, s47F

s47F

s47F

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Hammerhead sharks - EPBC threatened listing assessment

DAFF Feedback

Assessment and Data

- The assessment overall provides a fairly good representation of the available data on the biology of the scalloped hammerhead. To this extent, DAFF cannot provide much additional information beyond that provided in the document.
- While the assessment does not contain a specific population decline value for the scalloped hammerhead, it provides a number of population decline scenarios. These scenarios align with a broader (general) inference that the larger shark species that have been exploited over an extended time frame have experienced population declines.
- With regards to fishing pressures, the document makes reference to the capture of the scalloped hammerhead in the QLD fisheries and the shark control program. It notes however that fishing effort in Indonesia is more of concern when compared to Australia. In Queensland, the commercial catch of sharks is limited by a 600 tonne TACC. In 2013/14 around 302 tonnes of the TACC was reported in the ECIFFF; 4.4% of which was scalloped hammerheads.
- **Significantly**, the document indicates that the scalloped hammerhead is eligible for **listing in the endangered category**. The document however also notes that while the species may be eligible for listing in the endangered category, this conclusion is considered to be **tentative and dependent on the advice received from stakeholders**.
- Ultimately, DAFF is of the opinion that if the scalloped hammerhead is eligible for listing that it **is included in the conservation dependent category**. Ultimately, the Department does not consider there to be sufficient information (e.g. on regional population trends / distributions, life history constraints etc) to warrant a higher classification. This inference is supported by information contained within the draft conservation advice for the scallop hammerhead which notes there is considerable uncertainty in the magnitude of the population decline. A recent analysis of the QSCP data (Noriega 2011) actually showed a significant increase in scalloped hammerhead catch rate on the Gold Coast possibly indicating local population increase.

*Noriega R., Werry J. M., Sumpton W., Mayer D. and Lee S. Y. (2011). Trends in annual CPUE and evidence of sex and size segregation of *Sphyrna lewini*: Management implications in coastal waters of northeastern Australia. Fisheries Research 110,472-477.*

s22

Questions for stakeholders regarding the possible inclusion of s22 [redacted] hammerhead sharks on the *Environment Protection and Biodiversity Conservation Act (1999)* list of threatened species.

Note: responses to these questions can be returned electronically to:

Email: species.consultation@environment.gov.au

Mail:

Director, Species Information and Policy Section

Department of the Environment

GPO Box 787 Canberra ACT 2601

Please return your response no later than: 7 July 2014

Explanatory note

The questions below pertain to the accompanying draft conservation advices which assess whether the scalloped hammerhead (*Sphyrna lewini*), s22 [redacted]

[redacted] should be included on the *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act) list of threatened species.

The assessments differ from typical status assessments in two important ways:

1. As a fish species harvested in commercial fisheries, an additional category for inclusion on the threatened list is available. Listing of a commercial fish species in the conservation dependent category may allow for the continuation of harvest if it is the “focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised”
2. The focus of the assessments here is the scalloped hammerhead, for which there are sufficient data to enable an assessment of its status. Consultation questions for this species (below) concentrate on improving on the information about population size and trend.



Scalloped hammerhead

1. Has the conservation advice considered the appropriate geographic extent to describe the Australian stock over a relevant timeframe (3 generations or 60 years)?

Yes

2. Are you able to provide any additional information or clarification of the range of the scalloped hammerhead within Australian waters? If so, please mark those changes on the map included in the conservation advice document for the species.

Nothing beyond what is already included in the document.

3. Are you able to provide any further information, either in support of or contrary to, the interpretation that mature female scalloped hammerheads from the Australian stock reside for much of the time in waters exposed to Indonesian or other international fishers? If you oppose the hypothesis contained within the advice, where would you estimate adult female scalloped hammerheads reside when not in Australian coastal waters to give birth?

Nothing beyond what is already included in the document.

4. Can you provide an estimate of the relative sizes of the Australian and Indonesian components of the scalloped hammerhead stocks (as defined/described in the draft conservation advice) at the beginning of the assessment period (approximately 60 years ago, or prior to commercial exploitation)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

DAFF unable to provide a population estimate for this species due to data deficiencies.

5. Can you provide an estimate of the population trend of the scalloped hammerhead in Australian waters (or any smaller region within Australian waters)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

DAFF unable to provide a population estimate for this species due to data deficiencies.

6. Can you provide an estimate of the population trend of the scalloped hammerhead in international waters adjacent to Australia? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may

wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

DAFF unable to provide a population estimate for this species due to data deficiencies.

7. Are you aware of any additional evidence/data which show that the population is stable, increasing or declining?

No

8. The attached draft conservation advice presents tables representing possible combinations of trends in the Australian and Indonesian components of the shared scalloped hammerhead population (Tables 2a-e). Which, if any, of these scenarios do you believe is the most plausible representation of that population's circumstances?
9. Can you provide any references, information or estimates on longevity, average life span or generation length?

Nothing beyond what is already included in the document.

10. Do you know of other threats, past, current or potential that may adversely affect this species at any stage of its life cycle?

Nothing beyond what is already included in the document.

11. If the scalloped hammerhead is found eligible for listing in a threatened category, subsection 179(6) of the EPBC Act allows for the species instead to be included in the conservation dependent category if it is the "focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised"

Do you, or do you not, support the option of including the scalloped hammerhead in the conservation dependent category? In either case, please briefly explain your reasoning. The Committee would particularly like to hear suggestions for appropriate measures to ensure that management allows for the species' recovery nationally.

DAFF position on this matter is that if the scalloped hammerhead is eligible for listing that it be included in the conservation dependent category as the department does not consider there to be sufficient information (e.g. on regional population trends / distributions, life history constraints etc) to warrant a higher classification.

12. Can you provide additional data or information relevant to this assessment?

Nothing beyond what is already included in the document.

s22

s22

Copy to

To: Minister for the Environment and Energy (For Decision)

Secretary
Mr Knudson
Ms Jonasson

DECISION TO AMEND THE EPBC ACT LIST OF THREATENED SPECIES FOR HAMMERHEAD SHARKS

Chief of Staff
s47F

Timing: 30 October 2017 – sign letter to the Chairman of the Great Barrier Reef Marine Park Authority informing him of your intentions, so that amendments to Great Barrier Reef Marine Park Regulations can be considered.

Recommendations:

1. That you note the Threatened Species Scientific Committee's (the Committee's) advice at **Attachment A** recommending:
 - a. That you include *Sphyrna lewini* (scalloped hammerhead) in the conservation dependent category of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) list of threatened species

s22

Noted / Please discuss

2. That you note that the Committee's advice is based on the understanding that management arrangements proposed by the Northern Territory and Queensland fisheries agencies will be in force under law prior to you making your listing decision.

Noted / Please discuss

3. That you note that a separate brief will be prepared, in January 2018, advising you on a decision to amend the EPBC Act list of threatened species once the Department has confirmed that these management arrangements are in force under law.

Noted / Please discuss

4. That you sign the letter to the Chairman of the Great Barrier Reef Marine Park Authority, Dr Russell Reichelt, informing him of your intentions at **Attachment E**.

Signed / Not signed

Signatory:

Date:

Comments:

Clearing Officer: Sent 29/09/2017	Geoff Richardson	AS, Biodiversity Conservation Division	s22
Contact Officer:	s22	Director, Marine and Freshwater Species Conservation Section	s22

Key Points:

1. The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) maintains a list of threatened species which can only be amended by you on advice of the Threatened Species Scientific Committee (the Committee).
2. The Committee has completed its threatened species assessments of scalloped, s22 [REDACTED] hammerhead shark. To meet its statutory deadline, the Committee is required to provide its listing advices for these s22 species (**Attachment A**) and the submissions received in response to public consultation (**Attachment C**) to you by 30 September 2017. You then have 90 business days to consider the Committee's recommendation and decide whether to amend the list of threatened species – your deadline for the listing decision is 9 February 2018.
3. The Committee has assessed *Sphyrna lewini* (scalloped hammerhead) as being eligible for listing in the Endangered category under the EPBC Act. However, as a commercially harvested fish species, the Committee has also determined this species to be eligible for listing in the Conservation Dependent category, subject to fisheries management arrangements coming into force under law.
4. Conservation Dependent listing would allow continued commercial harvest in accordance with the requirements of the EPBC Act which specify the species must be the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised. If the species were listed as Endangered, commercial harvest would cease.
5. Five fisheries account for approximately 90 per cent of the Australian hammerhead catch: the Northern Territory Offshore Net and Line Fishery, Queensland's East Coast and Gulf of Carpentaria Inshore Fin Fish Fisheries, the Western Australian Temperate Shark Fisheries and the South Australian Marine Scalefish Fishery. Scalloped hammerhead is caught as bycatch primarily in the fisheries managed by the Queensland and Northern Territory governments. As such, the Department and the Committee have undertaken extensive discussions with fisheries managers in the two jurisdictions about the management arrangements required to allow consideration of a Conservation Dependent listing.
6. State and Territory fisheries management arrangements (contained in **Attachment A** and **Attachment B**) which the Committee considers will enable a Conservation Dependent listing will not be fully in force under law until January 2018. Consistent with the Committee's advice, the Department therefore recommends delaying your decision to amend the list of threatened species by legal instrument until the fisheries management arrangements take legal effect. When this occurs, a separate brief will be forwarded to you with relevant legal instruments, statutory obligations and explanatory statements. You are statutorily required to make your listing decision within 90 business days following receipt of the Committee's advice; that is, by 9 February 2018.
7. s22 [REDACTED]

8. The Committee has provided a number of detailed recommendations outlined in their advice (**Attachment A**) and in a letter to you from the Chair of the Committee (**Attachment D**). Key recommendations from the Chair include: s22

a review of the scalloped hammerhead EPBC Act listing decision five years after listing; and the importance of the Great Barrier Reef Marine Park Authority (GBRMPA) making required regulatory amendments to ensure a Conservation Dependent listing is recognised within the Great Barrier Reef Marine Park.

Great Barrier Reef Marine Park Regulations

9. A relatively high proportion of the hammerhead shark catch in Queensland managed fisheries is caught within the Great Barrier Reef Marine Park. The definition of protected species in the Great Barrier Reef Marine Park Regulations (Marine Park Regulations) includes listed threatened species under the EPBC Act, and does not distinguish between the categories (Vulnerable, Endangered, Critically Endangered and Conservation Dependent). This means all EPBC Act listed threatened species are protected species under the Marine Park Regulations irrespective of category. A Conservation Dependent listing of scalloped hammerhead would therefore prohibit fishing of the species within the marine park, contrary to the intent of the listing.
10. The GBRMPA Board has given in-principle approval to progress amendments to the Marine Park Regulations that would allow the continued take of scalloped hammerhead in the Marine Park consistent with a Conservation Dependent listing should you decide to list scalloped hammerhead in the Conservation Dependent category.
11. The GBRMPA, with assistance from the Department, is presently seeking an exemption from the Office of Best Practice Regulation in the Department of the Prime Minister and Cabinet to the requirement for a Regulatory Impact Statement for proposed amendments. GBRMPA liaison with the Office of Parliamentary Counsel has occurred with a bid being made for the amendment to be drafted and considered at Executive Council on either 30 November or 14 December 2017. It is anticipated that the regulatory amendment, if promulgated, will be worded so as it will not come into force unless you list the species as Conservation Dependent. The Department requests you sign the letter at **Attachment E** informing the GBRMPA Chairman of your intention to list scalloped hammerhead in the Conservation Dependent category.

Sensitivities and Handling

12. The Queensland Minister for Agriculture and Fisheries, the Hon Bill Byrne MP, has written to you on two occasions (refer MC17-013081, MC17-017484) detailing the proposed management arrangements the Queensland Government is taking for hammerhead sharks and has encouraged you to list scalloped hammerhead as Conservation Dependent rather than Endangered.
13. The fishing industry and related stakeholders may be critical of the decision to list scalloped hammerhead given they could see it as further regulatory burden. However, a Conservation Dependent listing allows for the continuation of commercial harvest, which a listing in a higher category of threat would not; it is therefore expected that the industry will be supportive of the listing relative to the alternative of an Endangered listing.
14. Environmental Non-Governmental Organisations (eNGOs) have written to you detailing their concerns over a potential Conservation Dependent listing and outing their support for an Endangered listing (refer MC17-016848, MC17-017037). eNGOs are critical of the

decision to list scalloped hammerhead in the Conservation Dependent category as it is viewed by these organisations as not providing the protection that this species needs. These organisations advocate for an Endangered listing for scalloped hammerhead.

s22. The Department has, to date, received approximately 35 letters to you from members of the public supporting this position.

Consultation:

15. Consultation on the assessment of **s22** hammerhead shark species was undertaken with identified experts, relevant states and territories, interested groups and the public via the Department's website and targeted correspondence for a minimum of 30 business days in 2014. A summary of the comments along with the submissions received are at **Attachment C**.
16. Consultation was undertaken across the Department regarding the proposed recommendations for the species, and the benefits to their survival of inclusion in the list of threatened species. Environmental Standards Division, Biodiversity Conservation Division (including the Office of the Threatened Species Commissioner), the Commonwealth Environmental Water Office, Parks Australia Division and the GBRMPA were consulted. The GBRMPA was consulted in the preparation of this brief and the drafting of **Attachment E**. A summary of this Departmental consultation is provided for your information in **Attachment F**.

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- B:** Additional detail regarding State and Territory proposed fishery management arrangements
- C:** Submissions received from targeted and public consultation
- D:** Letter from the Chair of the Threatened Species Scientific Committee
- E:** Letter to the Chairman of the Great Barrier Reef Marine Park Authority
- F:** Department internal consultation outcomes

Copy to:

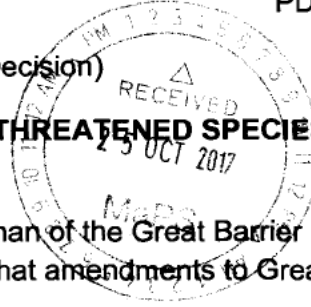
To: Minister for the Environment and Energy (For Decision)

Secretary
Mr Knudson
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DECISION TO AMEND THE EPBC ACT LIST OF THREATENED SPECIES FOR HAMMERHEAD SHARKS

Chief of Staff
s47F

Timing: 30 October 2017 – sign letter to the Chairman of the Great Barrier Reef Marine Park Authority informing him of your intentions, so that amendments to Great Barrier Reef Marine Park Regulations can be considered.



Recommendations:

1. That you note the Threatened Species Scientific Committee's (the Committee's) advice at **Attachment A** recommending:
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s22

Noted / Please discuss

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Noted / Please discuss

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Signed / Not signed

Signatory:

Date:

24/10/17

Comments:

Clearing Officer: Sent 29/09/2017	Geoff Richardson	AS, Biodiversity Conservation Division	s22
Contact Officer:	s22	Director, Marine and Freshwater Species Conservation Section	s22

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THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Minister decided that this species was not eligible for listing as threatened on dd/mm/yyyy

Listing Advice

Sphyrna lewini

scalloped hammerhead

Taxonomy

Conventionally accepted as *Sphyrna lewini* (Griffith & Smith 1834).

Summary of assessment**Conservation status**

Conservation Dependent

Endangered: Criterion 1 A2(a),(b),(d)

The Committee also considers that the *Sphyrna lewini* meets the requirements of paragraph 179(6)(b) of the EPBC Act to be eligible for listing as Conservation Dependent.

The highest category for which *Sphyrna lewini* is eligible to be listed is Endangered.

Sphyrna lewini has been found to be eligible for listing under the following categories:

Criterion 1: A2(a),(b),(d): Endangered.

Paragraph 179(6)(b) of the EPBC Act: Conservation Dependent.

The Committee recommends that *Sphyrna lewini* be listed in the Conservation Dependent category.

Reason for conservation assessment by the Threatened Species Scientific Committee

This advice follows assessment of information provided by a nomination from the public to list *Sphyrna lewini* as a threatened species under the EPBC Act.

Public consultation

Notice of the proposed amendment and a consultation document was made available for public comment for 32 business days between 22 May 2014 and 7 July 2014. Any comments received that were relevant to the survival of the species were considered by the Committee as part of the assessment process.

Species Information**Description**

The scalloped hammerhead is a relatively large, fusiform-bodied, moderately slender shark; olive, bronze or brownish grey dorsally and pale on its underside. The ventral surface of the pectoral fin tips are dusky in adults, dark in juveniles, the lower caudal and second dorsal tips are also dark in juveniles. Its first dorsal fin is broad, relatively erect, semi-falcate, and originates over or slightly behind pectoral fin insertion. The second dorsal fin originates over about the midpoint of the anal fin base. Body width is around 24–30 per cent of total body length (TBL)

(Last & Stevens 2009). The scalloped hammerhead is somewhat sexually dimorphic in that females are slightly larger than males.

TBL measures:

- birth – 45–50 cm
- maturity – at 140–160 cm (males) and 200–220 cm (females)
- maximum – 350 cm (Last & Stevens 2009).

All species in the family Sphyrnidae have evolved a laterally expanded skull shaped like a hammer, known as a cephalofoil. This increases the surface area allowing for the expansion of many sensory systems which detect chemical, physical and thermal changes in the environment as well as electrical fields of their prey. The front margin of the scalloped hammerhead's head is curved forward anteriorly and has lateral and median indentations, giving it its "scalloped" appearance; cephalofoil width reaches a maximum of around four per cent of TBL (Last & Stevens 2009).

Distribution

The scalloped hammerhead has a circum-global distribution in tropical and sub-tropical waters. The scalloped hammerhead shows strong genetic population structuring across ocean basins as it rarely ventures into or across deep ocean waters, but ranges quite widely over shallow coastal shelf waters. Consequently, there is very little structuring from the eastern to western extents within Australia and it is likely to be a shared stock with Indonesia (Chin et al. 2017).

Within Australian waters the scalloped hammerhead extends from New South Wales (approximately from Wollongong, where it is less abundant), around the north of the continent and then south into Western Australia to approximately Geographe Bay, though it is rarely recorded south of the Houtman Abrolhos Islands.

International-scale assessments group the Australian stocks/regional populations in different ways:

- The IUCN (2007) assessment treats Australia as part of the Western Pacific subpopulation, but provides status information separately. No specific assessment is given for the Western Pacific subpopulation (Baum et al. 2007)
- The CITES (2013) assessment includes Australia in a Western Pacific Ocean subpopulation but separate from an Eastern Indian Ocean stock which includes the island of Lombok, directly to the north of Western Australia (Food and Agriculture Organisation 2013)
- The United States status assessment of the scalloped hammerhead identified several Distinct Population Segments, including an Indo-West Pacific stock extending from the east coast of Africa, north to India and Japan, through South East Asia to approximately Fiji (Miller et al. 2013).

With regard to the assessment of the scalloped hammerhead under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), subsection 5(2) of the Act stipulates that it "... applies to acts, omissions, matters and things in the Australian jurisdiction, and does not apply to acts, omissions, matters and things outside the Australian jurisdiction." However, it is open to the Minister and the Committee to take account of the abundance or otherwise of a species outside Australia to the extent that this may influence the abundance or otherwise of the species within Australia. Therefore, it is not possible to use such expansive stock definitions as those cited above, and necessary to estimate the appropriate scale for the "Australian" stock using data on habitat use and movements of hammerhead sharks (addressed below in "Relevant Biology").

Cultural significance

Sharks are significant both as totemic symbols and as food resources to northern Australian Indigenous communities, and hammerheads are considered important amongst other shark species (McDavitt 2005).

Relevant biology/ecology

The age and size at maturity for scalloped hammerheads vary between temperate and tropical waters. In tropical waters males mature at 5.7 years and 147 cm, while in temperate waters they mature at 8.9 years and 204 cm (Harry et al. 2011a). There are no direct estimates of the age at maturity of female hammerheads in Australian waters, however an approximation is possible. The size at maturity in tropical Australia is estimated at 200 cm (Stevens & Lyle 1989). On the general growth curve for the species produced by Harry et al. (2011) this corresponds to approximately 12 years. Similarly, applying the estimated length for maturity in Brazil to a von Bertalanffy growth curve for females (Kotas et al. 2011), produces an estimate of approximately 15 years to maturity. Maximum age for scalloped hammerheads is estimated at between 30 years (Harry et al. 2011a) and 55 years (Kotas et al. 2011). More recently, estimates have been made for scalloped hammerheads in Indonesia (Drew et al. 2015). Female sharks in Indonesia mature at 13.2 years and live to approximately 35 years old (Drew et al. 2015). These data correspond to generation time estimates of approximately 21 years (Australian data), 24 years (Indonesian) and 35 years (Brazilian data). These were estimated using the formula: age of first reproduction + $z \cdot (\text{length of reproductive period})$ with $z=0.5$ (IUCN Standards and Petitions Subcommittee 2013). The IUCN guidance notes that z is usually less than 0.5 and the higher values are where the relative fecundity is skewed towards older age classes, as is the case for scalloped hammerheads (next paragraph). For comparison, a value 0.4 for z , produces generation lengths of 19 years (Australian) and 22 years (Indonesian). An alternative method, using an age-based matrix model of the Queensland scalloped hammerhead population provided an estimate of generation time of 19 years (Harry 2011). The recent US assessment estimated three generations, averaged across all stocks, to be approximately 50 years (Miller et al. 2013). For the purposes of this assessment a generation time of approximately 20 years is assumed.

Along the east coast of Australia the scalloped hammerhead gives birth to live young (pups) year round, but with a peak in births between November and December (Harry et al. 2011a). Across the north (in the Arafura Sea) the peak of the pupping season spans October to January, with a gestation period of between nine and 10 months (Stevens & Lyle 1989). Litter size is highly variable: 14–41 in Indonesia (White et al. 2008) and 13–23 in northern Australia/Arafura Sea. There is a linear relationship between litter size and female body length (Stevens & Lyle 1989; Harry 2011; Noriega et al. 2011), which demonstrates the importance of large females to population growth.

The life history of the scalloped hammerhead renders the species susceptible to threats such as overfishing. Even in comparison to other shark species the scalloped hammerhead is considered to have low potential to recover from increased mortality (Smith et al. 1998; Harry 2011). Harry (2011) estimated population growth rates for an unfished population of between 0.99 and 1.22 yr⁻¹, with a mean of 1.11 yr⁻¹ and showed that population growth was similarly sensitive to adult and juvenile survivorship. The age classes between 18 and 23 years are most valuable in terms of future reproductive output (Harry 2011).

Scalloped hammerhead pups are born in shallow intertidal habitats and they remain in shallow inshore habitats for the first few years of their lives (Harry 2011). Females leave this habitat at approximately 3 years or 100 cm, presumably having migrated to deeper water (Branstetter

1987; Stevens & Lyle 1989; Harry 2011). More large, mature females are caught in deeper water fisheries (but still on the continental shelf) (Stevens & Lyle 1989; Hazin et al. 2001; Harry 2011) although the proportion is still low (Macbeth et al. 2009) and does not account for sufficient females to explain the inshore pup production. Males may stay resident in shallow habitats for considerably longer, with many males up to 10 years found in this habitat on the Queensland coast, while older males are rarely encountered (Harry et al. 2011a). Harry et al. (2011) suggest that male scalloped hammerheads may employ one of two strategies, a coastal or a pelagic adulthood with pelagic strategists maturing later and at larger size.

Scalloped hammerhead are mobile animals that range widely over shallow coastal shelf waters, but rarely venture into or across deep ocean waters. Tagging and tracking studies have demonstrated straight line movements of up to 1680 km (Kohler & Turner 2001), although movements in excess of 200 to 300 km are relatively uncommon in such studies (Kohler & Turner 2001; Bessudo et al. 2011; Diemer et al. 2011); see also Los Angeles Department of Wildlife and Fisheries (http://www.wildlifetracking.org/index.shtml?project_id=780).

The nature of such movements is reflected in the genetic structuring of hammerhead populations. There is strong genetic structure between ocean basins (Duncan et al. 2006), but little structure evident within basins, particularly areas connected by contiguous continental shelves (Duncan et al. 2006). There is some support for an isolation by distance model (Nance et al. 2011). There is no evidence for genetic population structure between Indonesian and Australian populations of scalloped hammerheads, in either mitochondrial or microsatellite DNA, suggesting that they are the same stock (Ovenden et al. 2009; Ovenden et al. 2011). However, microchemical analyses of the vertebrae of juveniles and small males show that there is population structuring over distances of tens to hundreds of kilometres within shorter timescales (within a generation) (Welch et al. 2011). Nevertheless, Welch et al. (2011) suggest movement of adult females (and possibly of large males) between these sub-stocks facilitates genetic exchange. A recent synthesis of all the available data on connectivity of Australia's hammerhead stock with Indonesia and Papua New Guinea concluded that a shared, panmictic population was the most sound and precautionary conclusion (Chin et al. 2017). Other models of movement might also fit the available data, but Chin et al. (2017) found limited support for Australia's hammerhead stock being restricted to Australian waters.

For the purposes of this assessment of the scalloped hammerhead's status in Australia, it is appropriate to consider the status of the hammerhead stock extending at least as far as Indonesia. This is particularly so given the importance of adult females to population dynamics and their relatively low contribution to catches in Australian fisheries and higher contribution to Indonesian fisheries (see below in "Threats"). In this context, it should be noted that:

1. Hammerheads are likely to be more heavily reduced in South East Asia than in Australia, and
2. If individuals rarely swim more than 1000km, processes operating at substantially greater distances will have little influence on the Australian status over relevant timeframes (e.g. the three generation timeframe of Criterion 1).

With respect to the first of these caveats, if the status of hammerheads in South East Asia is substantially poorer than in Australia, to broaden the spatial extent of the shared stock will have the effect of exaggerating declines in Australia. Additionally, with respect to the frequency of large scale (>1000km) movements, it has been noted that at regional scales the capacity for hammerheads to recover is more likely to be driven by localised reproduction, and not quickly through immigration (Duncan et al. 2006). This assessment therefore has considered the status of the Australian/Indonesian stock under a range of scenarios of relative original sizes of the

Australian and Indonesian components of the shark stock (see Criterion 1, Tables 2a-2d). A low Indonesian:Australian ratio represents little exchange of scalloped hammerheads between the two countries' waters, while a high ratio suggests extensive exchange.

Threats

The principal threat to the scalloped hammerhead is historic and ongoing fishing. In Australia, scalloped hammerheads are caught in recreational and commercial line fisheries, gillnets, trawls and bather protection programs (note that these are treated here functionally as a fishery despite the different intent). Because of their unique head shape, hammerheads are particularly vulnerable to capture by gillnets. Hammerhead sharks have recently been shown to be particularly susceptible to capture mortality, both immediately (before being brought to the boat) and subsequent to being released alive due to a strong stress response (Gallagher et al., 2014; Dapp et al., 2015; Eddy et al., 2016). Immediate mortality is especially high when captured in gillnets (Dapp et al., 2015) which are the principal method of capture of hammerheads in Australian fisheries (Table 1).

The clearest example of local scale effects of fishing on shark populations is a study of shark abundance in reefs off north-western Australia using Baited Remote Underwater Video Systems (Meekan et al. 2006). Some of these reefs are open to fishing by Indonesian fishers under a Memorandum of Understanding between the Australian and Indonesian governments; two previously fished reefs were declared Marine Protected Areas, one in 1988 and one in 2000, and; a reef system to the south has not been fished. The abundance of hammerhead sharks on fished reefs was approximately a quarter of that on unfished reefs, while in deeper water beyond the reefs, hammerheads were absent from fished reefs. These are the areas where Indonesian fishers typically deploy longlines. It was also notable that some shark species had recovered in the Marine Protected Areas, but that hammerheads and tiger sharks had not.

Australia

Scalloped hammerheads are found across northern and temperate Australian waters and are caught in a range of fisheries (Table 1). All life-stages are caught by Australian fisheries, although adult females are significantly under-represented, suggesting that they principally reside in waters outside areas fished by Australian fishers (see Relevant Biology/Ecology above) and are thus important in replenishing populations (Welch et al. 2011). The total take of scalloped hammerheads is difficult to estimate because several fisheries report only at the level of "hammerhead" and do not distinguish between the species. Koopman & Knuckey (2013) collated fishery catch data from across Australia between 2001 and 2012 and were able to disaggregate the pooled data to provide estimates for scalloped hammerhead alone (Figure 1), although no detail is given on the method of disaggregation. Total catch of scalloped hammerheads rose rapidly from 2001 to a peak of 214 t in 2008 before declining to 89 t in 2012 (Figure 1) (Koopman & Knuckey 2014).

Given the concentration of fishing effort in coastal and shallow waters, this catch is mostly made up of juveniles (both males and females) and small adult males (Stevens & Lyle 1989; Harry et al. 2011a; Simpfendorfer et al. 2011). A minor exception to this is the targeted shark fishery of the New South Wales Ocean Trap and Line fishery, which catches more large sharks, but very few adult females (Macbeth et al. 2009). While the coastal fisheries may constitute a "gauntlet" fishery and thus be able to sustain higher mortality (Harry et al. 2011b), if the adult females are subjected to high mortality elsewhere, the combined effect is likely to be unsustainable.

The Taiwanese gillnet fishery in Australian waters (1974–1986) is also relevant because of the long generation time of scalloped hammerheads. The annual shark catches in the early to mid-

1980s ranged from 2300–4500 t (all species) (Stevens 1999). Data specifically for sharks are not available prior to 1979, but the total catch (including tuna and mackerel) peaked at nearly 10 000 t in 1977. Hammerhead sharks (all species) made up approximately seven per cent of the catch by number and nearly three quarters of the catch was scalloped hammerhead (Stevens & Lyle 1989). Catch per unit effort (CPUE) estimates suggest that the Taiwanese fishery reduced the Northern Territory/Arafura Sea component of the stock by about 60–70 per cent and the Gulf of Carpentaria stock by approximately 30 per cent during this period (Stevens 1999). No estimate specific to hammerhead sharks is available.

Table 1: Summary of main fisheries that capture scalloped hammerhead within Australian waters.

Jurisdiction	Fishery	Reporting
Northern Territory	Barramundi Fishery (gillnets)	All sharks
Northern Territory	Offshore Net and Line Fishery	Now reporting species separately (<i>S. lewini</i> , <i>S. mokarran</i> and <i>Eusphyrna blochii</i> (winghead sharks)).
WA	Northern Shark Fisheries ^a	Hammerheads (<i>Sphyrna</i> spp.)
WA	Pilbara Fish Trawl Fishery ^b	Hammerheads (<i>S. lewini</i> , <i>S. zygaena</i> , <i>S. mokarran</i>)
Qld	East Coast Inshore Fin Fish Fishery	Now reporting species separately (<i>S. lewini</i> , <i>S. mokarran</i> and <i>Eusphyrna blochii</i> (winghead sharks)).
Qld	Gulf of Carpentaria Inshore Fin Fish Fishery	Now reporting species separately (<i>S. lewini</i> , <i>S. mokarran</i> and <i>Eusphyrna blochii</i> (winghead sharks)).
Qld	Shark Control Program	Hammerheads identified to species since the early 1990s
New South Wales	Ocean Trap and Line Fishery ^c	Now reporting species separately (<i>S. lewini</i> , <i>S. zygaena</i> , <i>S. mokarran</i>).
New South Wales	Recreational	Hammerheads (<i>S. lewini</i> , <i>S. zygaena</i> , <i>S. mokarran</i>)
New South Wales	Shark Meshing (Bather Protection) Program	Hammerheads identified to species since 1998
Commonwealth	Eastern Tuna and Billfish Fishery	Hammerhead sharks

^a The Northern Shark Fisheries are currently closed.

^b The Pilbara Fish Trawl Fishery now uses bycatch reduction devices that may reduce the catch of hammerheads.

^c In 2012, both scalloped and great hammerheads were listed as threatened species under the NSW *Threatened Species Conservation Act 1995*. Offences apply for buying, selling, possessing or harming either species or for damaging their habitat without a specific permit, licence or other appropriate approval. Any incidentally caught scalloped or great hammerhead sharks must be immediately released with least possible harm, or if deceased, must be discarded. There is mandatory reporting of such interactions.

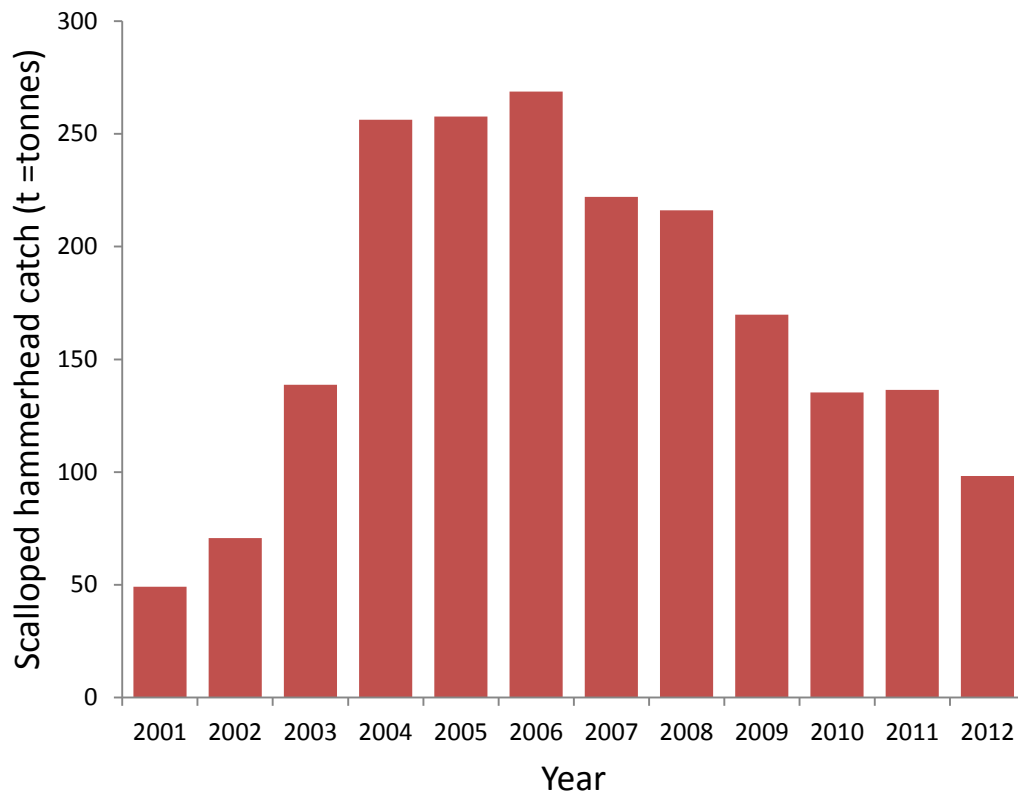


Figure 1: Retained harvest of scalloped hammerheads in Australian fisheries (Source: Koopman and Knuckey (2013)).

International (Indonesia and Papua New Guinea)

Indonesia has the largest chondrichthyan fishery in the world, with annual reported catches of approximately 110 000 t (White et al. 2006; Lack & Sant 2009) in 27 distinct fisheries (Blaber et al. 2009). There is likely to be a large unreported additional catch due to illegal, unregulated, and unreported (IUU) fishing, including foreign vessels (White & Kyne 2010). Such fishing pressure has led to coastal fisheries throughout South East Asia being depleted to 10–20 per cent of earlier estimates (Stobutski et al. 2006). It is noteworthy that the total catch of sharks in Indonesia has increased since the early 1990s but the catch rate in the Java Sea has decreased by at least an order of magnitude between 1976 and 1997 (Blaber et al. 2009). This problem is worsening with fishing capacity growing larger while stocks decline (Stobutski et al. 2006). Fishers are continually moving further afield to find suitable fishing areas and localised depletions are becoming more apparent (White & Kyne 2010).

While it is clear that shark stocks overall have been severely depleted, it is difficult to determine the specific trend for scalloped hammerheads. Where data are available, scalloped hammerheads constitute a relatively small but consistent proportion of the catch. They are considered a key species in four of the 27 shark and ray fisheries identified by Blaber et al. (2009), although in only one of those, at Tanjung Luar, are they a target species. Annual landings at Tanjung Luar (Lombok) were estimated at c. 1700 individuals and 68 200 kg. This was 3.3/12.5 per cent of the total number/weight of landed sharks at this site (White et al. 2008). The contribution of scalloped hammerheads to the Indonesian shark longline group overall was approximately 6.8 per cent.

With respect to the potential impact of Indonesian fisheries on the component of the stock that is shared with Australia, the abundance of large females in the Indonesian take (White et al. 2008) is in stark contrast to the Australian fisheries. Longlining caught much larger sharks than the

gillnet fisheries and females outnumbered males by approximately 4.8:1. For example, the average weight of sharks at Tanjung Luar, cited above (White et al. 2008), was approximately twice that of the New South Wales Ocean Trap and Line Fishery (Macbeth et al. 2009). Similarly, in a study of IUU fishing in northern Australia, the scalloped hammerhead size frequency distribution was much more skewed towards large sharks than, for example, the Queensland East Coast Inshore Fin Fish Fishery (Harry et al. 2011a; Marshall 2011). Given the connection between the Indonesian and Australian stocks (Ovenden et al. 2011), and the lack of large female scalloped hammerheads in most Australian fisheries, the Indonesian take has particular significance for this assessment.

The available data on scalloped hammerhead status in Papua New Guinea are more sparse, but many of the conservation concerns for this region are similar to those of Indonesia (White & Kyne 2010). Papua New Guinea has a dedicated shark fishery with between 7 and 9 vessels operating since 2002 (Usu et al. 2012). Catches of hammerheads (not identified to species level) has ranged between 18–42 t since 2007 (Usu et al. 2012). White & Kyne (2010) suggest that a decline in sharks similar to that in Indonesia is likely to have occurred, although there is no stock assessment for this fishery.

Illegal, unregulated and unreported (IUU) fishing

IUU shark fishing has been significant in Northern Australian waters (Stevens 1999). Population modelling of the stock remaining at the cessation of the Taiwanese gillnet fishery suggested the stock should have been increasing by 5–10 per cent per year. However, Northern Territory gillnet fishery CPUE data showed an ongoing decline, suggestive of up to 1500 t annually (all shark species) of unreported catches (Stevens 1999). While it is reported that domestic compliance issues are relatively minor, illegal foreign fishing increased substantially between approximately 2001 and 2005/06 as Indonesian vessels depleted local resources and moved further afield to increase catch rates (Figure 2). The displacement of small scale Indonesian vessels is exacerbated by large, industrial IUU fishing vessels of mainly Chinese and Taiwanese origin having become common in Indonesian waters (Field et al. 2009). In a recent attempt to estimate the scale of this harvest, the catch by small scale Indonesian vessels in 2006 was estimated at between 300–1100 t for all shark species (Marshall 2011). The same study estimated that illegal Taiwanese industrial scale vessels each harvest approximately 100 times the amount taken by an average small scale Indonesian vessel. In recent years, the number of foreign fishing vessels apprehended in Australian waters has declined markedly, from 367 in 2005/06 to only seven in 2012/13 (Australian Fish Management Authority 2013).

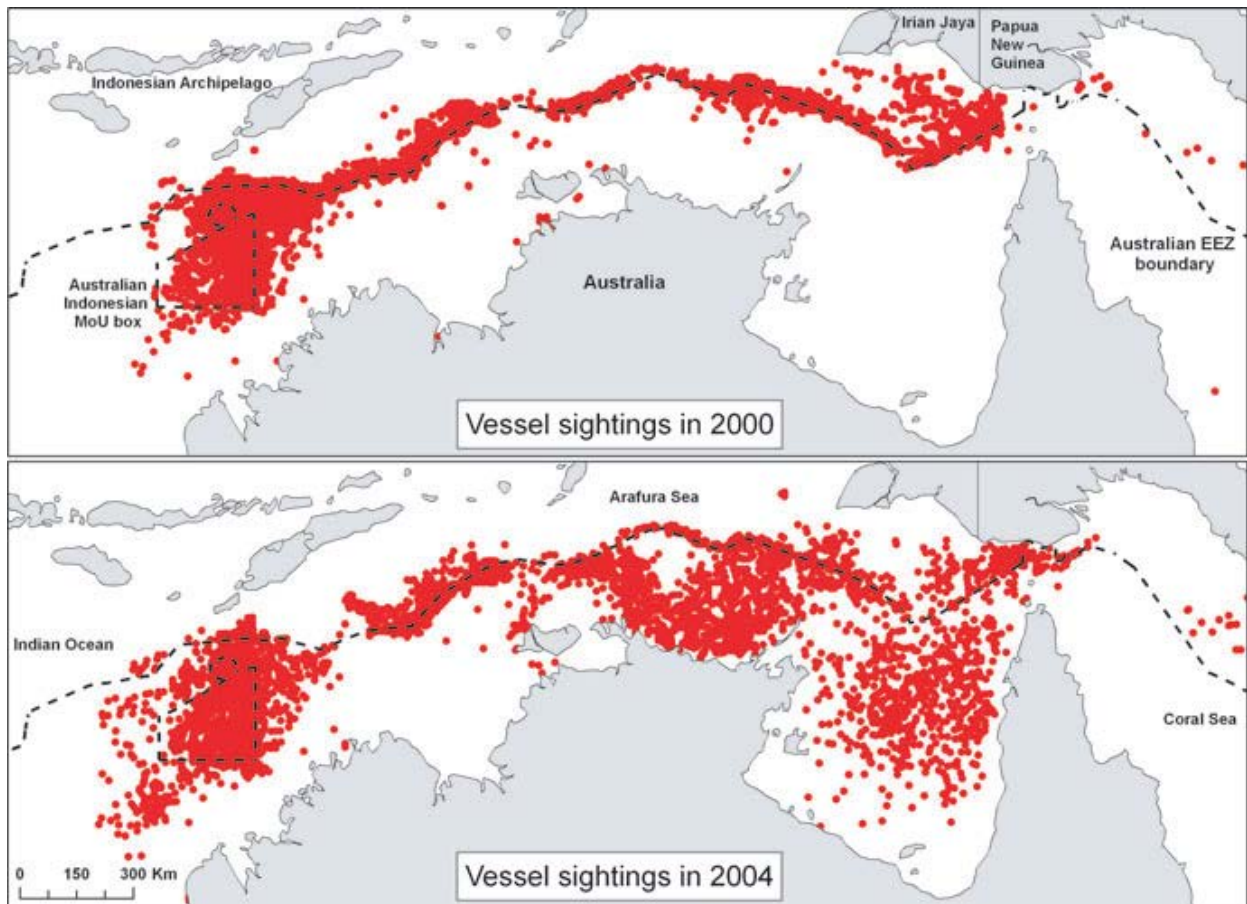


Figure 2: Coastwatch sightings of foreign fishing vessels bordering and within the Australian Economic Exclusive Zone (EEZ) in 2000 (top) and 2004 (bottom) showing the southward progression of illegal, unreported and unregulated (IUU) fishing effort (Source: (Field et al. 2009).

IUU fishing is considered to be a major concern in Indonesia but is poorly defined and largely unknown. The fisheries in Indonesia are largely unregulated and catches are likely to be largely unreported. Illegal fishing is a considerable issue with many foreign vessels entering Indonesian waters illegally, and at present, there is little or no capability for policing, especially considering the extensive marine area of Indonesia (White & Kyne 2010).

The development of IUU fishing in Indonesia has been driven principally by the shark fin trade (Suzuki 2002), including in Australian waters (Lack & Sant 2008). Scalloped hammerhead fins are sought after for their high fin ray count and hammerheads are one of the more common shark types found in the world's largest market in Hong Kong (Lack & Sant 2008). While the species caught by illegal vessels are similar to those in Australian fishery catches, the proportional representation in the catch differs. Scalloped hammerhead fins were a significant component of fins (8.8 per cent) confiscated from illegal fishing vessels, although the data are sparse (Lack & Sant 2008). It should be noted that the trend in illegal fishing in northern Australian waters has generally been downward, however the ongoing pressure on depleted stocks may be expected to at least impede recovery and possibly to continue the decline. Despite the widespread introduction of shark finning bans, the Food and Agriculture Organisation noted concerns about low levels of compliance and high levels of post-capture mortality, particularly where gillnets are used (Food and Agriculture Organisation 2013).

How judged by the Committee in relation to the EPBC Act Criteria and Regulations

Criterion 1. Population size reduction (reduction in total numbers)			
Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered Very severe reduction	Endangered Severe reduction	Vulnerable Substantial reduction
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%
<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>	<p><i>based on any of the following:</i></p> <ul style="list-style-type: none"> (a) direct observation [except A3] (b) an index of abundance appropriate to the taxon (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat (d) actual or potential levels of exploitation (e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites 		

Evidence:

Eligible under Criterion 1 A2(a),(b),(d) for listing as Endangered

In this instance, the scalloped hammerhead has been assessed against Criterion 1 A2. As the threat of fishing has not ceased for this species at the time of assessment, Criterion 1 A1 is inappropriate. Criteria 1 A3 and A4 also have not been used. Both these criteria require projection of likely population trends into the future, for up to three generations. As the generation time of the scalloped hammerhead is long (approximately 20 years), the Committee considers that there are too many inherent uncertainties to project the population trend with sufficient confidence to address Criteria 1 A3 and A4. The assessment below is based on the historical decline in the species that the Committee considers to have occurred to date.

Australia

While there is an abundance of information on harvests from a range of Australian fisheries, there are fewer data from which to discern the trend in population numbers or density. With respect to the three generation time span of this criterion, the estimates may extend back to the early 1950s. However, fishing impact was relatively low at that time, and the development of the Taiwanese fishery in the 1970s was the beginning of significant fishing of scalloped hammerheads. The available data are not specific to hammerheads, but suggest a decline of the target stocks (of blacktip sharks) of 60–70 per cent and the Gulf of Carpentaria stock by approximately 30 per cent (Stevens 1999). Further declines were noted in CPUE from the Northern Territory gillnet fishery until at least 1995 (Northern Territory Government 2012). It is not possible to quantify the decline in scalloped hammerhead from these data, but they are strongly suggestive that the species has declined in response to the development of commercial fisheries across the north of Australia throughout the 1980s and 1990s.

There is more specific data available via state-based assessments. In an assessment of shark fisheries of the North West Marine Region of Western Australia, CPUE data showed a decline of between 58–76 per cent from 1998/99 to 2005/06 (Heupel & McAuley 2007). This decline is likely additional to that described in the previous paragraph. Simpfendorfer et al. (2011) analysed the catch rates of hammerheads (mostly scalloped) from the Queensland Shark Control Program (QSCP) for beaches around Townsville and Cairns. They found a decline of between 67–84 per cent from 1966 to the early 1990s (later data could not be analysed due to a change from nets to drumlines, which caught too few hammerheads). However, mean size of sharks caught did not decrease, as might be expected for a declining population, and the commercial fishery operating on adjacent coastlines maintained a significant hammerhead catch (Simpfendorfer et al. 2011). A potential explanation for the lack of decrease in mean size is that the commercial fishery takes a disproportionate amount of small individuals, which may have counteracted the effect expected due to overall depletion. There are no comparable estimates of decline for the Gulf of Carpentaria or Northern Territory but given the decline reported due to the Taiwanese fishery and the current presence of both domestic fisheries and high exposure to IUU fishing along the northern coast, a decline can be inferred.

A notable caveat to these declines is the caution of Simpfendorfer et al. (2011) that the data were indicative only of a decline in captures of males, as females were rarely caught. The only location where adult females were not rare was Mackay, on the Queensland coast, where the QSCP data recorded large and small females in similar numbers to males (Noriega et al. 2011). Noriega et al. (2011) also found a significant decline in overall length of females in the QSCP which may be indicative of population depletion. Overall, the low proportion of females in most Australian catch data, and almost absence of mature females (Stevens & Lyle 1989; Macbeth et al. 2009; Harry et al. 2011b; Simpfendorfer et al. 2011), is a significant impediment to assessing the status of the species in Australian waters. It is necessary then to address the exposure to fishing of those females that pup in Australian waters but may reside elsewhere.

It is well recognised that scalloped hammerheads do not significantly occupy the deep ocean, and confine the majority of their movements to the continental shelf. There is sufficient fishing activity in ocean waters adjacent to the Australian coast, both on the shelf and beyond it, that it is unlikely (but not impossible (Chin et al. 2017)) that substantial aggregations of mature females occur in these waters. Analysis of both maternally inherited mitochondrial DNA and microsatellites showed no differentiation between Australian and Indonesian scalloped hammerhead stocks (Ovenden et al. 2011). It is thus reasonable to conclude that the mature females contributing to the recruitment of the Australian scalloped hammerhead stock are significantly exposed to the high fishing pressure in Indonesian waters.

Indonesia and Papua New Guinea

The evidence cited above demonstrates that the fishing pressure on scalloped hammerheads in Indonesia is stronger than in Australian waters, but data to quantify the actual decline are lacking. The only estimate available, for all sharks grouped, is that cited by Blaber et al. (2009) showing differences in the catch rates of sharks from research cruises across the Java Sea. Between 1976 and 1997 the catch rate for sharks declined by an order of magnitude. Additional data demonstrate that mature females are caught far more commonly in Indonesian than Australian waters. Given the ongoing high levels of both legal and illegal fishing, and continual displacement of fishing effort due to local depletions, it is reasonable to infer that the decline in the shared scalloped hammerhead population in Indonesia is of a similar magnitude to that for sharks overall.

Synthesis

There are multiple uncertainties in the assessment of the scalloped hammerhead's status in Australian waters. Chief amongst these are:

1. The relative original sizes of the Australian and Indonesian components of that population;
2. The decline in the Australian component of the population;
3. The decline in the Indonesian component of the population.

Despite these uncertainties, it is possible to infer approximate estimates for these values and examine the sensitivity of the overall assessment to their variability. That is, does this uncertainty prevent a conclusion of whether or not the decline is above the relevant threshold?

The relative sizes of the original populations, three generations (60 years) ago, are a function of population density and the extent to which the Australian stock extends into Indonesia. Given that sharks collected in Bali were genetically indistinguishable from those of eastern Queensland, and that the Arafura and Java seas are both shallow, offering extensive potential habitat to scalloped hammerheads, it is likely that the Australian and Indonesian components of the shared stock were initially similar in size. The sensitivity of the estimated decline to variation in the relative sizes of the components of the stock is modelled below, with a range from the Indonesian component being one quarter of the size of the Australian, through to the Indonesian being twice the size of the Australian (rows within Table 2 to Table 4). A low Indonesian: Australian ratio represents little exchange of scalloped hammerheads between the two countries' waters, while a high ratio suggests extensive exchange.

The Australian component of the shared stock has very likely declined, but by somewhat less than the Indonesian component. Given the declines cited above (northern Queensland 67–84 per cent, North West Marine Region 58–76 per cent, NT 60–70 per cent (inferred from blacktip shark declines)), the Australian decline may plausibly be estimated to exceed 60 per cent and thus has been modelled across a range from 40 to 80 per cent decline (columns within Table 2 to Table 4). In contrast, the evidence suggests a much stronger decline in the Indonesian component, thus it has been modelled from 60 per cent (Table 2) to 90 per cent (Table 4).

The tables below show the overall decline of the combined Australian/Indonesian stock across the range of possible values of the relative sizes of the stock components and the declines within each.

Table 2 shows the declines expected if the Indonesian decline is 60 per cent. At this relatively conservative estimated Indonesian decline, the overall shared stock decline is greater than 50 per cent for all plausible levels of decline in Australia, unless the exchange between the Australian and Indonesian components of the stock is low.

Under increasing levels of Indonesian decline, the circumstances under which the overall decline is less than the threshold for Endangered become even more constrained. If the Indonesian decline is considered to be a plausible 75 per cent (Table 3) or greater (90 per cent Table 4) then an overall decline of at least enough to meet the criteria for Endangered is the outcome.

Therefore, despite the considerable uncertainty in the precise magnitude of declines in both components of the stock, it is possible to infer that the overall decline is most plausibly between 50–80 per cent, and that the scalloped hammerhead is **eligible** for the listing in the **Endangered** category.

Table 2: Estimated decline in the scalloped hammerhead population shared between Australian and Indonesia, assuming that the decline in scalloped hammerheads in Indonesia is approximately 60 per cent.

Decline in Australian component	40%	50%	60%	70%	80%
Indonesian component / Australian component	Rate of decline				
0.25	0.44	0.52	0.60	0.68	0.76
0.50	0.47	0.53	0.60	0.67	0.73
0.75	0.49	0.54	0.60	0.66	0.71
1.00	0.50	0.55	0.60	0.65	0.70
1.25	0.51	0.56	0.60	0.64	0.69
1.50	0.52	0.56	0.60	0.64	0.68
1.75	0.53	0.56	0.60	0.64	0.67
2.00	0.53	0.57	0.60	0.63	0.67

Vulnerable: Criterion 1A2-4, Endangered Criterion 1A2-4, Critically Endangered: Criterion 1A2-4

Table 3: Estimated decline in the scalloped hammerhead population shared between Australian and Indonesia, assuming that the decline in scalloped hammerheads in Indonesia is approximately 75 per cent.

Decline in Australian component	40%	50%	60%	70%	80%
Indonesian component / Australian component	Rate of decline				
0.25	0.47	0.55	0.63	0.71	0.79
0.50	0.52	0.58	0.65	0.72	0.78
0.75	0.55	0.61	0.66	0.72	0.78
1.00	0.58	0.63	0.68	0.73	0.78
1.25	0.59	0.64	0.68	0.73	0.77
1.50	0.61	0.65	0.69	0.73	0.77
1.75	0.62	0.66	0.70	0.73	0.77
2.00	0.63	0.67	0.70	0.73	0.77

Vulnerable: Criterion 1A2-4, Endangered Criterion 1A2-4, Critically Endangered: Criterion 1A2-4

Table 4: Estimated decline in the scalloped hammerhead population shared between Australian and Indonesia, assuming that the decline in scalloped hammerheads in Indonesia is approximately 90 per cent.

Decline in Australian component	40%	50%	60%	70%	80%
Indonesian component / Australian component	Rate of decline				
0.25	0.50	0.58	0.66	0.74	0.82
0.50	0.57	0.63	0.70	0.77	0.83
0.75	0.61	0.67	0.73	0.79	0.84
1.00	0.65	0.70	0.75	0.80	0.85
1.25	0.68	0.72	0.77	0.81	0.86
1.50	0.70	0.74	0.78	0.82	0.86
1.75	0.72	0.75	0.79	0.83	0.86
2.00	0.73	0.77	0.80	0.83	0.87

Vulnerable: Criterion 1A2-4, Endangered Criterion 1A2-4, Critically Endangered: Criterion 1A2-4

Criterion 2. Geographic distribution as indicators for either extent of occurrence AND/OR area of occupancy			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Not eligible

The scalloped hammerhead has a circum-global distribution in tropical and sub-tropical waters. Within Australian waters its distribution is too large to meet this criterion and thus the Committee finds the scalloped hammerhead ineligible for listing in any category under this criterion.

Criterion 3. Population size and decline			
	Critically Endangered Very low	Endangered Low	Vulnerable Limited
Estimated number of mature individuals	< 250	< 2,500	< 10,000
AND either (C1) or (C2) is true			
C1 An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future)	Very high rate 25% in 3 years or 1 generation (whichever is longer)	High rate 20% in 5 years or 2 generation (whichever is longer)	Substantial rate 10% in 10 years or 3 generations (whichever is longer)
C2 An observed, estimated, projected or inferred continuing decline AND its geographic distribution is precarious for its survival based on at least 1 of the following 3 conditions:			
(a) (i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
(a) (ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals			

Evidence:

Not eligible

The estimated total number of mature individuals within Australian waters is likely to be much larger than 10 000 individuals which is too large to meet this criterion and thus the Committee finds the scalloped hammerhead ineligible for listing in any category under this criterion.

Criterion 4. Number of mature individuals			
	Critically Endangered Extremely low	Endangered Very Low	Vulnerable Low
Number of mature individuals	< 50	< 250	< 1,000

Evidence:

Not eligible

The total number of mature individuals within Australian waters is likely to be in excess of 10 000 which is not considered extremely low, very low or low. Therefore, the species has not been demonstrated to have met this required element of this criterion.

Criterion 5. Quantitative Analysis			
	Critically Endangered Immediate future	Endangered Near future	Vulnerable Medium-term future
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations, whichever is longer (100 years max.)	≥ 20% in 20 years or 5 generations, whichever is longer (100 years max.)	≥ 10% in 100 years

Evidence:

Not eligible

Population viability analysis has not been undertaken.

How judged by the Committee in relation to the Conservation Dependent listing criteria of the EPBC Act and Regulations

To be eligible for listing as Conservation Dependent a species must, at the time, satisfy the statement at paragraph 179(6)(a) of the EPBC Act or satisfy all four of the subparagraphs of paragraph 179(6)(b).

The Committee judges that scalloped hammerhead is eligible for listing as Conservation Dependent under the EPBC Act. The assessment against the criteria is as follows:

At the time of the Committee's assessment, Fisheries Queensland (Queensland Department of Agriculture and Fisheries) and Northern Territory Fisheries (Northern Territory Department of Primary Industry and Resources) had informed members of the Committee and the Department of the Environment and Energy that the full range of management arrangements described below aimed at halting decline, and supporting recovery, of scalloped hammerhead would be implemented under law by late 2017/early 2018. The advice of the Committee contained herein is therefore based on the understanding that these measures will be implemented, without alteration, and in force under law, prior to the Minister for the Environment and Energy's listing decision under the EPBC Act being made.

Furthermore, these management arrangements complement Australia's Convention on International Trade in Endangered Species (CITES) non-detriment finding for the international export of sharks (<http://www.environment.gov.au/biodiversity/wildlife-trade/publications/non-detriment-finding-five-shark-species>) and are/will be embedded as Conditions of the EPBC Act Wildlife Trade Operation (WTO) approvals for each relevant fishery, as appropriate (under section 303FN of the EPBC Act).

Paragraph 179(6)(a) – the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered:

Evidence:

Not applicable

The Committee considers that scalloped hammerhead is eligible for listing in the Endangered category. Therefore, the Committee does not consider the current management arrangements implemented by the Queensland and Northern Territory governments under law to constitute a 'conservation program' for the purposes of paragraph 179(6)(a) of the EPBC Act, or the cessation of which would result in the scalloped hammerhead becoming Vulnerable, Endangered or Critically Endangered because the species has been found eligible for listing as Endangered. The species has, therefore, not been demonstrated to have met the required element of paragraph 179(6)(a).

Paragraph 179(6)(b) – the following four subparagraphs are satisfied (see below):

Subparagraph 179(6)(b)(i) – the species is a species of fish:

Scalloped hammerhead (*Sphyrna lewini*) is a species of 'shark' for the purposes of the definition of **fish** under subsection 179(7) of the EPBC Act, therefore satisfies subparagraph 179(6)(b)(i).

Subparagraph 179(b)(ii) – The fish species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised:

The Committee considers that a set of fisheries management arrangements implemented under Commonwealth, state or territory law can constitute, if sufficiently focused on the species concerned, a 'plan of management' under law for the purposes of paragraph 179(6)(b) of the EPBC Act.

Australian Government Arrangements

Non Detriment Finding for CITES listed hammerhead sharks (2014)

Scalloped, great and smooth hammerhead sharks are listed on Appendix II of CITES. The listing came into effect on 14 September 2014. CITES Parties deemed the scalloped hammerhead met the requirements for listing on Appendix II and included both great hammerhead and smooth hammerhead on Appendix II as "look-alike species", i.e. species whose specimens in trade look like those of species listed for conservation reasons.

To enable the export of CITES listed species, Australia must ensure that the export will not be detrimental to the survival of the species in the wild. A non-detriment finding assessment was undertaken by the Australian CITES Scientific Authority for the three CITES listed species of hammerhead in September 2014. The assessment found that while data are limited with regards to global stock sizes of these shark species, the findings and harvest levels in Australia's non-detriment finding have been determined using the best available scientific information, by analysing Australian harvest against global harvest and by assessing the risks associated with the management arrangements currently in place in Australian fisheries.

Australian national harvest levels set by the non-detriment finding for the hammerhead shark species are:

- Scalloped hammerhead (*Sphyrna lewini*) – 200 t per year.
- Great hammerhead (*Sphyrna mokarran*) – 100 t per year.
- Smooth hammerhead (*Sphyrna zygaena*) – 70 t per year.

The Australian CITES Scientific Authority also made a number of recommendations to state and Northern Territory fisheries management agencies, including:

- Species level reporting in log books;
- Further measures to reduce incidental capture and post release mortality as practically appropriate to specific fisheries and gear types;
- Landing of sharks with fins naturally attached;
- Mandatory discard reporting to species level;
- Maximum size limits;
- Trip limits;
- An improved understanding and management focus on illegal, unreported and unregulated harvest (IUU).

Information on the 2014 Non-Detriment Finding assessment is available on the Department's webpage (<https://www.environment.gov.au/biodiversity/wildlife-trade/publications/non-detriment-finding-five-shark-species>) and includes a copy of the assessment, the scientific information that formed the basis of the assessment and advice on CITES Appendix II shark listings.

The Committee is of the understanding that the 2014 Non-Detriment Finding assessment will be reviewed by the Australian CITES Scientific Authority once greater information becomes available following the implementation of management arrangements by the Queensland and Northern Territory Governments for hammerhead sharks. It is expected that the current management arrangements are being implemented in a manner which allows flexibility to change if the non-detriment finding changes in future.

The Committee recommends that 2014 Non-Detriment Finding be fully reviewed and updated in 2019, taking into consideration all relevant available data, including that collected between September 2014 and June 2019.

Commercial permit requirements for CITES listed hammerhead sharks

CITES permits are required under the EPBC Act to internationally export or import any part or derivative (e.g. fillets, fins) for the three listed hammerhead shark species. CITES export permits are issued under section 303CG of the EPBC Act. In order for an exporter to be issued a permit they must provide evidence that the specimen(s) to be exported were sourced from a fishery which has been assessed as an approved wildlife trade operation (for the purposes of paragraph 303FN of the EPBC Act).

Fisheries that interact with hammerhead sharks

Hammerhead sharks are taken incidentally in some Australian commercial fisheries when fishing for other species. Five fisheries account for approximately 90 per cent of the Australian hammerhead catch: the Northern Territory Offshore Net and Line Fishery, Queensland's East Coast and Gulf of Carpentaria Inshore Fin Fish Fisheries, the Western Australian Temperate Shark Fisheries and the South Australian Marine Scalefish Fishery. Scalloped hammerheads specifically are principally taken by the Queensland and Northern Territory fisheries. Scalloped hammerheads were also taken by the Western Australian North Coast Shark Fishery, however that fishery is currently closed.

State and Territory Government Arrangements

Given that the primary sources of scalloped hammerhead harvest are undertaken by Queensland and Northern Territory managed fisheries, the management arrangements implemented by these jurisdictions for the species are those being considered for assessment under paragraph 179(6)(b) of the EPBC Act. If another state jurisdiction intends to commence commercial harvest of scalloped hammerhead in the future, this Listing Advice will need to be revised accordingly and complementary management arrangements agreed and implemented.

The Queensland and Northern Territory governments have committed to introducing a set of management arrangements under the Queensland Fisheries Regulation 2008 and the Northern Territory Offshore Net and Line Fishery Management Plan specifically aimed at hammerhead sharks, particularly scalloped hammerhead. The Committee considers these arrangements to be a plan of management for a fish (shark) for the purposes of assessment under paragraph 179(6)(b) of the EPBC Act.

The management arrangements which relevant state and territory jurisdictions are aiming to introduce are specifically aimed at halting the decline of, and supporting recovery of, scalloped hammerheads in Australian waters. These include:

Queensland

- An annual total allowable commercial catch of 150 t for all hammerhead shark, to be split across the East Coast Inshore Fin Fish Fishery (north and south) and the Gulf of Carpentaria Fin Fish Fishery, to be enforced by law under the Queensland Fisheries Regulation 2008. The total allowable commercial catch will be split regionally as follows:
 - East Coast Inshore Fin Fish Fishery north of latitude 24°30' S – 78 t
 - East Coast Inshore Fin Fish Fishery south of latitude 24°30' S – 22 t
 - Gulf of Carpentaria Fin Fish Fishery – 50 t
- A trigger point of 75 per cent of the total allowable commercial catch to be implemented under the Queensland Fisheries Regulation 2008 regionally as follows:
 - East Coast Inshore Fin Fish Fishery north of latitude 24°30' S – 58.5 t
 - East Coast Inshore Fin Fish Fishery south of latitude 24°30' S – 16.5 t
 - Gulf of Carpentaria Fin Fish Fishery – 37.5 t
- Once a trigger point is reached, it will then require fishers to:
 - Abide by trip limits of 10 hammerhead sharks for net fishers and four for line fishers.
 - Land all hammerhead sharks in whole form (i.e. gilled and gutted with head and fins attached).
- Implementation of data validation measures including prior and unload (at dock) reporting and validation.
- Implementation of an intelligence based approach to compliance activities, including at sea boarding or at wharf inspections where warranted.
- Reporting of catch using the Automated Interactive Voice Reporting (AIVR) system by phone. Data will be collated in Queensland's Quota Reporting System so that catch levels can be monitored and responded to close to real time.
- Cross checking of data sources will occur through phone reporting (AIVR), logbooks, vessel monitoring systems and receipts from buyers.
- Reporting of species-specific catch and discard information in logbooks.
- Requirement of all N4 sector (where longer net lengths are permitted, larger fishing vessels are utilised and fishing is conducted over a wider area than other sectors/symbols) boats to have a vessel monitoring system under the Queensland Fisheries Regulation 2008.

Northern Territory

- An annual total allowable commercial catch of 50 t for scalloped hammerhead (and 50 t for great hammerhead) to be enforced by law under the Northern Territory Offshore Net and Line Fishery Management Plan in force under the Northern Territory *Fisheries Act 1988*. Smooth hammerhead is not considered to occur in Northern Territory waters. Catches of *Eusphyra blochii* (winghead shark), the other hammerhead similar-species which occurs in Northern Territory waters, will be regulated under a total allowable catch of 246 t for a combined shark group including species such as *Galeocerdo cuvier* (tiger shark), *Negaprion acutidens* (lemon shark), *Carcharhinus leucas* (bull shark) and others.
- Once 100 per cent of the catch is reached, under the Northern Territory Offshore Net and Line Fishery Harvest Strategy no further fishing will be permitted that allows the harvest or discard of either scalloped or great hammerhead sharks.
- Once catches reach 40 t for either of scalloped or great hammerhead, harvest controls will be implemented. The harvest control would be based on an increased level of observer coverage to ensure the 50 t catch limit is not breached. Other options could include, but are not limited to, area closures, fishery closure, trip limits, gear restrictions and temporal closures.

- Implementation of data validation techniques under the Northern Territory Offshore Net and Line Fishery Management Plan in force under the Northern Territory *Fisheries Act 1988*, including:
 - Implementation of Vessel Monitoring Systems (VMS) on all of the fishery's vessels.
 - Introduction of electronic logbooks to facilitate efficient and timely access to logbook data. Until this is implemented fishery-wide, weights of scalloped and great hammerhead on the Catch Disposal Records at vessel unload will be regulated.
 - Restriction of product unloads to Darwin or Gove.
 - All sharks landed fins naturally attached (unless exemption granted).
 - Where there is no Fishing Monitoring Equipment (electronic monitoring) installed on a vessel, heads need to remain attached to the body of the hammerhead shark.
 - Species-specific recording of hammerhead sharks on Catch Disposal Records.
 - Random port inspection compliance program.
 - Increased monitoring program of at least 20% coverage where high risk of hammerhead shark interactions exist.
- The Northern Territory Government continues to actively participate in research into hammerhead species, by supplying logbook and observer information to external parties for analysis. It also provides genetic samples to CSIRO for a current stock structure project on hammerhead sharks.

Other management measures implemented as fishery-wide measures in Queensland and the Northern Territory, which may also provide conservation benefit to scalloped hammerhead, are as follows, noting however that these additional measures are not in force under a law:

Queensland

The Queensland Government has released the Sustainable Fisheries Strategy 2017-2027, which outlines the reform agenda for the next 10 years. The strategy outlines 33 actions to be delivered across 10 reform areas and sets targets to be achieved by 2020 and 2027. The strategy will deliver 20 more frontline fisheries compliance officers, increased monitoring, new engagement and communication methods and improved decision-making. Some of the actions in the strategy include harvest strategies for each fishery, satellite tracking (vessel monitoring systems) for all commercial fishing boats, regionally specific fishing rules and novel monitoring techniques (e.g. cameras).

As part of the Sustainable Fisheries Strategy, the Queensland Government has allocated funding towards and drafted an 'operational plan' for a research project validating catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast. The project aims to determine species catch composition of harvest by sampling at ports, processors or on-board/on-water. It also aims to develop a profile of discards, by including data gathered from random on-board observations. The project started in July 2017 with a three year- time frame.

Under the Sustainable Fisheries Strategy, all fisheries will have harvest strategies developed with sustainable catch limits based on Maximum Sustainable Yield by 2020. Ecological risk assessments will also be undertaken for all priority fisheries and species by 2020. An additional requirement of the strategy is for all Queensland net and line boats to have a vessel monitoring system by the end of 2018.

The Sustainable Fisheries Strategy proposes the development of partnerships to trial the use of novel technologies for fisheries monitoring, such as apps, robotic vision, spatial interfaces and mapping, social media and citizen science. There also is a commitment to develop and implement a data validation plan.

The Queensland Government will consider adding *Eusphyra blochii* (winghead shark) to the total allowable commercial catch at the next available opportunity for regulatory amendment, but this is unlikely to occur before a decision is made on listing scalloped hammerhead under the EPBC Act.

Queensland's Sustainable Fisheries Strategy 2017-2027 can be accessed at:

<https://www.daf.qld.gov.au/fisheries/consultations-and-legislation/sustainable-fisheries-strategy>

Northern Territory

The development of a new management framework for the Northern Territory Offshore Net and Line Fishery, which includes the development of a harvest strategy for the fishery.

Summary of assessment against subparagraph 179(6)(b)(ii)

The Committee considers that the suite of management arrangements implemented for scalloped hammerhead classify as a 'plan of management' for the purposes of satisfying the requirements of subparagraph 179(6)(b)(ii) of the EPBC Act.

The Committee considers the management measures, including the introduction of a total allowable commercial catch for hammerhead shark species which will limit the annual catch of scalloped hammerhead to 200 t or less, the introduction of catch trigger points with control rules, data validation measures (including species level reporting) and the commitment to future research, to be potentially sufficient to halt population decline, and support the recovery of the species in Australian waters over the longer term. Therefore, the species has been demonstrated to have met the relevant elements of subparagraph 179(6)(b)(ii) of the EPBC Act.

Subparagraph 179(6)(b)(iii) – the plan of management is in force under a law of the Commonwealth or of a State or Territory:

To be a plan of management 'in force under a law', the Committee recognises that all management measures specifically aimed at the objective of halting decline and supporting recovery of scalloped hammerhead will be implemented under the respective legislation in Queensland and the Northern Territory. These include:

Queensland

- A hammerhead total allowable commercial catch of 150 t under the Queensland Fisheries Regulation 2008 to be split regionally.
- A trigger limit set at 75 per cent of total allowable commercial catch to trigger control rules under the Queensland Fisheries Regulation 2008 to be applied regionally.

Northern Territory

- A scalloped hammerhead total allowable commercial catch of 50 t under the Northern Territory Offshore Net and Line Fishery Management Plan in force under the Northern Territory *Fisheries Act 1988*. There will be a similar total allowable catch of 50 t set for *S. mokarran* (great hammerhead). *Eusphyra blochii* (winghead shark) will be included as part of a combined shark group total allowable catch of 246 t.
- Once 100 per cent of the catch is reached, under the Northern Territory Offshore Net and Line Fishery Harvest Strategy no further fishing will be permitted that allows the harvest or discard of either of the species.

- A trigger limit set at 40 t total catch to trigger control rules, primarily an increased observer coverage, under the Northern Territory Offshore Net and Line Fishery Management Plan.
- Implementation of data validation techniques under the Northern Territory Offshore Net and Line Fishery Management Plan in force under the Northern Territory *Fisheries Act 1988*.

To meet subparagraph 179(6)(b)(iii), all of the actions that are necessary to stop the decline of, and support the recovery of scalloped hammerhead in Australian waters, so that its chances of long term survival in nature are maximised, need to be legislated. All the management measures listed above will be legislated. As mentioned above, the Committee considers that the suite of management measures implemented by the Queensland and Northern Territory governments constitute a 'plan of management' for the purposes of subparagraph 179(6)(b)(ii) of the EPBC Act, and therefore the suite of management measures meet the relevant elements of being 'in force under a law' of subparagraph 179(6)(b)(iii).

Subparagraph 179(6)(b)(iv) – cessation of the plan of management would adversely affect the conservation status of the species:

Given that the Committee considers that the suite of management arrangements to be implemented by the Queensland and Northern Territory governments under their respective state/territory legislation constitute a 'plan of management' for the purposes of subparagraph 179(6)(b)(ii), the Committee considers that the cessation of any of these management arrangements would adversely affect the conservation status of scalloped hammerhead. Cessation of the management actions providing for the halt of decline and rebuilding of the stocks of the species would cease and this would result in the species being eligible for listing in the Endangered category under Criterion 1. Cessation of the management actions may allow for fishing activities otherwise controlled under law to resume, and the species would no longer be protected from the key threat of overfishing, thereby affecting the species' conservation status.

The Committee accepts that, without the suite of management arrangements to be implemented by the Queensland and Northern Territory governments, further declines in the scalloped hammerhead population that occurs in Australian waters are likely to be exacerbated from its current low level because, if total allowable catch limits were removed, the current stock levels are not likely to be able to tolerate a potentially unlimited annual catch of over 200 t.

Therefore, the Committee considers that scalloped hammerhead has demonstrated to have met the relevant elements of subparagraph 179(6)(b)(iv) of the EPBC Act.

Conclusion

Conservation status

Sphyrna lewini (scalloped hammerhead) was publicly nominated for inclusion in the list of threatened species referred to in section 178 of the EPBC Act.

Despite multiple uncertainties in the assessment of the scalloped hammerhead's status, including the relative share of stocks and declines in Australian and Indonesian waters, the Committee considers that the decline of species throughout its entire Australian distribution is most likely between 50–70 per cent, and the threat of fishing, while managed, has not ceased impacting upon the species completely. Therefore, the Committee considers that the species has been demonstrated to have met sufficient elements of Criterion 1 A2(a),(b),(d) to make it **eligible** for listing as **Endangered**.

The Committee considers the management arrangements to be implemented by the Queensland and Northern Territory governments under their respective state/territory legislation for scalloped hammerhead as a 'plan of management' for the purposes of paragraph 179(6)(b) of the EPBC Act. The Committee has evaluated these management arrangements and considers that they could be effective in halting further decline and supporting recovery of scalloped hammerhead in order to maximise its chance of survival in nature. Therefore, the Committee judges that scalloped hammerhead has been demonstrated to have met the requirements of paragraph 179(6)(b) of the EPBC Act and is **eligible** for listing as **Conservation Dependent**.

The highest category for which scalloped hammerhead is **eligible** to be listed is **Endangered**.

In considering its recommendation, the Committee has also considered paragraph 186(2) of the EPBC Act – 'the effect that including the native species in that category could have on the survival of the species'. The Committee has considered the effect of listing in either the Endangered or the Conservation Dependent categories could have on the survival of scalloped hammerhead and has decided that the Conservation Dependent category is likely to provide the best outcome for the species because:

- management actions for the species' protection and recovery will be implemented immediately under law.
- the management actions will remain in place while the species remains listed as Conservation Dependent.
- monitoring will be required to determine rates of recovery.

While scalloped hammerhead is eligible for both the Endangered and Conservation Dependent categories, in light of the considerations of subsection 186(2), the Committee **recommends listing in the Conservation Dependent category** subject to the management actions identified above by the Committee being implemented under law and the recommendations outlined by the Committee below being put into practice.

Recommendations

(i) The Committee recommends that the list referred to in section 178 of the EPBC Act be amended by **including** in the list in the **Conservation Dependent** category:

Sphyrna lewini

The Committee also makes the following recommendations relevant to the listing of this species in this category:

- The Department continue to monitor the development of catch validation approaches in both the Northern Territory and Queensland and in the context of the catch data. In particular, the Committee regards the revision of all fisheries management regimes relevant to this assessment to provide for the landing of hammerhead sharks with fins naturally attached (consistent with many shark fisheries in Australia), as essential if this species is to remain listed in the Conservation Dependent category.
- The Department update the Committee on the results of the Queensland Government's scheduled June 2019 review of hammerhead stock status and management arrangements.
- In light of the results of the above review, and any new data available from the Northern Territory, a full review of the Australian CITES non-detriment finding for the international export of sharks be undertaken as soon as possible after the results of the Queensland Review are available, and revision of the total allowable commercial catch limits for hammerheads to reflect recommendations from the revised non-detriment finding. The review of total allowable commercial catch limits should also include estimated levels of discards and catch by the Queensland Shark Control Program.
- In reviewing the catch data for scalloped and great hammerhead, the Department provide the available catch data for winghead shark (*Eusphyrna blochii*) to the Committee for consideration. Particular attention will be given to catch levels of winghead shark relative to scalloped and great hammerhead, and the level of confidence in data attained from the various mechanisms proposed to strengthen data validation.
- The Department continue to liaise with the Department of Fisheries, Western Australia to ensure timely notification is provided to the Committee of any intention to re-open the Western Australian North Coast Shark Fishery. The Committee notes that the Department of Fisheries will need to implement management arrangements consistent with s179(6)(b) of the EPBC Act so that the Conservation Dependent listing is not jeopardised.
- The Department report annually to the Committee on the performance of the suite of management arrangements outlined in this listing advice which are to be implemented for scalloped hammerhead as a 'plan of management' for the purposes of satisfying the requirements of subparagraph 179(6)(b)(ii) of the EPBC Act.
- The listing of *Sphyrna lewini* (scalloped hammerhead) as Conservation Dependent will be subject to review five years from the date of listing.

Threatened Species Scientific Committee
12 September 2017

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THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Minister decided that this species was not eligible for listing as threatened on dd/mm/yyyy

Listing Advice

Sphyrna mokarran

great hammerhead

Taxonomy

Conventionally accepted as *Sphyrna mokarran* (Ruppell, 1837).

Summary of assessment

Conservation status

Not eligible

The Committee judges that *Sphyrna mokarran* is not eligible for listing as a threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Species can be listed as threatened under state and territory legislation. For information on the listing status of this species under relevant state or territory legislation, see

<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Reason for conservation assessment by the Threatened Species Scientific Committee

The great hammerhead has been assessed here because of its close similarity to the potentially Endangered *Sphyrna lewini* (scalloped hammerhead) in both its appearance and exposure to threats.

The EPBC Act provides that:

S186(4) The Minister may include a native species in the endangered category if satisfied that:

- (a) it so closely resembles in appearance, at any stage of its biological development, a species that is eligible to be included in that category (see subsection 179(4)) that it is difficult to differentiate between the 2 species; and
- (b) this difficulty poses an additional threat to the last-mentioned species; and
- (c) it would substantially promote the objects of this Act if the first-mentioned species were regarded as endangered.

Public Consultation

Notice of the proposed amendment and a consultation document was made available for public comment for 32 business days between 22 May 2014 and 7 July 2014. Any comments received that were relevant to the survival of the species were considered by the Committee as part of the assessment process.

Assesment outcome

The assessment of *Sphyrna lewini* (scalloped hammerhead) has determined that the species is eligible for the category of Conservation Dependent. As there is no provision under the EPBC Act for a similar species to be listed as Conservation Dependent, *Sphyrna mokarran* (great hammerhead) is not eligible for listing in any category.

Recommendations

- (i) The Committee recommends that *Sphyrna mokarran* is **not eligible** for inclusion in the list referred to in section 178 of the EPBC Act.

Threatened Species Scientific Committee

12 September 2017

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Minister decided that this species was not eligible for listing as threatened on dd/mm/yyyy

Listing Advice

Sphyrna zygaena

smooth hammerhead

Taxonomy

Conventionally accepted as *Sphyrna zygaena* (Linnaeus 1758).

Summary of assessment

Conservation status

Not eligible

The Committee judges that *Sphyrna zygaena* is not eligible for listing as a threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Species can be listed as threatened under state and territory legislation. For information on the listing status of this species under relevant state or territory legislation, see

<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Reason for conservation assessment by the Threatened Species Scientific Committee

The smooth hammerhead has been assessed here because of its close similarity to the potentially Endangered *Sphyrna lewini* (scalloped hammerhead) in both its appearance and exposure to threats.

The EPBC Act provides that:

S186(4) The Minister may include a native species in the endangered category if satisfied that:

- (a) it so closely resembles in appearance, at any stage of its biological development, a species that is eligible to be included in that category (see subsection 179(4)) that it is difficult to differentiate between the 2 species; and
- (b) this difficulty poses an additional threat to the last-mentioned species; and
- (c) it would substantially promote the objects of this Act if the first-mentioned species were regarded as endangered.

Public Consultation

Notice of the proposed amendment and a consultation document was made available for public comment for 32 business days between 22 May 2014 and 7 July 2014. Any comments received that were relevant to the survival of the species were considered by the Committee as part of the assessment process.

Assessment outcome

The assessment of *Sphyrna lewini* (scalloped hammerhead) has determined that the species is eligible for the category of Conservation Dependent. As there is no provision under the EPBC Act for a similar species to be listed as Conservation Dependent, *Sphyrna zygaena* (smooth hammerhead) is not eligible for listing in any category.

Recommendations

- (i) The Committee recommends that *Sphyrna zygaena* is **not eligible** for inclusion in the list referred to in section 178 of the EPBC Act.

Threatened Species Scientific Committee

12 September 2017

Additional information for the TSSC on hammerhead shark – Queensland

Queensland's Sustainable Fisheries Strategy 2017-2027 can be accessed at:

<https://www.daf.qld.gov.au/fisheries/consultations-and-legislation/sustainable-fisheries-strategy>

Finning regulations and compliance processes

Regulations:

- The Queensland Fishery Regulation 2008 governs the form requirements for hammerhead shark (and all shark).
- A summary of the current hammerhead shark form requirements for different regions and fishery symbol is attached (Appendix 1).
- The detail of how the regulations currently apply to hammerhead shark is set out in Appendix 2.

Enforcement:

- When Queensland Boating and Fishery Patrol (QBFP) Officers undertake an inspection they take a top down approach to shark inspection:
 - What fisheries symbols does the fisher hold and therefore what form are they allowed to keep the shark in? (refer to Appendix 1 and 2)
 - Does the form observed to the boat match what they are permitted to do under their fishery symbols?
 - Are fins and tails secured to the bodies where required?
 - Are there any fillets on the boat?
 - Do the fins and tails appear to match the bodies / fillets?
 - If officers are concerned they will conduct a detailed exercise where the fisher is required to match all fins with all bodies / fillets
- The value of fins for hammerhead (around \$50,000/year worth of fins vs \$200,000 year for the fillets) is not considered that high to provide fishers with an incentive to specifically target the species for its fins and discard the body.
- QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% regional trigger point is reached. This will ensure as fishers near the TACC, greater enforcement is possible.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, s22 .

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

Potential changes to form requirements:

- Fisheries Queensland has focused on other ways of validating data rather than product form changes, including extra monitoring at sea, phone reporting, forensic auditing of logbooks with receipts / catch disposal records / VMS etc. Further details are provided below. This is considered sufficient given the risk profile and still means businesses can be viable and importantly, discards are minimised. Requiring all shark to be kept whole is likely to lead to discards.
- Some of these broader issues (e.g. product form for all shark) can be considered as part of the fisheries reform process. The east coast inshore fishery is one of the priority fisheries for reform and Queensland Government will be commencing this process shortly.

Data validation activities

A data validation program is in place to provide confidence in the data that is provided by fishers on catch and effort. This includes:

Existing:

- Fisheries Queensland currently conducts auditing of commercial catch data. The process uses commercial logbooks, AIVR, vessel tracking information, Catch Disposal Records and receipts.
- Where there are outliers or significant catches that are out of the ordinary, Fisheries Queensland follows up fishers to seek evidence of the catch (e.g. receipts etc). Where this is not provided, the data is not included.

New:

- Logbook improvements:
 - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the s22 *Sphyrna* species of hammerhead shark s22 . Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
- Education:
 - Species identification information will be provided to fishers to support the new logbooks
- Phone reporting through AIVR for all shark:
 - All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

- Crosschecking of data sources:
 - Phone reporting (AIVR) , logbooks, VMS, catch disposal records and receipts from buyers
- Forensic auditing of logbooks:
 - There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
- Vessel tracking to validate effort and location data:
 - Vessel tracking systems are being rolled out across all fisheries by 2020, s22
This will provide another useful dataset to crosscheck data against (particularly effort and location information).
- At sea monitoring:
 - As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition (e.g. s22 hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.
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s22

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

Appendix 1: Summary of current rules applying to hammerhead shark form under Schedule 2, part 2 of the Queensland *Fishery Regulation 2008*

Form	East Coast				Gulf of Carpentaria	
	Net – no S symbol	Line – no S symbol	Net + S symbol	Line + S symbol	Net	Line
A hammerhead shark can divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	No	No	No	No	No	No
The fin or tail can be separated from the body of the hammerhead shark	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail
Fins and tails must be secured to the body	Yes – but not necessarily naturally attached	Yes – but not necessarily naturally attached	No	Yes – but not necessarily naturally attached	No	No
Filleting hammerhead shark at sea	Not allowed	Not allowed	Allowed	Not allowed	Allowed	Allowed – subject to 100 kg trip limit

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

Appendix 2: Current rules applying to hammerhead shark form under Schedule 2, part 2 of the Queensland *Fishery Regulation 2008*

Note: the shaded form provisions apply to all fishers in Queensland (including recreational fishers)

East Coast

East coast - net symbol holders without an S symbol

What is prohibited?	Who and how does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks. These fishers have a trip limit of 10 sharks so the task is relatively easy.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails on a boat must also possess the body. These fishers have a trip limit of 10 sharks so the task is relatively easy.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders without an S symbol must have the hammerhead shark fins and tail secured to the body. Fins and tails can be naturally attached or fishers can remove the fins and place them in a bag attached to the body in some way. These fishers have a trip limit of 10 sharks so the task is relatively easy to enforce.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders without an S symbol cannot fillet hammerhead shark on a boat. These fishers have a trip limit of 10 sharks so the task is relatively easy to enforce.
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ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

East coast - line symbol holders without an S symbol

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast line symbol holders have to secure the retained fins and tail to the hammerhead shark body. Fins and tails can be naturally attached or fishers can remove the fins and place them in a bag attached to the body in some way.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast line symbol holders cannot fillet hammerhead shark on a boat. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

East coast - net symbol holders with an S symbol

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders with an S symbol using nets do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders with an S symbol can fillet hammerhead shark on a boat.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

East coast - line symbol holders with an S symbol (note that there are currently only 7 licences in this category)

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast S symbol holders who are line fishing must secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast S symbol holders who are line fishing cannot fillet hammerhead shark on a boat.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

Gulf of Carpentaria

GoC - net symbol holders

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC net symbol holders do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC net fishers can fillet hammerhead shark on a boat.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

GoC - line symbol holders

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC line symbol holders do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC line fishers can fillet hammerhead shark on a boat, subject to the 100 kg limit (see below).

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

more than 100kg of the fish in filleted form	a person taking the fish in the Gulf of Carpentaria waters or possessing the fish taken in the waters while acting under a commercial fishing boat licence or developmental fishing permit authorising the taking of fish for trade or commerce using a fishing line	A GoC line fisher can fillet but the maximum amount of shark fillet that can be held on board is 100 kg.
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ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

Fisheries Queensland 26 July 2017 Response to TSSC queries

Basis of the TACC and reliance on the NDF:

- The TACC is based on the NDF which is the best available evidence.
- The non-detriment finding is also supported by a shark stock assessment undertaken by Queensland Government and finalised in May 2016 (a copy of the stock assessment is available on our website at: <https://www.daf.qld.gov.au/fisheries/monitoring-ourfisheries/data-reports/sustainability-reporting/stock-assessment-reports/stock-assessmentof-whaler-and-hammerhead-sharks-carcharhinidae-and-sphyrnidae-in-queensland>). The stock assessment found that the current levels of shark catch are sustainable and below MSY limits, but there is some uncertainty around the exact MSY figures because of some of the uncertainty in data (particularly the confidence around species composition). The MSY for scalloped and s22 hammerhead ranged from 133 tonnes to 531 tonnes. This confirms that the proposed TACC of 150 tonnes is on the conservative end of the spectrum and is considered a 'sustainable limit'. The stock assessment noted that reducing uncertainties in data would improve the MSY estimates.
- As better information is collected, a more confident MSY estimate can be determined for the different species of shark (including hammerhead), which will allow Fisheries Queensland to potentially amend the TACC to reflect this information. At this stage, there is no other evidence on which to set a more specific hammerhead TACC.
- Changes to the TACCs can be made through a relatively straight forward regulatory amendment process when required (e.g. if the NDF is updated when new information is available)

Value of fins:

- The price of fins is typically less than \$20 per kg (pers. comm. Major shark fisher 23 June 2017)
- Scalloped hammerhead fin weight is approximately 3% of landed weight (Pleizer et al. 2015)
- Maximum fin weight is 2700kg, based on current (upper) average catch of 90 t landed weight
- GVP if all landed hammerhead sharks are finned and those fins are sold is \$54,000
- At most the total GVP for meat and fins is therefore approximately \$250,000, still a very low value fishery

Product form:

- Finning is prohibited across Queensland – i.e. taking fins and discarding trunk. Sharks can only be portioned in a way that allows an inspector to reasonably count them.
- Some processing is permitted for net fishers in the Gulf and for S symbol holders on the east coast – they can fillet but must keep the fins and tail on board.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% trigger point is reached.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, but all shark product.

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Incorporation of Shark Control Program (SCP) catch into the TACC:

- The SCP takes about 40 hammerhead sharks per year
- This is 6 t, based on 150 kg per shark
- Given the TACC is not likely to be reached this is not an important issue, but will be monitored.
- In addition, shark nets have recently been removed from the GBR, with only drum lines now used.

Validating catch and discards:

- Multiple lines of evidence will be used to ensure a robust TAC and reporting of catch:
 - Education – species id information will be provided to fishers to support the new logbooks
 - Quota reporting –AIVR All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.
 - Logbook improvements - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the s22 *Sphyrna* species of hammerhead shark s22 . Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
 - Logbook validation activities – Fisheries Queensland currently conducts forensic auditing of commercial catch data. The process uses commercial logbooks, AIVR, boat location monitoring, Catch Disposal Records and other receipts. There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
 - At sea monitoring:
 - The size of the boats in these fisheries is a key constraint to an effective on board monitoring program – there are a number of workplace health and safety and practical issues to overcome. The East Coast boats landing hammerhead vary in length from 4.2 to 17.5 m, the average boat length being 7.5 m.

ADDITIONAL FISHERIES MANAGEMENT INFORMATION HAMMERHEAD SHARKS

- For these reasons, the Sustainable Fisheries Strategy proposes approaches different from the use of on board observers. While specific technologies need to be developed, actions in the Sustainable Fisheries Strategy commit to trialling novel technologies to help better validate data on catch and interactions. This work will be very relevant to improving the management of hammerhead shark in the longer term. An Advance Queensland SBIR innovation challenge was just released today seeking innovative solutions to automate fisheries information from commercial fishers on net, crab and trawl boats. See: <http://advance.qld.gov.au/small-business/sbir.aspx> and <http://advance.qld.gov.au/small-business/sbir/challenges/commercialfishing-challenge.aspx>

Enforcement

QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.

o Monitoring – As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition (e.g. s22 ██████████ hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.

Additional information for the TSSC on hammerhead shark – Northern Territory

The Northern Territory have provided a 'Proposed Management Arrangements for the Northern Territory Offshore Net and Line Fishery (ONLF)' (Attachment below) that will be in force in legislation within the next ~4-6 months. In the Interim, Industry have agreed to put the following measures into legislation, via licence condition where indicated, effective immediately:

Measures that NT Fisheries will have in place by September 2017 are proposed as:

- All product unloaded in Darwin, Gove or Karumba (currently in place)
- Random port inspection compliance program (currently in place)
- Species specific logbook reporting, including discards (currently in place)
- Risk-based monitoring program in place to validate logbooks (observers etc.) (currently in place)
- Electronic logbooks (species specific reporting, including discards, shot by shot spatial catch & effort) are being trialled now on active vessels
- Specific 50 t catch limits (TAC) for Hammerheads (s22 [redacted] Scalloped), 75% harvest trigger for each species. When trigger is reached, fish to be landed heads and fins on. Implemented as a Licence condition effective immediately until Stage One regs in place. TACC and trigger measure to be reviewed as Harvest Strategy developed during Stage Two.

I have attached the Stage One framework which will be used as the basis for drafting instructions. The following points set out the NT's position and key measures are as follows:

- Fishery to be catch quota managed via ITQ's (utilising industry allocation mechanism)
- VMS.
- Electronic logbooks
- All product unloaded in Darwin or Gove (unless exemption granted- additional monitoring applies)
- All sharks landed Fins Naturally Attached (FNA) (unless exemption granted)
- Species specific logbook reporting, including discards
- All product (hammerheads separated) to be weighed into quota species groups and recorded (Catch Disposal Record)
- Random port inspection compliance program
- Risk-based monitoring program (for FNA operators- 1 observer for each combined 300 t landed. For FNA exemption operators-approved monitoring equipment installed (incl. cameras) or 20% observer coverage as minimum)
- Management framework incorporating agreed decision rules addressing impacts to each species group, bycatch, ecosystems and TEPS empowered into legislation
- s22 [redacted]
[redacted]
[redacted]
[redacted]
- Specific management for Hammerheads (50 t TAC each for s22 [redacted] Scalloped), 75% t harvest trigger for each species. When this is met, fish to be landed heads and fins on. It would be important that the TSSC consider some trigger or option for review of the national 300t TACC be agreed to as we are yet to understand the impact on effort that the ONLF will undergo as it transitions to a quota managed fishery. Perhaps a review of the national TACC in a year as more detailed national catch information becomes available?

PROPOSED MANAGEMENT ARRANGEMENTS FOR
THE
NORTHERN TERRITORY

**Offshore Net & Line
Fishery (ONLF)**

s22

STAGE 1 - INTRODUCING AN INDIVIDUAL TRANSFERABLE
QUOTA
MANAGEMENT FRAMEWORK

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INTRODUCTION / BACKGROUND

The Offshore Net & Line Fishery (ONLF) is a limited entry fishery, operating in Northern Territory (NT) waters from the high water mark to the boundary of the Australian Fishing Zone. The area of the fishery is approximately 542,000 nm². The ONLF is currently managed via input (gear and effort based) controls. Primary gears include pelagic net and demersal line.

With the exception of no-take species (as defined under NT Fishery Regulations), the ONLF can take any cartilaginous fish or any bony fish taken while targeting cartilaginous fish using approved methods.

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The NT and Commonwealth via the Northern Territory Fisheries Joint Authority (NTFJA) share responsibility for the management of the ONLF. The Fisheries Division of the Department of Primary Industry and Resources (Fisheries) undertakes day-to-day management of the fishery.

The NTFJA has given 'in principle' support, for the use of Total Allowable Commercial Catch (TACC) and Individual Transferable Quota (ITQ) in the management of the ONLF, subject to satisfactory outcomes for government regarding the cost of management, research and compliance. The Offshore Net and Line Advisory Group (ONLAG), at the request of Offshore Net & Line Licensee Committee, have developed draft new management arrangements in the fishery that primarily focus on output (catch based) controls.

This document describes stage one of the proposed framework as developed by the ONLAG for new management arrangements in the ONLF aimed at addressing contemporary concerns identified through community consultation.

At the request of Industry, the proposed strategy is developed in two stages;

Stage 1: the introduction of an Individual Transferable Quota (ITQ) framework to the fishery, along with monitoring measures necessary to address primary environmental concerns, and

Stage 2: the development of a complementary Harvest Strategy within one year of Stage 1 being implemented.

PROPOSAL OVERVIEW

The key objectives for the ONLF are:

- sustainable use of the resources
- to address the environmental impacts of the fishery and community concerns whilst maintaining licence holder entitlements where possible, and
- to enhance the fisheries economic viability where possible

By setting a TACC and allocating it to licences as ITQ, rights to access the catch are established. After an initial allocation, market forces see the quota distributed among those fishers who value the rights most highly. Often these same fishers are able to utilise the resource most efficiently. It is expected the fishery will autonomously adjust using this approach. Because quota holders are guaranteed a proportion of the total harvest, there is a reduced incentive to compete for catch and operators can concentrate on taking their share of the TACC in the most efficient way for their business.

The TACC for any species provides for long-term sustainability and long-term profitability. Biological systems, which include commercial fish stocks and economic factors affecting fishing are not static and it would be unrealistic to think that the TACC for any given species will be static between years. The maximum sustainable yield may also not correlate to the maximum economic yield in a fishery.

There are three main components to a quota structured fishery;

- the 'licence to fish'
- the 'fishery unit' (Fishery Unit, Entitlement or ownership share) , and
- the annual 'catch allocation' (Quota Unit or Individual Transferable Quota)

A licence is required for a person to take fish for commercial purposes in accordance with Section 10 of the *Fisheries Act*. It is important to note that in the transition of a fishery from input controlled to output controlled; the value of a licence may shift from the licence to the fishery units. Under this proposal, the number of new licences issued need not be restricted, providing whole of fishery bycatch limits and overall ecological impacts of fishing are adequately addressed. Sustainability of stocks within the fishery will be maintained via the annual TACC process.

A 'Fishery Unit' is a single share of the total available shares in the fishery. Upon implementation of these new management arrangements, fishery units are allocated to licences.

A 'Quota Unit' is the fishery unit's annual allocation. The issue of quota units, i.e. 1 kg of whole fish of a particular species/species group allocated (in 1 kg units) to a licence, based on the number of fishery units attached to that licence and the TACC for that licensing year. ITQ (as quota units) means the same as a quota unit. While a licence cannot be transferred, fishery units or quota units can be transferred between licences.

It is proposed that all Shark fishery units s22 [REDACTED] will be allocated to individuals based on current entitlement holdings. s22 [REDACTED]

1. Total Allowable Commercial Catch (TACC)

The ONLF management framework describes the proposed measures for the commercial harvest of s22 [REDACTED] along with a number of associated Sharks s22 [REDACTED]

[REDACTED] There is currently little information available on the harvest levels of other sectors (e.g. Amateurs or Fishing Tour Operators). However, the introduction of the TACC mechanism (which may be conservative in terms of possible Total Allowable Catch) allows for consideration of a potential additional resource allocation to other sectors in the future i.e. scope remains for any future sector allocations. The introduction of an ITQ system into the ONLF will align this fisheries management arrangements with other NT ITQ fisheries and will allow for cross-fishery transfer of quota to permit retention of sharks (currently not permitted) in these fisheries.

Where stock levels for target species are believed to be healthy, a precautionary TACC reflecting a conservative increase to estimated historical targeted catch levels will be allocated to cover all retained species. This will reduce compliance and monitoring costs to licensees, ensure sustainability and provide for growth in the fishery. The proposed arrangements have been developed to provide incentives to harvest catch in a more efficient manner and encourage a greater spread of effort across the fishery through the introduction of spatial management zones thus reducing the risk of localised depletion s22 [REDACTED]

A compliance risk assessment will be triggered by a transition to output controls (quota). It is anticipated that additional checks and balances will be required to ensure catch does not exceed quota holdings. The introduction of vessel monitoring systems will provide for better environmental outcomes for the fishery, improved economic performance for operators through optimised monitoring for access to stock management zones and increased community support.

1.1 Setting the TACC

Under Fisheries legislation, the Minister for Fisheries is responsible for setting a TACC and may, before the start of each fishing season, review and/or determine the TACC for each quota species / or species group. In reviewing and/or determining the allowable catch the Minister may consider, amongst other things:

- The adequacy of government stewardship of aquatic resources promoting fairness, equity and access to aquatic resources by all recognised stakeholder groups the agreed decision rules
- information given by the Offshore Net and Line Advisory Group (ONLAG), and any subsidiary Committee if established
- information about the sustainability of marine species in the area of the fishery
- potential impacts from other community sectors
- the reference points set for the stocks of quota species
- the precautionary principle; and
- any decision made by the Director of Fisheries ('the Director') or the NTFJA

The proposed Regulations shall describe the parameters for determining TACC's, and the annual TACC may be prescribed by the Minister in those regulations. The TACC will remain as set by the Minister until the Minister determines a new TACC. If the Minister for Fisheries does not set a new TACC prior to a fishing season, then the TACC set for the previous season will apply.

The Director may develop decision rules and management actions associated with the implementation of TACC's in a fishery. The decision rules should be included in the regulations (where appropriate) and include as a minimum; objectives, performance indicators, trigger points and management actions covering:

- monitoring the fishery effectively and minimising high grading / discarding
- establishing and maintaining confidence in TACCs
- maintenance of bycatch within acceptable parameters
- review of retained and non-retained catch composition
- interactions with threatened, endangered, protected or listed species
- effects of fishing on the ecosystem

In approving any decision rules the Director may consider, amongst other things:

- information given by the Offshore Net and Line Advisory Group (ONLAG), and any subsidiary Committee
- the total estimated catch by commercial, recreational, indigenous fishers and any other users of the fishery
- impacts on other sectors equitable access to resources in key areas
- information about the sustainability of marine species and ecosystems in the area of the fishery and conformity with the *Environmental Protection and Biodiversity Conservation Act* (the *EPBC Act*)
- the reference points set for the stocks of quota species
- the precautionary principle; and
- any decision made by the Minister

S22

s22

1.4 Combined Shark Species

s22

The period used to determine average targeted catch was 2007-08 – 2011-12. It is proposed to formalise the historical harvest levels as TACC. The historical harvest average has been used as catch and CPUE trends have shown no clear evidence of decline in the stocks of these species. However, given the recent listing of Hammerheads on the Convention on International Trade in Endangered Species (CITES) Appendix II, precautionary management measures are required for the two relevant species. The measures will ensure the catch of Hammerheads is maintained at levels acceptable to the Department of the Environment and Energy (DoEE) (e.g. ~50t / sp.), while not actively encouraging discarding. You can find more on this topic at section 11.

Acknowledging the limited information for the species contained in this group, the management framework provides for a regular review of quota limits, allowing limits to be adjusted as more information becomes available.

s22

s22

2. Fishery Access

2.1 Background Information

When determining a licence's potential access and allocations, it is relevant to provide some background information to the progressive evolution of the ONLF's management arrangements. On the establishment of the NTFJA in 1995, eligibility of existing Commonwealth permit holders to participate in the future was determined on proper grounds. Those eligible permit holders were granted access into the new NTFJA fishery. In 1996 industry requested Government to introduce a 3 for 1 licence reduction scheme to coincide with the amalgamation of the then Commonwealth and NT fishery Inshore, Offshore and a GoC zone. The 3 for 1 licence reduction scheme has reduced the licence numbers from 38 to 17. Note: this scheme no longer serves any useful purpose and will not be carried forward.

During 2004-05, the fisheries management arrangements were amended to cap the total allowable effort that could be used in the fishery to historical levels. This was considered necessary to address community concerns about rapidly increasing Shark catches in the fishery. At this time, there was an average of 10-14 licences active in the fishery annually, though some of these were only active for a relatively small portion of the year. These active licences comprised on average 2 restricted and 10 unrestricted licences.

At the request of industry, the 2004-05 effort allocation was equal to each licence based upon the type of licence held (e.g. 'restricted' or 'unrestricted'). It was noted at the time that this mechanism placed significant operational restrictions upon all active operators. A recognised advantage available to an operator from leasing out effort (or catch) units each year is for the development of a more flexible income stream regardless of what type of licence previously held or whether they were 'inactive' or considered to be 'latent effort'. This additional income stream could be used to offset any potential financial discrepancies between the old and new schemes. Note; only those licences current prior to the commencement of the new Regulations will transition into the new scheme.

2.2 Allocation

It is proposed that 100% of the fishery units for each Shark species/species group s22 will be allocated to licence holders based on their existing ONLF holdings. s22

The period used to determine allocation to licence holders, 2007-08 – 2011-12 was the five years immediately prior to fishers being notified of the review in late 2012 and the consultation paper being released in early 2013.

The number of fishery units issued to the ONLF is as follows:

s22

Combined Shark species: 246,441 fishery units

s22

The number of fishery units equally allocated to one Pelagic Net fishery unit is as follows:

s22

Combined Shark species 17 fishery units

s22

The number of fishery units equally allocated to one Demersal Long-line fishery unit is as follows:

s22

Combined Shark species 937 fishery units

s22

s22

s22

2.4 Development of an emerging Species

Provision for development of other Shark species is provided for through the quota allocated to the Combined Other Shark Group. Triggers to review an emerging Shark species within the Combined Other Shark Group are risk-based and proposed to be set at 10%.

The ONLAG can recommend to Fisheries that an individual Shark species be elevated from the group to have an individual species-specific quota. Such a recommendation would be made to the Director of Fisheries and, if approved, referred to the Minister for consideration.

3 Individual Transferable Quota (ITQ)

ITQs are the annual allocation of quota units to a licence, based on the number of fishery units held by that licence. The TACC in any given year may need to change, based on the estimate of the sustainable harvest level. To change the level of harvest from a stock, the value (not the number) of a fishery unit will be changed. If the estimate of sustainable harvest goes up, the value of the fishery unit will go up and vice versa. One quota unit will always equal 1 kilo of whole fish.

To work out how much quota will be held by any one licence, divide the number of fishery units held by that licence by the total number of fishery units for a species or species group; then multiply the product by the TACC for that species or species group. Note; partial numbers will be rounded to the nearest whole number.

4. Licensing and Quota Provisions

A key difference under this proposal is that there will be fishery units attached to the licences which entitle the licence holder to an annual quota unit allocation. A fishing licence currently provides access to the fishery for licensees, subject to provisions of the Fisheries Act and additional management arrangements in place for that fishery.

To assist in the administration within NT Fisheries, unique licence numbers are used as the lynchpin holding the various identifying elements of a complicated structure together. A number of elements, such as party, contact details, vessels, gear, catch and effort logs, fishery units and quota, any special catch or gear conditions and crew are linked to the licence within the database mainframe. The fishing licence is a mechanism that can be used to control multiple species, bycatch (discards) and gear impacts on the ecosystem. Licences are proposed to be non-transferable.

All renewed licences immediately prior to the commencement of the new Regulations will be automatically transferred under the new Regulations. Additionally, it is proposed that a new entrant who is purchasing **fishery units or quota units** in the fishery shall simultaneously apply for and, if approved, the Director shall issue an **A5/5xxx** series licence to the new entrant.

4.1 Non-transferable Licences

Licences issued under Fisheries Regulations 97 or 98 (subject to Reg.96B) are currently fully transferable. This capacity is not required under a quota system as there will be no restrictions on new licences issued. Licences will not be transferable under the new scheme. Licences currently in the fishery will be transferred into the new Regulations framework and will provide for the initial allocation of fully transferable fishery units.

4.2 Fishery Unit Transfer

A licence holder's fishery unit may be sold (i.e. permanently transferred) subject to the following conditions pertaining to the transfer of fishery unit. Note, if the licence holder sells ALL his fishery units he will not be entitled to receive any future allocation of quota units. The new holder of the transferred fishery unit will not have any quota units issued until the next licensing period.

The existing Shark Unit Entitlement transfer fee of \$10 per unit will be removed under the new scheme. The minimum amount of fishery units that may be sold is undecided but will depend on the varying cost of administration to transfer one or a set amount of fishery units. A fishery unit holder may sell some of or their entire fishery units. Note; as the nominal 'value' of a licence will shift from the licence to the fishery unit, the sale of fishery units may attract stamp duty obligations.

4.3 Quota Unit Transfer

Under this proposal, quota units are considered to be a separate entity to fishery units. Once they have been allocated to a licence, they have a nominal 'life' of the licencing period in which they were issued (i.e. one licencing year) and as such quota units may be transferred. A quota unit holder may transfer some or all of their quota unit allocation. Note: as quota units only have a nominal 'life' of twelve months, they may be transferred only within the licensing year to which the quota unit relates. A new entrant to the fishery must apply for, and be approved, an Offshore Net & Line licence simultaneously for the transfer of quota units to be approved.

The introduction of an ITQ system into the ONLF will align this fisheries management arrangements with other ITQ managed fisheries and will allow for transfer of quota between ITQ fisheries.

A large, bold, black serif font 'S22' is centered on a solid grey rectangular background. The 'S' is significantly larger than the '22'.

s22

5. Permitted fishing gear

At the commencement of the new plan, licensees will be entitled to use the gear currently permitted in the fishery (demersal long-lines, gaffs and pelagic net gear). Each Offshore Net & Line licence would be

endorsed to utilise demersal long-lines and pelagic net in the same areas of the fishery as currently permitted.

To make more efficient fishing operations, structured development of alternative or innovative gear types in the fishery is encouraged. As is the case now, all new gear being proposed for trial in the fishery will be subject to approval by Fisheries. Under the Fisheries legislation there is provision for permitting the possession of fishing gear which otherwise would not be allowed (a Section 17 permit). Applications for Section 17 permits must be made in writing on the prescribed form, and be accompanied by all relevant information supporting the application. The NTJFA has an endorsing role for S17 applications in NTJFA fisheries, and the permit is approved by the Director. Consideration must be given to the potential impacts of the gears on the environment.

The NTFJA will necessarily take a precautionary approach, in accordance with the principals of the *Fisheries Act (1988)* and will regularly monitor and review the overall impacts of the fishery on the resource. If the application is approved, validated fact finding trials could then be conducted on the gear by the operator to evaluate its potential impacts on the fishery's catch composition, other sectors, fisheries and the ecosystem.

6. Cryptic Mortality

Cryptic mortality refers to unknown or unreported mortality of a species. The main issues identified through this process are unresolved cryptic mortality uncertainty (including species identification), community perception issues relating to potential for high grading and potential discarding of unwanted fish and to a lesser extent, humane treatment concerns. s22

It is important to note that the practice of removing fins from live Sharks and discarding of the body back into the sea is not permitted in Australia and is definitely not supported by any licence holders in the fishery.

7. Processing At Sea

To better address the cryptic mortality risk posed to the fishery, it is proposed to implement measures intended to reduce the potential of 'finning' (i.e. at-sea removal of fins from dead Sharks and discarding the carcass) occurring.

Currently the fishery operates under a fin to meat ratio system; which encourages operators to utilise as much of the animal as possible while recognising limitations caused by unintentional equipment failure, Shark or lice bitten product and preserving as much practical and economic flexibility as possible within a professional fishing operation. However, processing at sea impedes the collection of accurate species-specific scientific data that are essential for monitoring catches and landings and implementing sustainable Shark fisheries management.

Additionally, the NT settings for fin ratios have been criticised by a number of external stakeholders as not aligning with scientifically determined ratios. The argument being this allows poor operational and unreported practices to occur unless a robust and defensible monitoring program is in place. Additionally, there are significant differences in fin-to-carcass-mass ratios between species, fin sets or cutting procedure demonstrating that the ratios can be problematic. Having a rigorous validation process in place for the catch will be important as it provides confidence in the level of take, accuracy of species identification and of discard levels.

In order to facilitate proper enforcement and importantly, to enhance the communities confidence that species identification is as accurate as possible, and discarding and high-grading of animals is not occurring, it is proposed that all operators must land Sharks with fins naturally attached (FNA). In the

case of Hammerhead Sharks when 75% of the TACC has been taken, and there is no electronic monitoring in place, the heads need to remain attached to the body for accurate species identification. There is an acceptable exception to this rule, refer note below.

Note: an operator who believes they have a case for special circumstances (e.g. the lack of viable ports (GoC), remote nature of the fishing grounds and/or product quality / maintenance issues with on-board brine space and cold storage of whole/trunked animals) may apply to the Director for an exemption to the FNA rule. As each vessel setup is unique, the Director may assess each application on a “case by case” basis. If the Director believes the operator has a valid circumstance, he may grant a ‘conditional’ exemption to the FNA rule. However, in order to maintain the community’s confidence in the fishery, and not undermine the efforts of other fishers to improve the fisheries social licence, the operator would need to provide safeguards to ensure species were recorded accurately, no discarding of trunks/carcasses and the volume of fins matched the quantity of Shark landed. To meet this requirement, Fishing Monitoring Equipment (FME) (e.g. electronic monitoring) is proposed for any vessel which has approval to remove fins at sea. Approved FME is defined in Fisheries Regulations and means equipment that is fitted to a vessel; a) to detect when and where fishing occurs, and b) to record catch information. The equipment may include, for example, sensors, a digital video camera and a computer system.

These two measures meet Marine Stewardship Council “80” requirements for robust external validation purposes, minimises cryptic mortality concerns, assists with species identification and is expected to significantly enhance the community’s confidence in the fishery. The Department is in the process of developing a set of protocols which will govern the collection, storage, monitoring and sharing of information obtained by FME. It is not yet determined what level of viewing of the cameras there will be, but is expected to be similar to other States / Cth processes (e.g. 10% viewing as a base and additional if issues are detected); however, the level needs to comply with accepted scientific rigour in order to achieve the goal (i.e. validate the logbook information) and meet community expectations. To reduce the storage costs for large volumes of footage, it is proposed to delete footage not required for prosecution purposes after six months of the review. Any information collected by these methods is confidential with only non-commercial in confidence information and agreed outcomes with a summary discussed at ONLAG.

It is intended to continue to encourage full utilisation of Sharks under the new scheme and each licence is proposed to have revised conditions attached as outlined below;

“A person, during the conduct of a fishing operation under a licence or permit, shall not discard a Shark unless he/she reports the reason (e.g. equipment failure, no marketability or lice bitten) and subsequent discards on the logbook returns.”

7.1 Minimum trip holdings

Minimum quota unit holdings for each of the species groups are required for the licence holder to enter the fishery (i.e. go fishing). The requirement for minimum holdings is recognition that as demonstrated historically the proposed quota target species cannot be caught in isolation from other species. The level to which minimum holdings are set is important as the appropriate level will minimise incentives for high-grading of target or high value species and discarding of less valuable species and for managing access to more vulnerable species in the ONLF.

To ensure effectiveness the amount of minimum holdings generally represents one and a half times the amount of fish that could be expected from a productive trip. Additionally, the makeup of the minimum holdings quota should represent the types of species the operator is likely to catch while fishing. Minimum holdings also reduce compliance monitoring and analysis costs and assists with limiting overcatch and subsequent reconciliation issues. Operators who take in excess of allocated quota not only undermine the principals of the NT *Fisheries Act*, it also affects the integrity of other operators’ holdings.

Important note

Sufficient quota must be held to cover the entire catch for each trip. The onus is on licence holders to ensure that they check their quota balance thoroughly and report any discrepancies or errors to Fisheries.

7.2 Demersal Longline Minimum Holdings

When Demersal Long-line gear methods are used, it is proposed a total minimum holding of 13,700 kgs will apply. This minimum holding comprises:

s22

- Combined Shark species (35%* of 13,700 kgs), rounded off to: **4700** kgs**

s22

* These figures will change as the catch composition average changes over time.

**Figures rounded off to the nearest 100 kg.

7.3 Pelagic Net Minimum Holdings

When Pelagic Net gear methods are used, a total minimum holding of 4,500 kgs will apply. This minimum holding comprises:

s22

- Combined Shark species (3%* of 4,500 kgs), rounded off to: **150** kgs**

s22

* These figures will change as the catch composition average changes over time.

**Figures rounded off to the nearest 50 kg.

The level of minimum ITQ holdings are intended to be set so as not to prematurely place inappropriate restrictions on operators, i.e. not so large as to restrict entry to the fishery, but sufficient to discourage high-grading and issues associated with unrestricted access to non-quota species.

A licensee must ensure minimum ITQ holdings for each species group is held prior to commencing a voyage. Suitable penalties for non-compliance of these provisions will be imposed.

7.4 Mechanism to determine average catch composition for each species group

It is anticipated that the catch composition of the fishery may change with the introduction of ITQ. To monitor this change, the catch composition for each gear will be reviewed annually by Fisheries. Fisheries will determine the average catch composition for each gear type and quota species group using the fisheries catch composition rolling average for the last three years.

This section is included to clarify the process for reviewing minimum holdings amounts. There is no cost to industry in this process.

8. Bycatch

All Combined bycatch species currently have a review trigger of 10% of the total annual catch for the Offshore Net & Line fishery.

Additionally, to reduce unnecessary discarding and encourage better utilisation of sharks, it is proposed to maintain an individual vessels bycatch to less than 20% of the total fisheries estimated bycatch in any one year. The measure is designed to provide an individual operator incentive to develop markets for a

range of mixed species and not to discard other target species s22 . However, if there is an individual operator deliberately discarding target species thus risking the fisheries social licence, this unsustainable practice will trigger additional monitoring to review their operations. It is proposed the operations review and education cost should only be borne by the individual operator, not shared with other operators in the fishery.

Fisheries will periodically review the fishery's catch composition to ensure the bycatch triggers are maintained at an appropriate level. There is no cost to industry in this process. If concerns arise over combined group, bycatch or other catch issues the information may be sought from an operator suspected of being in breach seeking him to 'show cause' as to why an observer should not be placed on his vessel to monitor his fishing activities at his expense..

8.1 Byproduct

These combined species groups are the Combined Shark, s22 . In recognition of emerging research needs for vulnerable species as identified by the ONLAG, triggers to review emerging species within the Combined Shark Species group, s22 are proposed to be developed during Stage 2 of this review (i.e. the Harvest Strategy).

9. Reporting

Logbooks currently record individual species by number and weight. Bycatch species are recorded by weight. Observer data is often used to verify logbook data. To enable the timely identification of individual species, it is proposed that logbooks will be completed daily and provided to Fisheries within twenty eight days of the end of the month. Fisheries are also trialling an electronic logbook (e-logs) where daily catch and effort information can be submitted electronically to Fisheries by email when in port. This program will be field tested in coming months and be available for roll out across the fleet from July 2017. Monthly market detail logbooks shall remain as currently provided; i.e. within twenty eight days of the end of the month.

To minimise 'offshore' compliance costs, enforcement of the quota system will be assisted through the licensee completing a Catch Disposal Record (paper, CDR) designed to record weights of fish unloaded (Fisheries Act s34). The final design and printing of the CDR is being reviewed for use in the ONLF, and is anticipated to be similar to that used in the nearby offshore s22 fisheries. A key difference in the interim (at least until e-logs are commonly used), will be reporting of s22 , Scalloped s22 weights on the CDR's in addition to the Combined Species Groups. A mechanism to report notices electronically is currently being explored through the vessel monitoring system and e-log system and may provide operators an alternative to paper forms.

9.1. Monitoring

The current base-level of observer coverage (funded by government) is proposed to be maintained to minimise the communities' concerns and uncertainty relating to perceived cruelty to animals, discarding, cryptic mortality, and provision of adequate species identification training or monitor changes in fishery practices anticipated under a quota system.

In order to ensure sufficient validated information is gathered and to meet community expectations, it is proposed that the Department maintain the current level of observer coverage. The framework reflects this requirement with one government funded observer trip conducted in the fishery for each 300t combined catch, up to a combined catch of 900t, e.g. current levels. It is proposed that as the fishery develops beyond this point, industry fund observer trips as required (eg. every 300 t over 900 t).

To address increased risk to sustainability with increasing harvest levels, it is proposed there is fishery wide observer monitoring initiated by harvest rules developed for each species (or species groups). Note: if the fishery does not develop beyond the current harvest levels, additional monitoring is not triggered under these harvest rules, therefore costs to industry are contained. It is anticipated that these proposed

monitoring levels will promote community confidence and minimise cryptic mortality concerns. (Refer Appendix 1).

To ensure effective enforcement of quota, it will be a requirement that all unloading of catch by operators be carried out in Darwin or Nhulunbuy (may be additional compliance costs for operators using this port). As is the case in other NT quota managed fisheries, a licensee may apply to the Director seeking approval to unload quota species in another port in special circumstances (e.g. cyclonic weather, approved mother-boat or crew safety concerns, etc.) to be outlined in a brief written application.

It is also proposed for individual operators who wish to unload catch in another port (e.g. Karumba) on a more permanent basis to apply to the Director for approval as is the case in other NT quota managed fisheries. Approval to this scenario will require the operator to establish an approved alternate compliance monitoring regime (e.g. Compliance Officers or installation of Fishing Monitoring Equipment) to maintain integrity of the Quota system and fishery regulations. It is also proposed that any additional monitoring costs would be borne by the requesting operator (i.e. via the Level 2 mechanism), not borne by the ONLF fishery as a whole. Note: if the vessel has approved fishing monitoring equipment installed to comply with an exemption to the FNA rule or approval to unload to a mother-ship (for example), any additional monitoring costs would likely be minimal.

No quota species (or their products) intended for sale will be allowed on board a vessel upon commencement of a voyage. This is required to assist enforcement activities and will greatly reduce the cost of ensuring compliance with the proposed management arrangements. However, as is the case in other NT quota managed fisheries, a licensee may apply to the Director seeking approval to store quota species on board in special circumstances (e.g. on-board storage of product for export etc.) to be outlined in a written application.

9.2 Vessel Monitoring Systems (VMS)

It is proposed to introduce Vessel Monitoring Systems to all vessels operating in the ONLF. This system would provide for accurate, real-time monitoring of a vessels location and two-way transfer of data between the Fisheries monitoring office and the vessel.

The introduction of VMS into the ONLF, along with the Timor Reef and the Demersal fisheries would enable cost-sharing of VMS related establishment, administration and monitoring costs and provide a cost effective monitoring alternative to observers. It is proposed that VMS administration costs are to be funded by Fisheries for the first year (or remainder of) to enable the fleet transition into the new arrangements. s22

Additionally, the Department is working closely with Commonwealth Parks Australia to explore VMS monitoring cost-sharing options for when vessels are in a Commonwealth Marine Reserve. A Technical Fact Sheet explaining VMS is available from Fisheries upon request.

9.3 Scales and weights to be used when quota species are unloaded from vessel.

An operator must not unload or attempt to unload product for sale unless the fish is in a standard product form (e.g. whole or trunked (FNA) or pieces or fillet (under a FNA exemption)). An operator must not unload or attempt to unload quota species for sale unless the operator has in his or her possession a suitable trade weight for the purpose of testing the scales used by the operator to weigh quota species. On any day that a quota species is weighed, the operator must use the suitable trade weight to test the scales for accuracy before weighing the quota species. Note: product for sale must be weighed on certified scales. If product is weighed and bagged/boxed at sea, certified motion compensated scales must be used and a label applied to each product box or container displaying species name, cut (whole, trunked, fillet etc.), net weight, vessel name / licence number, along with date caught. A contravention of this clause is proposed to be an offence. Compliance Officers will randomly monitor weights as the cartons etc. come off the vessel at unload.

After testing the scales with the trade weight, it is permissible to 'tare' off the scales using an empty product container (dry), lid (if applicable), plastic liner before weighing the product off the vessel. Observers or Compliance Officers will randomly monitor this process and significant penalties may be applied if fraud is evidenced.

9.4 Transfer of catch between vessels

In order to ensure that the compliance and administrative issues of the new arrangements can be simplified, the plan will not allow for transshipping of product without prior approval.

However, operators working in remote regions of the NT (e.g. GoC), may apply to the Director seeking annual approval to tranship quota species at sea to an approved mother boat to be outlined in a written application. It is also proposed that any additional monitoring costs would be borne by the requesting operator (i.e. via the Level 2 mechanism), not borne by the ONLF fishery as a whole. Note: if the vessel has approved fishing monitoring equipment installed to comply with an exemption to the FNA rule or approval to unload in Karumba (for example), any additional monitoring costs would likely be minimal.

10. Costs

It is anticipated that there will be some additional financial costs to Government and industry as the proposed Offshore Net and Line Fishery moves to a Quota Management System (QMS). With QMS, the timing of CDR data entry becomes critical to effective monitoring of quota allocations. Additionally, strict enforcement of fishing zones and catch landings to ensure compliance becomes critical to maintain transparency and confidence in the TACC. This will require additional resources.

Government is unable to support, on behalf of the community, any increase in current management costs that are associated with implementation of QMS into the Offshore Net & Line Fishery (other than assistance with VMS setup costs and transition scheme as proposed in section 9.2).

A proposed licence fee and levy quota cost recovery system has been developed as a guide for setting up a similar cost recovery process for the Timor Reef & Demersal quota fisheries, and now, the ONLF fishery. It is proposed Fisheries review operating costs annually in collaboration with industry.

10.1 Review of Current costs

Fisheries have reviewed research, management and administration costs associated with the current administration of the fishery. Fisheries fund three monitoring trips per year, a portion of a manager's time (generally risk-based evaluation of operations, assessment of operations with alignment to communities expectations and reviews appropriateness of policy and legislation), a portion of a scientist's time (generally in-depth analysis of fishery) and licensing, vessel registration and logbook data entry and verification.

The current costs of administering the Offshore Net & Line Fishery are not included in the additional costs referred to in section 10.2. Note: Transfers of units between licensees are not expected to be administratively onerous and it is not proposed to set a transfer fee. New costs identified as a consequence of moving to quota are outlined below.

10.2 Additional Administration, Management, Compliance and Research costs

A change to ITQ management will generate some additional costs to government and industry. There may be further costs yet to be identified or uncovered as implementation of ITQ is advanced in the fishery. These costs are additional to those costs attributed to breaches and triggers of management objectives and performance indicators.

Additional 'one off' and ongoing management costs which have been identified and preliminary costings are detailed below;

- Design and printing of Catch Disposal Record logbooks (~\$450)

- Provision for logbook and licensing operator resources (costs can be shared with TRF & DF operators) to enter and acquit units/quota and CDR data (ONLF share ~\$21,890), Note: uptake of e-notices will be reviewed annually and could significantly reduce the ongoing cost by up to 15%.
- database maintenance 3% (Offshore Net & Line ITQ component) of database budget (~\$3,860)
- Compliance Costs, incl. vessel monitoring resource costs (~\$28,000), Note: uptake of e-logs/e-notices to be reviewed annually and could significantly reduce the ongoing cost by up to 15%.

Additional ongoing costs have been identified at ~\$54,200. There are potential savings of \$7,500.00 from more efficient reporting processes if e-notices are utilised throughout the fleet (e.g. e-Catch Disposal Records and e-notices) which lower the ongoing costs.

Important Note: It is proposed for Fisheries to offset VMS administration setup and monitoring costs to industry for the first year of operations to assist with transition into the new scheme, s22 [REDACTED]. This amount is expected to be approximately \$15,000; reducing first year costs to industry to ~\$39,200 (i.e. \$54,200 - \$15,000).

10.3 Cost sharing mechanisms

Revenue raising measures required to share additional costs from industry would start as soon as the scheme is implemented into the fishery. If the scheme is implemented prior to the start of a licensing year, costs will be recovered on a pro-rata basis.

Note: the Northern Territory Seafood Council (NTSC) levy, currently collected at licence application or renewal time by Fisheries on behalf of the NTSC, will not be affected by these measures. Licence holders will need to factor the NTSC levy into licence renewal costs upon application / renewal.

10.3.1 Recovery of 'Once off' start up management costs

There are no identified 'one-off' start-up management costs. Fisheries proposes to offset VMS administrative setup and monitoring costs to industry for the first year of operations to assist with transition into the new scheme, s22 [REDACTED]. The work required to restructure the fisheries database and establish administrative mechanisms have been largely completed by existing quota fisheries (TRF & DF).

10.3.2 Recovery of 'on-going' Management Costs

It is proposed to retain annual licence administration fees and to increase those fees annually by CPI to offset existing costs to government (i.e. the current 'base level' fee for an A5 licence is \$1180 for 2016-17).

Additionally, determination of a licence holder's 'on-going' additional costs **after** the first year will be from the Level 1 mechanism of cost recovery (described below) and their licence fee each year will be adjusted accordingly: i.e. Based on a licence holders unit holdings for each species group, not just holding a licence.

10.3.3 Proposed Mechanism for funding Decision Rules Management Response

Management actions need to be clearly defined and costs estimated in order to develop an acceptable, agreed system of cost sharing.

This will be done for each management action and will sit behind the Performance Measures (refer to Appendix 1). Proposed Management Responses (MR) for specific breaches of the Trigger Points (TP) relating to Performance Measures (PM) has been developed. In the attached PM table, each MR has been allocated a number (MR1, MR2, etc.) to distinguish it from other MR's following a breach of a PM.

A cost recovery mechanism proposed to recover 'on-going' additional management costs based on a licence holders fishery unit holdings, is described below in section 10.3.4 (Level 1).

In addition, it is proposed to structure a staged cost recovery system which will be applied when a trigger point is breached. The costs to be recovered from an individual operator can be a fixed cost per day for an observer to go on a vessel (Level 2). Refer to Appendix 2 for working examples of the cost recovery mechanisms.

10.3.4 Level 1 mechanism

A Level 1 cost recovery mechanism is proposed to recover 'on-going' additional management costs after the first year, plus CPI increases, including some monitoring and compliance costs. Note: Licences will not be renewed, nor will Undercatch or ITQ be allocated until all outstanding fees and charges are addressed.

10.3.5 Level 2 mechanism

It is proposed to apply a Level 2 cost recovery mechanism to recover the cost of an observer = ~ 700 penalty units / day. When Level 2 is applied costs will be recovered through the issue of an Invoice payable before the next quota allocation can be issued. Note: the number of observed fishing days on the trip should be at least as long as the average number of fishing days for the past 3 voyages. If the observer monitors less than this amount of time, and the information gathered is not sufficient to adequately address the reason for the trip, the fisher may be required to repeat the exercise at the discretion of the NTFJA.

10.3.6 Management Costs Recovery Summary

It is proposed to recover costs via the three Level mechanisms. Level 1 will be used to recover 'on-going' additional costs; Level 2 will be used to recover the cost of an observer (to an individual licence holder) and Level 3 to recover monitoring, research and compliance costs for analysis and reports.

Cost sharing arrangements in the **first** full year of quota in the ONLF fishery are estimated to be ~\$39,200. A licence holders share of the on-going additional cost of \$39,200 (the base Level licence fee for 2016-17 has already been received) is levied pro-rata based on proposed fishery unit holdings for each species group. This levy will be payable on re-issue of the licence or pro-rata on the commencement of the Regulations.

On-going additional administration costs from year 2 are comprised of the estimated on-going additional costs + base Level licence fee for 2017-18 + CPI and will be recovered from the Level 1 method of cost recovery. These costs will be evaluated each year by the department and amended if required. Compliance and administration costs are still being reviewed and as a result, estimates may change.

11. Additional Considerations

The Offshore Net & Line fishery gears and operating practices have been independently assessed by the Department of the Environment and Energy (DoEE) for environmental sustainability and the fishery granted a six month Wildlife Trade Operation (WTO). This exemption extends until 27 October 2017. Details of the WTO can be accessed at: <http://www.environment.gov.au/marine/fisheries/nt/offshore-net-line>

DoEE supports the continued reporting of future assessment needs for each fishery, but reinforces the requirement for Fisheries to advise DoEE of any intended change to the NT ONLF management arrangements, including legislated amendments that may affect sustainability of the target species or negatively impact on group, bycatch, protected species or the ecosystem.

In addition to the 'normal' environmental accreditation processes, the Convention for International Trade in Endangered Species (CITES), Threatened Species Scientific Committee (TSSC) has also conducted a Non-Detriment Findings assessment on Hammerhead species caught in Australian waters including the ONLF. In coming to an interim positive Non-Detriment Finding, the TSSC has noted the proposed changes to the ONLF management arrangements, as outlined in this framework, would be required to be implemented to retain a positive NDF. Failure of the ONLF to gain a positive non-detriment finding may lead to the WTO accreditation being withdrawn and the fishery having significant harvest restrictions

implemented. Further information, including a list of species for which non detriment findings have been issued and the fisheries from which they may be sourced, is available from <http://www.environment.gov.au/biodiversity/wildlife-trade/cites>.

In coming to an interim positive NDF for Hammerheads, the TSSC noted that fisheries interacting with Hammerhead species would need to have recognised measures in place to validate reporting, ensure accuracy of species identification and to quantify discards. Recent advice from the TSSC noted there is recognition that much has been done (and is planned) to sustainably manage shark, however, TSSC, based on provisional advice, is of the view that the current rules in place are not sufficient to support a conservation dependant listing. They also noted that a number of additional measures would be required before September 2017 to support the consideration of a conservation dependant listing (catch limits, verification of catch and discards, monitoring etc.), Australian, Queensland, Northern Territory governments and the Great Barrier Reef Marine Park Authority are working together to ensure a consistent approach across jurisdictions wherever possible.

Appropriate measures to accommodate the TSSC's directives were developed by ONLAG, along with measures to record Threatened, Endangered and Protected Species interactions are included into this framework.

It is proposed to introduce a harvest limit of 50t for each CITES listed Hammerhead species. At this limit, if fishers can't demonstrate a negligible catch of hammerheads (through observance) they will have to cease fishing. To ensure this limit is not exceeded, it is also proposed that appropriate measures would be implemented to control harvest when catches reach 75% (or 37.5 t) for any of the species if required. These measures include retention of heads and fins on body upon landing, unless the vessel has approved monitoring equipment operating on vessel and has an exemption to the FNA rule issued by the Director.

DoEE is aware of the ONLF developing a formal management framework with an accompanying Harvest Strategy s. In the event that this framework is adopted, Fisheries will need to seek re-accreditation under Part 13 and Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* for the new management plan as the current accreditation would be deemed invalid.

Terminology Definitions

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Combined Other Shark Group species when used in this division means all retained shark species other than s22.

s22

A5/5xxx series licence means an Offshore Net & Line Fishery licence category. It is proposed all licence categories in the Offshore Net & Line Fishery (ONLF) be assigned to this licence category symbol.

A5/1xxx series licence means an existing Offshore Net & Line licence category which has not participated in a licence reduction scheme. It is proposed to abolish this licence category symbol and amalgamate the licence into the **A5/5xxx** category.

A **Fishery Unit**, when used in this division means a single share of the total shares available to the fishery (Initially, a total of 1 fishery unit for each kilogram of quota species TACC are to be issued for the whole fishery).

Entitlement (as fishery units) reflects the number of fishery units held by a licence at the commencement of the new Regulations. It is proposed each Offshore Net & Line licence will be granted similar amounts of fishery units (or shares) for each of the combined species groups in the fishery dependent upon current holdings and catch history. Permanent transfers of fishery units may occur. When fishery unit is permanently transferred it is referred to as a 'fishery unit' transfer.

Quota unit when used in this division means the fishery unit allocation. The issue of quota units, i.e. 1 kg of whole fish of a particular species group allocated (in 1 kg units) to a licensee, is based on the entitlement of the licence for that licensing year and the TACC. When a transfer of an entitlements allocation occurs it is referred to as a 'quota unit' transfer.

Individual Transferable Quota (as quota units), when used in this division means the same as a quota unit.

Minimum Holdings (of quota units) when used in this division means a set amount (in kilograms) of quota units for each quota species group a licensee must have attached to the licence prior to the vessel commencing fishing operations. To be reviewed annually and revised if necessary. The reviewed catch composition is applied to this figure and adjusted if necessary.

Precautionary Principle when used in this division means when an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

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Final Draft

Final Draft

Final Draft

Hammerhead consultation summary

Respondent	Expertise	Supports (y/n)	Comments
AMCS (Australian Marine Conservation Society Inc)	Marine conservation	Y (not Cons Dependent)	
s22			
Qld DAFF	Marine management	Y (Cons Dependent only)	
s22			
NT Fisheries	Marine management	Y (Cons Dependent only)	Overall reject the proposition that the Northern Territory and Indonesian stocks are linked (but see rebuttal by Michelle Heupel).
s22			

AMCS

- Supports listing and use of similar species approach.
 - Decline of 50-70% most plausible
- Notes CMS and CITES listing
- Suggest that record keeping is poor and catch of hammerheads is likely under-reported
- IUU fishing still likely to be significant, given high value of HH fins.
- Cite study that suggests poor post-release survival of hammerheads.
- Rebut Conservation Dependent
 - Other CD species have better info on historical catch and are not subject to recreational fishing.
 - Too complex to be able to develop appropriate management plan.

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Qld DAFF

- In 2013/14 around 302 tonnes of the TACC was reported in the ECIFFF; 4.4% of which was scalloped hammerheads.
- Refers to Noriega et al (2011) which showed an increase in scalloped hammerhead catch at Gold Coast (*The paper also noted that the catch was 70% small individuals. It also reported a decline in mean size of females across Qld which it considered a potentially serious concern*).
- Agree with difficulty in differentiating between the s22 species of hammerheads.

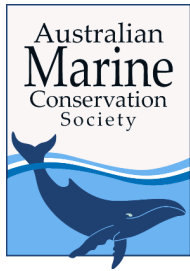
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NT Fisheries

- Raise some concerns about variability in generation time.
- “There is no direct evidence to support hypotheses that mature female *S. lewini* reside outside Australian EEZ waters and are exposed to Indonesian or other international fisheries. “
- “A single longline vessel, constrained to a maximum of 234 fishing days, did operate in the Northern Territory waters until 2012. This vessel typically operated further offshore and caught larger *S. lewini*, although it was rare to catch individuals over 200 cm during monitoring trips. “
- “Since 2006, catches have been stable, with no alarming decrease in the catch. At the same time catch per unit effort (CPUE) has continued to increase despite this species not being targeted.”
- Overall reject the proposition that the Northern Territory and Indonesian stocks are linked (but see rebuttal by Michelle Heupel on annotated copy).
- Suggest that “shark stocks” have recovered from the Taiwanese fish etc. but do not provide references or specific data on hammerheads.
- “DPIF is proposing to implement a range of conservative management measures that ensure shark species identified as being the most vulnerable to fishing (through ERA’s etc.) maintain their healthy status in the Northern Territory. “ (p7 and 8 of their response)

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Species Information and Policy Section
Department of the Environment
GPO Box 787
Canberra ACT 2601

7th July 2014

By email: species.consultation@environment.gov.au

Dear Director,

Re Possible inclusion of three species of hammerhead sharks on the *Environment Protection and Biodiversity Conservation Act (1999)* list of threatened species

Thank you for the opportunity to comment on the possible inclusion of the scalloped, great and smooth hammerhead shark on the *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act) list of threatened species. Representing over 50,000 Australians, the Australian Marine Conservation Society (AMCS) has been working to protect threatened marine species for nearly fifty years.

AMCS does not have additional information on species distribution, empirical data, estimates of population numbers or trends to offer to the assessment process. Consequently, we will limit comments to the appropriate level of listing (Endangered or Conservation Dependent) and degree of threat posed by commercial and recreational fishing.

Species under consideration

AMCS supports the listing of all three species of hammerhead shark as a result of morphological similarity. Although there have been improvements in logbook recording to species level in recent years in some jurisdictions, in many fisheries it is not possible to have full confidence in species reported, especially when in some fisheries the reporting categories include a generic 'Hammerhead' class.

Inclusion of these three species under Commonwealth legislation would bring a degree of parity to protected status in other jurisdictions and to their status under international assessments or conventions. The scalloped hammerhead is listed as 'Endangered' under the NSW *Fisheries Management Act 1994*, and the great hammerhead as 'Vulnerable'. During the NSW public consultation process, AMCS proposed that the great hammerhead should also be listed at the same level as the scalloped hammerhead, given the complexity of identification on the water. Both the great and scalloped are listed as 'Endangered' on the IUCN red list, and the smooth hammerhead as 'Vulnerable'. Although the great and smooth hammerheads population status is not considered in the Draft Conservation Advice (hereafter the 'Advice'), it is clear from IUCN reports and from analysis of NSW fisheries data within the NSW listing proposals that a decline in numbers of these species is also highly likely. Therefore the proposal to list all three under



EPBC could not only afford some level of protection to the scalloped hammerhead, but also the great and smooth hammerhead species.

In addition, all three species will be listed in Appendix II of CITES in September 2014, and scalloped and great hammerheads are also proposed for listing on the Convention of Migratory Species (CMS).

Listing category

AMCS fully supports the proposal to list all three species as 'Endangered' on the EPBC list of threatened species. Although the draft advice document details uncertainty in data on the size of the catch of hammerhead species in Indonesia and Australia, AMCS supports the overall conclusions drawn that a substantial population decline of over 30% has occurred, and more plausibly between 50% and 70%.

Although it is not possible to definitively quantify total take of hammerhead species in recreational and commercial fisheries, estimates of hammerhead mortality reported in the draft documents are likely to be lower than reality due to issues with logbook reporting, impacts of Illegal, Unreported and Unregulated (IUU) fishing, post-release mortality of hammerhead sharks and issues with functioning of Bycatch Reduction Devices (BRD's):

1. Numerous incidences of discrepancy between logbook entry and independent observer reports exist from fisheries managed by different jurisdictions (this includes observer and logbook reports for a range of species, including some shark species). For example, in the Western Australian managed Pilbara Trawl fishery, in which hammerhead sharks are caught, researchers have identified discrepancies between observer and logbook records, in this case for capture of bottlenose dolphins¹. In many fisheries, there is no regulation that mandates that hammerheads caught and retained or discarded must be recorded, and listing under EPBC would serve to improve mortality estimates.
2. Although IUU fishing has been reduced over recent years, the numbers of foreign boats apprehended with shark fins on board and the weight of shark and shark products (including shark fins) continues to be significant. For example, information from the then Department of Agriculture, Fisheries and Forestry (DAFF, now the Department of Agriculture) indicates that 100kgs of whole shark and 38kgs of shark fin were seized from foreign vessels operating illegally in Australian waters in 2011-12, although DAFF were unable to specify which species were included². Given the high value hammerhead fins attract³ and the geographical overlap between hammerhead distribution and illegal fishing effort, illegal catch of hammerhead sharks within Australian waters is still likely to be a significant source of mortality.
3. Recent information on post-release mortality of the great hammerhead caught using hook and line methods⁴ concluded that great hammerheads were the most sensitive to capture and release out of five species of shark considered, and individuals were observed dying after a 24 minute fight time. Assuming similar responses with the three species of

¹ S J. Allen, J A. Tyne, H T. Kobryn, L Bejder, K H. Pollock, N R. Loneragan 2014. Patterns of Dolphin Bycatch in a North-Western Australian Trawl Fishery. PLOS 1 Vol 9; Issue 4

² Senate Questions on Notice, Agriculture, Fisheries and Forestry, Wednesday 15th August 2012. Question No.1897

³ Marshall L., 2011. The Fin Blue Line Quantifying Fishing Mortality Using Shark Fin Morphology. PhD thesis, University of Tasmania.

⁴ A. J. Gallagher, J. E. Serafy, S. J. Cooke, N. Hammerschlag 2014. Physiological stress response, reflex impairment, and survival of five sympatric shark species following experimental capture and release. Marine Ecology Progress Series Vol. 496: 207-218



hammerhead proposed for listing, the results of the research suggest that post-release survival of hammerhead sharks caught and released in commercial fisheries is likely lower than previously thought.

4. Recent research also indicates that BRDs may not significantly reduce mortalities of a range of species, including hammerhead sharks⁵. In the case of the Pilbara Trawl Fishery, only 34% of the bycatch was expelled through the BRDs, with the rest landed with target catch. Added to the poor post-release survival rates of hammerhead sharks, it is likely fishery related mortalities of the three species proposed for listing are higher than recorded.

Conservation Dependent listing potential

AMCS considers that a 'Conservation Dependent' listing would be entirely inadequate for the scalloped hammerhead shark. The species that are currently listed as conservation dependent - Harrison's and southern dogfish, school shark, orange roughy, eastern gemfish and southern bluefin tuna - were once or are still specifically targeted, predominantly in Commonwealth managed fisheries and generally within one specific fishery. The majority are also not recreational fishing targets. Therefore there is better information on total historical catches and virgin biomass, and there has been more investment in collection of data than for any species of hammerhead shark.

In the case of the scalloped hammerhead shark, they are generally non-target (apart from in the NSW managed Ocean Trap and Line Fishery) and are not a recognised target species in any Commonwealth managed fishery, are caught in multiple different fisheries managed by multiple jurisdictions, identification to species level is complex on the water and there is limited information on total mortality, especially in consideration of shared stock issues with Indonesia and recreational take.

AMCS does not consider that a management plan could be developed that could account for this degree of complexity and cannot be confident that a Conservation Dependent listing could in any way meet the objective of enabling the recovery of a depleted population.

Additional threats

The draft proposal notes that recreational fishing presents a threat to hammerhead sharks (P.4 Draft Conservation Advice, Scalloped Hammerhead), but does not include detail of the extent of the threat or indicate estimates of hammerhead shark mortality as a result of recreational fishing activities. Given the poor post-release mortality of the great hammerhead caught using hook and line methods⁶ and assuming similar responses with the three species of hammerhead proposed for listing, AMCS suggests the threats posed by recreational fishing have been underestimated in the Advice.

Conclusions

AMCS supports the proposal to list the scalloped, great and smooth hammerhead shark as 'Endangered' on the EPBC lists of threatened species. We do not consider a 'Conservation

⁵ V. F. Jaiteh, S. J. Allen, J. J. Meeuwig and N. R. Loneragan (In Press). Combining in-trawl video with observer coverage improves understanding of protected and vulnerable species by-catch in trawl fisheries. *Marine and Freshwater Research* Vol. 65, 1-8.

⁶ A. J. Gallagher, J. E. Serafy, S. J. Cooke, N. Hammerschlag 2014. Physiological stress response, reflex impairment, and survival of five sympatric shark species following experimental capture and release. *Marine Ecology Progress Series* Vol. 496: 207-218




Dependent' listing appropriate. We recommend that a precautionary approach be taken to the decision to list these species, as actual mortalities are likely to be considerably and significantly higher than reported mortalities.

Please contact s11C(1)(a) at AMCS for clarification or further information on s11C(1)(a) or s11C(1)(a). We look forward to the outcome of process.

Yours sincerely,

s11C(1)(a)



Australian Marine Conservation Society

Questions for stakeholders regarding the possible inclusion of three species of hammerhead sharks on the *Environment Protection and Biodiversity Conservation Act (1999)* list of threatened species.

Note: responses to these questions can be returned electronically to:

Email: species.consultation@environment.gov.au

Mail:

Director, Species Information and Policy Section

Department of the Environment

GPO Box 787 Canberra ACT 2601

Please return your response no later than: 7 July 2014

Explanatory note

The questions below pertain to the accompanying draft conservation advices which assess whether the scalloped hammerhead (*Sphyrna lewini*), the great hammerhead (*S. mokarran*), and the smooth hammerhead (*S. zygaena*) should be included on the *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act) list of threatened species. These can be found at:

<http://www.environment.gov.au/biodiversity/threatened/nominations/comment>

Please note that there are three separate draft conservation advices, one for each of the above mentioned species.

The assessments differ from typical status assessments in two important ways:

1. As a fish species harvested in commercial fisheries, an additional category for inclusion on the threatened list is available. Listing of a commercial fish species in the conservation dependent category may allow for the continuation of harvest if it is the “focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised”
2. The focus of the assessments here is the scalloped hammerhead, for which there are sufficient data to enable an assessment of its status. Consultation questions for this species (below) concentrate on improving on the information about population size and trend.

The assessments for the great hammerhead and smooth hammerhead are based on their close similarity to the scalloped hammerhead in both appearance and exposure to common threats. They focus on the extent to which these factors present an additional threat to the scalloped hammerhead such that listing these species will help to protect the scalloped hammerhead. Consultation questions for these species concentrate on the difficulty in differentiating them from scalloped hammerheads, and the degree of overlap in their distribution with that of the scalloped hammerhead.

The Hammerhead species under consideration for conservation listing under the EPBC Act were added to Appendix II of the Convention on International Trade in Endangered Wildlife and Fauna (CITES) with the listing coming into effect on 14 September 2014. The Department is therefore undertaking a separate process to meet the requirements and obligations imposed on international trade in the species as a result of the CITES Appendix II listing and additional information on this process can be obtained from the Wildlife Trade Assessments team at wta@environment.gov.au

Scalloped hammerhead

1. Has the conservation advice considered the appropriate geographic extent to describe the Australian stock over a relevant timeframe (3 generations or 60 years)?

Yes

2. Are you able to provide any additional information or clarification of the range of the scalloped hammerhead within Australian waters? If so, please mark those changes on the map included in the conservation advice document for the species.

No

3. Are you able to provide any further information, either in support of or contrary to, the interpretation that mature female scalloped hammerheads from the Australian stock reside for much of the time in waters exposed to Indonesian or other international fishers? If you oppose the hypothesis contained within the advice, where would you estimate adult female scalloped hammerheads reside when not in Australian coastal waters to give birth?

The hypothesis that mature females spend significant time in Indonesia is one of several possibilities. It should not be considered the only possibility. Unfortunately it is the only one that has any data associated with it. It is entirely possible that mature females occur in a range of areas that are largely unfished and so it is hard to know exactly where they are. This is an area that requires a lot more investigation.

4. Can you provide an estimate of the relative sizes of the Australian and Indonesian components of the scalloped hammerhead stocks (as defined/described in the draft conservation advice) at the beginning of the assessment period (approximately 60 years ago, or prior to commercial exploitation)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

No

5. Can you provide an estimate of the population trend of the scalloped hammerhead in Australian waters (or any smaller region within Australian waters)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

No

6. Can you provide an estimate of the population trend of the scalloped hammerhead in international waters adjacent to Australia? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

No

7. Are you aware of any additional evidence/data which show that the population is stable, increasing or declining?

No

8. The attached draft conservation advice presents tables representing possible combinations of trends in the Australian and Indonesian components of the shared scalloped hammerhead population (Tables 2a-e). Which, if any, of these scenarios do you believe is the most plausible representation of that population's circumstances?

Table 2d or 2e

9. Can you provide any references, information or estimates on longevity, average life span or generation length?

Nothing additional

10. Do you know of other threats, past, current or potential that may adversely affect this species at any stage of its life cycle?

Nothing additional to what is presented

11. If the scalloped hammerhead is found eligible for listing in a threatened category, subsection 179(6) of the EPBC Act allows for the species instead to be included in the conservation dependent category if it is the "focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised"

Do you, or do you not, support the option of including the scalloped hammerhead in the conservation dependent category? In either case, please briefly explain your reasoning. The Committee would particularly like to hear suggestions for appropriate measures to ensure that management allows for the species' recovery nationally.

I support the option for CD provided that there is a clear plan of management. Listing them as threatened and not CD will make the collection of data on status very difficult and hamper conservation efforts. The challenge here is that fisheries that take scalloped hammerhead sharks are mostly state management and that means there will need to be a coordination and collaboration between a number of agencies to ensure that there is sufficient research, monitoring, assessment and regulation. At present little of this exists, but the agencies should be given the opportunity to demonstrate it is possible. Further complicating this is the fact that

hammerheads may have low rates of post release survival (Gallagher AJ, Serafy JE, Cooke SJ, Hammerschlag N. 2013 Physiological stress response, reflex impairment, and survival of five sympatric shark species following experimental capture and release. Marine Ecology Progress Series 496:207-218) and so enforcing release of animals because of protections may mean that most do not survive. Further work on the post release survival of scalloped hammerheads from commercial fishing gears in Australian waters will be required to better understand this issue and its potential effect on populations.

12. Can you provide additional data or information relevant to this assessment?

The assessment only considers the connectivity of the population in the direction Asia, indicating a high likelihood of links to Indonesia and potential links as far as Taiwan. While this is correct, these potential linkages should also be considered into the Pacific and their potential capture in a range of coastal and open ocean fisheries. Scalloped hammerhead sharks are known to be able to traverse oceanic environments and so linkages to Pacific Island nations should also be considered. This further complicates the assessment process. It is clear from this draft conservation advice that there is a clear need to investigate the stock structure of scalloped hammerhead sharks to ensure that the appropriate scale of management can be identified. This is required not only for this listing process, but also those associated with the CITES listing of this species.

The fourth species of hammerhead that occurs in Australian waters (winghead shark, *Eusphya blochii*) has not been included as a look alike. While this is understandable from an overall animal perspective because that are very unique sharks. However, once the animal has been processed the products, especially fins, are likely to be difficult to distinguish from the other hammerhead species. If all of the other species are listed and winghead is not, then there is a danger that some hammerhead catch is reported as winghead. I suggest that consideration be given to this fourth species being listed as a look-alike.

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Hammerhead sharks - EPBC threatened listing assessment

DAFF Feedback

Assessment and Data

- The assessment overall provides a fairly good representation of the available data on the biology of the scalloped hammerhead. To this extent, DAFF cannot provide much additional information beyond that provided in the document.
- While the assessment does not contain a specific population decline value for the scalloped hammerhead, it provides a number of population decline scenarios. These scenarios align with a broader (general) inference that the larger shark species that have been exploited over an extended time frame have experienced population declines.
- With regards to fishing pressures, the document makes reference to the capture of the scalloped hammerhead in the QLD fisheries and the shark control program. It notes however that fishing effort in Indonesia is more of concern when compared to Australia. In Queensland, the commercial catch of sharks is limited by a 600 tonne TACC. In 2013/14 around 302 tonnes of the TACC was reported in the ECIFFF; 4.4% of which was scalloped hammerheads.
- **Significantly**, the document indicates that the scalloped hammerhead is eligible for **listing in the endangered category**. The document however also notes that while the species may be eligible for listing in the endangered category, this conclusion is considered to be **tentative and dependent on the advice received from stakeholders**.
- Ultimately, DAFF is of the opinion that if the scalloped hammerhead is eligible for listing that it **is included in the conservation dependent category**. Ultimately, the Department does not consider there to be sufficient information (e.g. on regional population trends / distributions, life history constraints etc) to warrant a higher classification. This inference is supported by information contained within the draft conservation advice for the scallop hammerhead which notes there is considerable uncertainty in the magnitude of the population decline. A recent analysis of the QSCP data (Noriega 2011) actually showed a significant increase in scalloped hammerhead catch rate on the Gold Coast possibly indicating local population increase.

*Noriega R., Werry J. M., Sumpton W., Mayer D. and Lee S. Y. (2011). Trends in annual CPUE and evidence of sex and size segregation of *Sphyrna lewini*: Management implications in coastal waters of northeastern Australia. Fisheries Research 110,472-477.*

s22

Questions for stakeholders regarding the possible inclusion s22 of hammerhead sharks on the *Environment Protection and Biodiversity Conservation Act* (1999) list of threatened species.

Note: responses to these questions can be returned electronically to:

Email: species.consultation@environment.gov.au

Mail:

Director, Species Information and Policy Section

Department of the Environment

GPO Box 787 Canberra ACT 2601

Please return your response no later than: 7 July 2014

Explanatory note

The questions below pertain to the accompanying draft conservation advices which assess whether the scalloped hammerhead (*Sphyrna lewini*), s22

should be included on the *Environment Protection and Biodiversity Conservation Act* (1999) (EPBC Act) list of threatened species.

The assessments differ from typical status assessments in two important ways:

1. As a fish species harvested in commercial fisheries, an additional category for inclusion on the threatened list is available. Listing of a commercial fish species in the conservation dependent category may allow for the continuation of harvest if it is the “focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised”
2. The focus of the assessments here is the scalloped hammerhead, for which there are sufficient data to enable an assessment of its status. Consultation questions for this species (below) concentrate on improving on the information about population size and trend.

s22

Scalloped hammerhead

1. Has the conservation advice considered the appropriate geographic extent to describe the Australian stock over a relevant timeframe (3 generations or 60 years)?

Yes

2. Are you able to provide any additional information or clarification of the range of the scalloped hammerhead within Australian waters? If so, please mark those changes on the map included in the conservation advice document for the species.

Nothing beyond what is already included in the document.

3. Are you able to provide any further information, either in support of or contrary to, the interpretation that mature female scalloped hammerheads from the Australian stock reside for much of the time in waters exposed to Indonesian or other international fishers? If you oppose the hypothesis contained within the advice, where would you estimate adult female scalloped hammerheads reside when not in Australian coastal waters to give birth?

Nothing beyond what is already included in the document.

4. Can you provide an estimate of the relative sizes of the Australian and Indonesian components of the scalloped hammerhead stocks (as defined/described in the draft conservation advice) at the beginning of the assessment period (approximately 60 years ago, or prior to commercial exploitation)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

DAFF unable to provide a population estimate for this species due to data deficiencies.

5. Can you provide an estimate of the population trend of the scalloped hammerhead in Australian waters (or any smaller region within Australian waters)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

DAFF unable to provide a population estimate for this species due to data deficiencies.

6. Can you provide an estimate of the population trend of the scalloped hammerhead in international waters adjacent to Australia? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may

wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):
Upper bound (estimated maximum):
Best estimate (most plausible):
Confidence : %

DAFF unable to provide a population estimate for this species due to data deficiencies.

7. Are you aware of any additional evidence/data which show that the population is stable, increasing or declining?

No

8. The attached draft conservation advice presents tables representing possible combinations of trends in the Australian and Indonesian components of the shared scalloped hammerhead population (Tables 2a-e). Which, if any, of these scenarios do you believe is the most plausible representation of that population's circumstances?
9. Can you provide any references, information or estimates on longevity, average life span or generation length?

Nothing beyond what is already included in the document.

10. Do you know of other threats, past, current or potential that may adversely affect this species at any stage of its life cycle?

Nothing beyond what is already included in the document.

11. If the scalloped hammerhead is found eligible for listing in a threatened category, subsection 179(6) of the EPBC Act allows for the species instead to be included in the conservation dependent category if it is the "focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised"

Do you, or do you not, support the option of including the scalloped hammerhead in the conservation dependent category? In either case, please briefly explain your reasoning. The Committee would particularly like to hear suggestions for appropriate measures to ensure that management allows for the species' recovery nationally.

DAFF position on this matter is that if the scalloped hammerhead is eligible for listing that it be included in the conservation dependent category as the department does not consider there to be sufficient information (e.g. on regional population trends / distributions, life history constraints etc) to warrant a higher classification.

12. Can you provide additional data or information relevant to this assessment?

Nothing beyond what is already included in the document.

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1. Has the conservation advice considered the appropriate geographic extent to describe the Australian stock over a relevant timeframe (3 generations or 60 years)?

The generation time used in the Draft Conservation Advice for *S. lewini* is conservative for tropical Australian regions, as it fails to take into account differences in age and size of maturity between tropical and temperate areas (Harry, A. V. et al. 2011).

Although the Draft Conservation Advice does not define its meaning of “generation time”, the definition provided Food and Agriculture Organisation (FAO) is “mean generation length is the mean period between birth of a parent and the birth of their offspring” (Musick & Bonfil 2005).

There is a large variation in size and age of maturity of *S. lewini* throughout its worldwide range which results in different generation times for different regions (Nance et al. 2011). In northern Australian waters male *S. lewini* reach maturity at 150 cm, while females are 200 cm (Stevens, J.D. & Lyle 1989). There is no age at sexual maturity information for the Northern Territory, although there is information available from the Australian east coast, where the age and size of maturity of male *S. lewini* was compared between temperate and tropical regions. For east coast tropical regions, male *S. lewini* were found to mature at 5.7 years, and 147 cm, while in temperate waters *S. lewini* matured later, at 8.9 years and at a larger size, 319 cm (Harry, A. V. et al. 2011). The Draft Conservation Advice lists the female *S. lewini* age at maturity as 12 years, which appears to be a realistic assessment based on the most relevant growth model (Harry 2011), but it should be noted that this growth model pools samples from both tropical and temperate regions and included no females.

It is important for the Draft Conservation Advice to define and document the methods used to calculate generation time as this is an important parameter in assessing likely changes in the *S. lewini* population. The lack of stock assessments hinders the ability to determine any population change, but it is expected that *S. lewini* has undergone some rate of recovery in northern Australia since the intensive Taiwanese gillnet fishery ceased operating in the north Australian Exclusive Economic Zone (EEZ), 28 years ago. The Taiwanese fishery was replaced by a much smaller, strictly managed, domestic fishery, with catches an order of a magnitude lower (Field et al. 2012) and under this lower level of fishing recoveries of several shark populations have been well documented (Bradshaw et al. 2013; Field et al. 2012; Grubert et al. 2013). To what level *S. lewini* has recovered is debatable and highlights the urgent need to undertake stock assessments on this species in order to make better informed management decisions, but in the meantime it is important that the Draft Conservation Advice uses a clearly defined and spatially appropriate estimate of generation time in its assessment so that informed decisions can be made by stakeholders.

2. Are you able to provide any additional information or clarification of the range of the scalloped hammerhead within Australian waters? If so, please mark those changes on the map included in the conservation advice document for the species.

We can confirm that *S. lewini* is found in the waters adjacent to the Northern Territory coastline.

3. Are you able to provide any further information, either in support of or contrary to, the interpretation that mature female scalloped hammerheads from the Australian stock reside for much of the time in waters exposed to Indonesian or other international fisheries? If you oppose the hypothesis contained within the advice, where would you estimate adult female scalloped hammerheads reside when not in Australian coastal waters to give birth?

There is no direct evidence to support hypotheses that mature female *S. lewini* reside outside Australian EEZ waters and are exposed to Indonesian or other international fisheries. In Northern Territory waters, the Offshore Net and Line Fishery (ONLF) has the most significant interactions with *S. lewini* (Koopman & Knuckey 2014). Gear used in the ONLF is limited to pelagic gillnet or demersal longline. Effort in the fishery is constrained by gear restrictions and the number of days that can be fished (Northern Territory Government 2012), although it should be noted that the ONLF is currently under review and it is likely that new management arrangements will be introduced in early 2015, capping shark catches, including *S. lewini*. Through detailed fishery logbooks and scientific monitoring programs, the Northern Territory Department of Primary Industry and Fisheries (DPIF) has a good understanding of where and how the ONLF operates and a verified knowledge of its catch composition.

S. lewini is not specifically targeted in the ONLF. In correlation with other fisheries there is a lower proportion of female *S. lewini* in the catch and almost no large mature females. This is not particularly surprising given the well documented spatial separation of adult and juvenile *S. lewini* (Clarke 1971; Harry, A. V. et al. 2011) and that the majority of ONLF fishing effort is confined to within 15 nautical miles from the coast (Northern Territory Government 2012). A single longline vessel, constrained to a maximum of 234 fishing days, did operate in the Northern Territory waters until 2012. This vessel typically operated further offshore and caught larger *S. lewini*, although it was rare to catch individuals over 200 cm during monitoring trips.

The absence of mature females in any part of the ONLF catch is puzzling and highlights our limited understanding of the complex sex and age based spatial structuring of this species. Presumably these larger females travel inshore to give birth to their pups during October to January (Clarke 1971; Stevens, J.D. & Lyle 1989) which coincides with a peak period of pelagic gillnet fishing in the ONLF. Despite this, adult females are not captured while they make this

presumed migration. This could indicate that gear selectivity, particularly in the net component of the fishery, makes the female proportion of the population resilient to capture (Clarke 1971; White, Bartron & Potter 2008). This was supported by observations made while the intensive Taiwanese gillnet fishery operated off northern Australia. Despite the high levels of fishing pressure, it was observed that adult females were not a significant part of the Taiwanese catch (Stevens, J.D. & Lyle 1989). As a result, the adult female proportion of the “Australian” *S. lewini* stock may not have received as much intensive Taiwanese fishing pressure as other shark species during the period of Taiwanese fishing between 1974 and 1986 (Stevens, John. D. & Davenport 1991). This would partially explain why such an apparently susceptible species (Harry, A.V. et al. 2011) is still relatively common in Northern Territory waters.

The Draft Conservation Advice uses White’s observation of the presence of adult females *S. lewini* in the Indonesian catch to validate the movement of these females from Australian to Indonesian waters. However at no point in the paper does White give any indication that the animals he is seeing in the Indonesian catch are “Australian” *S. lewini* females (White, Bartron & Potter 2008). The results of Whites paper point to significant differences in the size at maturity between Australian and Indonesian *S. lewini*, with Indonesian female *S. lewini* maturing at 229 cm, while maturity in northern Australian waters is 200cm. Males mature in Indonesia at 176 cm while in north Australian waters maturity is reached at 150 cm. These distinct differences in the size at maturity provide an indication that the Indonesian and the Australian populations of *S. lewini* are probably reproductively isolated.

If mature “Australian” *S. lewini* females were being caught in large numbers outside Australian waters it would be expected that there would be a significant fall in ONLF catches of juvenile *S. lewini*. While total catches of “hammerhead” have dropped since 2003, this is a response to a change in management arrangements which have resulted in a significant reduction of effort. Since 2006, catches have been stable, with no alarming decrease in the catch. At the same time catch per unit effort (CPUE) has continued to increase despite this species not being targeted. If any part of the *S. lewini* population, in particular the large mature females, were exposed to high levels of fishing pressure in Indonesia, it would be expected that catches and CPUE would be decreasing.

Movement data also suggests that effective reproductive populations operate on much smaller spatial scale than the distance than between Australian waters and Indonesia. While no genetic distinction between Australian and Indonesian stocks, based on mitochondrial DNA, was identified (Ovenden et al. 2009), this techniques only provides broad scale stock structure, and can be influenced by small numbers of individuals moving over large time frames i.e. 1000’s of years (Welch et al. 2009). Tagging studies, including one undertaken by DPIF, suggest that effective movements by individual *S. lewini* are much smaller. Vertebrae microchemistry also suggest that movement is on much smaller scales than reported in the Draft Conservation Advice (Welch et al. 2011), while a study on the eastern Pacific using coalescent

genetic techniques also showed that “stocks” of *S. lewini* operate on much smaller spatial scales than previously thought (Nance et al. 2011).

DPIF is unable to provide an alternative location for the adult female *S. lewini*, as they do not occur in ONLF catches, or any other fishery operating in Northern Territory waters. This is despite these large females apparently spending at least short periods of time during pupping, being exposed to areas where fishing occurs. DPIF agrees that this is an area that requires further research and understands that knowledge of where adult females reside has important implications to ensuring that any *S. lewini* harvest is sustainable. Until this work is undertaken, DPIF suggests that there is sufficient evidence that indicates that *S. lewini* stocks in northern Australian waters are not strongly linked to those in Indonesia. Consequently, any management arrangements implemented in relation to Indonesian stocks should not be directly applied to stocks in northern Australia.

4. Can you provide an estimate of the relative sizes of the Australian and Indonesian components of the scalloped hammerhead stocks (as defined/described in the draft conservation advice) at the beginning of the assessment period (approximately 60 years ago, or prior to commercial exploitation)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):

Upper bound (estimated maximum):

Best estimate (most plausible):

Confidence : %

We have no estimates of the stock size prior to exploitation. We agree that this is an urgent priority for research in order to quantify the impact on the *S. lewini* stock caused by the Taiwanese fishery and later the domestic ONLF.

5. Can you provide an estimate of the population trend of the scalloped hammerhead in Australian waters (or any smaller region within Australian waters)? Can you provide supporting data/justification or other information that is not contained in the draft advice?

If, because of uncertainty, you are unable to provide a single number, you may wish to provide an estimated range. If so, please provide your estimated minimum, estimated maximum, your best/most plausible estimate, and then provide your overall level of confidence in these estimates (e.g., range 50–100%):

Lower bound (estimated minimum):

Upper bound (estimated maximum):

Best estimate (most plausible):

Confidence : %

In Northern Territory waters there is sufficient evidence to suggest that the population of *S. lewini* is at least stable and probably increasing. Management measures for the domestic Offshore Net and Line fishery have been in place since 1984 and are extremely conservative. There is now a considerable body of peer reviewed work that has been undertaken in the north of Australia over the last decade that indicates recovery of shark stocks after the period of intense fishing by Taiwanese fisheries. Interestingly much of this information was not referenced in the draft conservation advice, and we encourage you to obtain this and incorporate this in any future advices. Further supporting evidence for the stable or increasing population size of *S. lewini* is the data obtained from Offshore Net and Line logbooks and fisheries monitoring program in the Offshore Net and Line Fishery.

There is little doubt that over the period of the Taiwanese gillnet fishery the shark resources of Northern Australia were heavily exploited, resulting in declines in many species, probably including *S. lewini* (Davenport & Stevens 1988). Once this fishery ceased in 1984 it was replaced by a much smaller domestic fishery with catches that are an order of magnitude smaller (Field et al. 2012). There is evidence that under these significantly lower levels of effort, and the tight management regime, many shark species stocks have recovered. As there is no direct measure of the stock status of *S. lewini* in the Northern Territory, the Draft Conservation advice uses work undertaken on other species, specifically a stock assessment undertaken in 1997 which indicates a decline in several shark species in northern Australia. However, this work has been superseded by more recent assessments that have indicated recovery of stocks of Blacktip sharks (*C. tilstoni* and *C. limbatus*) and Spot Tail sharks (*C. sorrah*) to very sustainable levels (Bradshaw et al. 2013, Field et al 2012). While these assessments are not specifically on *S. lewini*, the declining effort patterns in fishing for all shark species in northern Australia is the same so these assessments can be used as a broad indicator of the general health of shark stocks in these waters.

Further evidence of stable or increasing stocks is provided by logbook data obtained from the Offshore Net and Line fishery. While the Draft Conservation Advice suggests catches are falling, what this document fails to mention is that a number of management practices have had a significant impact on catches of *S. lewini*. Inferring catches have reduced simply because of overfishing is misleading, and not making use of the available information. While it is true that catches of “hammerhead” have reduced in the ONLF, there have been a number of factors that have influenced this. After 2006, when there was a review of the fishery and tighter management measures were put in place, catches of “hammerhead” in the Northern Territory Offshore Net and Line Fishery have remained relatively stable, while Catch per Unit Effort has actually increased, despite this species not being specifically targeted. It is important that the Draft Conservation advice look carefully into any catch trend for this species in order to determine if declines in catches are because of declines in populations or are merely reflecting changes in management practices, such as in the ONLF.

From our data and the available published information we are unable to see any evidence of a recent decline of *S. lewini* in Northern Territory waters as reported in the Draft Conservation Advice and there is in fact contradicting evidence supporting an increase population levels in recent times under contemporary management regimes. We agree with the draft Conservation advice that the lack of a direct stock assessment of *S. lewini* hampers this assessment and that it is an urgent area for research. However the draft conservation advice should recognise that there is evidence available suggesting that stocks of other shark species off northern Australia have recovered since the Taiwanese fishery, that domestic fishing arrangements in the Northern Territory are conservative and that *S. lewini* numbers in Northern Territory waters have probably also increased in recent years.

6. Are you aware of any additional evidence/data which show that the population is stable, increasing or declining?

The Northern Territory Department of Primary Industry and Fisheries are custodians of Offshore Net and Line Fishery logbook data which should form an important part of any assessment of *S. lewini* in Australian waters. DPIF also runs a scientific monitoring program for the ONLF, which routinely collects information on *S. lewini*. As stated earlier, our records show consistent catches over recent years and an increasing CPUE, suggesting that the *S. lewini* population is stable, and probably increasing.

DPIF has also been involved in a number of research projects which has demonstrated the recovery of several shark species in Northern Territory waters. The conservative management of the domestic fishery, since the Taiwanese, and the growth of shark populations since this time should be important information captured in any further Conservation Advice on *S. lewini*.

7. The attached draft conservation advice presents tables representing possible combinations of trends in the Australian and Indonesian components of the shared scalloped hammerhead population (Tables 2a-e). Which, if any, of these scenarios do you believe is the most plausible representation of that population's circumstances?

There is no direct evidence suggesting that the Australian component of the *S. lewini* population is strongly linked to the Indonesian component. While it has been demonstrated that there is no significant genetic difference between Australian and Indonesian *S. lewini*, as described previously, several other studies have shown that effective populations of this species operate on much smaller spatial scales (Nance et al. 2011; Welch et al. 2011). Significant differences in the size of maturity between Indonesian and Australian *S. lewini*, also suggest that while they are genetically similar, they may be separate "biological" populations (Harry, A. V. et al. 2011; Stevens, J.D. & Lyle 1989; White, Bartron & Potter 2008).

Until evidence which quantifies the exchange between Australian and Indonesian stocks is produced, for the reasons stated above it should be assumed that there is limited exchange between the two regions.

8. Can you provide any references, information or estimates on longevity, average life span or generation length?

The Northern Territory Department of Primary Industry and Fisheries has no additional information to assist with estimates of longevity, average life span or generation length, although we have collected vertebrae and genetic samples as part of our scientific monitoring program and do have the capacity to assist research into this important life history information.

9. Do you know of other threats, past, current or potential that may adversely affect this species at any stage of its life cycle?

None within waters adjacent to the Northern Territory Coast.

10. If the scalloped hammerhead is found eligible for listing in a threatened category, subsection 179(6) of the EPBC Act allows for the species instead to be included in the conservation dependent category if it is the “focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so its chances of long term survival in nature are maximised”

Do you, or do you not, support the option of including the scalloped hammerhead in the conservation dependent category? In either case, please briefly explain your reasoning. The Committee would particularly like to hear suggestions for appropriate measures to ensure that management allows for the species’ recovery nationally.

It is our view that if it is deemed warranted listing this species under the EPBC Act, then Northern Territory Department of Primary Industry and Fisheries (DPIF) would support the ‘Conservation Dependant’ category listing. Whilst the Northern Territory stocks are considered healthy, DPIF is proposing to implement a range of conservative management measures that ensure shark species identified as being the most vulnerable to fishing (through ERA’s etc.) maintain their healthy status in the Northern Territory.

Specific management measures are to be included into a harvest strategy management Framework document including Operational Decision Rules. Under this framework, it is proposed that greater monitoring coverage will be required for those vessels equipped with fishing gear most likely to catch Hammerheads (i.e. long-lines). The Decision Rules outline fishery Objectives, Performance Indicators, Trigger Points and Management Actions for the Key Shark species group which relate to Hammerheads and are likely to include mitigation measures such as;

- Cap the permitted catch of Hammerhead species
- Ensuring fishing effort is appropriately spread over fishery

- Hammerheads are correctly identified and reported accurately on logbooks
- Confirmation of an appropriately determined Total Allowable Commercial Catch
- No reported incidences of discarding or high grading occurring
- Observer data validates catch composition and catch returns
- Length frequency analysis shows no anomalies
- Breach of performance Indicators by operators triggers additional observer trips to evaluate fishing operations at operators cost
- Trigger points are conservatively set well below the TACC and when met initiate Management Actions such as:
 - Data gathering by observers (genetic samples if required, lengths etc.) to address higher harvest risks
 - Detailed analysis of all gathered data is undertaken. Fisheries to investigate species and compile and review biological data, this may require modelling, spatial analysis and stock assessments
 - Assessment surveys (may include tagging, stock structure work etc.) initiated as per agreed methodology
 - A review of the appropriateness of the current TACC is undertaken using all data
 - A review of the fisheries operating practices
 - Gear in the fishery to be reviewed by ONLAG (the established advisory group) to evaluate impacts. Gear may be modified or abolished to address identified issues
 - If TACC is reached, all activity in the fishery is halted until next allocation period.

DPIF is confident that with the proposed management measures in place, fishing related risks to Scalloped Hammerhead will be immediately contained and reduced over time.

11. Can you provide additional data or information relevant to this assessment?

The Northern Territory Department of Primary Industry and Fisheries provided all logbook and scientific monitoring information from all Northern Territory fisheries that interact with *S. lewini*, to Fishwell consulting, who produced the report, Advice on CITES Appendix II Shark Listings. This report was referenced in the Draft Conservation Advice.

If further use of this information is required in the EPBC listing assessment process, access may be sought from the DPIF on the condition that the appropriate confidentiality agreements are in place.

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THREATENED SPECIES SCIENTIFIC COMMITTEE

FOI 190513
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Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Hon. Josh Frydenberg, MP
Minister for the Environment and Energy
PO Box 6022
Parliament House
Canberra ACT 2600

Dear Minister

Thank you for meeting with me on Wednesday 13 September 2017. Further to that discussion, the Threatened Species Scientific Committee's advice on the eligibility of s22 hammerhead shark for inclusion on the threatened species list has now been finalised.

The Committee has found this to be one of the more complex and protracted assessments it has undertaken and I therefore considered it prudent to write to you with some explanatory notes and considerations for ongoing monitoring of the species' status.

In 2012, s22 hammerhead shark were publicly nominated for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Committee decided to assess s22 hammerhead species, given all are similar in appearance. Only one species, the scalloped hammerhead, had sufficient data for a full assessment. s22

The scalloped hammerhead was assessed as being eligible for listing in the EPBC Act Endangered category. However, as a commercially harvested fish species, scalloped hammerhead was also assessed for listing in the Conservation Dependent category. Conservation Dependent listing allows for continued commercial harvest in accordance with the requirements of the EPBC Act which specify the species be subject to a management plan under law which supports both a halt to decline and a recovery of the population.

Hammerhead sharks are bycatch species in Australian fisheries, rather than target species, and as such management provisions and data collection has typically been limited. These species are also listed in Appendix II of the Convention on International Trade in Endangered Species (CITES) and a Non-Detriment Finding (NDF) was developed for Australian export of CITES listed sharks in 2014. This creates a complicated management framework for hammerhead sharks in Australia and much of the five-year assessment period was spent working with relevant jurisdictions, in particular the Northern Territory and Queensland governments, and the intersection with the Commonwealth's NDF, to ensure sufficient management arrangements to enable the Conservation Dependent option to be considered.

A key focus of discussions has been the appropriateness of the hammerhead catch limits outlined in the current NDF and the need for better informed management arrangements for these species. It is essential that species specific data are collected on hammerhead catches, including how much is landed and/or discarded, and that those data can be validated confidently. While progress has been made, there is considerable scope for further improvement, particularly in data validation.

THREATENED SPECIES SCIENTIFIC COMMITTEE

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Best practice in shark fisheries is to land entire carcasses, with fins and tails naturally attached. At this stage, this is not required in all Queensland fisheries that take hammerheads, however various other methods of ensuring catch verification are in place. The Committee is reassured that Queensland will undertake a research project validating catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast. Queensland have also undertaken to implement a Vessel Monitoring System for all boats interacting with hammerheads and investigate other examples of novel monitoring techniques (such as e-monitoring (use of cameras) of catch). However, it will be important to monitor the response by Queensland in revision of management arrangements when the results of that research become available. In particular, the Committee regards the revision of Queensland fisheries management arrangements towards the landing of hammerhead sharks with fins naturally attached (as consistent with many other shark fisheries in Australia), as essential if this species is to remain listed in the Conservation Dependent category.

The Committee has also noted that Queensland will undertake a formal review of fisheries management arrangements as part of an assessment of the species stock status in approximately June 2019. The Committee recommends that at this stage a full review of the Commonwealth's NDF should be undertaken, based on new available information, and revision of the total allowable commercial catch (TACC) limits for hammerheads to reflect recommendations from the revised NDF. The review of Queensland's TACCs should also include estimated levels of discards and catch by the Queensland Shark Control Program.

As noted earlier, s22 [redacted] hammerhead shark were considered in this assessment. s22 [redacted]
[redacted] If you decide to agree with the Committee's recommendation and list scalloped hammerhead in the Conservation Dependent category, the similar species provision cannot apply to this category, s22 [redacted]
[redacted]

s22

The assessment of management arrangements for scalloped hammerhead focussed on those implemented by the Northern Territory and Queensland governments given that the Western Australian North Coast Shark Fishery is currently closed. That fishery previously had a significant hammerhead take and if it re-opens the Western Australian Government will be required to ensure management arrangements are consistent with paragraph 179(6) of the EPBC Act so that the Conservation Dependent listing is not jeopardised.

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Committee intends to evaluate the progress and effectiveness of the scalloped hammerhead management arrangements annually and the listing of the scalloped hammerhead as Conservation Dependent will be subject to review five years after listing.

As we discussed at our recent meeting, implementing a Conservation Dependent listing within the Great Barrier Reef Marine Park will require additional regulatory amendment. As you know, the *Great Barrier Reef Marine Park Act 1975* considers any EPBC Act threatened species to be a protected species, including Conservation Dependent species. Thus a Conservation Dependent listing of scalloped hammerhead would prohibit fishing of the species within the marine park, contrary to the intent of a Conservation Dependent listing. I have discussed this issue with the Great Barrier Reef Marine Park Board and I believe the Great Barrier Reef Marine Park Authority has the ability to amend its regulations to accommodate a Conservation Dependent listing.

Yours sincerely

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Helene Marsh FAA FTSE
Distinguished Professor
Chair

19 September 2017



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

PDR: MS17-001322

Dr Russell Reichelt FTSE
Chairman
Great Barrier Reef Marine Park Authority
PO Box 1379
TOWNSVILLE QLD 4810

Dear Dr Reichelt

I am writing to you regarding the listing assessments by the Threatened Species Scientific Committee (the Committee) of ^{s22} hammerhead shark species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the potential implications of listing in the Conservation Dependent category. I am aware that the Department of the Environment and Energy and the Committee have been in regular contact with the Great Barrier Reef Marine Park Authority (GBRMPA) during the assessment.

The Committee recently finalised its assessments and provided its advice to me. One species, *Sphyrna lewini* (scalloped hammerhead), was found eligible for listing in the Conservation Dependent category under the EPBC Act. ^{s22}

The Committee's advice to me was predicated on Northern Territory and Queensland fisheries managers implementing significantly strengthened fisheries management arrangements by January 2018, noting I am statutorily obliged to make my decision on this listing by 30 January 2018. I would like to inform you that I intend to amend the list of threatened species by including scalloped hammerhead in the Conservation Dependent category once fisheries management arrangements are given effect under law by the Queensland and Northern Territory governments. I will write to you confirming that decision at such time.

An EPBC Act Conservation Dependent listing allows for the continued commercial harvest of the species in accordance with the requirements of the EPBC Act. These requirements specify that the species must be the subject of a management plan under law which provides for both halting decline and supporting recovery so that its chances of long term survival in nature are maximised.

In making its recommendation for listing in the Conservation Dependent category, the Committee has made a number of additional recommendations within its advice related to the ongoing review and monitoring of the species' conservation status. These include recommendations on catch validation, yearly review of management arrangements, a full review of the Commonwealth's Non-Detriment Finding for sharks in 2019 ^{s22}

The Committee has further recommended the aligning of species protection mechanisms within the Great Barrier Reef Marine Park with the intent of the Conservation Dependent listing. I provide for your reference, correspondence from the Chair of the Committee, attached.

A high proportion of the hammerhead catch in Queensland managed fisheries occurs within the Great Barrier Reef Marine Park. I have been informed that the Great Barrier Reef Marine Park Regulations (Marine Park Regulations) include all EPBC Act listed threatened species as protected species, including Conservation Dependent species. Thus, listing scalloped hammerhead in the Conservation Dependent category would prohibit fishing of the species within the Great Barrier Reef Marine Park, contrary to the intent of a Conservation Dependent listing.

I am aware that the Great Barrier Reef Marine Park Board has given in-principle approval to the GBRMPA to progress amendments to the Marine Park Regulations that would allow the continued take of scalloped hammerhead in the Marine Park consistent with a Conservation Dependent listing, should scalloped hammerhead be listed as Conservation Dependent. I would like to encourage the GBRMPA to make such an amendment, as recommended by the Committee, and ensure this amendment is in place by 9 February 2018, in accordance with my statutory decision deadline.

Please note that details of the Committee's advice, including its recommendations, are required under the EPBC Act to remain confidential until I make my decision.

Yours sincerely

JOSH FRYDENBERG

Enc

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Hon. Josh Frydenberg, MP
Minister for the Environment and Energy
PO Box 6022
Parliament House
Canberra ACT 2600

Dear Minister

Thank you for meeting with me on Wednesday 13 September 2017. Further to that discussion, the Threatened Species Scientific Committee's advice on the eligibility ^{s22} of hammerhead shark for inclusion on the threatened species list has now been finalised.

The Committee has found this to be one of the more complex and protracted assessments it has undertaken and I therefore considered it prudent to write to you with some explanatory notes and considerations for ongoing monitoring of the species' status.

In 2012, ^{s22} species of hammerhead shark were publicly nominated for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). ^{s22}

The scalloped hammerhead was assessed as being eligible for listing in the EPBC Act Endangered category. However, as a commercially harvested fish species, scalloped hammerhead was also assessed for listing in the Conservation Dependent category. Conservation Dependent listing allows for continued commercial harvest in accordance with the requirements of the EPBC Act which specify the species be subject to a management plan under law which supports both a halt to decline and a recovery of the population.

Hammerhead sharks are bycatch species in Australian fisheries, rather than target species, and as such management provisions and data collection has typically been limited. These species are also listed in Appendix II of the Convention on International Trade in Endangered Species (CITES) and a Non-Detriment Finding (NDF) was developed for Australian export of CITES listed sharks in 2014. This creates a complicated management framework for hammerhead sharks in Australia and much of the five-year assessment period was spent working with relevant jurisdictions, in particular the Northern Territory and Queensland governments, and the intersection with the Commonwealth's NDF, to ensure sufficient management arrangements to enable the Conservation Dependent option to be considered.

A key focus of discussions has been the appropriateness of the hammerhead catch limits outlined in the current NDF and the need for better informed management arrangements for these species. It is essential that species specific data are collected on hammerhead catches, including how much is landed and/or discarded, and that those data can be validated confidently. While progress has been made, there is considerable scope for further improvement, particularly in data validation.

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

Best practice in shark fisheries is to land entire carcasses, with fins and tails naturally attached. At this stage, this is not required in all Queensland fisheries that take hammerheads, however various other methods of ensuring catch verification are in place. The Committee is reassured that Queensland will undertake a research project validating catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast. Queensland have also undertaken to implement a Vessel Monitoring System for all boats interacting with hammerheads and investigate other examples of novel monitoring techniques (such as e-monitoring (use of cameras) of catch). However, it will be important to monitor the response by Queensland in revision of management arrangements when the results of that research become available. In particular, the Committee regards the revision of Queensland fisheries management arrangements towards the landing of hammerhead sharks with fins naturally attached (as consistent with many other shark fisheries in Australia), as essential if this species is to remain listed in the Conservation Dependent category.

The Committee has also noted that Queensland will undertake a formal review of fisheries management arrangements as part of an assessment of the species stock status in approximately June 2019. The Committee recommends that at this stage a full review of the Commonwealth's NDF should be undertaken, based on new available information, and revision of the total allowable commercial catch (TACC) limits for hammerheads to reflect recommendations from the revised NDF. The review of Queensland's TACCs should also include estimated levels of discards and catch by the Queensland Shark Control Program.

As noted earlier, s22 [redacted] of hammerhead shark were considered in this assessment, s22 [redacted]. If you decide to agree with the Committee's recommendation and list scalloped hammerhead in the Conservation Dependent category, the similar species provision cannot apply to this category, s22 [redacted]

s22 [redacted]

The assessment of management arrangements for scalloped hammerhead focussed on those implemented by the Northern Territory and Queensland governments given that the Western Australian North Coast Shark Fishery is currently closed. That fishery previously had a significant hammerhead take and if it re-opens the Western Australian Government will be required to ensure management arrangements are consistent with paragraph 179(6) of the EPBC Act so that the Conservation Dependent listing is not jeopardised.

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Committee intends to evaluate the progress and effectiveness of the scalloped hammerhead management arrangements annually and the listing of the scalloped hammerhead as Conservation Dependent will be subject to review five years after listing.

As we discussed at our recent meeting, implementing a Conservation Dependent listing within the Great Barrier Reef Marine Park will require additional regulatory amendment. As you know, the *Great Barrier Reef Marine Park Act 1975* considers any EPBC Act threatened species to be a protected species, including Conservation Dependent species. Thus a Conservation Dependent listing of scalloped hammerhead would prohibit fishing of the species within the marine park, contrary to the intent of a Conservation Dependent listing. I have discussed this issue with the Great Barrier Reef Marine Park Board and I believe the Great Barrier Reef Marine Park Authority has the ability to amend its regulations to accommodate a Conservation Dependent listing.

Yours sincerely

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Helene Marsh FAA FTSE
Distinguished Professor
Chair

19 September 2017



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

PDR: MS17-001322

Dr Russell Reichelt FTSE
Chairman
Great Barrier Reef Marine Park Authority
PO Box 1379
TOWNSVILLE QLD 4810

24 OCT 2017

Dear Dr Reichelt

I am writing to you regarding the listing assessments by the Threatened Species Scientific Committee (the Committee) of **s22** hammerhead shark species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the potential implications of listing in the Conservation Dependent category. I am aware that the Department of the Environment and Energy and the Committee have been in regular contact with the Great Barrier Reef Marine Park Authority (GBRMPA) during the assessment.

The Committee recently finalised its assessments and provided its advice to me. One species, *Sphyrna lewini* (scalloped hammerhead), was found eligible for listing in the Conservation Dependent category under the EPBC Act. **s22**

The Committee's advice to me was predicated on Northern Territory and Queensland fisheries managers implementing significantly strengthened fisheries management arrangements by January 2018, noting I am statutorily obliged to make my decision on this listing by 30 January 2018. I would like to inform you that I intend to amend the list of threatened species by including scalloped hammerhead in the Conservation Dependent category once fisheries management arrangements are given effect under law by the Queensland and Northern Territory governments. I will write to you confirming that decision at such time.

An EPBC Act Conservation Dependent listing allows for the continued commercial harvest of the species in accordance with the requirements of the EPBC Act. These requirements specify that the species must be the subject of a management plan under law which provides for both halting decline and supporting recovery so that its chances of long term survival in nature are maximised.

In making its recommendation for listing in the Conservation Dependent category, the Committee has made a number of additional recommendations within its advice related to the ongoing review and monitoring of the species' conservation status. These include recommendations on catch validation, yearly review of management arrangements, a full review of the Commonwealth's Non-Detriment Finding for sharks in 2019 **s22**

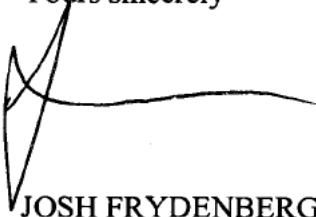
The Committee has further recommended the aligning of species protection mechanisms within the Great Barrier Reef Marine Park with the intent of the Conservation Dependent listing. I provide for your reference, correspondence from the Chair of the Committee, attached.

A high proportion of the hammerhead catch in Queensland managed fisheries occurs within the Great Barrier Reef Marine Park. I have been informed that the Great Barrier Reef Marine Park Regulations (Marine Park Regulations) include all EPBC Act listed threatened species as protected species, including Conservation Dependent species. Thus, listing scalloped hammerhead in the Conservation Dependent category would prohibit fishing of the species within the Great Barrier Reef Marine Park, contrary to the intent of a Conservation Dependent listing.

I am aware that the Great Barrier Reef Marine Park Board has given in-principle approval to the GBRMPA to progress amendments to the Marine Park Regulations that would allow the continued take of scalloped hammerhead in the Marine Park consistent with a Conservation Dependent listing, should scalloped hammerhead be listed as Conservation Dependent. I would like to encourage the GBRMPA to make such an amendment, as recommended by the Committee, and ensure this amendment is in place by 9 February 2018, in accordance with my statutory decision deadline.

Please note that details of the Committee's advice, including its recommendations, are required under the EPBC Act to remain confidential until I make my decision.

Yours sincerely



JOSH FRYDENBERG

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THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

The Hon. Josh Frydenberg, MP
Minister for the Environment and Energy
PO Box 6022
Parliament House
Canberra ACT 2600

Dear Minister

Thank you for meeting with me on Wednesday 13 September 2017. Further to that discussion, the Threatened Species Scientific Committee's advice on the eligibility s22 [REDACTED] of hammerhead shark for inclusion on the threatened species list has now been finalised.

The Committee has found this to be one of the more complex and protracted assessments it has undertaken and I therefore considered it prudent to write to you with some explanatory notes and considerations for ongoing monitoring of the species' status.

In 2012, s22 species of hammerhead shark were publicly nominated for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). s22 [REDACTED]

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THREATENED SPECIES SCIENTIFIC COMMITTEE

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The Committee has also noted that Queensland will undertake a formal review of fisheries management arrangements as part of an assessment of the species stock status in approximately June 2019. The Committee recommends that at this stage a full review of the Commonwealth's NDF should be undertaken, based on new available information, and revision of the total allowable commercial catch (TACC) limits for hammerheads to reflect recommendations from the revised NDF. The review of Queensland's TACCs should also include estimated levels of discards and catch by the Queensland Shark Control Program.

As noted earlier, s22 [redacted] hammerhead shark were considered in this assessment, s22 [redacted] If you decide to agree with the Committee's recommendation and list scalloped hammerhead in the Conservation Dependent category, the similar species provision cannot apply to this category, s22 [redacted]

[redacted]

[redacted]

The assessment of management arrangements for scalloped hammerhead focussed on those implemented by the Northern Territory and Queensland governments given that the Western Australian North Coast Shark Fishery is currently closed. That fishery previously had a significant hammerhead take and if it re-opens the Western Australian Government will be required to ensure management arrangements are consistent with paragraph 179(6) of the EPBC Act so that the Conservation Dependent listing is not jeopardised.

THREATENED SPECIES SCIENTIFIC COMMITTEE

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Yours sincerely


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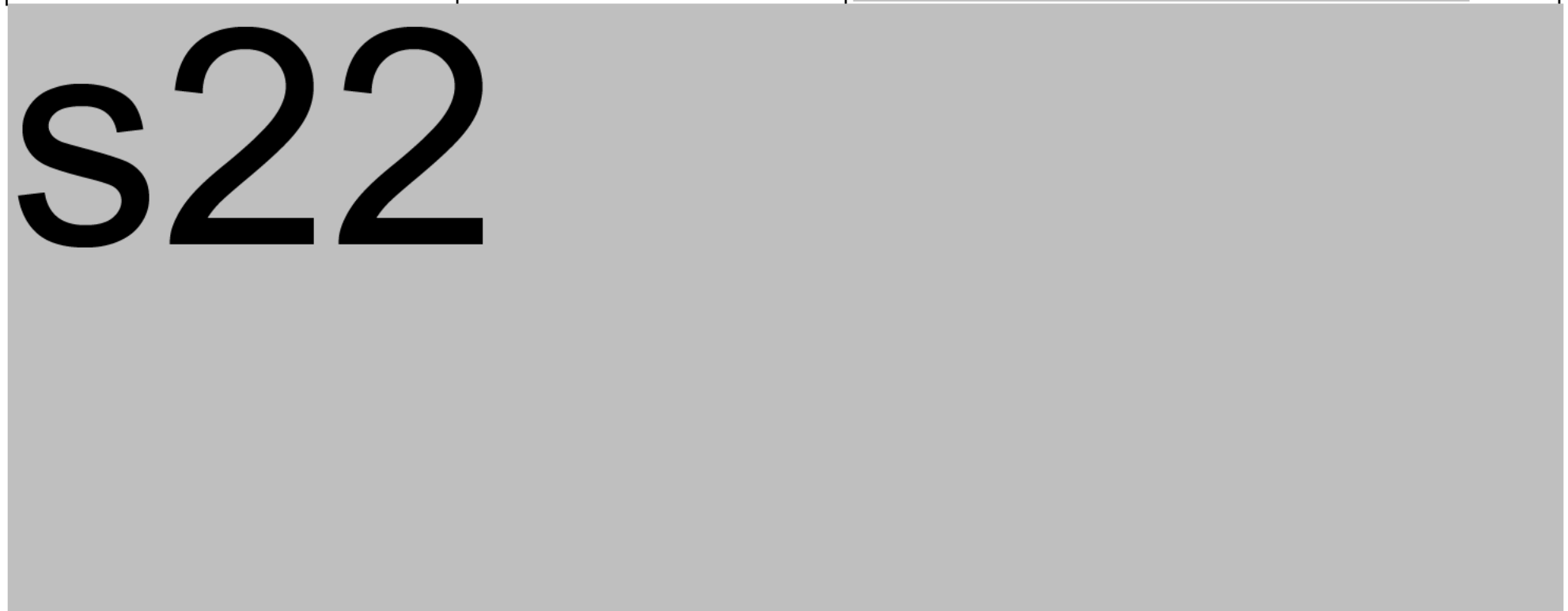
Helene Marsh FAA FTSE
Distinguished Professor
Chair

19 September 2017

Department internal consultation outcomes on post listing opportunities for conservation

Consultation was undertaken across the Department regarding the proposed listing of scalloped hammerhead as Conservation Dependent s22 and the benefits to the survival of the scalloped hammerhead as an effect of inclusion in the list of threatened species. Environmental Standards Division, Biodiversity Conservation Division (including the Office of the Threatened Species Commissioner), the Commonwealth Environmental Water Office, and Parks Australia Division were consulted. A summary of this Departmental consultation is provided for your information.

Species nominated Common name	Location	Sensitivities/ Departmental & other activities
<p><i>Sphyrna lewini</i> (scalloped hammerhead)</p> 	<p>Coastal waters off tropical Australia NSW Qld NT WA</p>	<ul style="list-style-type: none"> • This species is commercially harvested by Australian fisheries, principally by the Queensland managed East Coast Inshore Fin Fish Fishery and the Gulf of Carpentaria Inshore Fin Fish Fishery and the Northern Territory managed Offshore Net and Line Fishery. • The fishing industry (in Qld and NT) is concerned about the implications of Conservation Dependent listing on their operations but less concerned than if the species was listed as Endangered. • Recreational fishers are likely to catch the species in sub-tropical and tropical Australian waters. A Conservation Dependent listing is unlikely to impact on recreational fishing activities. Environmental non-government organisations have made several representations to the Threatened Species Committee and to the Minister outlining their concerns that the fisheries management arrangements are not sufficient to support and Conservation Dependent listing and their opinion that an Endangered listing is more appropriate for this species. • This species occurs in and adjacent to the Great Barrier Reef World Heritage and National Heritage listed place. • This species occurs in and adjacent to the Great Barrier Reef, Ningaloo, Shark Bay and Lord Howe Island World Heritage and National Heritage listed places. • There are more than 50 listed threatened species that may occur where this species is likely to occur. • There are more than 50 listed migratory species that may occur where this species is likely to occur. • This species occurs across the listed ecological community of the <i>Posidonia australis</i> seagrass meadows of the Manning-Hawkesbury ecoregion. • This species occurs in areas with several projects that have been referred under the EPBC Act that are under assessment. • This species occurs in areas that are subject to funding under the National Landcare Programme including projects on the restoration of estuarine riparian areas. • This species is listed under Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). To enable the export of CITES listed species, Australia must ensure that the export will not be detrimental to the survival of the species in the wild. This is done through an assessment known as a 'non-detriment finding'. A non-detriment finding assessment was undertaken by the Australian CITES Scientific Authority for the three CITES listed species of hammerhead in September 2014. The assessment found that Australian harvest and export levels for these hammerhead shark species would not be detrimental to the survival of the species provided harvest levels from Australian fisheries remained within the following limits: <ul style="list-style-type: none"> ○ scalloped hammerhead shark (<i>Sphyrna lewini</i>) 200 tonnes per year



Copy to

To: Minister for the Environment and Energy (For Decision)

Secretary
Mr Knudson
Ms Jonasson
Dr Reichelt

DECISION TO LIST *SPHYRNA LEWINI* (SCALLOPED HAMMERHEAD) IN THE CONSERVATION DEPENDENT CATEGORY s22

Chief of Staff
s47F

Timing: 9 February 2018 – to meet the statutory deadline

Recommendations:

1. That you consider the Committee’s recommendations at **Attachment A**, and the public and expert comments concerning the assessments (**Attachment G**), and agree to amend the EPBC Act list of threatened species by:

a) including in the **Conservation Dependant** category

Sphyrna lewini (scalloped hammerhead)

Agreed / Not agreed

s22

2. That you sign the legislative instrument at **Attachment D** to amend the list of threatened species under the EPBC Act and approve the explanatory statement at **Attachment E**.

Signed and approved / Not Signed and approved

3. That you approve the Conservation Advice for scalloped hammerhead s22 at **Attachment A** and agree that they will become the approved Conservation Advice and Listing Advices respectively from the date the amendment of the threatened species list takes effect.

Approved / Not approved

4. That you sign the letters to key stakeholders at **Attachment F**.

Signed / Not signed

Minister:

Date:

Comments:

Clearing Officers:
Sent 9/1/2018


Geoff Richardson, Assistant Secretary, Protected Species and Communities, BCD

s22

Bruce Elliot, General Manager, Biodiversity, Conservation and Sustainable Use, GBRMPA


s47F

Key Points:

1. The Threatened Species Scientific Committee's (the Committee) advice regarding the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) threatened species assessments of scalloped ^{s22} hammerhead sharks was provided to you on 29 September 2017 (refer [MS17-001322](#)). Under the EPBC Act, you have 90 business days to consider the Committee's recommendation and decide whether to amend the list of threatened species - your decision is due by 9 February 2018.
2. The Committee concluded that scalloped hammerhead is eligible for listing in the EPBC Act Endangered category. However, as a commercially harvested fish species, the Committee has also determined this species to be eligible for listing in the Conservation Dependent category, subject to fisheries management arrangements coming into force under law.
3. 
4. A Conservation Dependent listing for scalloped hammerhead would allow continued commercial harvest in accordance with the requirements of the EPBC Act; which specify that the species must be the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised. If the species was listed as Endangered, commercial harvest would cease.
5. The Committee's advice ([Attachment A](#)) recommends you list scalloped hammerhead as Conservation Dependent under the EPBC Act. It also recommends you delay this decision until the agreed State and Territory fisheries management arrangements are in force under law, and that you liaise with the Great Barrier Reef Marine Park Authority to ensure the Conservation Dependent listing can be implemented within the Great Barrier Marine Park.
6. New Queensland management arrangements became legally effective from 1 January 2018 under *Fisheries (Hammerhead Sharks) Amendment Regulation 2017*. Northern Territory management arrangements were provisionally implemented via legally binding fishery permits under the *Fisheries Act (NT)* in advance of the implementation of a new Northern Territory Ocean Trap and Line Fishery Management Plan in mid-2018. The introduction of these laws allow you to list scalloped hammerhead as Conservation Dependent in accordance with the Committee's listing advice.
7. The Committee's assessments for the ^{s22} hammerhead shark species are provided in draft Conservation Advices at [Attachment A](#). Maps of the hammerhead shark species' distributions are at [Attachment B](#).

Statutory requirements for amending the list of threatened species

8. The process for amending the list of threatened species is detailed in sections 178 – 194 of the EPBC Act. An extract of the EPBC Act setting out your obligations when amending the list is at [Attachment C](#).

9. In making a decision to amend the list, you may only consider the species' eligibility for listing, or the effect listing is having or may have on a species' survival (s186(2)(2B)). Social and economic factors are not relevant considerations, but can be considered later when approving actions that may significantly impact a listed species.
10. In making your decision to amend the list you must first consider the Committee's assessment advice regarding the eligibility for listing. The Committee's assessments, recommendations and reasons are provided in the draft Conservation Advices for each species at **Attachment A**.
11. You are also required to have regard to comments received from consultation (s194Q(6)). The Committee invited public comment via the Department's website for at least 30 business days and consulted stakeholders including experts, specialist groups and state and territory governments, on the proposed amendments to the list. A summary of the issues raised for each species along with the submissions received are at **Attachment G**.
12. You are required to approve a Conservation Advice for each listed species (s266B). The Committee has prepared a Conservation Advice for *Sphyrna lewini* (scalloped hammerhead) for your approval at **Attachment A**. The advice will become the approved Conservation Advice under the EPBC Act from the date the amendment to the threatened species list takes effect.
13. 
14. To give effect to your decision to amend the list, you must sign the legislative instrument at **Attachment D**. If you disagree with the recommended change to the list a revised instrument will be provided. An explanatory statement which accompanies that registration is at **Attachment E**.
15. Amendments to the threatened species list usually take effect the day after the legislative instrument at **Attachment D** has been registered on the Federal Register of Legislation. This instrument specifies the instrument is effective from 15 March 2018 to allow the Great Barrier Reef Marine Park Authority to amend its Regulations (see below). An explanatory statement which accompanies the registration is at **Attachment E**. Listing instruments are disallowable.

Great Barrier Reef Marine Park Regulations

16. In September 2017 you were advised (**MS17-001322**) that the Great Barrier Reef Marine Park Regulations (Marine Park Regulations) include all EPBC Act listed threatened species as protected species, including Conservation Dependent species. Thus, listing scalloped hammerhead in the Conservation Dependent category would prohibit fishing of the species within the Great Barrier Reef Marine Park, contrary to the intent of a Conservation Dependent listing. On 24 October 2017, you wrote to the Chairman of the Great Barrier Reef Marine Park Authority to encourage the Authority to pursue a change to the regulations and have it in place by 9 February 2018 to enable you to make your EPBC Act listing decision.

17. The change to the Marine Park Regulations must be approved by Federal Executive Council. The amendments to the Marine Park Regulations cannot be made prior to the listing decision date as they are contingent on your Conservation Dependent listing decision. To prevent the listing decision from having an unnecessarily restrictive effect on fishers operating inside the Marine Park, the Legislative Instrument (**Attachment D**) includes a provision that it does not take effect until 15 March 2018, providing sufficient time for the amendments to the Marine Park Regulations to be implemented.

Sensitivities and Handling

18. The Queensland Minister for Agriculture and Fisheries, the Hon Bill Byrne MP, has written to you on two occasions (refer **MC17-013081**, **MC17-017484**) detailing the proposed management arrangements the Queensland Government is taking for hammerhead sharks and has encouraged you to list scalloped hammerhead as Conservation Dependent rather than Endangered.

19. The fishing industry and related stakeholders may be critical of the decision to list scalloped hammerhead given they could see it as further regulatory burden. However, a Conservation Dependent listing allows for the continuation of commercial harvest, which a listing in a higher category of threat would not; it is therefore expected that the industry will be supportive of the listing relative to the alternative of an Endangered listing.

20. Environmental Non-Governmental Organisations (eNGOs) have written to you on several occasions detailing their concerns over a potential Conservation Dependent listing and outlining their support for an Endangered listing (refer **MC17-016848**, **MC17-017037**, **MC17-021231**, **MC17-021539**). eNGOs are critical of the decision to list scalloped hammerhead in the Conservation Dependent category as it is viewed by these organisations as not providing the protection that this species needs. These organisations advocate for an Endangered listing for scalloped hammerhead; the original nomination of scalloped ^{s22} hammerhead for listing as Endangered ^{s22}

You have, to date, received over 40 letters from members of the public supporting the listing of hammerhead sharks in the Endangered category.

Consultation: YES

21. Consultation on the assessment of ^{s22} hammerhead shark species was undertaken with identified experts, relevant states and territories, interested groups and the public via the Department's website and targeted correspondence for a minimum of 30 business days in 2014. A summary of the comments along with the submissions received are at **Attachment G**.

22. This brief was developed jointly by the Great Barrier Reef Marine Park Authority and the Protected Species and Communities Branch of the Department. Consultation was undertaken across the Department regarding the proposed recommendations for the species, and the benefits to their survival of inclusion in the list of threatened species. Environmental Standards Division, the Commonwealth Environmental Water Office, and Parks Australia Division were consulted. A summary of this Departmental consultation is provided for your information in **Attachment H**.

ATTACHMENTS

- A:** Committee's recommendations in Conservation Advices
- B:** Indicative distribution maps for the species
- C:** Extract of the EPBC Act providing obligations for amending the list of threatened species
- D:** Legislative Instrument
- E:** Explanatory statement for Legislative Instrument
- F:** Letters to relevant stakeholders
- G:** Submissions received from targeted and public consultation
- H:** Departmental internal consultation responses

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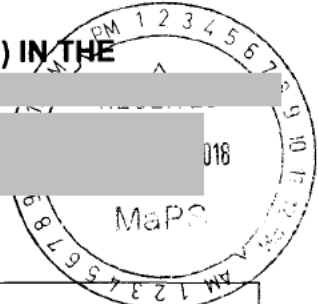
To: Minister for the Environment and Energy (For Decision)

Secretary
Mr Knudson
Ms Jonasson
Dr Reichelt

DECISION TO LIST SPHYRNA LEWINI (SCALLOPED HAMMERHEAD) IN THE CONSERVATION DEPENDENT CATEGORY s22

s22

Chief of Staff
s47F



Timing: 9 February 2018 – to meet the statutory deadline

Recommendations:

1. That you consider the Committee's recommendations at **Attachment A**, and the public and expert comments concerning the assessments (**Attachment G**), and agree to amend the EPBC Act list of threatened species by:

a) including in the **Conservation Dependant** category

Sphyrna lewini (scalloped hammerhead)

Agreed / Not agreed

s22

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Signed and approved / Not Signed and approved

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Approved / Not approved

4. That you sign the letters to key stakeholders at **Attachment F**.

Signed / Not signed

Minister:

Date:

1/2/18

Comments:

Clearing Officers:
Sent 9/1/2018


Geoff Richardson, Assistant Secretary, Protected Species and Communities, BCD

s22

Bruce Elliot, General Manager, Biodiversity, Conservation and Sustainable Use, GBRMPA


s47F

Key Points:

1. The Threatened Species Scientific Committee's (the Committee) advice regarding the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) threatened species assessments of scalloped s22 hammerhead sharks was provided to you on 29 September 2017 (refer **MS17-001322**). Under the EPBC Act, you have 90 business days to consider the Committee's recommendation and decide whether to amend the list of threatened species - your decision is due by 9 February 2018.
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14. To give effect to your decision to amend the list, you must sign the legislative instrument at **Attachment D**. If you disagree with the recommended change to the list a revised instrument will be provided. An explanatory statement which accompanies that registration is at **Attachment E**.
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Sensitivities and Handling

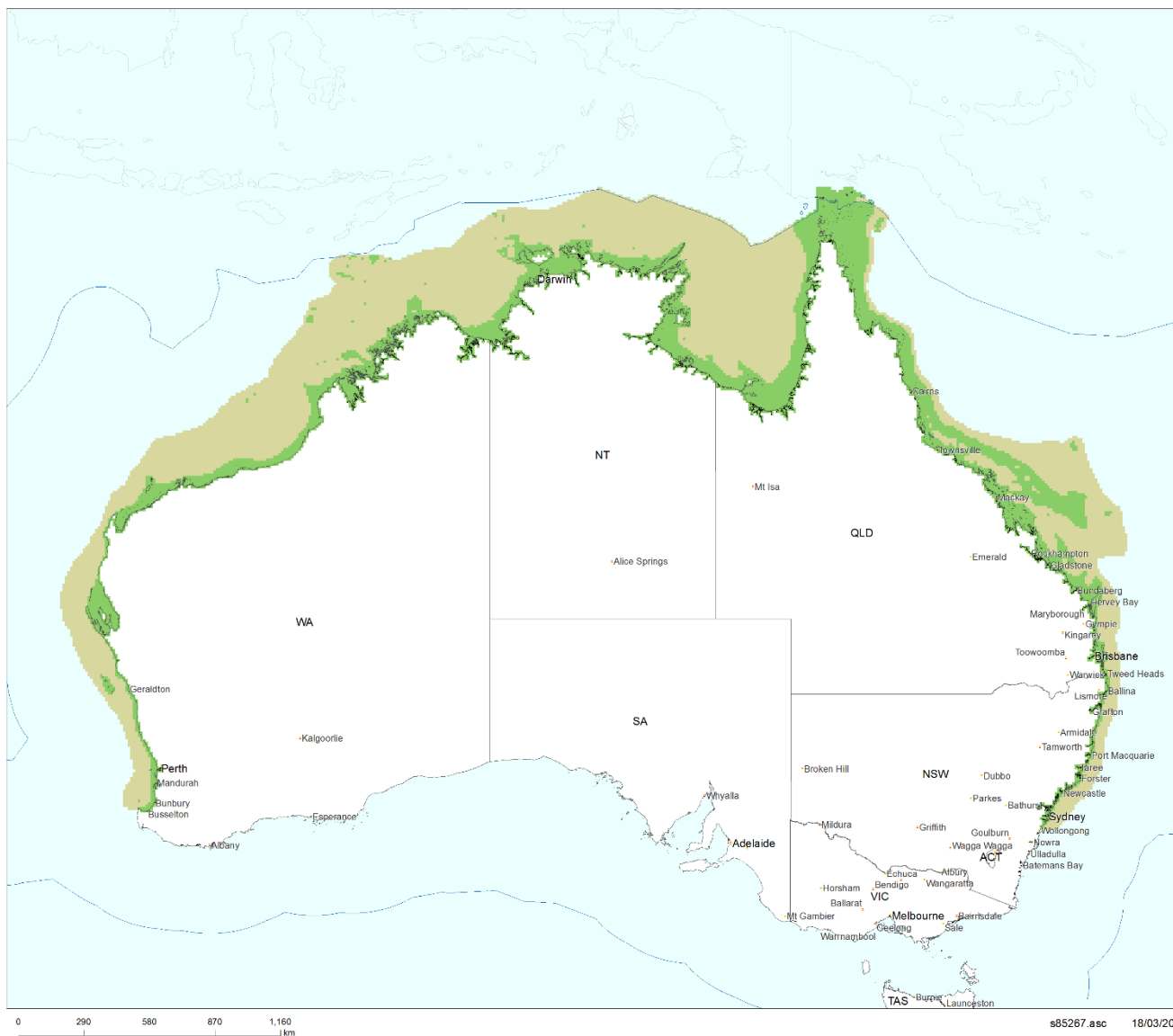
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- §22
- §22
- §22 You have, to date, received over 40 letters from members of the public supporting the listing of hammerhead sharks in the Endangered category.

Consultation: YES

21. Consultation on the assessment of §22 hammerhead shark species was undertaken with identified experts, relevant states and territories, interested groups and the public via the Department's website and targeted correspondence for a minimum of 30 business days in 2014. A summary of the comments along with the submissions received are at **Attachment G**.
22. This brief was developed jointly by the Great Barrier Reef Marine Park Authority and the Protected Species and Communities Branch of the Department. Consultation was undertaken across the Department regarding the proposed recommendations for the species, and the benefits to their survival of inclusion in the list of threatened species. Environmental Standards Division, the Commonwealth Environmental Water Office, and Parks Australia Division were consulted. A summary of this Departmental consultation is provided for your information in **Attachment H**.

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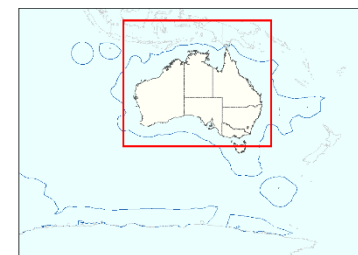
Indicative distribution of the Scalloped Hammerhead *Sphyrna lewini*

Distribution

Species or species habitat likely to occur

Species or species habitat may occur

Commonwealth Marine Area



Produced by: Environmental Resources Information Network
Contextual data source: Geoscience Australia (2006), Geodata Topo 250K Topographic Data

Indicative Map Only: This map has been compiled from datasets with a range of geographic scales and quality. Species distributions are indicative only and not to be used for local assessment. Local knowledge and information should be sought to confirm the presence of the species, or its habitat, at the location of interest.

Disclaimer: While reasonable efforts have been made to ensure that the contents of this publication are factually correct, the Commonwealth does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.



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This map should be attributed as indicative distribution of the Scalloped Hammerhead *Sphyrna lewini*, Commonwealth of Australia 2014.



Australian Government
Department of the Environment

s22

s22

STATUTORY OBLIGATIONS OF THE MINISTER UNDER THE EPBC ACT

Obligations of the Minister for amending the list of threatened species

178 Listing of threatened species

- (1) The Minister must, by instrument published in the *Gazette*, establish a list of threatened species divided into the following categories:
 - (a) extinct;
 - (b) extinct in the wild;
 - (c) critically endangered;
 - (d) endangered;
 - (e) vulnerable;
 - (f) conservation dependent.
- (2) The list, as first established, must contain only the species contained in Schedule 1 to the *Endangered Species Protection Act 1992*, as in force immediately before the commencement of this Act.
- (3) The Minister must include:
 - (a) in the extinct category of the list, as first established, only the species mentioned in subsection (2) that were listed as presumed extinct; and
 - (b) in the endangered category of the list, as first established, only the native species mentioned in subsection (2) that were listed as endangered; and
 - (c) in the vulnerable category of the list, as first established, only the species mentioned in subsection (2) that were listed as vulnerable.
- (4) If the Minister is satisfied that a species included in the list, as first established, in:
 - (a) the extinct category; or
 - (b) the endangered category; or
 - (c) the vulnerable category;is not eligible to be included in that or any other category, or is eligible to be, or under subsection 186(3), (4) or (5) can be, included in another category, the Minister must, within 6 months after the commencement of this Act, amend the list accordingly in accordance with this Subdivision.

179 Categories of threatened species

- (1) A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
- (2) A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:
 - (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 - (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite

exhaustive surveys over a time frame appropriate to its life cycle and form.

- (3) A native species is eligible to be included in the critically endangered category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- (4) A native species is eligible to be included in the endangered category at a particular time if, at that time:
 - (a) it is not critically endangered; and
 - (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- (5) A native species is eligible to be included in the vulnerable category at a particular time if, at that time:
 - (a) it is not critically endangered or endangered; and
 - (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- (6) A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:
 - (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
 - (b) the following subparagraphs are satisfied:
 - (i) the species is a species of fish;
 - (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
 - (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;
 - (iv) cessation of the plan of management would adversely affect the conservation status of the species.
- (7) In subsection (6):

fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

180 Native species of marine fish

- (1) A native species of marine fish is eligible to be included in a category mentioned in a paragraph of subsection 178(1) at a particular time if, at that time, the species meets the prescribed criteria for that category.

- (2) A subsection of section 179 referring to a category (the relevant category) does not apply to a native species of marine fish if regulations are in force for the purposes of subsection (1) of this section prescribing criteria for the relevant category.

184 Minister may amend lists

- (1) Subject to this Subdivision, the **Minister** may, by legislative instrument, amend a list referred to in section 178, 181 or 183 by:
- (a) including items in the list in accordance with Subdivision AA; or
 - (aa) including items in the list in accordance with subsection 186(3), (4) or (5); or
 - (b) deleting items from the list; or
 - (c) in the case of the list referred to in section 178 or 181—transferring items from one category in the list to another category in the list in accordance with Subdivision AA; or
 - (d) correcting an inaccuracy or updating the name of a listed threatened species or listed threatened ecological community.
- (2) Part 6 of the *Legislative Instruments Act 2003* does not apply to an instrument made under subsection (1).

186 Amending list of threatened native species

Including native species in a category

- (1) Subject to subsections (3), (4) and (5), the Minister must not include (whether as a result of a transfer or otherwise) a native species in a particular category unless satisfied that the native species is eligible to be included in that category.
- (2) In deciding whether to include a native species in a particular category (whether as a result of a transfer or otherwise), the only matters the Minister may consider are matters relating to:
- (a) whether the native species is eligible to be included in that category; or
 - (b) the effect that including the native species in that category could have on the survival of the native species.

Deleting native species from a category

- (2A) The Minister must not delete (whether as a result of a transfer or otherwise) a native species from a particular category unless satisfied that:
- (a) the native species is no longer eligible to be included in that category; or
 - (b) the inclusion of the native species in that category is not contributing, or will not contribute, to the survival of the native species.
- (2B) In deciding whether to delete a native species from a particular category (whether as a result of a transfer or otherwise), the only matters the Minister may consider are matters relating to:
- (a) whether the native species is eligible to be included in that category; or
 - (b) the effect that the inclusion of the native species in that category is having, or could have, on the survival of the native species.

189 Minister must consider advice from Scientific Committee

- (1) In deciding whether to make an amendment covered by paragraph 184(1)(aa), (b) or (d), the Minister must, in accordance with the regulations (if any), obtain and consider advice from the Scientific Committee on the proposed amendment.
- (1A) Subsection (1) has effect subject to section 192.
- (1B) If advice from the Scientific Committee for the purposes of subsection (1) is to the effect that a particular native species, or a particular ecological community, is eligible to be included in the relevant list in a particular category, the advice must also contain:
 - (a) a statement that sets out:
 - (i) the grounds on which the species or community is eligible to be included in the category; and
 - (ii) the main factors that are the cause of it being so eligible; and
 - (b) either:
 - (i) information about what could appropriately be done to stop the decline of, or support the recovery of, the species or community; or
 - (ii) a statement to the effect that there is nothing that could appropriately be done to stop the decline of, or support the recovery of, the species or community; and
 - (c) a recommendation on the question whether there should be a recovery plan for the species or community.
- (2) In preparing advice under subsection (1), the Scientific Committee may obtain advice from a person with expertise relevant to the subject matter of the proposed amendment.
- (3) In preparing advice for a proposed amendment to delete an item:
 - (a) included in a category of a list referred to in section 178 or 181; and
 - (b) that had not been included in that category in accordance with subsection 186(3), (4) or (5);

the only matters the Scientific Committee may consider are matters relating to:

- (c) the survival of the native species or ecological community concerned; or
- (d) the effect that the inclusion in the list of the native species or ecological community concerned is having, or could have, on the survival of that native species or ecological community.

194N Scientific Committee to assess items on finalised priority assessment list and give assessments to Minister

- (1) In relation to each item included in the finalised priority assessment list for an assessment period for a Subdivision A List, the Scientific Committee must (by the time required by section 194P):
 - (a) make a written assessment of:
 - (i) whether the item is eligible for inclusion in the Subdivision A List; and
 - (ii) if the Subdivision A List is the list referred to in section 178 or 181—the category of that List in which the item is eligible to be included; and
 - (b) give to the **Minister**:
 - (i) the written assessment (or a copy of it); and

- (ii) a copy of the comments referred to in paragraphs (2)(a) and (b) (whether or not they have all been taken into account under subsection (2)).
- (2) In making an assessment in relation to a place, the Scientific Committee, subject to subsections (3) and (4):
 - (a) must take into account the comments the Committee receives in response to the notice under subsection 194M(1) in relation to the item; and
 - (b) may seek, and have regard to, information or advice from any source.
- (3) The Scientific Committee is not required to take a comment referred to in paragraph (2)(a) into account if:
 - (a) the Committee does not receive the comment until after the cut-off date specified in the notice under subsection 194M(1) in relation to the item; or
 - (b) the Committee considers that regulations referred to in paragraph 194M(4)(b) have not been complied with in relation to the comment.
- (4) In making an assessment, the only matters the Scientific Committee may consider are matters relating to:
 - (a) whether the item is eligible for inclusion in the Subdivision A List; or
 - (b) the effect that including the item in that List could have on the survival of the native species or ecological community concerned.

194P Time by which assessments to be provided to Minister

- (1) Subsection 194N(1) must be complied with, in relation to an item included in the finalised priority assessment list for an assessment period for a Subdivision A List, by the assessment completion time specified in the finalised priority assessment list for the item, or by that time as extended under this section.
- (2) The Scientific Committee may request the Minister to extend the assessment completion time (or that time as previously extended) if the Committee considers that it needs more time to make the assessment.
- (3) The Minister may, in response to a request under subsection (2), extend the assessment completion time (or that time as previously extended) by such period (if any) as the Minister considers appropriate. However, the total length of all extensions of the assessment completion time must not be more than 5 years.
- (4) An extension under subsection (3) must be made in writing.
- (5) If the Minister grants an extension under this section, the Minister must publish particulars of the extension in a way that the Minister considers appropriate.

194Q Decision about inclusion of an item in the Subdivision A List

Minister to decide whether or not to include item

- (1) After receiving from the Scientific Committee an assessment under section 194N of an item, the **Minister** must:
 - (a) include the item in the Subdivision A List concerned; or

(b) in writing, decide not to include the item in the Subdivision A List concerned.

Note 1: Under this subsection the **Minister** can transfer an item already on a Subdivision A List to a different category in the List (see subsection 194B(1)).

Note 2: Sections 186, 187 and 188 contain rules about including items in a Subdivision A List.

- (2) If, under subsection (1), the Minister transfers an item to a category of the Subdivision A List, the Minister must at the same time delete the item from the category in which it was included before the transfer.
- (3) Subject to subsection (4), the **Minister** must comply with subsection (1) within **90 business days** after the day on which the **Minister** receives the assessment.
- (4) The **Minister** may, in writing, extend or further extend the period for complying with subsection (1).
- (5) Particulars of an extension or further extension under subsection (4) must be published on the Internet and in any other way required by regulations.
- (6) For the purpose of deciding what action to take under subsection (1) in relation to the item:
 - (a) the **Minister** must have regard to:
 - (i) the Scientific Committee's assessment of the item; and
 - (ii) the comments (if any), a copy of which were given to the **Minister** under subsection 194N(1) with the assessment; and
 - (b) the **Minister** may seek, and have regard to, information or advice from any source.

Additional requirements if Minister decides to include place

- (7) If the **Minister** includes the item in the Subdivision A List, he or she must, within a reasonable time:
 - (a) if the item was nominated by a person in response to a notice under subsection 194E(1)—advise the person that the item has been included in the Subdivision A List; and
 - (b) publish a copy of the instrument referred to in paragraph (1)(a) on the Internet; and
 - (c) publish a copy or summary of that instrument in accordance with any other requirements specified in the regulations.

Additional requirements if Minister decides not to include item

- (8) If the **Minister** decides not to include the item in the Subdivision A List, the **Minister** must, within **10 business days** after making the decision:
 - (a) publish the decision on the Internet; and
 - (b) if the item was nominated by a person in response to a notice under subsection 194E(1)—advise the person of the decision, and of the reasons for the decision.

266B Approved conservation advice for listed threatened species and listed threatened ecological communities

Minister to ensure there is approved conservation advice

- (1) The **Minister** must ensure that there is approved conservation advice for each listed threatened species (except one that is extinct or that is a conservation dependent species), and each listed threatened ecological community, at all times while the species or community continues to be listed.

- (2) For this purpose, **approved conservation advice** is a document, approved in writing by the **Minister** (and as changed from time to time in accordance with subsection (3)), that contains:
- (a) a statement that sets out:
 - (i) the grounds on which the species or community is eligible to be included in the category in which it is listed; and
 - (ii) the main factors that are the cause of it being so eligible; and
 - (b) either:
 - (i) information about what could appropriately be done to stop the decline of, or support the recovery of, the species or community; or
 - (ii) a statement to the effect that there is nothing that could appropriately be done to stop the decline of, or support the recovery of, the species or community.

Changing approved conservation advice

- (3) The **Minister** may, in writing, approve changes to approved conservation advice.

Consultation with Scientific Committee

- (4) If the **Minister** proposes to approve a document as approved conservation advice, the **Minister** must consult the Scientific Committee about the document, unless its content is substantially the same as material that the Committee has previously provided to the **Minister**.
- (5) If the **Minister** proposes to approve a change to approved conservation advice, the **Minister** must consult the Scientific Committee about the change, unless the change is substantially the same as a change that the Scientific Committee has previously advised the **Minister** should be made.

Publication requirements

- (6) If the **Minister** approves a document as approved conservation advice, the **Minister** must:
- (a) within 10 days of the approval of the document, publish the approved conservation advice on the Internet; and
 - (b) comply with any other publication requirements of the regulations.
- (7) If the **Minister** approves a change to approved conservation advice, the **Minister** must:
- (a) within 10 days of the approval of the change, publish the advice, as changed, on the Internet; and
 - (b) comply with any other publication requirements of the regulations.

Instruments of approval are not legislative instruments

- (8) An instrument of approval under subsection (2) or (3) is not a legislative instrument.

269AA Decision whether to have a recovery plan

Minister has an initial obligation and then a discretion

- (1) The **Minister** must decide whether to have a recovery plan for a listed threatened species (except one that is extinct or that is a conservation dependent species) or a listed threatened ecological community within 90 days after the species or community becomes listed. The **Minister** may, at any other time, decide whether to have a recovery plan for the species or community.

- (2) In this section:
- (a) the decision that the **Minister** is required by subsection (1) to make in relation to the species or community within the 90 day period referred to in that subsection is the **initial recovery plan decision**; and
 - (b) any subsequent decision that the Minister makes under subsection (1) in relation to the species or community is a **subsequent recovery plan decision**.

Making the initial recovery plan decision

- (3) In making the initial recovery plan decision, the **Minister** must have regard to the recommendation (the **initial recommendation**) made by the Scientific Committee as mentioned in paragraph 189(1A)(c) in relation to the species or community.

Making a subsequent recovery plan decision (unless subsection (5) applies)

- (4) In making a subsequent recovery plan decision in relation to the species or community, other than a decision to which subsection (5) applies:
- (a) the **Minister** must have regard to the initial recommendation in relation to the species or community; and
 - (b) the **Minister** must have regard to any advice subsequently provided to the **Minister** by the Scientific Committee about whether there should be a recovery plan for the species or community.

Changing from a decision to have a recovery plan to a decision not to have a recovery plan—additional requirements

- (5) If, at a time when a decision to have a recovery plan for the species or community is in force (whether or not the plan has yet been made), the **Minister** is proposing to make a subsequent recovery plan decision that there should not be a recovery plan for the species or community:
- (a) the **Minister** must ask the Scientific Committee for advice relating to the proposed decision; and
 - (b) the **Minister** must publish a notice inviting comments on the proposed decision in accordance with subsection (7); and
 - (c) the **Minister** must, in deciding whether to make the proposed decision, take account of:
 - (i) any advice provided by the Scientific Committee in relation to the proposed decision; and
 - (ii) subject to subsection (6), the comments the **Minister** receives in response to the notice referred to in paragraph (b).
- (6) The **Minister** is not required to take a comment referred to in subparagraph (5)(c)(ii) into account if:
- (a) the **Minister** does not receive the comment until after the cut-off date specified in the notice under paragraph (5)(b); or
 - (b) the **Minister** considers that regulations referred to in paragraph (8)(b) have not been complied with in relation to the comment.
- (7) The notice referred to in paragraph (5)(b):
- (a) must be published in accordance with the regulations referred to in paragraph (8)(a); and
 - (b) must set out the decision the **Minister** proposed to make; and
 - (c) must invite people to make comments, to the Minister, about the proposed decision; and

- (d) must specify the date (the **cut-off date**) by which comments must be received, which must be at least 30 business days after the notice has been published as required by paragraph (a); and
 - (e) must specify, or refer to, the manner and form requirements that, under regulations referred to in paragraph (8)(b), apply to making comments; and
 - (f) may also include any other information that the **Minister** considers appropriate.
- (8) The regulations must provide for the following:
- (a) how a notice referred to in paragraph (5)(b) is to be published;
 - (b) the manner and form for making comments.

General publication requirements

- (9) The **Minister** must publish the following:
- (a) the **Minister's** initial recovery plan decision, and the reasons for it;
 - (b) each subsequent recovery plan decision (if any), and the reasons for it.
- The regulations may specify how the publication is to be made. Subject to any such regulations, the publication must be made in a way that the Minister considers appropriate.

Note: This subsection must be complied with, even if the **Minister** has already published notice of the proposed decision in accordance with subsections (5) and (7).

Decisions not legislative instruments

- (10) An instrument making a decision under subsection (1) is not a legislative instrument.

Categories and criteria for amending the list of threatened species

179 Categories of threatened species

- (1) A native species is eligible to be included in the **extinct** category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
- (2) A native species is eligible to be included in the **extinct in the wild** category at a particular time if, at that time:
 - (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 - (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- (3) A native species is eligible to be included in the **critically endangered** category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- (4) A native species is eligible to be included in the **endangered** category at a particular time if, at that time:
 - (a) it is not critically endangered; and
 - (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- (5) A native species is eligible to be included in the **vulnerable** category at a particular time if, at that time:
 - (a) it is not critically endangered or endangered; and

(b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

(6) A native species is eligible to be included in the **conservation dependent** category at a particular time if, at that time:

(a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or

(b) the following subparagraphs are satisfied:

(i) the species is a species of fish;

(ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;

(iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;

(iv) cessation of the plan of management would adversely affect the conservation status of the species.

(7) In subsection (6):

fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

Regulation 7.01 Criteria for listing threatened species

For section 179 of the Act, a native species is in the critically endangered, endangered or vulnerable category if it meets any of the criteria for the category mentioned in the following table:

Item	Criterion	Category		
		Critically endangered	Endangered	Vulnerable
1	It has undergone, is suspected to have undergone or is likely to undergo in the immediate future:	a very severe reduction in numbers	a severe reduction in numbers	a substantial reduction in numbers
2	Its geographic distribution is precarious for the survival of the species and is:	very restricted	restricted	limited
3	The estimated total number of mature individuals is:	very low	low	limited
	and: evidence suggests that the number will continue to decline at:	a very high rate	a high rate	a substantial rate
	Or the number is likely to continue to decline and its geographic distribution is:	precarious for its survival	precarious for its survival	precarious for its survival

Item	Criterion	Category		
		Critically endangered	Endangered	Vulnerable
4	The estimated total number of mature individuals is:	extremely low	very low	low
5	The probability of its extinction in the wild is at least:	50% in the immediate future	20% in the near future	10% in the medium-term future

Note: The Scientific Committee is to advise the Minister on the amendment and updating of the list of critically endangered, endangered or vulnerable species — see Act, paragraph 503 (b).

There are no specific criteria for listing a species as *conservation dependent* except as provided by s.179(6) of the EPBC Act: The species must be “the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of five years.”



Commonwealth of Australia

Amendment to the lists of threatened species, threatened ecological communities and key threatening processes under sections 178, 181 and 183 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (202)

I, JOSH FRYDENBERG, Minister for the Environment and Energy under section 184(1)(a) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), amend the list referred to in section 178 of that Act by:

Including in the list in the **Conservation Dependant** category:

Sphyrna lewini

This Instrument commences on 15 March 2018.

.....

Minister for the Environment and Energy

Dated 20.....



Commonwealth of Australia

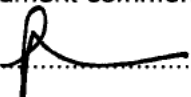
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amend the list referred to in section 178 of that Act by:

Including in the list in the **Conservation Dependant** category:

Sphyrna lewini

This Instrument commences on 15 March 2018.


.....

Minister for the Environment and Energy

Dated 1/28 / 20.18.....

EXPLANATORY STATEMENT

(Issued under the Authority of the Minister for the Environment and Energy)

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Instrument under section 184(1)(a)

The *Environment Protection and Biodiversity Conservation Act 1999* (the **Act**) provides for the protection of the environment and conservation of biodiversity, including the protection and conservation of threatened species.

Section 178 of the Act provides for a list of threatened species (the **List**) separated into particular categories being, Extinct, Extinct in the wild, Critically Endangered, Endangered, Vulnerable and Conservation Dependent.

Section 184 of the Act provides that the Minister may, by legislative instrument, amend the List to include an item in the List, delete an item from the List or, transfer an item from one category in the List to another category.

The process for making amendments to the List to include or transfer an item is set out in Part 13, Division 1, Subdivision AA of the Act. The relevant considerations for making amendments to the List to delete an item are set out in Part 13, Division 1, Subdivision A of the Act.

The purpose of this Instrument is to amend the List by:

- including one species in the Conservation Dependant category

Consultation

Consultation was undertaken before the Instrument was made, in accordance with the processes outlined in Part 13, Division 1, Subdivision AA of the Act.

The Threatened Species Scientific Committee (the Committee):

- recommended the species for inclusion on the Finalised Priority Assessment List for the assessment period commencing either the 1 October 2012, to which the minister agreed; and
- sought public comment on the species for at least 30 business days.

The Committee consulted parties with relevant expertise regarding their views, including:

- Relevant researchers from Australian universities
- Relevant state and territory governments
- Relevant non-government organisations.

The Committee prepared a written assessment of whether the nominated species were eligible for inclusion in the List. The written assessments and all comments received during the consultation period were provided to the Minister and considered in relation to the making of the Instrument.

This Instrument is a legislative instrument for the purposes of the *Legislation Act 2003*.

The Instrument commenced on 15 March 2018.

Authority: section 184(1)(a) of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Statement of Compatibility with Human Rights

Prepared in accordance with Part 3 of the Human Rights (Parliamentary Scrutiny) Act 2011

Amendment to the list of threatened species under section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (202)

This Legislative Instrument is compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

Overview of the Legislative Instrument

The purpose of this Instrument is to amend the *Environment Protection and Biodiversity Conservation Act 1999* list of threatened species by including one species (*Sphyrna lewini*) in the Conservation Dependent category.

This species is being included in list as it met the criteria for listing in this category under the EPBC Act.

The commencement date for the instrument is delayed for a short period to enable regulatory changes in the Great Barrier Reef Marine Park to ensure management consistent with the intention of this listing.

Human rights implications

This Legislative Instrument does not engage any of the applicable rights or freedoms.

Conclusion

This Legislative Instrument is compatible with human rights as it does not raise any human rights issues.

Minister for the Environment and Energy



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

s47F

Humane Society International
PO Box 439
AVALON NSW 2107

Dear s47F

Thank you for your nominations to include *Sphyrna lewini* (scalloped hammerhead shark) s22 on the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) list of threatened species. s22

The Threatened Species Scientific Committee has now completed its assessment of the s22 species against the criteria for listing under the EPBC Act. You may be aware from the consultation drafts that the Committee considered the scalloped hammerhead shark for listing in the Endangered category. As it is caught in commercial fisheries, the Committee also considered the scalloped hammerhead shark's eligibility for listing as Conservation Dependent, a category that allows fishing to continue if fishery management arrangements are sufficient to support its recovery.

I am pleased to inform you that I have decided to include scalloped hammerhead in the Conservation Dependent category of the EPBC Act list of threatened species.

s22

The Committee's recommendations, and the supporting information, are detailed in Listing Advice for the species which will soon be available on my Department's website at: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Yours sincerely

JOSH FRYDENBERG



**THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY**

MS17-001776

s47F
Humane Society International
PO Box 439
AVALON NSW 2107

1 FEB 2018

Dear s47F

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Conservation Act 1999* (EPBC Act) list of threatened species. s22

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species against the criteria for listing under the EPBC Act. You may be aware from the
consultation drafts that the Committee considered the scalloped hammerhead shark for listing
in the Endangered category. As it is caught in commercial fisheries, the Committee also
considered the scalloped hammerhead shark's eligibility for listing as Conservation Dependent,
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support its recovery.

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Conservation Dependent category of the EPBC Act list of threatened species.

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Advice for the species which will soon be available on my Department's website at:
<http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Yours sincerely

JOSH FRYDENBERG



**THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY**

MS17-001776

Professor Helene Marsh
Chair
Threatened Species Scientific Committee
c/- Secretariat, Species Information and Policy Section
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Dear Professor Marsh

Thank you for the Threatened Species Scientific Committee's advice concerning the assessments of s22 [REDACTED] hammerhead sharks under the threatened species provisions of the EPBC Act. I have considered the Committee's advice regarding the eligibility of these species for listing and the effect that listing would have on their survival.

I agree with the Committee's recommendations and have decided to include the scalloped hammerhead shark (*Sphyrna lewini*) in the Conservation Dependent category. s22 [REDACTED]

My thanks to you and the Committee for your advice and contribution to the identification of nationally threatened species. I look forward to receiving your future advice.

Yours sincerely

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

Professor Helene Marsh
Chair
Threatened Species Scientific Committee
c/- Secretariat, Species Information and Policy Section
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

- 1 FEB 2018

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[REDACTED]
[REDACTED]

My thanks to you and the Committee for your advice and contribution to the identification of nationally threatened species. I look forward to receiving your future advice.

Yours sincerely

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

The Hon Mark Furner MP
Minister for Agricultural Industry Development and Fisheries
GPO Box 46
BRISBANE QLD 4000

Dear Minister

I am writing to advise you that I have decided to amend the list of threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to include the scalloped hammerhead shark (*Sphyrna lewini*) in the Conservation Dependent category.

The approved conservation advice for the species will be available shortly on the Department of the Environment and Energy's website at: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Listing in the Conservation Dependent category is only possible for a commercial fish species if there are sufficient measures in force under law to stop the decline of, and support the recovery of the species. I would like to thank fisheries staff of the Queensland Department of Agriculture and Fisheries for working constructively with staff in my Department to ensure fisheries management arrangements in your jurisdiction supported this listing outcome.

If you have any queries with regard to this decision, your office may wish to contact the Director of the Marine and Freshwater Species Conservation Section in the Department,

s22

Yours sincerely

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

1 FEB 2018

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s22
[REDACTED]

Yours sincerely

A handwritten signature in black ink, appearing to be 'J Frydenberg', with a long horizontal stroke extending to the right.

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

The Hon Ken Vowles MLA
Minister for Primary Industry and Resources
GPO Box 3146
DARWIN NT 0801

Dear Minister

I am writing to advise you that I have decided to amend the list of threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to include the scalloped hammerhead shark (*Sphyrna lewini*) in the Conservation Dependent category.

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Yours sincerely

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

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Minister for Primary Industry and Resources
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- 1 FEB 2018

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JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

Dr Russell Reichelt FTSE
Chairman
Great Barrier Reef Marine Park Authority
PO Box 1379
TOWNSVILLE QLD 4810

Dear Dr Reichelt

I am writing to thank you for your assistance in enabling the most appropriate outcome from the recent listing assessment by the Threatened Species Scientific Committee (the Committee) of s22 hammerhead shark species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Committee recently finalised its assessments and provided its advice to me. I have followed that advice and added *Sphyrna lewini* (scalloped hammerhead) to the threatened species list in the Conservation Dependent category under the EPBC Act. s22

I have noted in previous correspondence that the automatic recognition of any species on the EPBC Act threatened list as a protected species under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act) was inconsistent with the intent of the Conservation Dependent category.

I appreciate the efforts of yourself and the Great Barrier Reef Marine Park Authority Board in facilitating a timely regulation amendment to recognise the intent of the Conservation Dependent category. I also want to acknowledge the work done by staff of the Great Barrier Reef Marine Park Authority who I know worked closely with staff of the Department of the Environment and Energy in recognising and addressing the issues associated with this listing decision.

The Committee's recommendation, and the information outlined above, are detailed in the Listing Advice for the species which will soon be available on my Department's website at: <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>

Yours sincerely

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

MS17-001776

Dr Russell Reichelt FTSE
Chairman
Great Barrier Reef Marine Park Authority
PO Box 1379
TOWNSVILLE QLD 4810

- 1 FEB 2018

Dear Dr Reichelt

I am writing to thank you for your assistance in enabling the most appropriate outcome from the recent listing assessment by the Threatened Species Scientific Committee (the Committee) of s22 hammerhead shark species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Committee recently finalised its assessments and provided its advice to me. I have followed that advice and added *Sphyrna lewini* (scalped hammerhead) to the threatened species list in the Conservation Dependent category under the EPBC Act. s22

I have noted in previous correspondence that the automatic recognition of any species on the EPBC Act threatened list as a protected species under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act) was inconsistent with the intent of the Conservation Dependent category.

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Yours sincerely

JOSH FRYDENBERG

Copy to

To: Minister for the Environment and Energy (For Decision)

Secretary
Mr Knudson
Mr Oxley
Ms Jonasson

EPBC ACT LISTING ASSESSMENT FOR HAMMERHEAD SHARKS

Chief of Staff
s47F

Timing: 27 June 2017 – to enable timely response to the Queensland Minister for Agriculture and Fisheries.

Recommendations:			
1. That you sign the attached letter to the Queensland Minister for Agriculture and Fisheries at <u>Attachment B</u> .			
			Signed / Not signed
Minister:		Date:	
Comments:			
Clearing Officer: Sent: 14/6/2017	Geoff Richardson	Assistant Secretary, Protected Species and Communities Branch	s22
Contact Officer:	s22	Director, Marine and Freshwater Species Conservation Section	s22

Key Points:

1. s22 hammerhead shark species are currently being assessed by the Threatened Species Scientific Committee (TSSC) for threatened species listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The s22 species are: scalloped hammerhead (*Sphyrna lewini*); s22
2. The assessment outcome is due to be forwarded to you by 30 September 2017.
3. Public and expert consultation was undertaken on draft assessments in June and July 2014. Comments submitted at that time are being considered as part of the assessment. The draft assessments noted that scalloped hammerhead is eligible for listing in the Endangered category s22
4. The TSSC is currently considering whether fisheries management arrangements for these species satisfy EPBC Act requirements for listing in the Conservation Dependent category (para 179(6)(b)). Such a listing would enable commercial fishing for these species to continue while providing for recovery of the species.

5. For a species to be eligible for listing as Conservation Dependent, the species must be the focus of a plan of management that provides for the recovery of the species; the plan of management must be in force under law; and cessation of the plan of management would adversely affect the conservation of the species (para 179(6)(b)).
6. Five fisheries account for approximately 90 per cent of the Australian hammerhead catch: the Northern Territory Offshore Net and Line Fishery, Queensland's East Coast and Gulf of Carpentaria Inshore Fin Fish Fisheries, the Western Australian Temperate Shark Fisheries and the South Australian Marine Scalegfish Fishery.
7. As part of the Committee's considerations for a potential Conservation Dependent listing, state and territory governments are required to have management arrangements in force under law which satisfy the requirements of paragraph 179(6)(b) of the EPBC Act.
8. On 20 February 2017 members of the TSSC, together with Departmental and Great Barrier Reef Marine Park Authority (Authority) officers, met with fisheries managers from Queensland and the Northern Territory. The Committee provided advice to fisheries managers on minimum requirements for management measures to support consideration of a Conservation Dependent listing.
9. The Queensland Government's response to the TSSC advice is provided to you in the attached letter from the Queensland Minister for Agriculture and Fisheries, the Hon Bill Byrne MP (**Attachment A**); a draft response is at **Attachment B**.

Threatened Species Listing Issues Specific to the Great Barrier Reef Marine Park

10. Great Barrier Reef Marine Park (Marine Park) legislation does not recognise differences between Conservation Dependent, Vulnerable, Endangered or Critically Endangered listing categories.
11. This means Conservation Dependent listed species are recognised as a 'protected species' in Great Barrier Reef Marine Park waters, providing similar protection to those listed as Matters of National Environment Significance (MNES) under the EPBC Act (i.e. Vulnerable, Endangered and Critically Endangered listed species).
12. If listed as Conservation Dependent, this would result in scalloped hammerhead shark becoming a no-take species in the Great Barrier Reef Marine Park, impacting on commercial net and line fishing within the Marine Park. Outside of the park, commercial fishing could continue in accordance with Queensland fisheries management arrangements.
13. It is possible, and not unprecedented, for the Marine Park Authority to amend its regulations so that the same conditions applying to a Conservation Dependant listed species outside the Marine Park, equally apply within the Marine Park. The Authority will be considering this issue at its next meeting on 29 June 2017. In prior discussions the Authority has expressed its desire to achieve the strongest conservation outcomes for hammerhead sharks in the Marine Park.

Attachments

- A:** Letter from Queensland Minister for Agriculture and Fisheries the Hon Bill Byrne MP
B: Draft Response

Copy to:

To: Minister for the Environment and Energy (For Decision)

Secretary
Mr Knudson
Mr Oxley
Ms Jonasson

EPBC ACT LISTING ASSESSMENT FOR HAMMERHEAD SHARKS

Chief of Staff
s47F

Timing: 27 June 2017 – to enable timely response to the Queensland Minister for Agriculture and Fisheries.

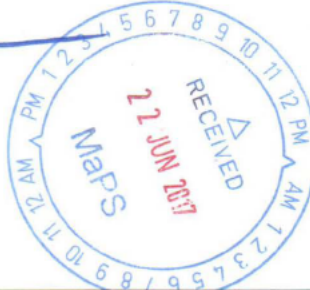


Recommendations:

1. That you sign the attached letter to the Queensland Minister for Agriculture and Fisheries at **Attachment B**.

Minister:

Comments:



Signed / Not signed

Date:

21/6/17

Clearing Officer: Sent: 14/6/2017	Geoff Richardson	Assistant Secretary, Protected Species and Communities Branch	S22
Contact Officer:	s22	Director, Marine and Freshwater Species Conservation Section	s22

Key Points:

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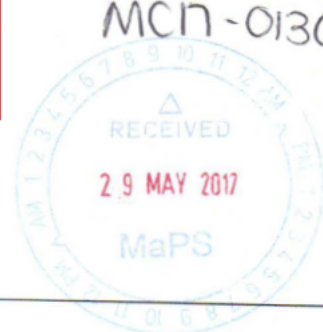
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Attachments

- A:** Letter from Queensland Minister for Agriculture and Fisheries the Hon Bill Byrne MP
B: Draft Response



Hon Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development

Reference: CTS 11676/17

1 William Street Brisbane 4000
GPO Box 46 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7560
Email agriculture@ministerial.qld.gov.au

22 MAY 2017

The Honourable Mr Josh Frydenberg MP
Minister for the Environment and Energy
M1:17, Parliament House
CANBERRA ACT 2600

Min No: MC	Link:
Division: WHM	Date: 29/5
DLO: JF	Environment and Energy Minister
RECEIVED 25 MAY 2017	
<input type="checkbox"/> Covering Brief	<input type="checkbox"/> Departmental Reply
<input checked="" type="checkbox"/> Minister Reply	<input type="checkbox"/> Appropriate Action
<input type="checkbox"/> CoS/Adviser Reply	<input type="checkbox"/> For Information
<input type="checkbox"/> Refer to:.....	<input type="checkbox"/> Campaign <input type="checkbox"/> Advice/Min

Dear Minister

I am writing to you to inform you of the steps the Queensland Government is taking to strengthen fisheries management arrangements for hammerhead shark ahead of your decision on whether to list it as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

s47C
[Redacted]

s47C
[Redacted]

This is a situation that the Queensland Government would like to avoid.

The hammerhead shark catch in Australia is around one per cent of the global harvest of the stock. Queensland's fisheries has contributed very little to the declining abundance of hammerhead. Despite this, the Queensland Government committed to doing all we can at a local level to ensure the sustainable harvest of the species in Queensland waters.

To support a conservation dependent listing, I am amending the *Fisheries Regulation 2008* to strengthen management arrangements in Queensland. The amendments will:

- establish a Total Allowable Catch (TAC) of 150 tonnes (split across the Gulf of Carpentaria and East Coast)
- establish a trigger point (once 75 per cent of TAC is reached) at which time:
 - a trip limit of 10 hammerhead sharks for net fishers and four for line fishers applies

- all commercial fishers will be required to land their catch of hammerheads in whole form, i.e. gilled and gutted with head and fins attached.

In addition, Fisheries Queensland will also improve reporting requirements for commercial fishers to, including:

- data validation measures such as prior and unload reporting
- reporting of discards and species-specific catch information in logbooks.

Fisheries Queensland is working with the Federal Government Department of Environment and other Australian jurisdictions to ensure regulatory changes to strengthen management arrangements are in place ahead of the TSSC's recommendation in September 2017. Queensland's regulatory arrangements will commence on 1 January 2018.

The Queensland Government is taking some quite proactive steps to support a sensible decision from you to list the species as 'conservation dependent'. I am calling on you to make a timely and responsible decision that will give certainty to industry and reduce unnecessary discards. Any decision should recognise the small scale of the catch in Australia and the steps taken to further protect hammerhead sharks by the relevant states, consistent with the requirements set out by the TSSC.

I am also concerned that despite our steps, the Great Barrier Reef Marine Park Authority will still need to exempt hammerhead sharks from being a no-take species in the marine park even if they are listed as conservation dependent. There is a good chance that Queensland will have a TAC in place that cannot be taken, which would damage our relationship with the industry. I would like your assurance that you will work with the Marine Park Authority to ensure a consistent Federal Government approach on this matter.

Beyond the pressing issues relating to the hammerhead shark, the Queensland Government is also working to finalise its fisheries reform agenda. The green paper on fisheries management reform in Queensland was released for public consultation from July to October 2016. The green paper outlined where we are now, where we want to be, and how we can get there. Over 11 800 responses were received, including 192 written submissions, 476 responses to the online long survey, 663 responses to the online short survey and over 10 500 form emails from the conservation sector. Officers from Fisheries Queensland met with over 230 people at 126 meetings across Queensland during the consultation period to gather their views.

The overwhelming message was that all stakeholders wanted reform in the way we manage fisheries. There was strong support from all sectors for better fishery monitoring, more effective engagement, more responsive decision making and greater fisheries compliance.

The Queensland Government is committed to reforming fisheries, and is currently preparing a Sustainable Fisheries Strategy which will outline the government's reform agenda for the next 10 years, taking into account the public feedback on the green paper. The government is aiming to finalise the strategy by mid-2017.

I trust that this information is of assistance.

If you require any further information regarding this matter, please contact my Chief of Staff, Tim Grau on telephone s47F

Yours sincerely


① — **The Honourable Bill Byrne MP**
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development

CC: Dr Russell Riechelt
Chairman
Great Barrier Reef Marine Park Authority
PO Box 1379
TOWNSVILLE QLD 4810



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

The Hon Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development
GPO Box 46
BRISBANE QLD 4001

MC17-013081

Dear Minister

I refer to your letter concerning the fisheries management arrangements being introduced by the Queensland Government for hammerhead shark.

I am aware that the Threatened Species Scientific Committee (the Committee) is currently assessing the eligibility of s22 hammerhead shark species for threatened species listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Committee's assessments are due for completion and provision to me by 30 September 2017. Following the provision of the Committee's advice, I have 90 business days to consider and make my decision.

I am advised that the Committee is considering as part of its assessments, whether fisheries management arrangements for the species satisfy the requirements of the EPBC Act to support listing in the Conservation Dependent category. Such a listing would enable the continuation of commercial fishing for the species in accordance with the respective state or territory's fishery management arrangements.

The management arrangements which you refer to being introduced under Queensland's *Fisheries Regulation 2008* have been made available to the Committee for consideration as part of its assessments. The Committee met in the first week of June 2017, and the Department of the Environment and Energy will ensure that any further questions or requests for information relevant to Queensland from the Committee are forwarded to the Queensland Government as soon as practicably possible.

I am also aware that within the Great Barrier Reef Marine Park, any species listed under the EPBC Act, including as Conservation Dependent, automatically becomes a protected species under the Great Barrier Reef Marine Park Act (Marine Park Act). I am advised that the Great Barrier Reef Marine Park Authority board (the Authority) will be discussing the implications of listing hammerhead sharks in the Great Barrier Reef Marine Park at its next meeting in late June 2017. I intend discussing this matter with the Authority upon my receipt of the listing advice from the Committee. I have copied this response to the Chairman, the Great Barrier Reef Marine Park Authority, Dr Russell Riechelt.

Thank you for writing on this matter.

Yours sincerely

JOSH FRYDENBERG



THE HON JOSH FRYDENBERG MP
MINISTER FOR THE ENVIRONMENT AND ENERGY

The Hon Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development
GPO Box 46
BRISBANE QLD 4001

MC17-013081

21 JUN 2017

Dear Minister

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I am aware that the Threatened Species Scientific Committee (the Committee) is currently assessing the eligibility of **s22** hammerhead shark species for threatened species listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Committee's assessments are due for completion and provision to me by 30 September 2017. Following the provision of the Committee's advice, I have 90 business days to consider and make my decision.

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Thank you for writing on this matter.

Yours sincerely

JOSH FRYDENBERG

THREATENED SPECIES SCIENTIFIC COMMITTEE

57th meeting (2 – 4 September 2014), Canberra

MINUTES

Committee attendance, 2 – 4 September 2014		
Professor Helene Marsh (chair)	Professor Peter Harrison	
Ms Judy Backhouse	Dr Michelle Heupel	Dr Sue McIntyre
Professor Stuart Bunn	Dr Sarah Legge	Dr Andrea Taylor
Apologies: Professor David Keith, Dr Bill Humphreys		

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- Additional time has been provided to the Western Australian Department of Fisheries and the Queensland Department of Agriculture, Fisheries and Forestry to provide comment for the consultation on *Sphyrna lewini* (Scalloped hammerhead) s22

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7.5 *Sphyrna* s22 hammerhead sharks) — update

- Members noted the deadline for recommendations to the Minister is September 2015.
- The Department was advised that, should she not continue as a TSSC member, Dr Heupel would be available to provide input and advice on these matters as an independent advisor to the Committee.

The Committee:

- **noted** the update to the assessment of listing eligibility of s22 hammerhead shark species following the consultation period.
- **noted** in particular the extension granted to the Western Australian and Queensland governments for consultation on the draft listing advices, and the complexity of the parallel processes occurring for hammerhead species under CITES and CMS.
- **noted** the need to carefully consider the optimal timing for the Committee's recommendations to the Minister, in relation to the interactions of the potential threatened listing with the CITES non-detriment finding and likely listing of hammerheads under the Convention for the Conservation of Migratory Species of Wild Animals s22

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The Committee declares that these minutes are an accurate record of the 57th meeting.

Threatened Species Scientific Committee
November 2014

Guest and Departmental attendance

Guests (external)

Department of the Environment

Executives

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities branch, Wildlife, Heritage & Marine division (WHaM)

Mr Paul Murphy, Assistant Secretary, Wildlife Trade and Biosecurity branch, WHaM

Mr Gregory Andrews, Threatened Species Commissioner

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THREATENED SPECIES SCIENTIFIC COMMITTEE

FOI 190513
Document 10

59th meeting (3 – 5 March 2015), Canberra

MINUTES

Committee attendance, 3 – 5 March 2015		
Professor Peter Harrison (Chair)		
Ms Judy Backhouse	Dr Sue McIntyre	Professor David Keith
Professor Stuart Bunn	Dr Sarah Legge	

Meeting opened at 9 am on 3 March 2015.

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7.12 Hammerhead Sharks Update

- Members noted the principal source of decline for hammerhead sharks is outside of Australia's jurisdiction (evidence suggests no genetic difference across the Australian and Indonesian populations).
- Members noted that the species appeared eligible for listing as threatened but that listing could have limited effect given that the threats to the species are beyond Australia's jurisdiction. It was noted that the species could be eligible for listing as conservation dependent although this may be problematic, since it would not be possible to develop a conservation plan that would be able to address the issues affecting recovery of the species. Members noted that under the Act, the Minister may, in making a determination, consider the effect that inclusion in the list could have on the survival of the species.

- Members suggested a paper could be developed detailing a range of options for dealing with this species together with the relevant cost benefit information.
- Members noted that Marine Freshwater Species Conservation section staff would bring this species to the attention of the Threatened Species Commissioner after it has been listed.

The Committee:

- **noted** the limits in capacity of the current Committee membership to address the issues associated with these complex marine species.
- **requested** a detailed discussion paper be presented to TSSC60 (June 2015) discussing the three listing options for the species, with analyses of the cost benefits, complications and implications for each of the options.

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The meeting closed at 12 noon on 5th March 2015

The Committee declares that these minutes are an accurate record of the 59th meeting.

Threatened Species Scientific Committee

Tuesday 2 June 2015

Guest and Departmental attendance

Guests (external)

Professor Helene Marsh, Distinguished Professor of Environmental Science, James Cook University


Department of the Environment

Executives

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, Wildlife, Heritage & Marine Division (WHaM)

Mr Paul Murphy, Assistant Secretary, Wildlife Trade and Biosecurity Branch, WHaM

Mr Gregory Andrews, Threatened Species Commissioner

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s22

THREATENED SPECIES SCIENTIFIC COMMITTEE

60th meeting

(2 – 4 June, 2015), Canberra

MINUTES

Committee attendance, 2 – 4 June 2015		
Professor Helene Marsh (Chair)		
Professor Stuart Bunn	Professor David Keith	Dr Sue McIntyre
Professor Colin Simpfendorfer	Dr David Kendal	Dr Nicola Mitchell
Professor Kingsley Dixon	Dr Sarah Legge	Dr Hamish Campbell

Meeting opened at 9am

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Species — Other

7.9 *Sphyrna lewini* (Scalloped hammerhead shark) assessment update

- Members noted the background context and discussed the progress of the assessment. The difficulties in undertaking the assessment particularly the issue that the major threats to the species' are outside Australian waters were noted.
- Professor Simpfendorfer declared that he provided a document to the CITES group within the Department that provided background to the non-detriment finding for hammerheads.

The Committee:

- **noted** that the principal threats to *Sphyrna lewini* lie both inside and outside the Australian jurisdiction.
- **endorsed** the Department's continuation of the assessment of *Sphyrna lewini* (Scalloped hammerhead shark) for Conservation Dependent listing.
- **agreed** to seek an extension of the statutory deadline for the assessment for *Sphyrna lewini*, s22 [redacted] until 30 September 2017.

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The meeting closed at 2.25 pm on 4 June 2015.

The Committee declares that these minutes are an accurate record of the 60th meeting.

Threatened Species Scientific Committee

Tuesday 1 September 2015

Guest and Departmental attendance

Guests (external)

s47F

Department of the Environment

Executives

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, Wildlife, Heritage & Marine Division (WHaM)

Mr Paul Murphy, Assistant Secretary, Wildlife Trade and Biosecurity Branch, WHaM

Mr Gregory Andrews, Threatened Species Commissioner

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THREATENED SPECIES SCIENTIFIC COMMITTEE

63rd meeting

1 – 3 March, 2016 Canberra

MINUTES

Committee attendance		
Professor Helene Marsh (Chair)		
Professor Stuart Bunn	Professor David Keith	Ms Louise Gilfedder
Professor Colin Simpfendorfer	Dr David Kendal	Dr Nicola Mitchell
Professor Kingsley Dixon	Dr Sarah Legge	Dr Hamish Campbell

Meeting opened at 8.30 am

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- Members noted that the Northern Territory was conducting offshore net and line fishery reviews in relation to the hammerhead sharks by-catch.

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The meeting closed at 3:00pm on 3 March 2016

The Committee declares that these minutes are an accurate record of the 63rd meeting.

Threatened Species Scientific Committee

7 June 2016

Guest and Departmental attendance

Guests (external)

Department of the Environment

Executives

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, WHaM

Mr Gregory Andrews, Threatened Species Commissioner

Mr Jonathon Barrington, Australian Antarctic Division



s22

THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 67

6 – 8 March 2017, Canberra

MINUTES

Committee attendance		
Professor Helene Marsh (Chair Day 1 and 2)		
Dr Hamish Campbell	Professor Kingsley Dixon	
Ms Louise Gilfedder	Dr David Kendal	Dr Sarah Legge (Acting chair for Day 3)
Dr Nicola Mitchell	Professor Colin Simpfendorfer	

Meeting opened at 10.00 am

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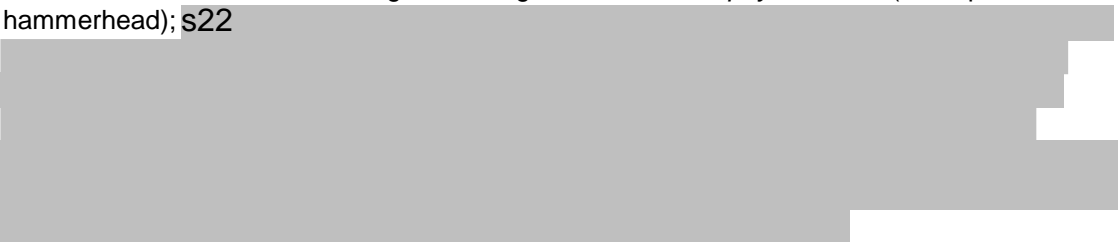
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6. STRATEGIC ISSUES/POLICY ITEMS

6.0 Hammerhead sharks

- Members discussed the possibility of recommending a Conservation Dependent listing for *Sphyrna* spp. (hammerhead sharks), provided that state fisheries and the Great Barrier Reef Marine Park Authority (GBRMPA) agree to a number of prerequisites.
- Members noted State and Territory fisheries managers first met in 2015 to discuss this matter, and that managers had met more recently, on 20 February 2017, to discuss the potential for listing as conservation dependent. Members requested a report from fisheries managers be provided to members by TSSC68 (June 2017).
- Members discussed whether a Conservation Dependent or Endangered listing would be more appropriate to conserve hammerhead sharks. Some members noted with concern that an Endangered listing may create a perverse incentive for fishers not to report by-catch, which can be significant in some instances. Members noted a Conservation Dependent listing would be likely to arrest the increase in, as well as discourage, the targeting of hammerhead species.
- Members noted that at present, hammerheads are listed as threatened only under NSW legislation (two species only), while in Queensland, there is a Total Allowable Catch of 600 tonnes of shark (including hammerheads) annually. Available data suggest that the Queensland fishery currently has a total shark catch of approximately 450 tonnes, of which an estimated 15% was likely to be hammerhead. In order to reduce this figure, members underscored the need for change to existing management arrangements and ongoing assessment. Members suggested a change in catch reporting, requiring fishers to report discards, may be advisable, and emphasised the need for species-level reporting.
- Members noted the NSW Endangered listing was based on *Sphyrna lewini* (scalloped hammerhead); s22

- In the absence of new scientific data since commencement of consultation, the Department agreed to use the CITES non-detriment finding of 300 tonne maximum catch for hammerhead species (which included 200 tonnes maximum take for *Sphyrna lewini* (scalloped hammerhead), until better data were available on what was happening with the stock
- Members agreed the matter did not need to undergo a second round of public consultation.

The Committee:

- **agreed** to continue negotiation with managers, regarding management arrangements pertaining to bycatch of hammerhead sharks.
- **requested** that the Department investigate further the 'look-alike' provision for potential use with regard to conservation dependent species
- **requested** that the Department investigate further the 'look-alike' provision for potential use with *Eusphyra blochii* (winghead shark).

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The meeting closed at 11:20am on 8 March 2017.

The Committee declares that these minutes are an accurate record of the 67th meeting.

Threatened Species Scientific Committee

6 June 2017

Guest and Departmental attendance

Guests (external)

s47F

Executives

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, WHaM

s47F

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THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 68

6 – 8 June 2017, Canberra

MINUTES

Committee attendance: Professor Helene Marsh, Dr Hamish Campbell, Professor Kingsley Dixon, Ms Louise Gilfedder, Dr David Kendal, Dr Sarah Legge, Dr Nicola Mitchell, Professor Colin Simpfendorfer

Meeting opened at 9 00 am

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Marine and Freshwater Species:

- Members noted recent developments on sharks, particularly s22
recent developments around *Sphyrna* spp (hammerheads)

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7.7 *Sphyrna* spp. (hammerhead sharks)

- Members noted advice on the assessment for hammerhead sharks was due at the end of September 2017. Members noted the need to determine whether the management arrangements proposed by Queensland, Northern Territory, and Western Australia would be adequate to enable a Conservation Dependent listing. Members noted that whatever management arrangements are determined by the other jurisdictions, the Committee's conclusion would be contingent on Western Australia maintaining its present arrangements, which close its northern waters to shark fishing.
- Since TSSC67 (March 2017), the Department has liaised with Queensland and the Northern Territory on proposed fisheries management arrangements for implementation this year. Members noted the Queensland Minister for Fisheries, the Hon William Byrne MP, sent a letter in late May on these proposed management arrangements. The Department also received a letter from a group of NGOs identifying gaps in management arrangements.
- Members noted that Section 186 of the EPBC Act allows the Minister to include a native species in the Critically Endangered, Endangered or Vulnerable category if 'it so closely resembles in appearance, at any stage of its development, a species that it is eligible to be included in that category, that it is difficult to differentiate between the two species...' However, this provision does not extend to Conservation Dependent species. Members noted that even if only *Sphyrna lewini* (scalloped hammerhead) is listed, other hammerhead species would receive some protection from management arrangements under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

- Members noted Queensland's fisheries management arrangements are already public, but noted with concern that Queensland data did not enable accurate estimation of discards, due to a number of factors including the absence of an observer program.
- Members noted there would need to be a review process stipulated in any agreement, which would be explicitly linked to a risk assessment, noting a lot of catch is taken in offshore net fisheries.
- Members noted any Total Allowable Catch (TAC) needs to be adaptive to the status of the species, reviewed on a two to three year cycle, and set as a collaborative measure across jurisdictions. Such arrangements might include triggers, for instance, for fisheries to reduce catch when 75% of the TAC is reached. Such a trigger point would need to factor in the delay in data transmission between fishers and fisheries management (about four weeks minimum). Regulations should include controls around landing catch with fins attached, and provisions to ensure the discard rate does not increase once the Queensland 75% TAC limit is reached. Where catch falls below TAC limits, subsequent TACs should be lowered. Members asked that the Department foreshadow the review of the TAC would also consider other regulations.
- Along with catch data, members requested any data of catch from a shark control program be included in calculations.
- Members confirmed they would reply to Queensland and Northern Territory, and to the Minister, explaining their current position with regard to hammerheads, noting the letters should include a deadline for response. The Chair and Professor Simpfendorfer agreed to finalise the letters. The Committee further requested the Department respond to the letter from concerned NGOs, noting their concerns were tabled at TSSC68 (June 2017).
- §47C
[Redacted]
- Members requested a teleconference be arranged between Departmental officers and their counterparts in each jurisdiction (Queensland, Northern Territory, and Western Australia) to discuss the matter in detail.

The Committee:

- **noted** the information provided by the Department and the updates provided by the Queensland and Northern Territory governments on implementing fisheries management arrangements to support a Conservation Dependent listing ([Item 7.7.2](#)).
- §47C
[Redacted]
- **agreed** that a working group (Professor Simpfendorfer and Professor Marsh) would be formed to progress this matter out of session prior to TSSC69 (September 2017).
- **requested** the Department respond to the letter from the group of concerned NGOs, thanking them for their correspondence and advising that it was tabled during the Committee's deliberations on this matter at TSSC68 (June 2017).
- §47C
[Redacted]

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The meeting closed at 2pm on 9 June 2017.

The Committee declares that these minutes are an accurate record of the 68th meeting.
Threatened Species Scientific Committee

12 September 2017

Guest and Departmental attendance

Guests (external)

S47F

Executives

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, WHaM

Officers

S22

THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 69

12 – 14 September 2017, Canberra

MINUTES

Committee attendance: Professor Helene Marsh, Dr Hamish Campbell, Professor Kingsley Dixon, Ms Louise Gilfedder, Dr David Kendal, Dr Sarah Legge, Dr Nicola Mitchell, Professor Colin Simpfendorfer

Meeting opened at 9.30 am

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- Members confirm that the Department would respond to the letter from the Australian Marine Conservation Society, regarding the hammerhead sharks listing assessment.

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7.12 *Sphyrna* spp. (hammerhead sharks)

- The Members concurred, after lengthy deliberation, that a Conservation Dependent listing would lead to the least perverse outcomes possible for *Sphyrna lewini* (scalloped hammerhead).
- Members requested that a letter be drafted to the Minister as a matter of urgency, specifically detailing the Committee's deliberations on this matter. The letter should specify that the Committee agreed *Sphyrna lewini* is eligible for Endangered, but that the species' survival would be better served under a Conservation Dependent outcome. Members noted the decline in *Sphyrna lewini* in Indonesia was likely higher than 40%, and similarly, that the Australian decline is more than 20%. The letter should flag the Committee's intention to review catch arrangements and the Non-Detriment Finding as soon as the required data become available. The Minister would need to be informed of the dates the management arrangements take effect.

- Members noted that the Sustainable Fisheries Section would be able to keep the Committee informed of progress in state fisheries in its annual update. Members also requested an update paper to TSSC70.
- Members noted strong recommendations could be added to the advice to the Minister, which would be confidential. The advice would have an impact on the Great Barrier Reef Marine Park Authority; the Board should be advised immediately about the Committee's advice. Members noted it was likely the listing decision would be made in 2018.
- Members requested data on hammerhead shark take in Queensland as a matter of urgency, noting Queensland would need to report on estimates of discards in June 2019, and have an ecological risk assessment in 2020. A review of the Non-detriment finding levels should be conducted as data become available.
- s22 [REDACTED]
- Members noted for a Conservation Dependent listing to be effective, there would need to be regulatory change, management arrangements must be reviewed and there must be a commitment for fisheries to have Biodiversity Monitoring Systems on all boats.
- Members confirmed the Committee's decision is confidential until the Minister's decision has taken affect (EPBC Act s189B).

The Committee:

- **noted** the information provided by the Department and the updates provided by the Queensland and Northern Territory governments on implementing fisheries management arrangements to support a Conservation Dependent listing ([Item 7.7.2](#)).
- **discussed** the updated advice ([Item 7.7.1](#)) and provided comments and amendments.
- **discussed** the next steps for the listing assessment
- **agreed** to write to the Minister outlining the context of the assessment and the Committee's recommendation.
- **agreed** that *Sphyrna lewini* (scalped hammerhead) was eligible for listing as Endangered, but agreed that including the species in the Conservation Dependent category would lead to a better outcome for the survival of the species.
- **agreed** subject to the suggested amendments, including the context statement to the Minister, to recommend that the Minister list the *Sphyrna lewini* (scalped hammerhead) in the Conservation Dependent category under the EPBC Act

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The meeting closed at 2.05pm on 14 September 2017.

The Committee declares that these minutes are an accurate record of the 69th meeting.

Threatened Species Scientific Committee

20 November 2017

Guest and Departmental attendance

Guests (external)

S47F

Executives

Ms Kylie Jonasson, First Assistant Secretary, Biodiversity Conservation Division

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, Biodiversity Conservation Division

Mr Gregory Andrews, Threatened Species Commissioner, Biodiversity Conservation Division

Officers

S22

THREATENED SPECIES SCIENTIFIC COMMITTEE

Meeting 70

20 – 21 November 2017, Canberra

MINUTES

Committee attendance: Professor Helene Marsh, Dr Hamish Campbell, Ms Louise Gilfedder, Dr David Kendal, Dr Sarah Legge, Dr Nicola Mitchell

Meeting opened at 9.30 am

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- The Minister's office has acknowledged receipt of the brief on *Sphyrna* spp. (hammerhead sharks) and a listing decision is expected in February. The Great Barrier Reef Marine Park Authority have asked that the Minister make a decision on the listing, but defer the date at which the listing comes into effect to allow the Authority to consult on and make the required regulatory changes.

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The meeting closed at 4:30 pm on Tuesday 21 November 2017

The Committee declares that these minutes are an accurate record of the 70th meeting.

Threatened Species Scientific Committee

27 February 2018 (subject to the integration of comments received out of session, integrated on 13 March 2018)

Guest and Departmental attendance

Guests (external)



s47F

Executives

Ms Kylie Jonasson, First Assistant Secretary, Biodiversity Conservation Division

Mr Geoff Richardson, Assistant Secretary, Protected Species and Communities Branch, Biodiversity Conservation Division

Mr Sebastian Lang, interim Threatened Species Commissioner

Officers



s22

Threatened Species Scientific Committee

57th Meeting, 2-4 September 2014

Agenda Item 7.5

SPHYRNA SPP. (HAMMERHEAD SHARKS) UPDATE

Background

1. S22 hammerhead shark in the genus *Sphyrna* have been included on the 2012 FPAL. Full nominations were received for S22 *S. lewini* (scalped hammerhead). S22
2. As the scalped hammerhead (*S. lewini*) was the only species for which sufficient data were available, a full conservation advice was drafted for this species for the purposes of consultation.
3. S22
4. The draft advices were presented at TSSC 55 and approved, subject to minor changes, for expert and public consultation. The draft advices and the consultation questions included the caveat that while the species may be eligible for listing in a threatened category, the Committee was also considering the option of listing in the Conservation Dependent category.
5. Consultation was undertaken from Thursday 22 May until 7 July 2014.

Issues

6. A revised advice incorporating the public and expert comments was intended for presentation at this meeting (TSSC 57). However, the Western Australian Department of Fisheries has asked for an extension and the department expects to receive their comments by the end of August. Given that there is another TSSC meeting within two months and that the hammerheads assessment is not due until September 2015 the department agreed to this extension.
7. It was also noted that there was no Queensland Government response to the consultation so the department is using this opportunity to attempt to elicit a formal response from the Queensland Department of Agriculture, Fisheries and Forestry.
8. The department is also in the process of a developing a Non-Detriment Finding (NDF) in response to the inclusion of the three species of hammerhead shark on Appendix II of the Convention on International Trade in Endangered Species (CITES) which takes effect on 14 September 2014. An update of this process will be given at agenda Item 7.3 of this meeting.
9. While the NDF is incomplete at the time of writing, a consultancy report prepared by Prof Colin Simpfendorfer, which will inform the NDF development, is attached for the

Committee's information (7.5.1). That report suggests that "the present Australian levels of take are not likely to lead to rapid depletion of the stock". However it cautions that the uncertainty in understanding of the level of connectedness between the Australian and Indonesian stocks, and the take in Indonesia, mean that the estimates of sustainable take may need to be revised if rapid depletion is observed.

10. The scalloped hammerhead and s22 hammerhead have both recently been nominated for inclusion in Appendix II of the Convention on Migratory Species (CMS). If a species is listed on Appendix I or II of the CMS, Australia is obligated to list the species as migratory under the *Environment Protection and Biodiversity Conservation Act 1999*. Once listed as migratory, it becomes an offence to kill, injure, take, trade, keep or move the species in Commonwealth waters. For commercial fisheries, bycatch could still occur if the species is caught as bycatch in accordance with approved management arrangements.

Recommendation(s)

That the Committee:

1. **Notes** the extension granted to the Western Australian and Queensland governments for the consultation on the draft listing advices, and the parallel processes occurring for hammerhead species under CITES and CMS.

Attachments

Item 7.5.1 Non-Detriment Finding consultancy report by Professor Colin Simpfendorfer

Information for the development of Non Detriment Findings for CITES listed sharks

Professor Colin Simpfendorfer

Centre for Sustainable Tropical Fisheries and Aquaculture
&
School of Earth and Environmental Sciences
James Cook University
Queensland 4811

23 May 2014

Report to Department of the Environment

Executive Summary

The implementation of CITES Appendix II listings for five shark species on September 14 2014 will require nations to develop Non Detriment Findings (NDFs) if exports are to occur. These five species of sharks – Oceanic Whitetip, Porbeagle, Scalloped Hammerhead, Great Hammerhead and Smooth Hammerhead – are significant parts, or were historically significant parts, of commercial fisheries catch in Australia or the Oceania region. As such Australia must consider if populations of these species meet the requirements for export under CITES rules. This document considers the take, stock status and potential sustainable take levels of these species relative to the production of NDFs for these species. It also considers the broader Oceania region issues in relation to the production of NDFs because of the shared nature of the stocks of these shark species and the limited capacity of many Oceania nations.

The take of the five species varies dramatically. Catches of Oceanic Whitetip and Porbeagle Sharks are currently limited, either because of fishery regulations or the lack of fisheries operating in areas where they occur. Catches of hammerhead species are larger, but often difficult to determine at species-specific levels because of identification issues. Australia likely shares stocks of all of these species with its neighbours, potentially complicating the assessment of status and development of NDFs. The possible exception to this is the smooth hammerhead for which there is genetic evidence of population structuring at small spatial scales suggesting that there is separation of Australian and New Zealand populations. There is limited information on the status of these stocks within Australian waters and also regionally at spatial scales appropriate to the consideration of individual stocks. The exception to this is the Oceanic Whitetip Shark for which a full stock assessment in the western Pacific Ocean has been completed. This assessment shows that the stock has been reduced to very low levels and has resulted in a ban in retention by nations that are members of the Western Central Pacific Fisheries Commission. There is evidence of substantial population decline in Scalloped Hammerhead Sharks in Australia, but the extent of the decline remains to be accurately quantified through stock assessment. Significant declines are also likely in Indonesia which has been shown to be part of the same genetic stock. There is little data on the status of Great Hammerhead Sharks due to identification issues with Scalloped Hammerhead Sharks. Smooth Hammerhead Sharks appear to be the species with the least concern about its stock status. Catch rate data from southwestern Australia suggest that there has not been any decline in the stock since 1990.

In terms of the production of NDFs for these shark species a range of recommendations is provided. Two species – Oceanic Whitetip and Porbeagle – are either banned from retention or are not currently permitted for export and as such the production of NDFs is unwarranted. For the hammerhead species the lack of detailed stock status data makes recommendations about the level of take allowed under an NDF difficult to determine. One possible option is **to cap catches at current levels** while work to quantify the status of stocks and sustainable take levels is undertaken. This option would require not only understanding the effect of Australian catches, but also those of other nations that fish the same stock. This issue is further complicated by the three hammerhead species currently being assessed for threatened species listing under the EPBC Act.

Given that Oceania nations share stocks of many of these shark species there are significant advantages to developing a regional level approach to the development of NDFs as well as the research and monitoring that underpin them. The document develops a model for the implementation of such a regional approach that would take best advantage of the limited regional resources and capabilities.

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Background

In April 2013 the Convention on International Trade in Endangered Species (CITES) Conference of the Parties (CoP) listed seven species of sharks and rays (Table 1) on Appendix II. This listing is to come into force on September 14, 2014, following an 18 month implementation period. These listings bring to 17¹ the number of shark and ray (=elasmobranch) species listed on the CITES Appendices (Table 1). Unlike the previously listed species the newly listed shark and ray species form significant components of fisheries catches globally. As such the implementation of processes associated with international trade in these species will require significant changes in how governments approve exports of these species and how the fishing industry gets approval for export. In Australian waters the five shark species are taken in varying amounts in State and Commonwealth managed fisheries (Koopman & Knuckey 2014). However, there are no data to suggest that the two newly listed manta ray species are retained in Australian fisheries or that they are caught with any frequency.

Table 1 Elasmobranch species listed on the Appendices of the CITES. Listing on Appendix I precludes normal international trade, while an Appendix II listing allows international trade provided that it is not detrimental to the survival of the population.

Common name	Scientific name	Year listed	Appendix
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	2014	II
Porbeagle shark	<i>Lamna nasus</i>	2014	II
Scalloped hammerhead shark	<i>Sphyrna lewini</i>	2014	II
Great hammerhead shark	<i>Sphyrna mokarran</i>	2014	II
Smooth hammerhead shark	<i>Sphyrna zygaena</i>	2014	II
Giant manta ray	<i>Manta birostris</i>	2014	II
Reef manta ray	<i>Manta alfredi</i>	2014	II
Freshwater sawfish	<i>Pristis microdon</i> (=P. <i>pristis</i>)	2014	I
Dwarf sawfish	<i>Pristis clavata</i>	2007	I
Common sawfish	<i>Pristis pristis</i>	2007	I
Smalltooth sawfish	<i>Pristis pectinata</i>	2007	I
Largetooth sawfish	<i>Pristis perotetti</i> (=P. <i>pristis</i>)	2007	I
Green sawfish	<i>Pristis zijsron</i>	2007	I
Narrow sawfish	<i>Anoxypristis cuspidata</i>	2007	I
White shark	<i>Carcharodon carcharias</i>	2005	II
Whale shark	<i>Rhincodon typus</i>	2003	II
Basking shark	<i>Cetorhinus maximus</i>	2003	II

¹ Recent taxonomic changes to the sawfishes means that 2 of these species are no longer valid.

Terms of Reference

1) An estimate of Australian population levels for the five shark species taking into account, but not limited to, the species' range, density, migration and interaction within regionally shared stocks.

2) Advice on sustainable catch limits for Australian fisheries that interact with the species taking into account domestic historic catch data, domestic and regional mortality rates for the five shark species, and where possible estimates of domestic and regional illegal, unreported and unregulated fishing activities. Recommend appropriate scales for NDFs for newly listed sharks.

3) Identify available information, and information needed, to support NDF requirements² of other State Parties in the Oceania region including, but not limited to, gaps in information on population, range, density, migration, harvest and interaction within regionally shared stocks of the five CITES listed shark species. Based on these information requirements, develop a methodology for regional data collection and stock assessment to support development of NDFs for other State Parties in the Oceania region. Include in the methodology a process for investigating the capacity for improvements in implementation of NDFs within the countries of the Oceania region. This methodology will then be used as a basis for further capacity building activities in the Oceania region.

Population levels of CITES listed sharks

Oceanic Whitetip Shark

The Oceanic Whitetip Shark, *Carcharhinus longimanus*, is a large carcharhinid shark that occurs globally in the tropical open ocean. It is frequently caught in pelagic longline fisheries where it forms a small proportion of the overall shark bycatch (Clarke et al. 2013, Tolotti et al. 2013). It grows in excess of 300 cm in length. Detailed information on the distribution, catch and life history parameters has been provided by (Koopman & Knuckey 2014) and it will not be repeated here unless required for specific purposes.

Distribution and stock structure

This species is distributed in all of the world's tropical and sub-tropical oceans (Figure 1). It rarely occurs on continental shelves, and then only at the outer edges (Stevens 1984). Pop-up satellite tracking in the western Atlantic has provided useful data on the movements of Oceanic Whitetip Sharks (Howey-Jordan et al. 2013). This study demonstrated that in the open ocean they mostly occur above 100 m, with most individuals occupying depths of 30-60 m. Despite normally occupying shallow depths individuals have been reported to regularly dive to several hundreds of metres and occasionally to near 1000 m.

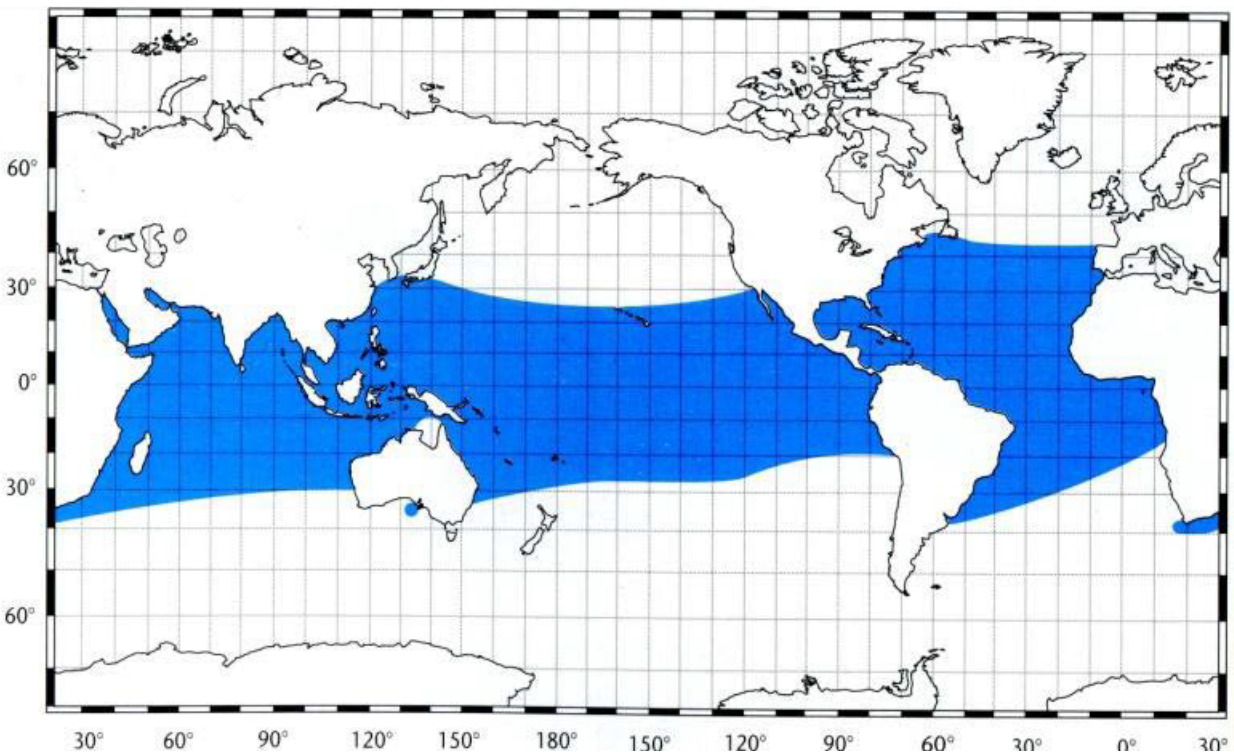


Figure 1 Distribution of the Oceanic Whitetip Shark, *Carcharhinus longimanus*. Reproduced from Last and Stevens (2009).

While information on the distribution, and to some extent movements, is available for Oceanic Whitetip Sharks there is little information on the stock structure. There have been no studies on the population genetics to identify areas that show evidence for isolated genetic signatures that would suggest stock separation (CITES 2013). Information on the movements from tagging and tracking work can also provide data on stock structure. However, the vast majority of this work has occurred in the Atlantic and so must be extrapolated to the Oceania region. Tagging results from the US cooperative Shark Tagging Project have provided a limited amount of tag-recapture data (Kohler et al. 1998) that demonstrate movements in the range of hundreds to thousands of kilometres (Figure 2). More detailed movement data are available from satellite tracking data of sharks released in the Bahamas (Howey-Jordan et al. 2013, Figure 3) and Cayman Islands (<http://www.nova.edu/ocean/ghri/tracking/>). These studies have confirmed that Oceanic Whitetip Sharks regularly move over thousands of kilometres (Figure 4), with most satellite tracked individuals moving between 1500 and 2000 km from their point of release. The satellite tracking also demonstrated a high level of philopatry, with most animals returning to the area in which they were originally released.

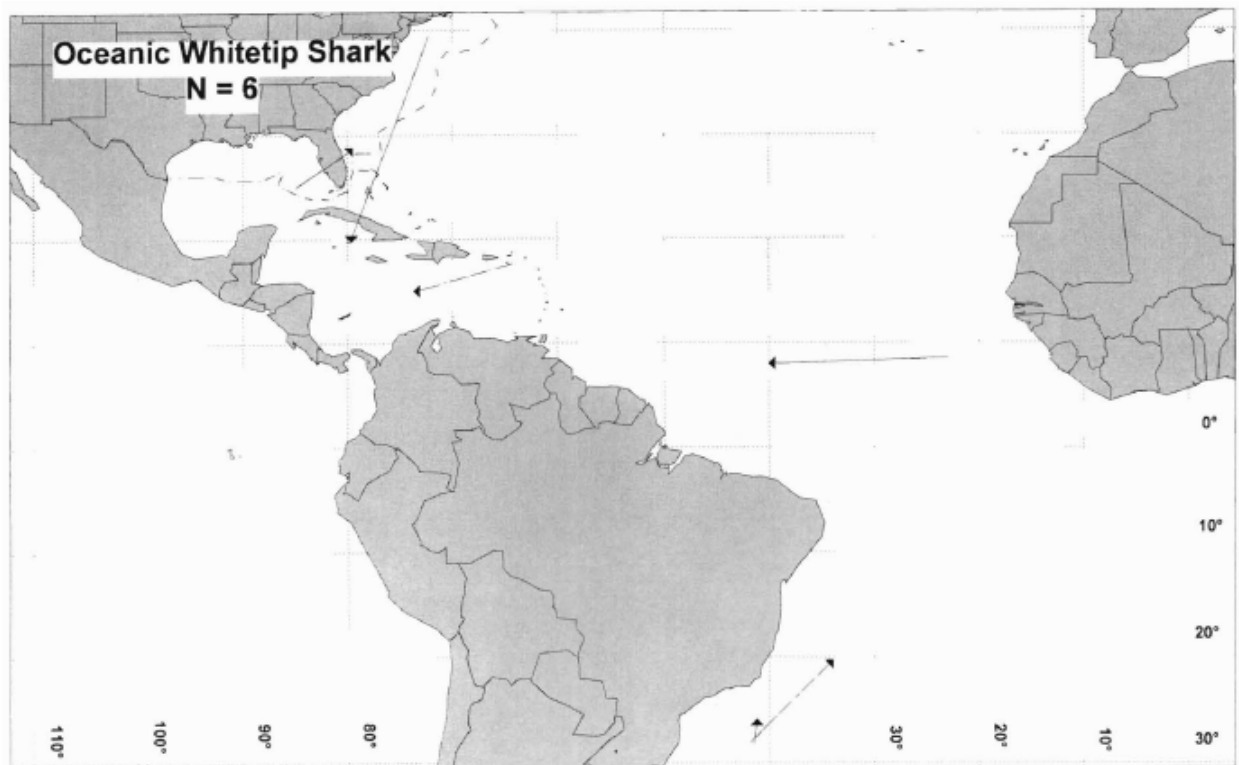


Figure 2 Movements of recaptured Oceanic Whitetip Shark from the US National Marine Fisheries Service's Cooperative Shark Tagging Program. Reproduced from Kohler et al. (1998)

The results of the western Atlantic Ocean tagging and tracking provide the best information possible on the stock structure of Oceanic Whitetip Sharks in the Oceania region. The distances travelled demonstrate that there is likely to be mixing of animals throughout the western Pacific and eastern Indian Oceans. Whether there is mixing between the Pacific and Indian Ocean animals will depend on whether they move through the Indonesian archipelago. It is possible that there will be separate stocks between eastern and western Australia, but this would need to be determined by future research. Based on the tagging and tracking work there is likely to be limited stock structure in which case

Australia will share these stocks with its regional neighbours. There is a clear need for further research on the stock structure of this species.

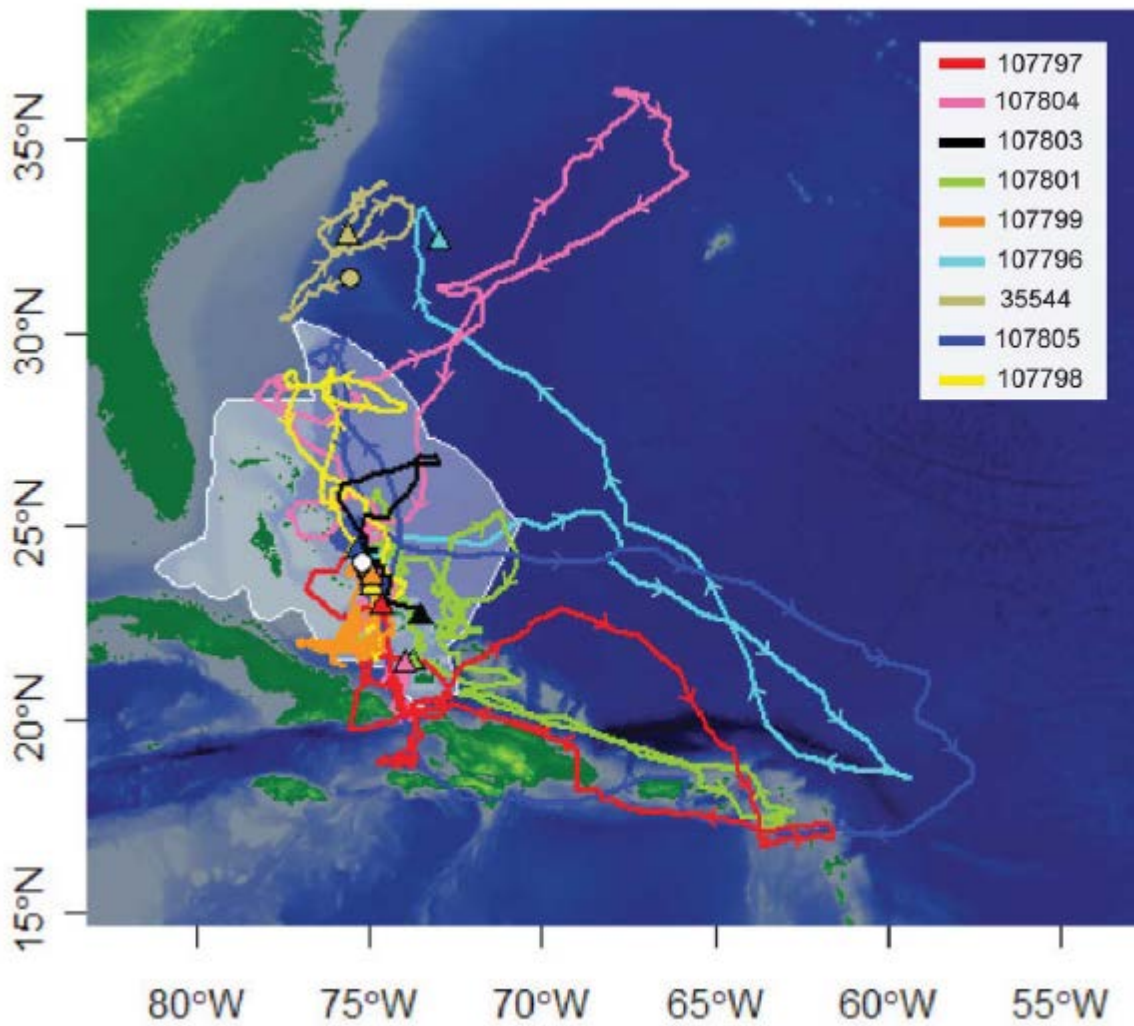


Figure 3 Tracks of Oceanic Whitetip Sharks released in the Bahamas. For geographic scale, 5 degrees of latitude or longitude is equivalent to 556 km.

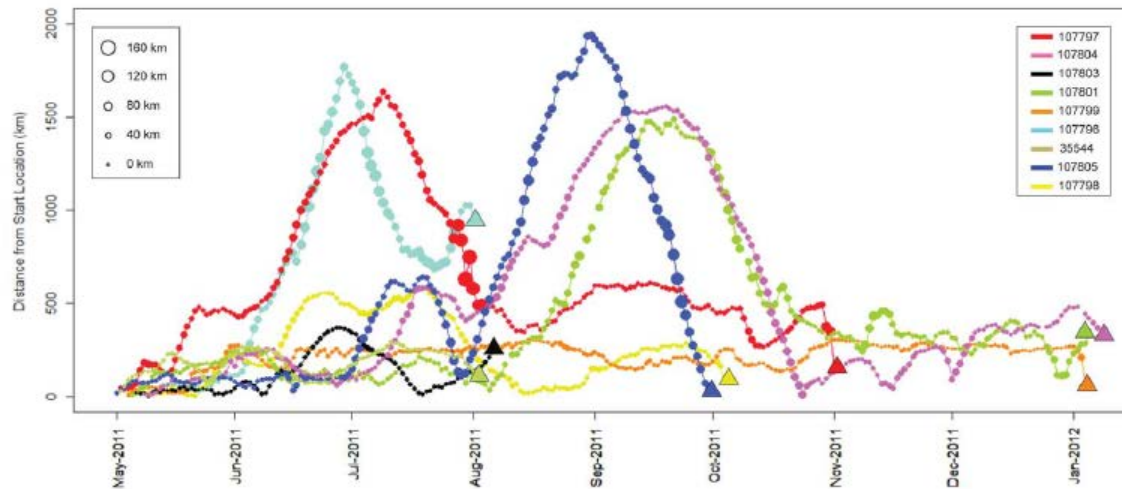


Figure 4 Distances moved by satellite tracked Oceanic Whitetip Sharks from their point of release. Reproduced from Howey-Jordan et al. (2013)

Levels of take

Koopman and Knuckey (2014) provided detailed catch data for Oceanic Whitetip Sharks in all of Australia’s commercial fisheries. The largest amount of take occurs in the commonwealth managed tropical tuna fisheries (Eastern Tuna and Billfish Fishery; Western Tuna and Billfish Fishery) while small amounts are also taken in some state fisheries (e.g. Western Australian tropical shark fisheries which are currently inactive). The overall take in Australian fisheries is quite small, dropping from 15-20 t around 2000 to less than 5 t currently. These declines occurred during a period when effort in these fisheries has been decreasing and regulations to reduce shark bycatch have been implemented. There is a small amount of take in recreational fisheries (Stevens 1984, Cheshire et al. 2013). There is also a reported take in IUU fishing in Australian waters. Marshall (2011) estimated that Oceanic Whitetip Sharks make up about 5.9% (in numbers, 3.6% in biomass) of the catch by foreign IUU operations. The estimated take by Indonesian based IUU operators in 2006 was about 700 t (Marshall 2011), and has declined since that time. As such current IUU catches are probably small in Australian waters.

When considering the effect of the level of take on the status of this species catches outside of Australia must also be considered. Koopman and Knuckey (2014) provided information on the relative global importance of Australia’s Oceanic Whitetip Shark take over the past decade. These figures demonstrated that Australia’s take is has typically been less than 1% of the global take. However, in developing NDFs for long lived species, like many of the shark species, catches over long time periods will be required to ensure historic catches (pre 2000) did not lead to declines.

Population levels

Recent assessments of the status of Oceanic Whitetip Sharks are available from the Western Central Pacific Fisheries Commission (WCPFC) (Rice & Harley 2012) and Indian Ocean Tuna Commission (IOTC) (IOTC 2013). Given the uncertainty about the stock structure of this species, and especially whether separate stocks exist off the east and west coast of Australia, the most risk-averse strategy is to consider

them as separate stocks. The quality of the assessments is quite different. The WCPFC assessment was a full stock assessment using an age-structured model. The IOTC assessment used an ecological risk assessment approach along with an examination of catch and catch rate data.

Western and Central Pacific assessment

This assessment used a variety of data from a range of fisheries in the region, including longline fisheries from the Australian exclusive economic zone (EEZ) (Figure 5). Full details of the assessment methodology, data used, etc. are provided in the stock assessment report (Rice & Harley 2012) and will not be repeated here. The assessment concluded that the spawning (=breeding) biomass of the stock had declined by 86% over the period from 1995 to 2009 (Figure 6), and that fishing mortality was more than six times higher than would be suitable to achieve maximum sustainable yield (MSY). The assessment also noted that since the time series used in the assessment only began in 1995, and given substantial decline was likely prior to this period, that the population decline relative to pre-exploitation levels is even greater than the 86% reported. The model estimated the current biomass level is between 3 and 19% of pre-exploitation levels, and mostly likely around 7%. The assessment did not provide data on the estimated number of individuals in the population, but did provide a best estimate of total biomass at 8,672 t (down from ~110,000 t). On the basis of the assessment results Rice and Harley (2012) concluded that the stock was overfished (i.e. biomass less than that which would produce MSY) and overfishing was still occurring (i.e. fishing mortality was higher than that which would produce MSY). On the basis of this stock assessment report the WCPFC adopted a resolution to prohibit the landing of Oceanic Whitetip Sharks in 2012.

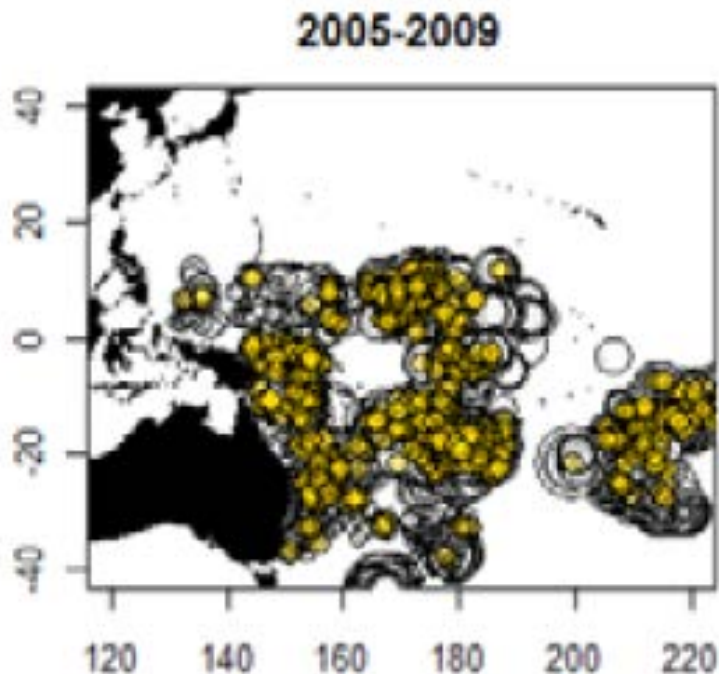


Figure 5 Catch and effort data 2005-2009, including that from Australia, used in the WCPFC stock assessment of Oceanic Whitetip Sharks. Open circles indicate effort, yellow circles indicate catches.

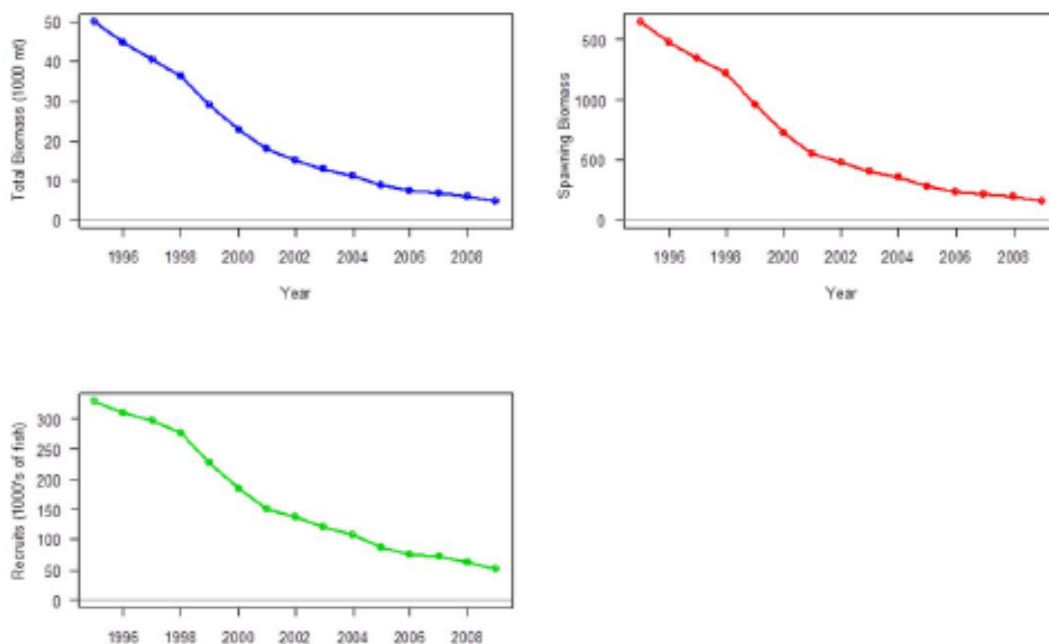


Figure 6 Modelled trends in the total biomass (blue), spawning (=breeding) biomass (red) and numbers of recruits (green) of Oceanic Whitetip Sharks in the western and central Pacific Ocean. Reproduced from Rice and Harley (2012)

Indian Ocean assessment

This assessment used available data from the Indian Ocean, including an Ecological Risk Assessment that identified this species as at high risk, anecdotal information that suggested that abundance had declined over several decades and the species was now rare, and recent catch rate data (IOTC 2013). The report concluded that there was insufficient information to determine the status of the population in the Indian Ocean based on the available data. However, given the declines in abundance reported in other ocean basins (e.g. Baum & Worm 2009, Rice & Harley 2012), and the level of fishing effort in the Indian Ocean, it is likely that the population has declined substantially from pre-exploitation levels. While the exact status in the Indian Ocean could not be determined IOTC adopted a resolution to ban the landing of Oceanic Whitetip Sharks in 2013 because of concerns for this species.

Porbeagle Shark

The Porbeagle Shark is a medium sized lamnid shark that has an amphitemperate distribution in most of the world's oceans. It grows to a maximum length of around 350 cm (Last & Stevens 2009). Like most lamnid sharks it has the ability to elevate its body temperature above ambient water temperature. It is a long-lived and slow growing species that produces litters of 1-5 young (Francis et al. 2008).

Distribution and stock structure

The Porbeagle Shark has two distinct parts to its distribution – the temperate North Atlantic and the Southern Ocean (Figure 7) where it lives along continental margins and in the open ocean. In the

northern Pacific Ocean this species is replaced by the closely related Salmon Shark (*Lamna ditropis*). One of the main drivers of the distribution of this species is water temperature, with the species having relatively narrow thermal preferences (Francis et al. 2008). The North Atlantic population has been well studied as it has been a fishery target for several decades by both North American and European fishers (Campana et al. 2002). The Southern Ocean population is less well studied, but scientists in New Zealand have conducted research and monitoring on this species.

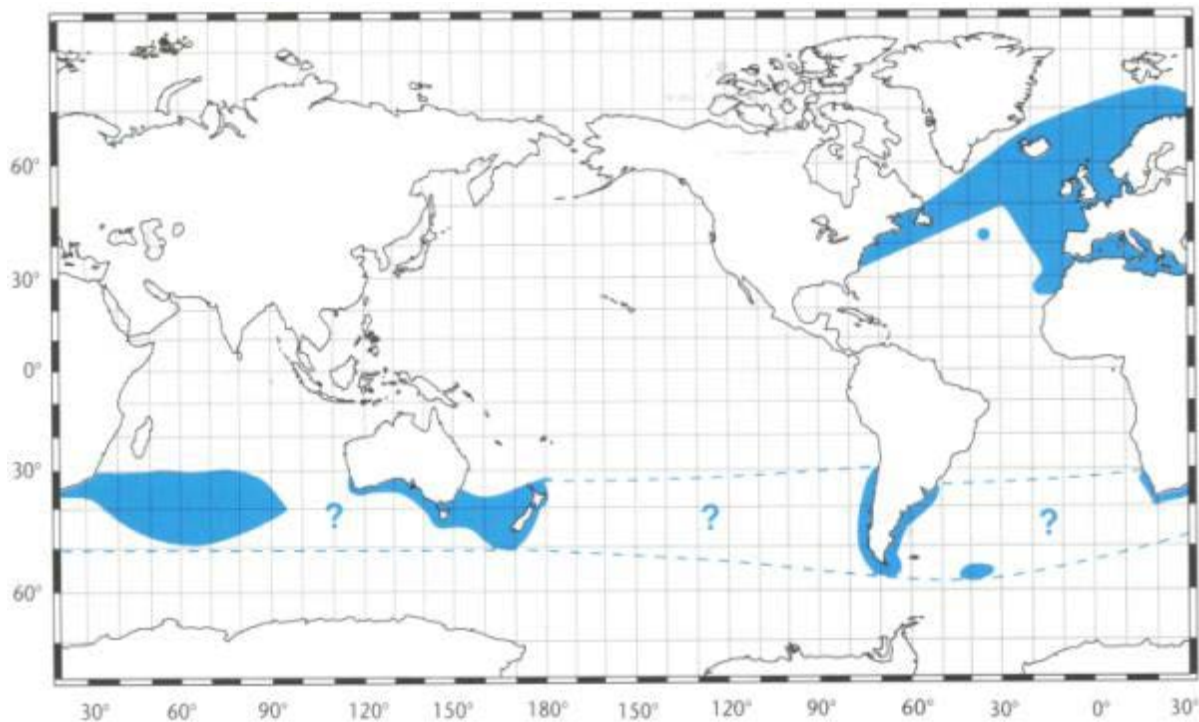


Figure 7 Distribution of the Porbeagle. Reproduced from Last and Stevens (2009).

A recent population genetics study (Testerman 2014) demonstrated clear differences in the stock between the northern and southern hemisphere. This same study examined genetic material from five locations in the southern hemisphere (Falkland Islands, Chile, South Africa, Tasmania and New Zealand) and found no evidence of population structuring. These data suggest that there is a single stock in the southern hemisphere.

The genetic data suggesting a single southern hemisphere stock is supported by tag-recapture data from the western north Atlantic that shows individuals move relatively long distances along continental margins, but rarely venture long distances across the open ocean (Figure 8). However, pop-up satellite tagging has shown that adult Porbeagle Sharks leave continental margins and travel large distances across the open ocean to give birth in more tropical waters (FAO Species Catalogue for Fishery Purposes. Campana et al. 2010) (Figure 9). On the basis of his research, it has been suggested that in the North Atlantic there are two stocks – a western stock off North America and an eastern stock off Europe (Francis et al. 2008). This conclusion, however, is not supported by the genetic results of Testerman (2014). In the Southern Ocean Francis et al. (2008) concluded based on the data from the North Atlantic that several stocks could exist. However, this conclusion was made prior to the availability of the genetic and satellite tagging results that support a single stock conclusion.

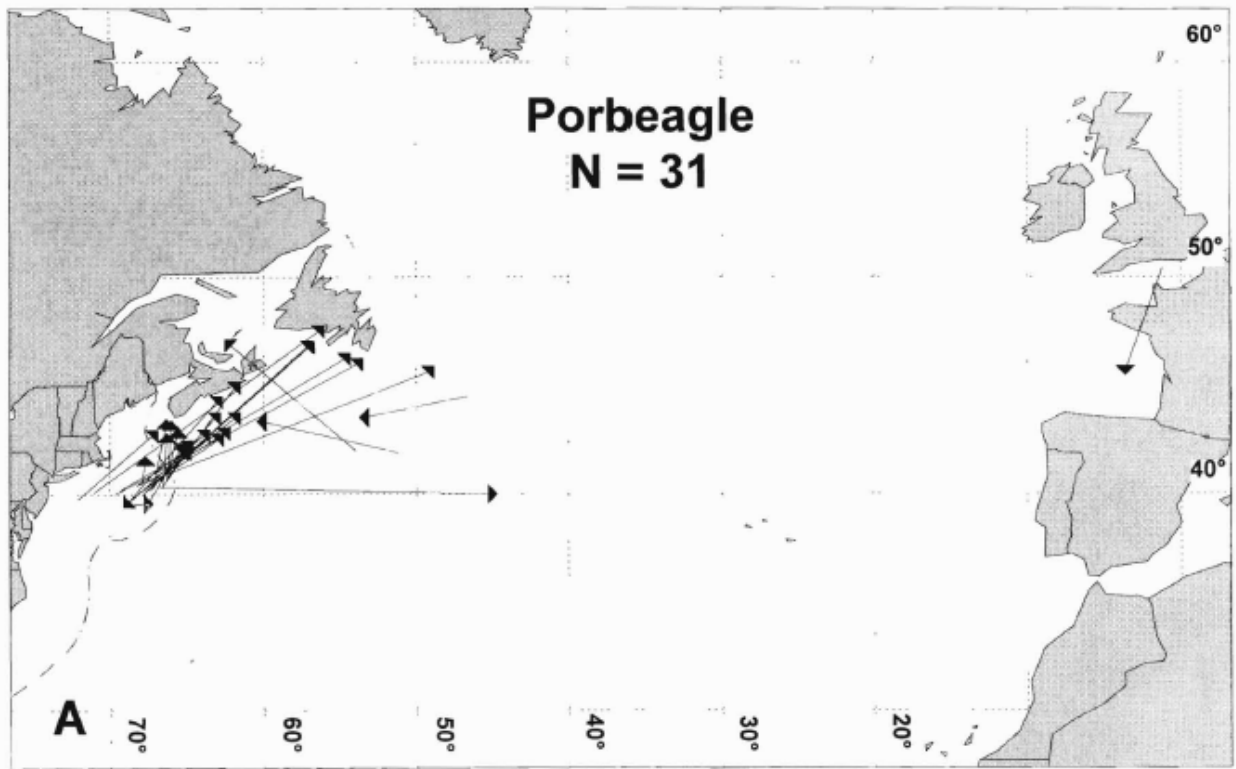


Figure 8 Tag-recapture data for Porbeagle Sharks released as part of the US Cooperative Shark Tagging Program. Reproduced from Kohler et al. (1998)

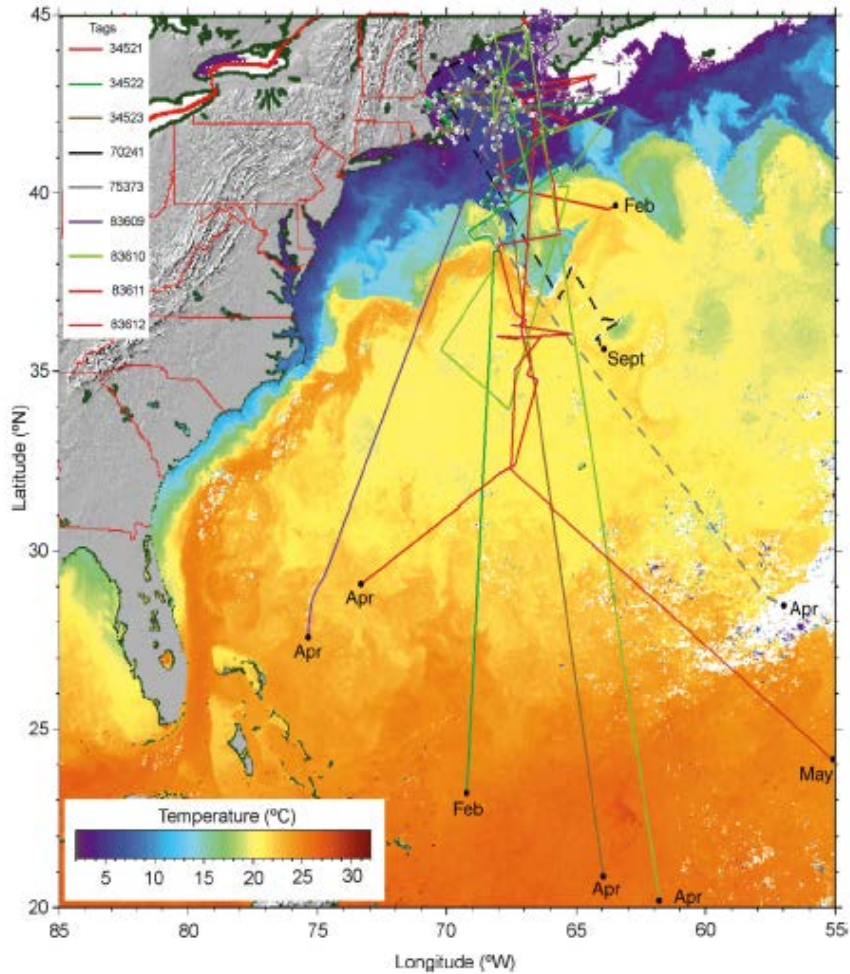


Figure 9 Movements of pup satellite tagged Porbeagle Sharks in the western North Atlantic. Reproduced from Campana et al. (2010).

Levels of take

Porbeagle Sharks are rarely taken in Australian fisheries. The main catch is in the Commonwealth managed Eastern Tuna and Billfish Fishery (EBTF) and Gillnet, Hook and Trap (GHAT) sector of the Commonwealth managed Southern and Eastern Scalefish and Shark Fishery (SESSF). Annual catches in the EBTF have been less than 1 t for the past 10 years, while those in the GHAT have been <1 t. There is minimal take of Porbeagle Sharks by recreational fishers (Cheshire et al. 2013).

When considering the effect of the level of take on the status of this species catches outside of Australia must also be considered. Koopman and Knuckey (2014) provided information on the relative global importance of Australia's Porbeagle Shark take over the past decade. These figures demonstrated that Australia's take is has typically been much less than 1% of the global take. However, in developing NDFs for long lived species, like many of the shark species, catches over long time periods will be required to ensure historic catches (pre 2000) did not lead to declines.

Population levels

There is currently no stock assessment available for Porbeagle Sharks in the Southern Ocean. However, New Zealand was leading a Commission for the Conservation of Southern Bluefin Tuna (CCSBT) initiative to assess the status of the stock(s) during 2013/2014. However, this work appears to have stalled because of data limitations. Without progress on this stock assessment an improved understanding of the sustainable levels of take from this species are unlikely.

Scalloped Hammerhead Shark

The Scalloped Hammerhead Shark is probably the most common and well known species of hammerhead. It occurs in tropical and subtropical oceans worldwide. It reaches sizes of over 4 m in length, grows slowly and produces large litters of young (Harry et al. 2011a). It is the only hammerhead known to form predictable aggregations, normally associated with sea mounts.

Distribution and stock structure

Scalloped Hammerhead Sharks occur in tropical and subtropical waters of all of the world's oceans (Figure 10). It is commonly found in continental shelf waters, but also regularly enters estuaries and open ocean environments. Significant catches of this species in pelagic longline fisheries (e.g. Beerkircher et al. 2002) suggests it spends more time in open ocean areas compared to the other species of hammerheads. There appears to be ontogenetic change in distribution, with the young living in coastal nursery areas (e.g. Clarke 1971, Simpfendorfer & Milward 1993, Duncan & Holland 2006) and then moving offshore as they grow (Harry 2011). Populations also demonstrate high levels of sexual segregation. For example, in Australian waters there are few records of pregnant females (Stevens & Lyle 1989, Noriega et al. 2011) while in Indonesia pregnant females are commonly reported (White et al. 2008). Observations from the Queensland coast also suggest that males remain in inshore areas longer than do females (Harry 2011).

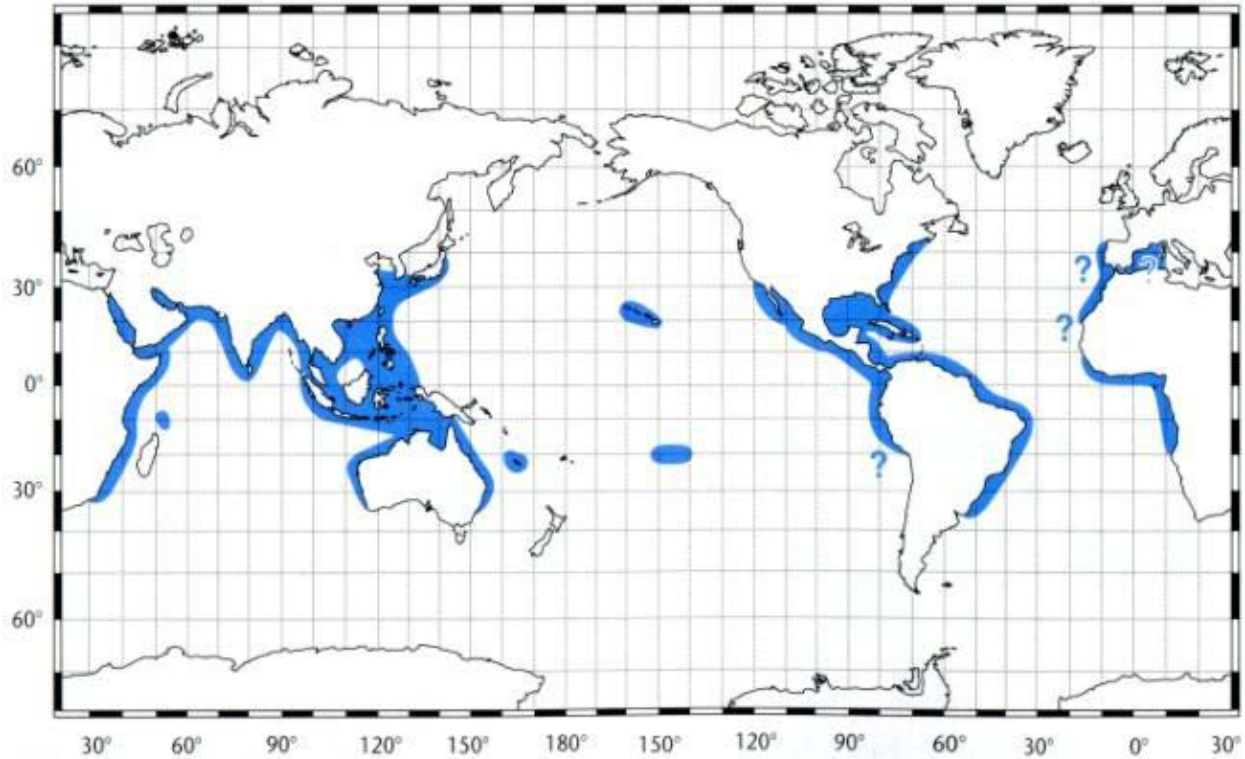


Figure 10 Distribution of the Scalloped Hammerhead Shark. Reproduced from Last and Stevens (2009)

The population genetics of Scalloped Hammerhead Sharks have been well studied, both globally and in Australian waters. The global pattern of stock structure varies between females and males, reflecting the strong sexual segregation. Duncan et al. (2006) found that female genetic markers showed little evidence for movements of females at more than regional scales and that they rarely cross open ocean areas. They also concluded that there was little evidence for female stock structure along continuous continental shelf areas. In contrast Daly-Engel et al. (2012) using nuclear markers that are not sex biased found little evidence for stock structure within ocean basins and little evidence for differences between ocean basins. These results point to complex stock structure within this species. Within the Oceania region Ovenden et al. (2009) found no evidence for separate stocks between northern Australia and Indonesia, or within Australian waters. Detailed investigation of Scalloped Hammerhead Sharks occurring on the east coast of Queensland also found no evidence of stock structure, or differences with Indonesia (Ovenden et al. 2011).

There are limited published tagging and tracking results available for Scalloped Hammerhead Sharks in Australian waters. Telemetry research is currently being undertaken on the Queensland east coast using both acoustic and satellite telemetry (M Heupel pers. comm.). Tagging has been carried out in various parts of northern Australia, but recaptures are limited and little useful data are currently available. Data from other regions, such as the east coast of the USA, demonstrates that this species regularly moves on the scale of hundreds to thousands of kilometres (Figure 11). Shorter movements were recorded in research in South Africa, with individual only being recaptured over distances of <150 km (Diemer et al. 2011). The study of this species in the eastern Pacific where they occur at a range of small oceanic islands has demonstrated that larger individuals regularly move between islands within island groups (e.g. Galapagos Islands) and at times between distantly spaced islands (Hearn et al. 2010, Ketchum et al. 2014a, Ketchum et al. 2014b).

The results of genetic, tagging and telemetry studies provide consistent evidence that Scalloped Hammerhead Sharks move widely, including through open ocean habitats. The longer movements appear to be taken by males, which show little evidence for stock structure at the ocean basin scale. Females, however, show some evidence for natal philopatry that provides some evidence for stock structure. There is direct genetic evidence that Australia shares a stock with Indonesia, and the movement ability demonstrated for tagging and telemetry studies suggests quite strongly that this stock may also be shared with other island nations in the western Pacific. These results will have significant implications for the status of Scalloped Hammerheads in Australian waters and the estimation of sustainable levels of take for NDFs in the Oceania region. However, further work to test these hypotheses of a single regional stock, and the rate of exchange between nations in the Oceania region, will be essential to allow more detailed assessment and hence NDFs.

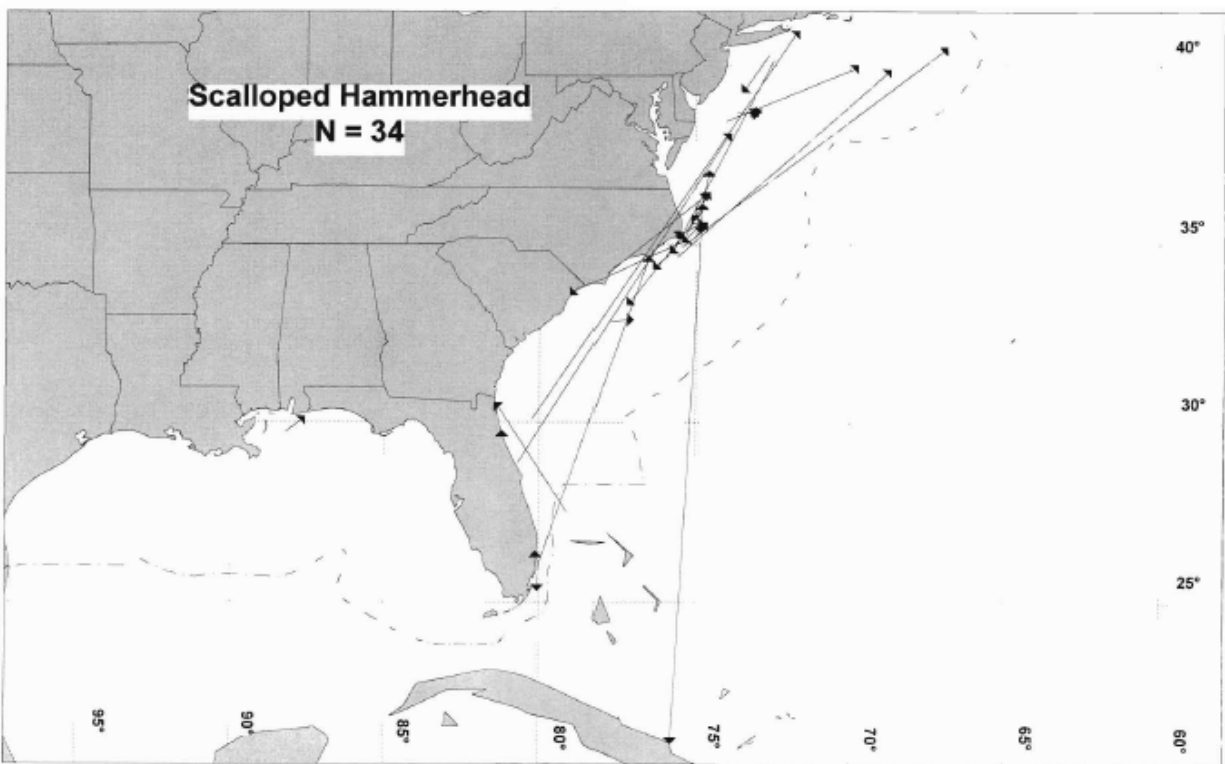


Figure 11 Movements of Scalloped Hammerhead Sharks tagged by the US Cooperative Shark Tagging Program. Reproduced from Kohler et al. (1998)

Levels of take

Scalloped hammerheads are taken in a variety of fisheries in northern Australia. The principal ones are the fisheries that target shark, especially the New South Wales Ocean Trap and Line Fishery (OTLF), Queensland East Coast Inshore Finfish Fishery (ECIFF), Queensland Gulf of Carpentaria Inshore Finfish Fishery (GCIFF), Northern Territory Offshore Net and Line Fishery (ONLF), Western Australian Joint Authority Northern Shark Fishery (JANSF) and Western Australian North Coast Shark Fishery (WANCSF). The last two of these have been mostly closed or unfished for 5-8 years, and neither currently has a Wildlife Trade Operation approval for export of products. The Queensland ECIFF has one of the largest

catches of Scalloped Hammerhead Sharks, which in some years has reported over 100 t landed, but in most years recently this is less than 80 t. **The ONLF in the Northern Territory also has a large take of Scalloped Hammerhead Sharks. In 2011 this fishery took 141 t** of hammerhead shark. However, species specific catches are not available and so the exact take of each species is unknown. Several other fisheries probably have annual catches in the 2-10 t range, including Queensland GCIFF, the NSW ITLF and the Commonwealth managed Eastern Tuna and Billfish Fishery (EBTF) over the last ten years. All up annual commercial catches in Australia are likely to be in the order of 200 - 250 t. It should be noted that Western Australia has been exploring the possibility of reopening its closed tropical shark fisheries. Depending on the level of effort if this occurs catches of hammerheads could add up to another 100 t to the national take. Sharks have been reported from the seized catches of foreign IUU vessels in northern Australia, but make up less than 2% of the catch by weight (Marshall 2011).

Scalloped hammerheads are taken in recreational fisheries, but data at the species level is scarce because of the difficulties in identification. De Faria (2012) showed through surveys of recreational fishers in north Queensland that Scalloped Hammerhead Sharks make up almost 7% of the catch in numbers. Cheshire et al. (2013) reported that scalloped hammerheads are regularly taken by recreational anglers and are a valued catch.

The Queensland Shark Control Program takes some Scalloped Hammerhead Sharks each year. In 2013 16 individuals up to 3.2 m in length were recorded. Hammerheads, including Scalloped Hammerheads, are the most common group taken in the New South Wales Shark Meshing Program (Reid et al. 2011). Between 1990 and 2010 1331 hammerhead sharks were captured. However, the exact species composition of the catch is unknown as individual species are not recorded. Scalloped Hammerhead

When considering the effect of the level of take on the status of this species catches outside of Australia must also be considered. Koopman and Knuckey (2014) provided information on the relative global importance of Australia's Scalloped Hammerhead Shark take over the past decade. These figures demonstrated that Australia's take is has been between 3 and 10% of the reported global take. However, in developing NDFs for long lived species, like many of the shark species, catches over long time periods will be required to ensure historic catches (pre 2000) did not lead to declines.

This species is currently being assessed for listing under the EPBC Act. Depending on if this species is listed, and the level at which it is listed, catches may be affected. The draft Conservation Advice for this species (<http://www.environment.gov.au/biodiversity/threatened/nominations/comment/scalloped-hammerhead>) indicates that it has been assessed as Endangered.

Population levels

No stock assessments are available for Scalloped Hammerhead Sharks in Australian waters or any of its regional neighbours. Given that the stock structure information available indicates that individuals occurring in Australian waters are part of a larger regional stock, any assessment will need to take into account removals in all jurisdictions and the rates of movement between them. This would be a complex undertaking. Despite the lack of a stock assessment there is some information available on trends in stock abundance from catch rate data from fisheries and shark control programs. Simpfendorfer et al. (2011) has produced the longest data set, analysing catch and effort from the QSCP from northern Queensland (Townsville and Cairns) from 1965. This analysis showed that based on standardized catch rates the population had declined to between 16.5% and 33.4% of its original levels (Figure 12). This

analysis grouped all catches of hammerhead together because during the first few decades the catch was only recorded at the group level. However, the authors concluded that most of the take was scalloped hammerheads based on size and latter species level identifications. The mean size of hammerheads taken in the QSCP, however, rose slowly over the life of the program (Figure 13), providing a contrasting result to the catch rate data. There are several possible explanations for this mismatch in the results of the program, including the migratory patterns of hammerheads and the gear selectivity of the nets used (since they were the main gear that caught hammerheads). Like Simpfendorfer et al. (2011), Heupel and McAuley (2007) reported that unstandardized catch rates of hammerheads in the WANCSF and JANSF had declined to between 24% and 42% of their original levels over a period of about 5 years. Again, these catches were not identified to species level, but it is assumed that both Scalloped and Great Hammerheads made up substantial components. Both of these results demonstrate that hammerheads can be affected quite rapidly by fishing and that populations in Australia are well below their pre-exploitation levels. The draft Conservation Advice for Scalloped Hammerhead Sharks prepared by the Department of the Environment for consideration of EPBC listing has suggested it meets the criteria for Endangered (see above), meaning a population decline of >70% over the last 10 years or three generations. The ongoing catch of hammerheads in the ECIFF, the recently stable catches rates in the QSCP and the lack of a decline in the mean annual size of animals taken in the QSCP do demonstrate that recent trends in the population may be relatively stable. However, the lack of more detailed stock assessments means that it cannot be determined if these levels are above or below sustainable take levels.

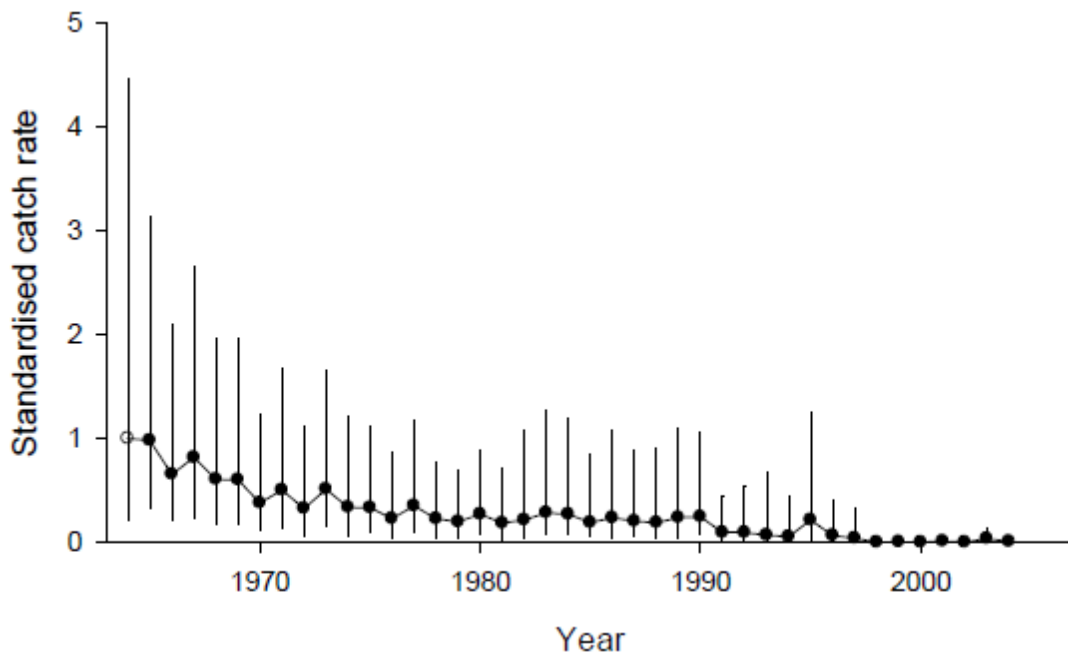


Figure 12 Standardised catch rates of hammerhead sharks from the Cairns and Townsville installations of the Queensland Shark Control Program. Data from after 1990 are not directly comparable to that prior to this date because of significant changes in the gear used in the fishery (i.e. the switch from nets to drumlines). Reproduced from Simpfendorfer et al. (2011)

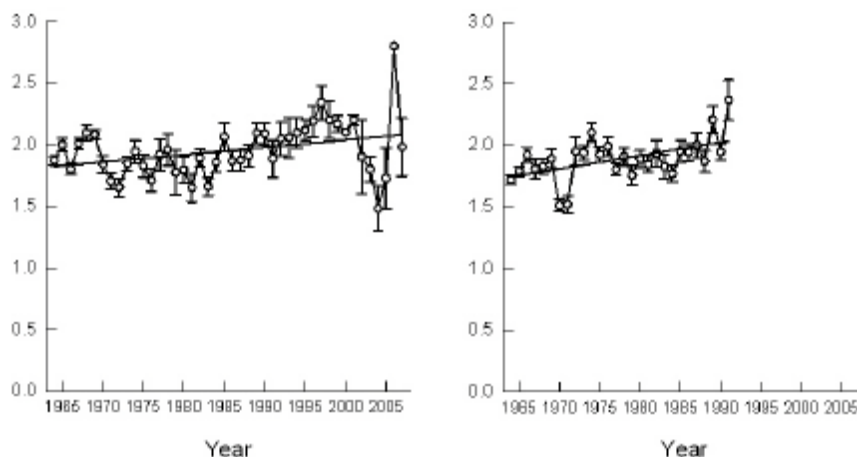


Figure 13 Mean annual size of hammerhead sharks taken in the Queensland Shark Control Program by drumlines (left) and gillnet (right). Reproduced from Simpfendorfer et al. (2011)

Although only limited stock structure data were available there is a high likelihood, based on the available movement data, that the Scalloped Hammerhead Shark population in Australia is part of the same stock as occurs in other Oceania nations. As such fishing in those countries may also have some effect on the status of the stock and would need to be considered in any assessment. The magnitude of this effect would depend on the rate of exchange between these nations, which at present is unknown. Given that Indonesia has the largest global landings of sharks (~100,000 t annually) (Blaber et al. 2009) and take significant amounts of hammerhead sharks (White et al. 2008), if there are significant levels of exchange then some of the decline observed in Australian stocks would be the result of fishing in that nation.

Great Hammerhead Shark

The Great Hammerhead Shark is the largest of the hammerheads, and one of the largest species of sharks (Last & Stevens 2009). It occurs globally in coastal and shelf waters, and occasionally has been reported from the open ocean. It is regularly taken in fisheries, but is rarely targeted and typically forms a small proportion of overall catches. It is reported to grow to over 6 m and is characterised by slow growth and large litter sizes (>30) (Harry et al. 2011a).

Distribution and stock structure

Great Hammerhead Sharks occur in tropical and subtropical sections of all of the world's oceans (Figure 14). They normally occur on the continental shelf, and rarely enter estuaries. They do enter open ocean areas, as is evidenced by their occurrence at islands in the Pacific (Figure 14) and occasional catch in pelagic longline fisheries (Beerkircher et al. 2002). There are limited published data available on the movement of this species from tagging (Kohler et al. 1998) and tracking studies (e.g. Hammerschlag et al. 2011), but there is some significant information available online (e.g. <http://rjd.miami.edu/education/virtual-learning/tracking-sharks>). These results demonstrate that this species spends significant amounts of time in coastal habitats with occasional long distance movements along coast lines or into open ocean areas.

Global scale phylogeography has been examined using genetic techniques (Testerman 2014). This analysis has shown that there are significant differences in stock between the Atlantic and Indo-Pacific

ocean basins. Specific comparison between samples from eastern and western Australia showed no evidence of stock structuring. The scale of movements indicated from satellite tagging suggests that it is likely that the population in northern Australia is connected to other countries within the Oceania region. The genetic data suggest limited stock differences between Australian and south Asia. No samples were analysed from the Pacific island nations to test for stock structuring. Further work to resolve the stock structure of this species within the region is required to define the management and assessment units. However, on the basis of available information the assumption of a single genetic stock seems the most parsimonious.

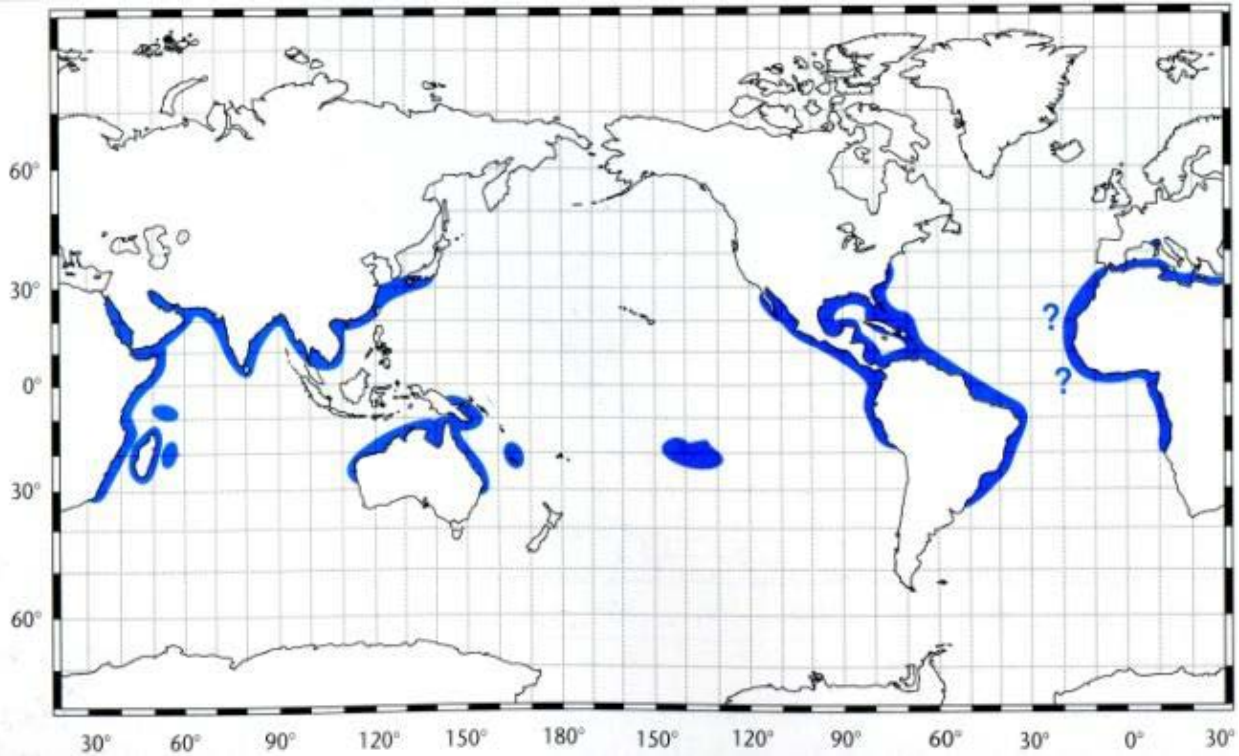


Figure 14 Distribution of the Great Hammerhead Shark. Reproduced from Last and Stevens (2009)

Levels of take

Koopman and Knuckey (2014) provided detailed catch data for Great Hammerhead Sharks in all of Australia's commercial fisheries. The largest amount of take occurs in the fisheries that take sharks across the northern half of Australia. This includes the New South Wales Ocean Trap and Line Fishery (OTLF), Queensland East Coast Inshore Finfish Fishery (ECIFF), Queensland Gulf of Carpentaria Inshore Finfish Fishery (GCIFF), Northern Territory Offshore Net and Line Fishery (ONLF), Western Australian Joint Authority Northern Shark Fishery (JANSF) and Western Australian North Coast Shark Fishery (WANCSF). Observer work has also demonstrated that minor catches are taken in other commercial fisheries but these are always reported in landings statistics (e.g. Heupel & McAuley 2007). The exact take of Great Hammerheads in these fisheries is difficult to determine because catches of all hammerhead species are often reported as a single group (Koopman & Knuckey 2014). Where observer data are available Great Hammerhead Shark catches are a significant part of the hammerhead catch. For example, in the ECIFF Harry et al. (2011b) reported that although numerically Scalloped Hammerhead Sharks were more commonly caught the larger size of Great Hammerhead Shark meant that the landed

weights were similar. The ONLF in the Northern Territory probably also has a large take of Great Hammerhead Sharks. In 2011 this fishery took 141 t of hammerhead shark. However, species specific catches are not available and so the exact take of each hammerhead species is unknown. Thus based on the available information the current annual take of Great Hammerhead Sharks is likely to be in the order of 100-150 t. However, this does not include catch in the two shark fisheries in northern Western Australia (JANSF and WANCSF) which are currently not operating. Data from when these fisheries were operating showed catches of hammerhead shark in some years exceeded 100 t, of which Great Hammerhead Sharks may make up to half. Although these fisheries are currently closed, there is consideration being given to allowing them to reopen.

Great Hammerhead Sharks are also taken in recreational fisheries in Australia, but identification issues and aggregation of taxa in recreational fishing surveys, makes estimating the level impossible and they have not been identified in a recent review of data (Cheshire et al. 2013). There is a level of take in the Queensland Shark Control Program (QSCP), which in 2013 caught 26 individuals up to 3.55 m in length. Hammerheads, including Great Hammerheads, are the most common group taken in the New South Wales Shark Meshing Program (NSW SMP) (Reid et al. 2011). Between 1990 and 2010 1331 hammerhead sharks were captured. However, the exact species composition of the catch is unknown as individual species are not recorded. While the catch from the QSCP and NSW MSP is not exported their removals does have an impact on the sustainability. Limited data on IUU fishing in northern Australia suggests that this species is taken, but that the catch made up less than 1% of the estimated 700 t take in 2006 (Marshall 2011).

Population levels

There have been no assessments of the status of Great Hammerhead Sharks in Australian waters, or those of other nations in the Oceania region. This is further confounded by the aggregation of catch data for all hammerhead species, which makes species level assessment difficult. Some information on trends in populations of aggregated hammerheads is available. Simpfendorfer et al. (2011) examined the trend in hammerhead catches in the Queensland Shark Control Program in northern Queensland and concluded based on standardized catch rates that the population had declined to between 16.5% and 33.4% of their original levels. However, the authors concluded based on size of the animals and some species level reporting that the catch was dominated by Scalloped Hammerhead Shark. Similarly, Heupel and McAuley (2007) reported that unstandardized catch rates of hammerheads in the WANCSF and JANSF had declined to between 24% and 42% of their original levels over a period of about 5 years. Both of these results demonstrate that hammerheads can be affected quite rapidly by fishing and that populations in Australia are well below their pre-exploitation levels. However, the lack of more detailed stock assessments mean that it cannot be determined if these levels are above or below sustainable take levels.

Although only limited stock structure data were available there is a high likelihood, based on the available movement data, that the Great Hammerhead Shark population in Australia is part of the same stock as occurs in other Oceania nations. As such fishing in those countries may also have some effect on the status of the stock and would need to be considered in any assessment. The magnitude of this effect would depend on the rate of exchange between these nations, which at present is unknown. Given that Indonesia has the largest global landings of sharks (~100,000 t annually) (Blaber et al. 2009) and take significant amounts of hammerhead sharks (White et al. 2008), if there are significant levels of exchange then some of the decline observed in Australian stocks would be the result of fishing in that nation.

Smooth Hammerhead Shark

The Smooth Hammerhead Shark is a moderate sized hammerhead that occurs in all of the world's subtropical and temperate oceans. In Australian waters it grows to around 350-400 cm (Last & Stevens 2009). Its anti-tropical distribution makes it unusual within the hammerheads, and means that it is often taken in different fisheries to its close relatives. Age and growth data indicate that like other similar sized hammerhead species the Smooth Hammerhead shark grows relatively slowly (Coelho et al. 2011). Like other hammerheads it has relatively large litter sizes, with the mean reported being over 30 (Compagno 1984).

Distribution and stock structure

Smooth Hammerhead Sharks occur in subtropical and temperate seas, and in Australia they occur in the southern half of the country (Figure 15). In Australian waters it occurs from Brisbane, Queensland, south and west to Geraldton, Western Australia, where they normally occur in continental shelf waters. They rarely enter estuaries, and have occasionally been reported from open ocean areas as bycatch in pelagic longline fisheries (Beerkircher et al. 2002). The more temperate distribution of this species means that there is only limited overlap with the other hammerhead species that occur in Australian waters.

Genetic investigation of global phylogeography has been undertaken (Testerman 2014). This analysis included data from Australian waters and demonstrated a significant difference between Atlantic and Indo-Pacific Ocean basins. The study also showed that within ocean basins there was evidence of population structuring. Specific comparisons between eastern and western Australia were not available. There was some comparison between eastern Australia and New Zealand, with mitochondrial DNA suggesting separation, but nuclear DNA showing no difference. Further data on the stock structure can be inferred from the limited tag-recapture data available, such as those from the US Cooperative Shark Tagging Program (Figure 16) which show movements restricted to the continental shelf. The distances moved were mostly relatively short, but some movements >1000 km do occur. Similar data are available from South Africa (Diemer et al. 2011), where the maximum movement recorded was 348 km. These tagging data that show limited dispersal support the within ocean basin population structuring suggested by the mitochondrial DNA. On the basis of these data the management of Australian Smooth Hammerhead Sharks as a single isolated stock is supported.

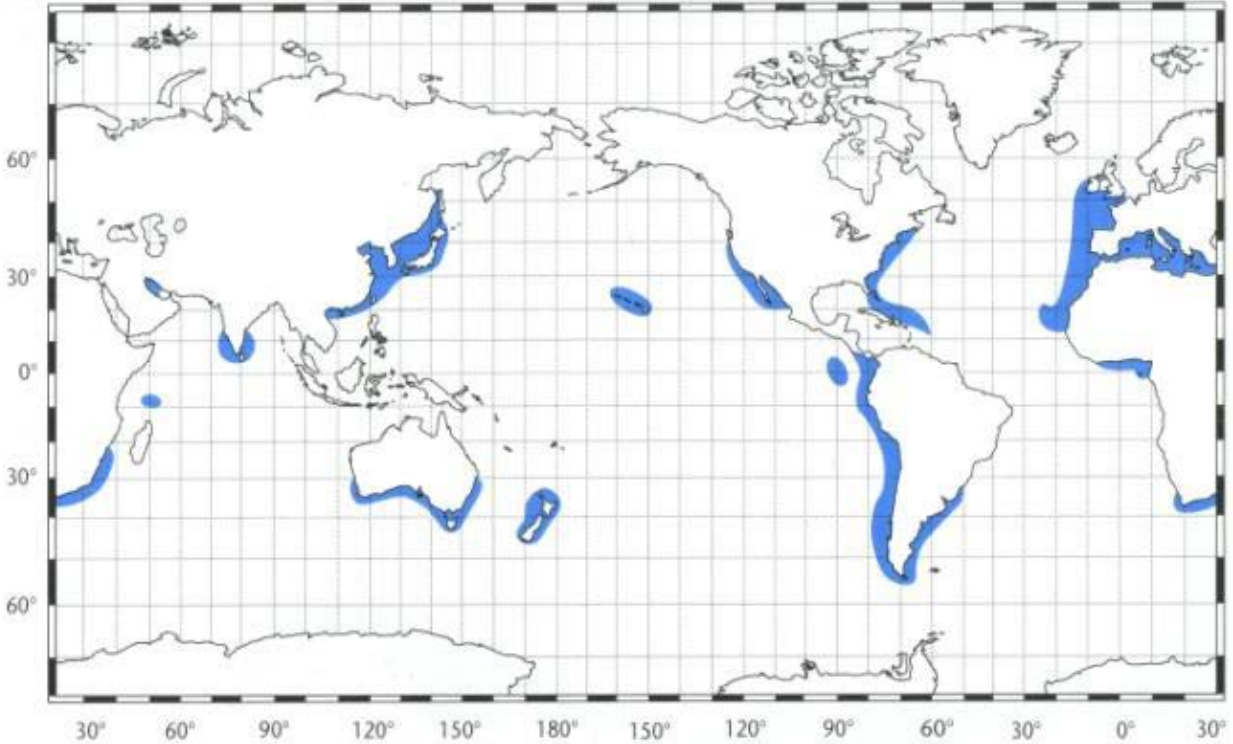


Figure 15 Distribution of the Smooth Hammerhead Shark. Reproduced from Last and Stevens (2009)

On the basis of the limited information about the genetics and movements of the Smooth Hammerhead Shark it is most likely that the population within Australian waters can be considered an isolated stock from that occurring in other nations in the Oceania region. Given the known movements of this species in other parts of the world it is likely that there is only a single stock within Australian waters.

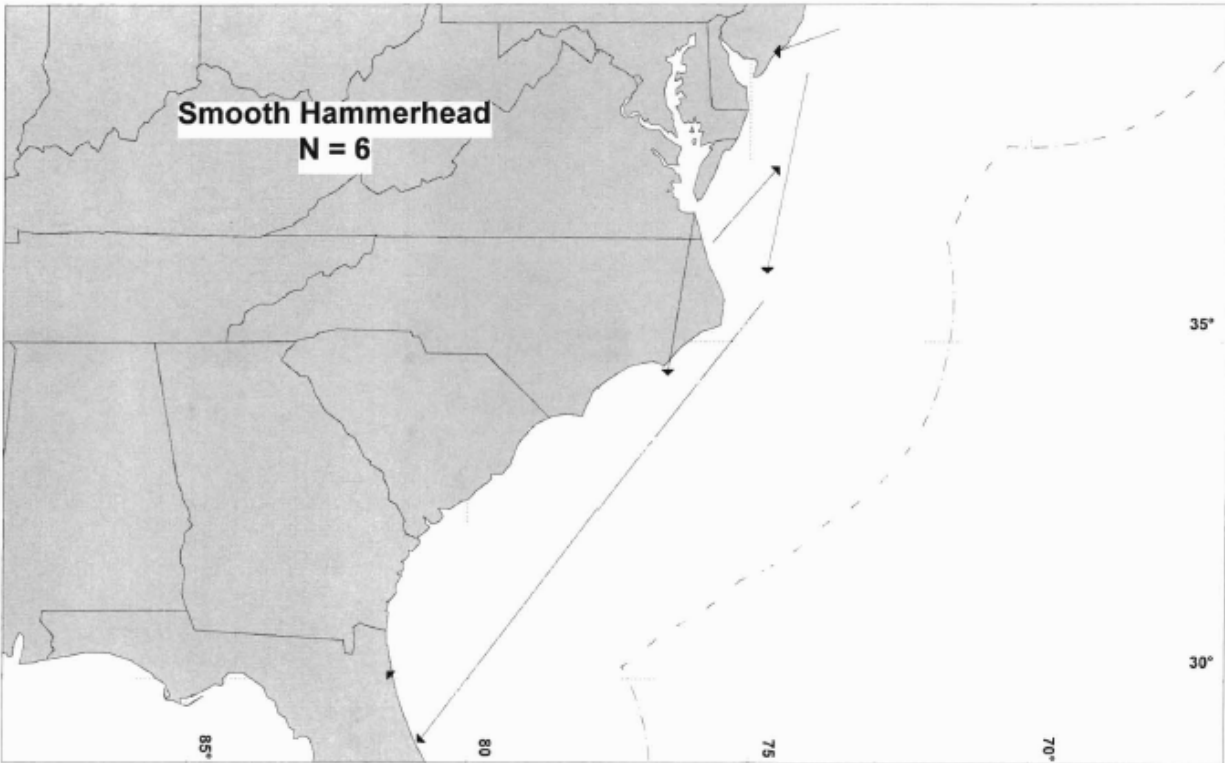


Figure 16 Movement of conventionally tagged Smooth Hammerheads on the east coast of the USA. Reproduced from Kohler (1998)

Levels of take

As with other hammerhead species the exact level of take of Smooth Hammerhead Sharks is unknown because they are often reported as all hammerheads combined. However, the limited geographic overlap with other species makes this estimation less imprecise. Detailed information about the Australian fisheries in which it occurs is provided by Koopman and Knuckey (2014). The catch is taken in three main fisheries – the Western Australian temperate gillnet fisheries (specifically the Joint Authority Southern Demersal Gillnet and Demersal Longline Fishery (JADGDLF), and the West Coast Demersal Gillnet and Demersal Longline Fishery (WCDGDLF)), the Commonwealth managed southern shark fishery (specifically the Gillnet Trap and Line sector of the Southern and Eastern Scalefish and Shark Fishery), and the New South Wales Offshore Trap and Line Fishery. Minor catches are also taken in other net and line fisheries in southern states. By far the largest catch is taken in the Western Australian fisheries. Detailed annual catch data were not available at the time of writing, but McAuley and Simpfendorfer (McAuley & Simpfendorfer 2003) estimated that between 1994 and 1999 the average annual take of hammerheads was 53 t, about 4% of the total shark take. Observer results provided in this same report confirmed that all of the catch in these fisheries is Smooth Hammerhead Shark. Given effort reductions in the fishery since this time it would be expected that the catch has declined. The take in the southern shark fishery off South Australia, Victoria and Tasmania is low, with annual catches currently between 3 t and 10 t (Table 2). Catches in minor state fisheries are of the order of 1-2 t for each of the fisheries in New South Wales and South Australia.

Table 2 Reported annual catches of Smooth Hammerhead Sharks in the Commonwealth managed Southern and Eastern Scalefish and Shark Fishery. Data supplied by Department of the Environment.

Year	Reported catch (kg)
2003	9384
2004	4021
2005	7252
2006	7611
2007	7151
2008	3594
2009	10333
2010	10197
2011	3676
2012	1587

Minor catches of Smooth Hammerhead Shark are taken in recreational fisheries in southern states (Cheshire et al. 2013). However, there are no detailed data available to estimate exact catch levels. Hammerheads, including Smooth Hammerheads, are the most common group taken in the New South Wales Shark Meshing Program (Reid et al. 2011). Between 1990 and 2010 1331 hammerhead sharks were captured. However, the exact species composition of the catch is unknown as individual species are not recorded. Marshall (2011) reported that Smooth Hammerhead Sharks have been reported in seized foreign IUU catches within the Australian EEZ, making up 3.3-5.4% of the take.

Population levels

Little data is available on the population levels of Smooth Hammerhead Sharks in Australian waters. The Fisheries Department of Western Australia provided catch per unit effort (CPUE) for hammerheads taken in the JASDGDLF and WCDGDF since 1989/90 (Figure 17). These data show that CPUE has risen steadily over time. This has been attributed to an increasing proportion of catch in these fisheries being identified to species rather than an increase in abundance (R McAuley, Western Australian Department of Fisheries, pers. comm.). However, these data do suggest that abundance has not declined over time. Limited data from 1994 to 1999 provided by McAuley and Simpfendorfer (2003) show no change for research or fishery catch per unit effort on a regional basis in temperate Western Australian waters. This suggests that catch was below the levels that would lead to population decline. The relatively low levels of catch, and their persistence over time, also suggest that there have not been major declines in this species. Given that the stock in Australian waters is likely to be separate from that of other nations within the Oceania region their catches will have no bearing on the status of this species.

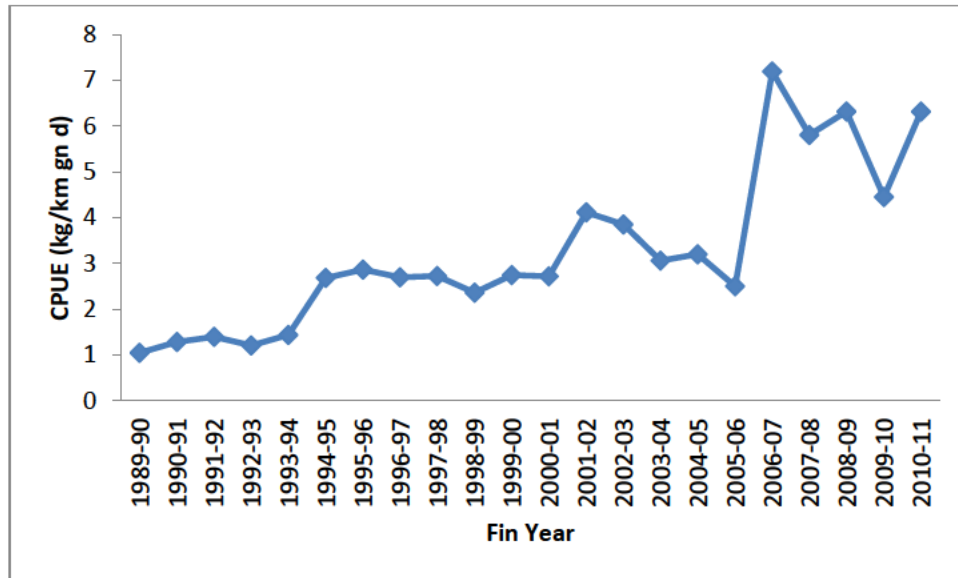


Figure 17 Catch per unit effort of hammerheads in the temperate gillnet and longline fisheries off Western Australia. Smooth Hammerhead makes up >99% of the catch in these fisheries. Data supplied by Western Australian Department of Fisheries.

Sustainable catch limits

The sustainable take levels for the purposes of Australia producing NDFs for these shark species given below are in estimates of whole weight. The export products from these species are mostly fins, which represent only a small portion of the total weight (2-8%). The exception to this is the Porbeagle Shark for which flesh is also traded from some southern hemisphere countries, mostly to Europe. It is unlikely given Australia's minimal take of Porbeagle Shark that its flesh is currently exported.

Oceanic Whitetip Shark

On the basis of the assessments from both the Pacific and Indian Oceans (see above), and the decisions by WCPFC and IOTC to ban the retention of this species the recommended sustainable catch limit is zero. This reflects that fact that in both oceans there is substantial evidence that this species is currently overfished, with overfishing still occurring. It is likely that with continued fishing for tunas in the region there is unlikely to be any rapid improvement in the status of this stock. Give the presumed stock structure of the Oceanic Whitetip Shark Australia should consider working with other nations in the Oceania region to ensure a consistent approach to NDFs. This will have the greatest benefit to the recovery of this population.

Porbeagle Shark

Given Australia's minimal catch of Porbeagle Sharks it would be possible to set the sustainable take level for the purposes of the NDF to some small level above the current level of take (~10 t). The very low level of current catch means that it is likely that take could be increased without affecting the sustainability of the stock. However, this species is currently listed as a *migratory species* under the EPBC Act because it is listed on Appendix II of the Convention on Migratory Species. This listing means that approvals for export are not currently granted, and as such the production of an NDF would not be appropriate.

Scalloped Hammerhead Shark

The lack of a stock assessment for Scalloped Hammerhead Sharks makes it impossible to provide a science-based estimate of sustainable catch. The fact that catch rate series show substantial declines suggests that populations are reduced compared to pre-exploitation levels. The lack of shark fishing in northern Western Australia over the past 5-8 years may have provided something of a refuge, but their wide ranging movements are likely to mean that this is only temporary. As such a precautionary approach should be taken to setting a sustainable take level for the purposes of developing an NDF. Current data suggest that the present Australian levels of take are not likely to lead to rapid depletion of the stock and that **continued take at the lower limit of the normal take (~200 t) would be appropriate** while an assessment for this species was carried out. However, if there are large catches of this species in neighbouring countries that share the stock with Australia then this could result in more rapid depletion of the stock and require a reduction in the sustainable take level. Further work is urgently required to understand the level of connection between Australia and its neighbours. It should also be noted that this species is currently being assessed for threatened species listing under the EPBC Act. If

this species is listed then this may have some effect on the ability of fishers to take this species and require an adjustment to the sustainable take limit. The species has also been nominated for listing on the Convention on Migratory Species, which may also affect regulations that control both landings and export.

Great Hammerhead Shark

The lack of a stock assessment means that there are no science-based estimates of sustainable take for Australian waters. Analysis of catch rates off Queensland and Western Australia suggest that the populations may be well below their pre-exploitation levels. However, this does not mean that they are not being fished at sustainable levels. The lack of species specific reporting of catches also means that it is impossible to know the exact levels of take. Thus while catch rates have declined, there is no evidence that the populations are at dangerously low levels. However if there is significant exchange with neighbouring nations where shark catches are much higher, then this would add to concerns about the stock.

Without a science-based estimate of sustainable take it is recommended that fishing continue while work towards an improved knowledge of the status of Great Hammerhead Sharks is undertaken. In the short-term catches at these levels are unlikely to cause further declines in stock. A catch limit that reflects the lower level of recent current catches (~100 t) is probably most appropriate. The use of the lower side of current catch estimates reflects the current level of concern for this species, which is being considered for listing under the EPBC Act as a look-a-like species for potentially threatened Scalloped Hammerhead Sharks

(<http://www.environment.gov.au/biodiversity/threatened/nominations/comment/great-hammerhead>).

The species has also been nominated for listing on the Convention on Migratory Species, which may also affect regulations that control both landings and export.

Smooth Hammerhead Shark

The lack of a stock assessment means that it is impossible to estimate the sustainable take of this species. However, given that there are no indicators that stock levels are below that which would provide for sustainable take, it is recommended that the sustainable limit for the purposes of the production of the NDF be at the current levels of take at around 70 t per year. Further work to more accurately obtain information on the status of the stock and sustainable take levels is required. It is possible that increases in catch could occur and the stock remains sustainable. However, as a precaution increases in the sustainable take level for NDF purposes should only occur when improved information on stock status is available. It should also be noted that this species is being considered for listing under the EPBC Act as a look-a-like species for potentially threatened Scalloped Hammerhead Sharks

(<http://www.environment.gov.au/biodiversity/threatened/nominations/comment/smooth-hammerhead>). The species has also been nominated for listing on the Convention on Migratory Species, which may also affect regulations that control both landings and export.

Towards NDFs for the Oceania region

The production of non-detriment findings (NDFs) for CITES Appendix II listed species is an integral part of allowing trade to continue. Article IV of CITES says that an export permit can only be issued if the “Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species”. The NDF is therefore the document that provides the basis for the issuing of export permit. Further, Article IV also requires: “A Scientific Authority in each Party shall monitor both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens. Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species.” Thus to ensure legal export of Appendix II listed species each exporting nation (=party) must have the capacity to produce an NDF, monitor the exports and respond if exports exceed levels that will be detrimental to the survival of a species.

Within the context of the Oceania region there are a number of issues in relation to the export of Appendix II listed shark species that need to be recognized:

1. The region is dominated by small island nations with limited populations and resources. This means that the capacity to carry out the requirements for export may be limited. This limits their ability to comply with CITES requirements if Appendix II listed shark species are to be exported. This will require the development of capacity within these nations to ensure that shark stocks remain viable.
2. At least some of the species of shark listed on Appendix II have stocks that are shared by nations in the region (see sections above). As such the assessment of species, setting of sustainable take levels and monitoring of the exports relative to sustainable take, are more logically fulfilled at the region level than at the national level. However, the issuing of NDFs and export permits is the responsibility of individual nations. Given the limited capacity within nations, and the need to consider region-wide stocks collectively in relation to sustainable take and status, a regional level approach to the development of NDFs and the associated assessments of status and sustainable catch levels would be logical.
3. Some parts of the Oceania region are beyond the jurisdictions of nations and so landings of Appendix II listed species require an Introduction from the Sea certificate that verifies that the take will not be detrimental to the species survival. Given the shared stocks in the region the issuance of this certificate would need to be considered in the regional context, including all of the takes from nations within the stock boundary. If a region-wide approach was developed then it would also be sensible to include the high-seas areas, and the nations that fish them.
4. There are several region-wide institutions that provide capacity in relation to some aspects of the production of NDFs and associated processes. This includes the Secretariat of the Pacific Community (SPC - <http://www.spc.int/>), Pacific Islands Forum Fisheries Agency (FFA - www.ffa.int) and Western Central Pacific Fishery Commission (WCPFC - <http://www.wcpfc.int/>). The latter two of these institutions are focused primarily on tuna fisheries, which although they are the main catcher of sharks in the region are not responsible for all take. SPC has a wider remit than tuna fisheries and so has greater capacity to deal with the breadth of issues related to shark catches in the region.

5. Within the region two nations – Australia and New Zealand – have the scientific and management resources to carry out the requirements of the production of NDFs and monitoring of exports. They also have the capability to help other nations in the region to develop capacity and carry out region-wide tasks such as research and capacity development.

The above demonstrates that there is a need for good coordination within the Oceania region for the processes related to the export of products from Appendix II listed shark species. Further, it could be argued that joint regional action to assess the status of species at the regional level and produce templates of national NDFs would help address capacity limitations and ensure the best outcome for sustainable shark stocks. This could include region-wide research, monitoring and assessment, development of enforcement capability, information sharing and more. Below the information requirements for implementing a coordinated approach to dealing with CITES listed sharks within the region are explored.

While the coordinated approach to CITES shark management within the Oceania region is sensible, there are one or two issues that need to be highlighted that could present challenges to its full implementation and smooth operation. The most obvious of those is that in situations where the export of product is determined to be detrimental how would take be reduced on a nation by nation basis. This is essentially equivalent to an allocation issue in fisheries. In other words, if exports were to be limited, then if there is a regional level of take that is determined to be sustainable, how is that allocated between the nations within the region and those that operate on the high seas and issue Introduction from the Sea certificates. Solutions to this issue could be potentially contentious because there are different models for achieving allocation, each of which could have a different outcome for each nation. Given this, if a regional strategy was developed then it would be important to reach an agreement on how to deal with national allocation prior to implementation.

Development of a regional approach to NDFs

There is no prescriptive model for the production of NDFs for Appendix II listed species. In fact, nations are not required to publish their NDFs, even though many do. To assist nations with the development of NDFs for the newly listed shark species the German government and TRAFFIC have produced a guide. This detailed guide provides a framework for the development of an NDF and suggested information to be included. The guide recommends a staged approach to development of the NDF (Figure 18). This document could form the basis of the development of a regional NDF template and/or the development of national NDFs within the Oceania region. Building capacity within the Oceania region in the use of this guidance would be a critical step in the implementation of appropriate processes around the trade in Appendix II listed species and in the production of suitable NDFs.

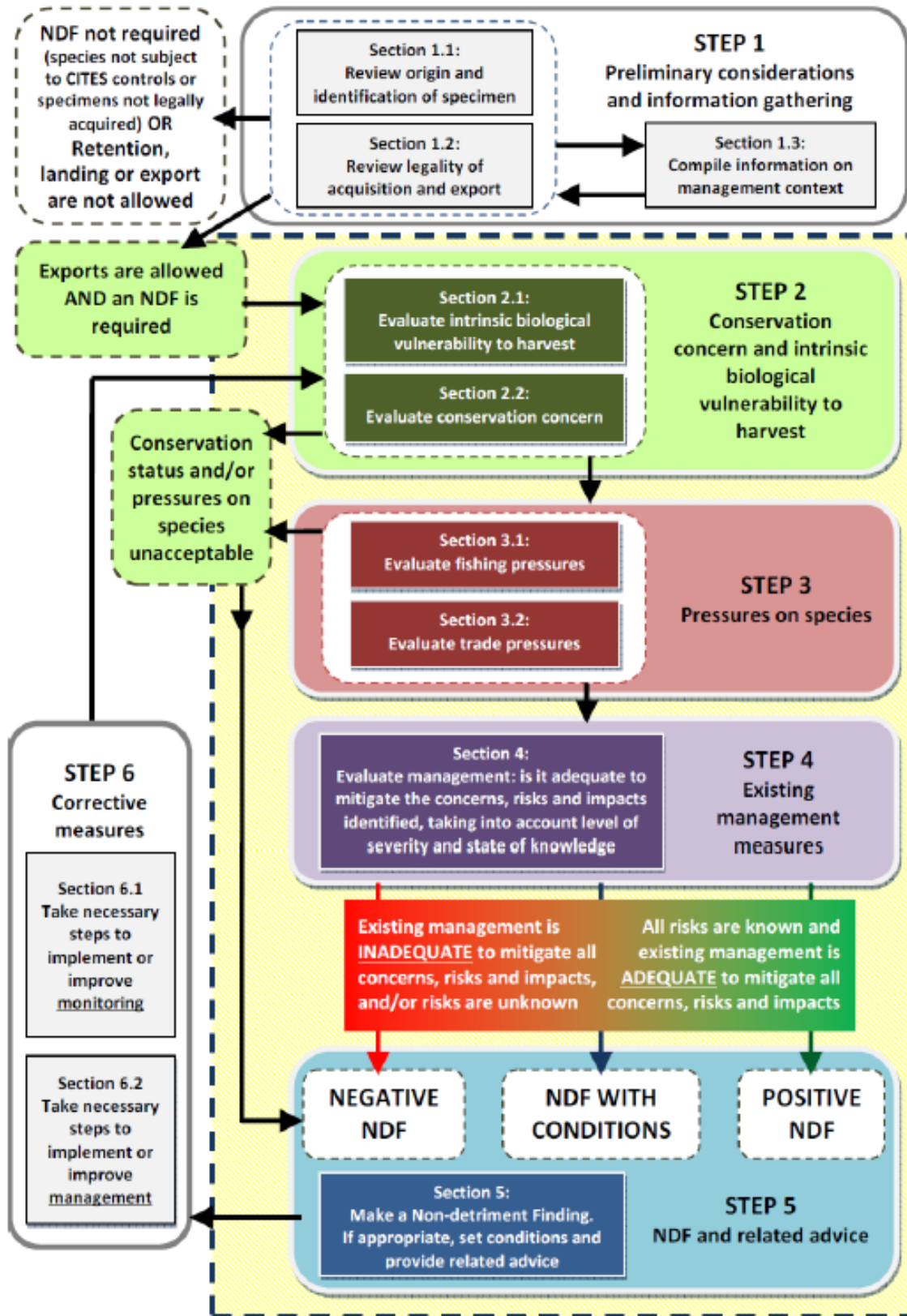


Figure 18 Flow chart illustrating the process of producing an NDF. Reproduced from Munday-Taylor et al. (2014)

Of the six steps in the German guidance, the first two are one-off or occasional requirements and could be mostly achieved at an Oceania region levels because of the likelihood that the Appendix II listed species are shared stocks. Step three is likely to be the one that requires the most intensive ongoing data collection and assessment. This will require the ongoing stock assessment of these species, which will need to be informed by ongoing data on catch, effort, discards, etc. from each of the nations in the region. The assessment process will also require some one-off or occasional data such as information on life history, stock structure and boundaries, and fishing gear characteristics. Step four requires the evaluation of the management arrangements and will largely be informed by the results of Step three and an assessment of the current management arrangements in place through WCPFC, FFA and individual nations. Step five is the production of the actual NDF. Within a cooperative regional approach with shared stocks the production of a standard NDF template for the region, populated with the same information that individual nations could use to complete a finalized national NDF, would make optimal use of the limited resources and capacity available, reduce the burden on individual nations and ensure consistency across the range of the shared stocks. The final step in the guidance is a feedback loop to ensure continued improvement in the collection of data, assessment of status and implementation of management.

Given the above, Figure 19 provides a model for the development and ongoing maintenance of NDFs for Appendix II listed shark species at the Oceania regional level. This is further explored in the following sections.

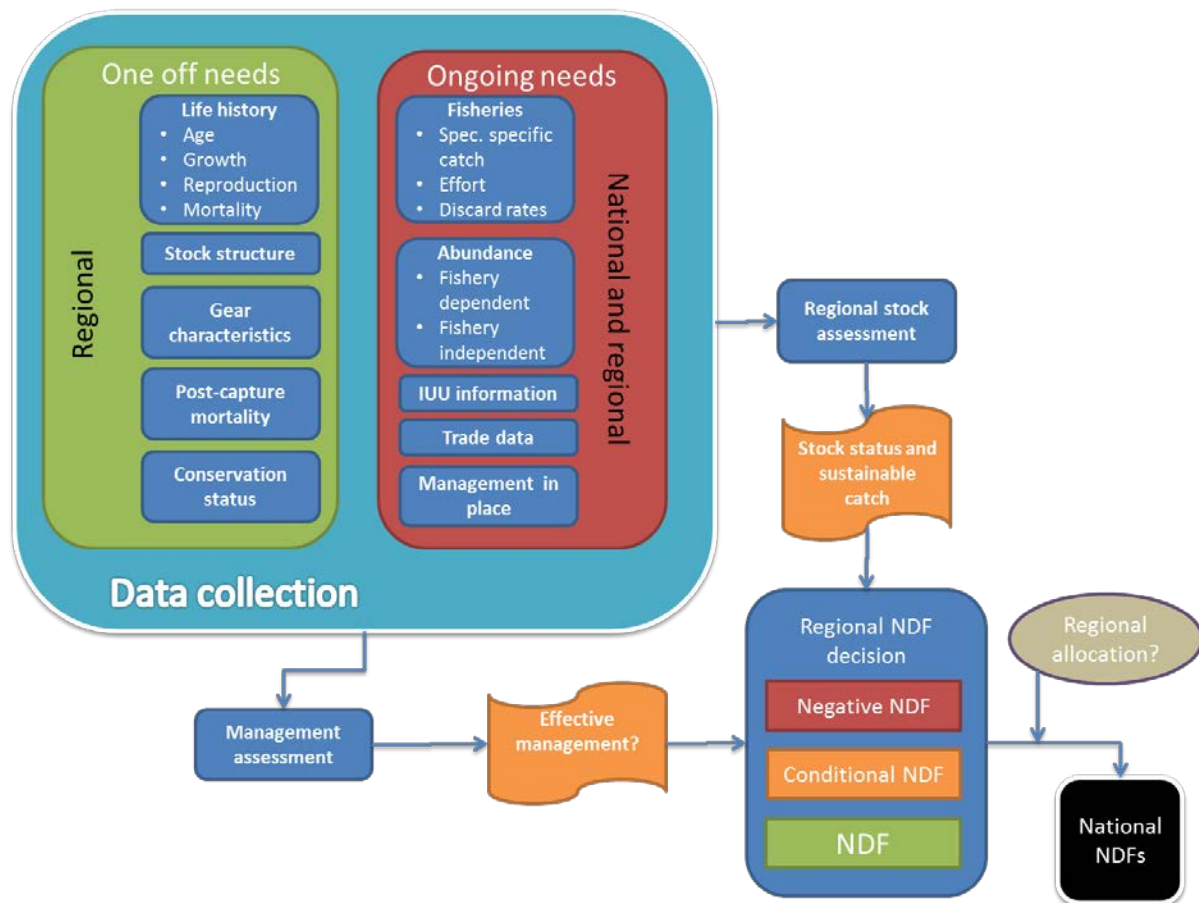


Figure 19 Model for the development and ongoing maintenance of NDFs in the Oceania region.

Information requirements for NDF development

There are a wide range of information requirements for the development of NDFs that relate to the trade, management and status of the species involved. Given the nature of the Oceania region and the shark species involved, the collection of data can be divided into four categories as outlined in Table 3. These include the division of information required at the national and regional level, and between one-off or occasional collection and regular ongoing collection. The identification of data collection requirements at the regional level is important as it can dramatically reduce the burden on individual nations where the capacity and resources available are limited. This allows these nations to focus on the provision of more critical ongoing data collection. The collection of regional level data is probably best coordinated by organisations such as SPC that have existing regional connections and capacity, and/or by nations such as Australia and New Zealand that have with the capacity and resources. Given the capacity and resource limitations of many of the small island nations there is also likely to be a need for capacity development activities to ensure appropriate data are available to the assessment processes that need to occur.

Table 3 Information needs for NDF production and their collection requirements

		Spatial scale	
		National	Regional
Frequency of collection	One-off or irregular	<ul style="list-style-type: none"> • Identification of sources of catch in coastal fisheries • 	<ul style="list-style-type: none"> • Conservation status • Life history - including age, growth, reproduction and mortality • Stock structure and boundaries – using genetics, telemetry, tagging and other approaches • Fishing gear characteristics and selectivity • Post-capture survival – using observer data, physiology and telemetry
	Regular	<ul style="list-style-type: none"> • Fishery statistics – including species –specific catch data; often collected or supplied by regional bodies • Species-specific discard rates • Abundance data • Trade data • Compliance data • National management measures 	<ul style="list-style-type: none"> • Assessment of status of stocks • Regional management measures – FFA, WCPFC

Process requirements for NDF production

The German guidance on NDFs identifies a number of processes that need to occur. Some of these are one-off processes that can be achieved relatively easily, while others are ongoing processes that will require considerable resources and capacity (e.g. stock assessments). The initial one-off process requirements, such as the determination of biological vulnerability and conservation concern could be addressed at a regional workshop, with much of this information already existing. This regional workshop could also consider the design of the ongoing process requirements, data collection needs and responsibilities, and timetable for completion of the later stages (including the frequency with which ongoing processes should be undertaken).

The processes around Step three of the guidance is largely focused on the assessment of the status of the Oceania stocks of the listed species. Given the share nature of the stocks of the Appendix II listed species these processes are probably best handled by regional bodies who have the capacity to do so. Two of the species have been assessed, or are being assessed currently. The Oceanic Whitetip Shark is already being assessed in the region as part of the WCPFC work on the bycatch of pelagic fisheries. This assessment was carried out by scientists at SPC. The Porbeagle Shark is currently undergoing assessment under a CCSBT initiative based mostly on work by New Zealand scientists. There is currently no regional or national level assessment in place for any of the hammerhead sharks. Given the distribution of Smooth Hammerhead Sharks mostly restricts them to more temperate areas their main occurrence is in Australia and New Zealand. As such these nations have the capacity to carry out separate assessments as required, or to undertake a joint assessment at the regional scale. The remaining two hammerhead species are likely to have limited (or no) stock structure in the region and should be assessed at that spatial scale. Thus it would seem sensible that a regional body such as SPC would have responsibility for the ongoing assessment. It should be noted that the availability of data for a regional assessment is very limited and thus it may take several years to develop an assessment of the status. In the interim a strategy for targeted data collection would need to be implemented. An interim assessment would also need to consider how an NDF was framed given the limited data.

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Threatened Species Scientific Committee

60th Meeting, 2-4 June 2014

Agenda Item 7.9

SPHYRNA LEWINI (SCALLOPED HAMMERHEAD SHARK) ASSESSMENT UPDATE

Background

1. s22 hammerhead shark in the genus *Sphyrna* have been included on the 2012 FPAL. Full nominations were received for s22
s22 *S. lewini* (scalloped hammerhead). s22
2. As the scalloped hammerhead (*S. lewini*) was the only species for which sufficient data were available, a full conservation advice was drafted for this species for the purposes of consultation (Attachment 1).
3. s22
4. The draft advices were presented at TSSC 55 and approved, subject to minor changes, for expert and public consultation. The draft advices and the consultation questions included the caveat that while the species may be eligible for listing in a threatened category, the Committee was also considering the option of listing in the Conservation Dependent category.
5. Consultation was undertaken from Thursday 22 May until 7 July 2014.

Issues

6. At TSSC59 the Committee was given a verbal update on the listing options, noting in particular that the principal threats to the species lie outside the Australian jurisdiction and that this may have implications for the listing recommendation.
7. The Committee requested that a paper be presented at TSSC60 to outline the fishery management arrangements presently in place with respect to scalloped hammerhead sharks to provide a context for Conservation Dependent listing.
8. While scalloped hammerheads are caught in a range of fisheries, the great majority of take occurs in two fisheries: the Queensland East Coast Inshore Finfish Fishery (ECIFF)(80 t/year in recent years) and the Northern Territory Offshore Net and Line Fishery (ONLF)(approx. 60 t/year average over five years). The Department was also requested to include the Queensland Gulf of Carpentaria Inshore Finfish Fishery (GoCIFF)(<10 t/year). A fourth, the Western Australian Northern Shark Fishery, has been inactive since 2008/09.
9. The arrangements in these fisheries have also been influenced by the Non-Detriment Finding (NDF) developed in response to the listing of five shark species, including the three hammerhead species on Appendix II of the Convention on International Trade in Endangered Species. The listing took effect on September 14 2014. Committee members can access the NDF at the following weblink:

<http://www.environment.gov.au/biodiversity/wildlife-trade/publications/non-detriment-finding-five-shark-species>.

10. A national annual quota for scalloped hammerhead of 200 tonnes per year was identified through the NDF making process, based on the consultancy reports from James Cook University and Fishwell Consulting. The national quota is species-specific, based on the lower end of the historic annual averages. This quota may be revised as new information becomes available.
11. Under the EPBC Act the Commonwealth can stipulate management arrangements for state-based fisheries where those fisheries seek to export their product internationally. This applies to hammerhead products due to the high value of the fins. Relevant fisheries are assessed as Wildlife Trade Operations under s303FN.
12. The Northern Territory Offshore Net and Line Fishery (ONLF) is in the process of revising its management framework, shifting from an effort control basis to a quota-based fishery. At the time of writing the industry consultation on the revised framework has just closed. In its draft form a “group” quota will apply for eight bycatch species of 342 tonnes, with a trigger for further investigation if catch of any on species reaches 10% of that total. Currently there is little fin trade in the Northern Territory and overall catch of hammerheads is low (relative to recent catches of 50-100 t/year). Northern Territory Department of Primary Industry and Fisheries officers have indicated a willingness to consider further refining this to a species-specific quota for the hammerhead species. Further detail will be provided verbally if available by the time of this meeting.
13. A Wildlife Trade Operation (WTO) assessment of the ONLF will commence in June or July of 2015 and thus provides an opportunity to align the fishery management with the requirements of a Conservation Dependent listing.
14. The Queensland East Coast Inshore Finfish Fishery (ECIFF) WTO was renewed in 2012 and is subject to review again in 2015. An interim WTO approval has been given for the ECIFF for capture of hammerheads until 1 October 2015. Presently there is no specified quota for hammerheads, but the 2012 review raised concerns about stock status for several sharks. Fisheries Queensland was required to implement a research plan to assess harvest rates and other parameters to enable stock assessments to be undertaken.
15. Preliminary discussion with officers of Fisheries Queensland will be undertaken in late May 2015 and a verbal briefing on that meeting will be provided at TSSC 60.
16. The Gulf of Carpentaria Inshore Finfish Fishery was assessed in September 2014 and WTO approval granted until 07/09/2017. The report at the time of the WTO assessments provided annual harvest of hammerheads (great+scalloped) (2009-2012): 19, 18, 9, 2 tonnes. However, in 2013 and 2014 the estimates were 40 and 45 t respectively. There is presently no quota on take of hammerhead sharks.
17. The current WTO approval requires the Queensland Department of Agriculture, Fisheries and Forestry to:
 - a. report annually on the management and monitoring of all species listed on Appendix II of CITES which are permitted to be retained in the Gulf of Carpentaria Inshore Fin Fish Fishery (this includes scalloped and great hammerheads).
 - b. in consultation with the Department of the Environment and Australia’s CITES Scientific Authority, annually evaluate the management arrangements for species listed on Appendix II of CITES which are permitted to be retained in the fishery, to ensure that CITES non detriment findings can continue to be made, and

- c. continue and encourage further cooperation with relevant jurisdictions to pursue increased knowledge and complementary management of CITES listed species encountered in the fishery across fisheries and across jurisdictions
18. The interaction of the GoCIFF and the conservation dependent assessment for scalloped hammerheads will also be discussed in meetings with Fisheries Queensland officers prior to TSSC 60 (25-27 May).
19. The Department notes that the WTO assessments with relevant fisheries are in varying stages and there are complex relationships between them, the CITES NDF and the Conservation Dependent assessment. It is unlikely that these will be resolved in time to meet the currently statutory deadline for this assessment of 30 September 2015. The Department requests the Committee's approval to seek an extension from the Minister to complete the assessment by 30 September 2017.

Recommendation(s)

That the Committee:

1. **Notes** that the principal threats to scalloped hammerhead sharks lie outside the Australian jurisdiction.
2. **Endorses** the department's continuation of the assessment of scalloped hammerheads for Conservation Dependent listing.
3. **Agrees** to seek an extension of the statutory deadline for this assessment to 30 September 2017.

Attachments

Item 7.9.1 Draft conservation advice for scalloped hammerhead (*S. lewini*).

Threatened Species Scientific Committee

67th Meeting: 6 – 8 March 2017	
Agenda Item	6.0
Title	Hammerhead shark assessment update
Purpose	AGREE to progress assessment of hammerhead sharks for conservation dependent listing based on update provided on direction agreed at meeting of senior managers and TSSC members in Brisbane on 20 February 2017
Recommendations	<p>1. Notes the information provided below summarising the outcomes of the meeting of senior managers and TSSC members in Brisbane on 20 February 2017.</p> <p>2. Agrees subject to any suggested amendments, to the department continuing to negotiate with relevant managers to develop and implement a set of management arrangements sufficient to support a Conservation Dependent listing of hammerhead sharks.</p>
Previous Committee Consideration	<p>The Committee agreed to release the draft listing advice for consultation at TSSC 55.</p> <p>Subsequent consideration of how to assess the species for Conservation Dependent listing was undertaken at TSSC 60, at which time the Committee agreed to extend the assessment from 2015 to September 2017.</p>
Next Steps for the Committee	Consider subsequent draft assessments based on anticipated further development of fishery management plans and associated regulations. Final advice to the Minister is due 30 September 2017. This is the statutory deadline and cannot be further extended.
Attachments	n/a



Background

1. s22 hammerhead shark in the genus *Sphyrna* were included on the 2012 FPAL. Full nominations were received for s22
s22 *S. lewini* (scalloped hammerhead). s22
2. As the scalloped hammerhead (*S. lewini*) was the only species for which sufficient data were available, a full conservation advice was drafted for this species for the purposes of consultation.
3. s22


















4. The draft advices were presented at TSSC 55 and approved, subject to minor changes, for expert and public consultation. The draft advice for the scalloped hammerhead and the consultation questions included the caveat that while the species may be eligible for listing in a threatened category, the Committee was also considering the option of listing in the Conservation Dependent category.
5. Consultation was undertaken from Thursday 22 May until 7 July 2014. There were 12 responses of which seven offered an opinion on listing. The remainder simply provided additional information. Four responses supported listing as Conservation Dependent (Queensland and Northern Territory fishery agencies, a sport fishing organisation and an individual researcher) while three conservation organisations supported listing but rejected Conservation Dependent.

Issues

6. While scalloped hammerheads are caught in a range of fisheries, the great majority of take occurs in three fisheries: the Queensland East Coast Inshore Finfish Fishery (ECIFF), the Gulf of Carpentaria Inshore Finfish Fishery (GoCIFF) and the Northern Territory Offshore Net and Line Fishery (ONLF). A fourth, the Western Australian Northern Shark Fishery, has been inactive since 2008/09. Consequently, the potential for Conservation Dependent listing has focussed on the management of the major three fisheries.
7. Management of all the relevant fisheries has undergone significant revision over the time since the initial consultation on the draft advice. These changes have created substantial uncertainty over what arrangements will be in place by the time the Committee's advice to the Minister will be due and was the reason behind the decision to seek an extension to September 2017.
8. Management arrangements continue to be reviewed. The Queensland Department of Agriculture and Fisheries (QDAF) is reviewing responses to its 2016 consultation on the green paper on fisheries management reform which proposes measures such as development of harvest strategies and improvements to data quality. The Northern Territory Department of Primary Industry and Fisheries (NTDPIF) is in the advanced stages of developing a new management plan, including an individual transferable quota framework, for their Offshore Net and Line Fishery.
9. On February 20 2017 the Chair of the Committee Prof Helene Marsh and Committee member Prof Colin Simpfendorfer met to discuss the above complexities with senior managers of the relevant agencies (QDAF, NTDPIF, Great Barrier Reef Marine Park Authority (GBRMPA) and Department of Environment and Energy (DotEE)).
10. The meeting agreed on a set of minimum requirements that would allow a Conservation Dependent listing to be considered for scalloped hammerhead, subject to the Committee's consideration of these issues at TSSC 67:
 - a. Catch limits for hammerhead in the interim to ensure catch doesn't exceed the amount in the Convention on International Trade in Endangered Species Non-detriment Finding (CITES NDF) of (300t) with jurisdictions (Qld, NT, WA) to work together to ensure appropriate limits are set
 - i. The 300 ton quota combines suggested quotas from the CITES NDF of 200 tons for scalloped hammerheads and 100 tons for great hammerheads as it removes any incentive to evade a scalloped hammerhead-only quota via misidentification as great hammerhead.

- b. Each jurisdiction would need to ensure that as any of the fishery-specific catch limits are approached, catches are constrained so as not to exceed the limit (e.g. revert to small trip limits at an earlier trigger point, spatially explicit rules to limit interactions, etc.).
 - c. Some form of data validation to verify catches and estimate discards (not necessarily observers, but could involve prior reporting, cameras, logbook validation).
 - d. Commitment to review and improve over time and to monitor and measure stocks to feed into future assessments, support recovery and provide regular updates to TSSC.
 - e. GBRMPA commit to working with DotEE and Qld to maximise consistency of treatment of conservation dependent species in GBR.
11. For the above (or any) measures to be considered in a Conservation Dependent listing, they need to be in force under law. In a discussion at the meeting on timing, it was noted that the Minister could take up to 90 business days to consider a Committee recommendation. It was also noted that for Blue warehou in 2015, the Committee's recommendation for Conservation Dependent was conditional on AFMA giving legal effect to their latest harvest strategy after the Committee's advice was given to the Minister.

Threatened Species Scientific Committee

68th Meeting: 6 – 8 June 2017											
Agenda Item	7.7										
Title	UPDATE ON THE ASSESSMENT OF §22 HAMMERHEAD SHARKS										
Purpose	Discuss draft listing advice and path forward for assessment.										
Recommendations	<ol style="list-style-type: none"> 1. Notes the information provided below and the updates provided by the Queensland and Northern Territory governments on implementing fisheries management arrangements to support Conservation Dependent listing (<u>Item 7.7.2</u>). 2. Reviews the updated advice (<u>Item 7.7.1</u>) and provides any comments or changes members feel necessary. 3. Discusses the next steps for the listing assessment. 										
Stage	<table border="1" style="width: 100%; text-align: center;"> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Initial discussion</td> <td>Draft for review</td> <td>Release for consultation</td> <td>Post consultation draft</td> <td>Final for endorsement</td> </tr> </table>						Initial discussion	Draft for review	Release for consultation	Post consultation draft	Final for endorsement
											
Initial discussion	Draft for review	Release for consultation	Post consultation draft	Final for endorsement							
Previous Committee Consideration	<p>The Committee agreed to release the draft listing advice for consultation at TSSC 55. Subsequent consideration of how to assess the species for Conservation Dependent listing was undertaken at TSSC 60, at which time the Committee agreed to extend the assessment from 2015 to 2017.</p> <p>An update on the direction of the assessment was provided at TSSC 67 following a meeting of senior managers and TSSC members in Brisbane on 20 February 2017.</p>										
Next Steps for the Committee	Out-of-Session clearance of draft assessments between now and TSSC 69 if required.										
Attachments	<p> For TSSC comment and changes</p> <p><u>Item 7.7.1</u> Draft listing advice for <i>Sphyrna lewini</i> (scalloped hammerhead)</p> <p> For reference</p> <p><u>Item 7.7.2</u> Update on management arrangements provided by NT and Qld Fisheries in late-May 2017</p>										



¹ Icons in this document are being used under a creative commons CC-ND 3.0 licence and may be accessed from <https://icons8.com>.

	<p><u>Item 7.7.3</u> Information provided by the TSSC to fisheries managers in previous assessments of species for Conservation Dependent listing.</p>
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Issues

1. The Committee’s assessments **s22** of hammerhead shark are due by 30 September 2017.
2. Sufficient information to determine eligibility for listing in a particular category only exists for one species, *Sphyrna lewini* (scalloped hammerhead). Scalloped hammerhead has been judged as eligible for listing in the Endangered category under Criterion 1 A2(a),(b),d). The scalloped hammerhead population has likely declined by between 50–70 per cent based on direct observation, index of abundance and actual or potential levels of exploitation, and it is likely the causes of reduction (fishing) have not ceased.
3. **s22**
4. However, the Committee is considering the option of listing scalloped hammerhead in the Conservation Dependent category, subject to fisheries management arrangements being implemented to halt decline and support recovery of this species.

5.



Update from Queensland and Northern Territory Governments

6. While scalloped hammerheads are caught in a range of fisheries, the great majority of take occurs in three fisheries: the Queensland East Coast Inshore Fin Fish Fishery (ECIFFF); the Gulf of Carpentaria Inshore Fin Fish Fishery (GoCIFFF), and; the Northern Territory Offshore Net and Line Fishery (ONLF).
7. In early-May 2017, the Department requested from Queensland and Northern Territory government representatives an update to cover progress against each of the “minimum requirements” and “longer term management intentions” as agreed at the meeting between senior fisheries managers and TSSC members in Brisbane on 20 February 2017 (see Item 7.7.2 for “minimum requirements” etc.).
8. In late-May 2017, Queensland and Northern Territory submitted their updates to be provided to the Committee (Item 7.7.2) as part of the consideration of scalloped hammerhead for Conservation Dependent listing. The “Conservation Dependent Assessment” section of the Listing Advice has been updated with this information to reflect the current situation.

9. In summary, the Queensland and Northern Territory governments have proposed to include “under law” the following set of management arrangements.

Queensland

- a. A hammerhead (grouped species) total allowable catch of 150 t under the Queensland Fisheries Regulation 2008.
- b. A trigger limit set at 75 per cent of total allowable catch to trigger control rules under the Fisheries Regulation 2008.

Northern Territory

- a. A scalloped hammerhead total allowable catch of 50 t under the Northern Territory Offshore Net and Line Fishery Management Plan (2017) in force under the Northern Territory *Fisheries Act 1988*.
- b. A trigger limit set at 100 per cent total allowable catch to trigger control rules under the Northern Territory Offshore Net and Line Fishery Harvest Strategy.
- c. Implementation of data validation techniques under the Northern Territory Offshore Net and Line Fishery Management Plan (2017).

Eligibility

10. The Department considers that scalloped hammerhead is eligible for listing as Endangered under Criterion 1. The Department is seeking the Committee’s advice as to whether it considers that the proposed management arrangements identified by Queensland and Northern Territory Fisheries are sufficient to enable a listing recommendation in the Conservation Dependent category and the effect of including the species in that category on the survival of the species.
11. Information about what species are currently listed as Conservation Dependent and what advice previously provided by the Committee to fisheries managers on the consideration of commercially harvested fish species for Conservation Dependent consideration is at [Item 7.7.3](#).

Public/Expert Consultation

12. Consultation was undertaken from Thursday 22 May until 7 July 2014.

History and Background

13. In 2012, the *S. lewini* (scalloped hammerhead) s22 were publicly nominated by Humane Society International for threatened species assessment under the EPBC Act. s22

14. The assessment timeframe for these species was extended from 30 September 2015 to 30 September 2017 to allow adequate time for technical analysis and consultation with State and Territory government agencies.

15. As part of the Committee's considerations for Conservation Dependent listing, the Queensland and Northern Territory governments are both required to put management arrangements in force under law which satisfy the requirements of paragraph 179(6)(b) of the EPBC Act. Ideally, all management arrangements should be legally effective before the TSSC recommendation is provided to the Minister by 30 September 2017.
16. For the Minister to list as Conservation Dependent, management arrangements must legally be in force before he makes his decision (no more than 90 business days after receiving the Committee's advice – therefore likely decision due could be as late as February 2018).

From: s47F
To: s22; s47F; [Elliott Bruce](#); s47F; s47F
Cc: s47F
Subject: FW: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Date: Monday, 22 May 2017 3:19:11 PM
Attachments: s22
Importance: High

fyi

s47F

s47F

s47F

Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000
GPO Box 46, Brisbane QLD 4001

Customer Service Centre 13 25 23

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Download the free 'Qld Fishing' smart phone app from [Apple](#) and [Google](#) app stores.

From: s47F

Sent: Monday, 22 May 2017 2:56 PM

To: Richardson, Geoff; s47F

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Importance: High

Geoff,

Apologies in the delay in responding.

As requested, I can advise the steps that Queensland proposes to take to strengthen management arrangements for hammerhead sharks in the short and longer term, are detailed below:

Implementing the minimum requirements as set out by the TSSC

The Queensland Government is intending to amend the Fisheries Regulation 2008 to:

- establish a Total Allowable Catch (TAC) of 150 tonnes (split across the Gulf of Carpentaria and East Coast),
- establish a trigger point (once 75 per cent of TAC is reached) at which time:
 - a trip limit of 10 hammerhead sharks for net fishers and four for line fishers applies; and
 - all commercial fishers will be required to land their catch of hammerheads in whole form (i.e. gilled and gutted with head and fins attached); and

In addition, Fisheries Queensland will also improve reporting requirements for commercial fishers to, including:

- data validation measures such as prior and unload reporting; and
- reporting of discards and species-specific catch information in logbooks.

It is intended that the regulatory changes required to implement these changes will be in place before September 2017 ahead of the Threatened Species Scientific Committee's recommendation and all changes would commence on 1 January 2018. Fisheries Queensland will advise as soon as the legislative amendments have been finalised through Executive Council.

I understand my Minister is writing to your Minister about this matter confirming the steps Queensland intends to take. We have also arranged a further discussion with industry in late May to discuss the finer details of this proposal. As previously mentioned there is on-going debate in some parts of industry about this entire matter and we will need to manage this issue. I will write to all industry participants prior to the workshop to outline the intended steps.

Longer term management changes

The Queensland Government is committed to ensuring fisheries resources are managed in a sustainable and responsible manner that recognises the interests of all Queenslanders.

The Green Paper on fisheries management reform in Queensland (the Green Paper) was released for public consultation from July to October 2016. The Green Paper outlined where we are now, where we want to be, and how we can get there. Over 11,800 responses were received and officers from Fisheries Queensland met with over 230 people during the consultation period to gather their views.

The overwhelming message was that all stakeholders wanted reform in the way we manage fisheries. There was strong support from all sectors for better fishery monitoring, more effective engagement, more responsive decision making and greater fisheries compliance. The Queensland Government is committed to reforming fisheries, and is currently preparing a Sustainable Fisheries Strategy which will outline the government's reform agenda for the next ten years, taking into account the public feedback on the Green Paper. The aim is to finalise the Strategy by mid-2017.

Please contact either myself or s47F if you require further information.

regards

s47F

[Redacted signature block]

NT FISHERIES UPDATE



DEPARTMENT OF
PRIMARY INDUSTRY
AND RESOURCES

Berrimah Farm
Makagon Road
DARWIN NT 0828

Postal Address
GPO Box 3000
DARWIN NT 0801

s47F
F 08 8999 2010

s47F

File Ref:

s22

Dear s22

Please find following a summary of the Northern Territory Department of Primary Industry and Resources (DPIR) progress against the minimum and long term requirements for the management of Scalloped s22 Hammerheads as agreed upon during the meeting in Brisbane on 20 February 2017. The Offshore Net and Line Fishery (ONLF) is the Northern Territory fishery with the most significant interactions with Scalloped s22 Hammerhead Sharks. This fishery is currently in the final stages of implementing a new management plan that will set catch limits and harvest control rules for all species under a harvest strategy.

Within this management plan a total allowable catch (TAC) of 100t for Scalloped (50t) s22 Hammerhead sharks will be implemented, along with prescribed harvest control rules when reference points are triggered to ensure these TACs are not breached. Also detailed within the plan are improvements to monitoring and reporting of Hammerhead Shark catches. It should be noted that the Department of Environment and Energy has been supplied with a copy of this plan and has provided comment. DPIR has received these comments and revised the management framework accordingly.

The current status of the ONLF Management plan is that it has been accepted by Industry and is undergoing the final changes prior to implementation. The plan is expected to be in force by September 2017.

To summarise DPIR's progress against minimum requirements set out in the Brisbane meeting;

- 1. Catch limits for hammerhead in the interim to ensure catch doesn't exceed the amount in the NDF (300t) with jurisdictions (Qld, NT, WA) to work together to ensure appropriate limits are set.**

DPIR will implement catch limits for s22 Scalloped Hammerheads in ONLF under the new management framework. Under the framework a TAC of 50 t s22 Scalloped Hammerheads has been set. This level of catch is consistent with long term average catch of these species in the NT and consultation with Western Australia and Queensland have identified that all jurisdictions will not exceed the Non Detriment Finding catch limit of 300 t across Northern Australia.

2. Each jurisdiction would need to ensure once the limit is reached catch doesn't continue (eg revert to trip limits at an earlier trigger point, spatially explicit rules to limit interactions etc)

Within the harvest strategy of the ONLF management frame work there will be trigger and limit reference points that will have associated management responses to limit or stop further harvesting of Hammerhead Sharks. In the case of the limit reference point (50t) no further fishing will be permitted that allows the harvest or discard of either of these species.

3. Some form of data validation to verify catches and estimate discards (not necessarily observers, but could involve prior reporting, cameras, logbook validation)

The ONLF already has an effective logbook programme which provides species specific catch information and records shot by shot effort information. Supporting and verifying the ONLF logbook program is a long running observer program. Information from these two sources has been used extensively during the EPBC Act listing process, having been supplied to ABARES, Fishwell Consulting and AIMS.

Despite the good quality of DPIR's current data it is recognised there is a need for increased levels of data validation and monitoring of Hammerhead Shark catches within the ONLF. The new ONLF management plan will address this by;

- Implementation of Vessel Monitoring Systems (VMS) on all ONLF vessels;
- Introduction of electronic logbooks to facilitate efficient and timely access to logbook data;
- Restriction of product unloads to Darwin or Gove;
- All sharks landed fins naturally attached (unless exemption granted);
- Specific recording of Hammerhead Sharks on Catch Disposal Records;
- Random port inspection compliance program; and
- Increased monitoring program of at least 20% coverage where high risk of Hammerhead Shark interactions exist;

4. Commitment to review and improve over time and to monitor and measure stocks to feed into future assessments, support recovery and provide regular updates to TSSC

DPIR has been and continues to be committed to improving information collected on Hammerhead Sharks. DPIR is actively participating in research into these species, and as previously stated has supplied our logbook and observer information to several organisations involved in the EPBC Act listing of these species.

Furthermore, DPIR is currently participating in a number of Hammerhead Shark projects. A summary of the DPIR's logbook and observer data was recently published (Chin *et al* 2017). DPIR have supplied the most comprehensive set of genetic samples to a current stock structure project being undertaken by CSIRO. Additionally a significant portion of an NT Fisheries shark Scientist's time is assigned to contribute to the NESP Hammerhead Shark project. DPIR has undertaken this work, mostly on the back of its own initiative. DPIR believe this

more than adequately demonstrates our commitment to supporting research into Hammerhead Shark populations in Australian waters.

5. GBRMPA commit to working with DoE and Qld to maximise consistency of treatment of conservation dependent species in GBR

Not applicable to the Northern Territory Jurisdiction.

To summarise DPIR's progress against long term requirements set out in the Brisbane meeting;

1. Harvest strategies

DPIR commits to introducing a new management framework that includes a harvest strategy for the ONLF.

2. VMS

As part of the new management arrangements DPIR will make mandatory VMS to all operators working in the ONLF.

3. Improved monitoring and reporting

DPIR is committed to ongoing improvement of monitoring and reporting of catches of Hammerhead Shark catches within the ONLF. This includes; increased levels of observer coverage on vessels, electronic logbook reporting and Catch and Disposal Records to facilitate quicker identification of catch levels of Hammerhead Sharks and development of Fishery Status Reports that assess the performance of the ONLF against the harvest strategy.

Yours sincerely

s47F

s47F

19/05/2017

ENVIRONMENT DEPARTMENT REQUEST FOR INFORMATION

From: [Richardson, Geoff](#)
To: s47F s47F s47F
Cc: "[Simpfendorfer, Colin](#)"; s22 ; [Elliott Bruce](#); s47F "[Marsh, Helene](#)"; s22
s22 s47F s22 ; [Murphy, Paul](#); s47F
s47F s22
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Date: Monday, 8 May 2017 12:16:07 PM
Attachments: s22
[Key outcomes from Hammerhead discussion.docx](#)
s22

Hi s47F s47F, s47F and s47F (and others)

Thank you for verbal updates in the teleconference last week of progress in the development and rollout of new management measures for hammerhead sharks.

As discussed in the teleconference, the Threatened Species Scientific Committee next meeting is 6 – 8 June in Canberra. We would like to provide the Committee with a written update on progress at that meeting and I asked that you each provide a written update to support the Committee's discussion in June.

It would be helpful for that update to cover progress against each of the "minimum requirements" and "longer term management intentions" as agreed at the Hammerhead Meeting on 20 February. The record of those discussions is in the attached document.

As you are aware, for the purposes of considering Conservation Dependent category for listing under the EPBC Act, management measures need to be implemented under law (i.e. relevant fisheries act or regulation).

I would appreciate the written update being provided to s22 by **Friday 19 May 2017** to enable us to provide this information to Committee for consideration at its June meeting.

Regards Geoff

[Geoff Richardson](#)

Assistant Secretary | Protected Species and Communities Branch
Department of the Environment and Energy

s22

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

From: s47F
Sent: Monday, 20 February 2017 1:51 PM
To: s22 Elliott Bruce
s47F s47F
'Marsh, Helene'
s47F 'Simpfendorfer, Colin' s47F
s47F
s47F ; Richardson, Geoff
s22 s22

MINIMUM REQUIREMENTS AND LONGER TERM MANAGEMENT INTENTIONS

Key outcomes from Hammerhead discussion by Australia, Qld and NT Governments and GBMRPA and members of TSSC – 20 February 2017 – in confidence

The group discussed the upcoming consideration by the TSSC to list scalloped and great hammerhead.

Minimum requirements in the interim (provisional advice from TSSC members – subject to consideration at TSSC meeting 8 March):

1. Catch limits for hammerhead in the interim to ensure catch doesn't exceed the amount in the NDF (300t) with jurisdictions (Qld, NT, WA) to work together to ensure appropriate limits are set
2. Each jurisdiction would need to ensure once the limit is reached catch doesn't continue (eg revert to trip limits at an earlier trigger point, spatially explicit rules to limit interactions etc)
3. Some form of data validation to verify catches and estimate discards (not necessarily observers, but could involve prior reporting, cameras, logbook validation)
4. Commitment to review and improve over time and to monitor and measure stocks to feed into future assessments, support recovery and provide regular updates to TSSC
5. GBMRPA commit to working with DoE and Qld to maximise consistency of treatment of conservation dependent species in GBR

Longer term management intentions:

- Harvest strategies
- VMS
- Improved monitoring and reporting


Timing:

- Jurisdictions to provide updated information before TSSC meeting (eg Qld to provide spatial/temporal closures, other measures in place to meet minimum requirements)
- Minimum requirements to be discussed at TSSC March meeting – TSSC to write to each jurisdiction to consider following the meeting to advise
- GBMRPA board meeting 5 April (Helene to attend)
- Advice to TSSC on what jurisdictions are able to do – June TSSC meeting
- Advice to Minister September
- 90 days for Minister to decide

Back up plan:

- TSSC recommendation to Minister conditional on minimum requirements before his decision (ie having catch limits in place in law before decision is made).
- Would provide an additional 90 business days to implement

Key points for industry communication:

- There is recognition that much has been done (and is planned) to sustainably manage shark (in both Qld and NT)
- s47C 

- A number of additional measures would be required before September to support the consideration a conservation dependent listing (catch limits, verification of catch and discards, monitoring)
- Australian, Qld, NT governments and GBRMPA are working together to ensure a consistent approach across jurisdictions wherever possible

Impacts of an endangered listing

- S22 to provide....
- Harmonisation across states/Cth

Advice previously provided by the Threatened Species Scientific Committee to fisheries managers on the consideration of commercially harvested fish species

Under paragraph 179(6)(b) of the EPBC Act, a native fish species can be considered for listing as Conservation Dependent if a plan of management (i.e. a rebuilding strategy) is in force that:

“...provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chance of long term survival in nature is maximised.”

Subparagraph 179(6)(iv) of the EPBC Act requires that – *“cessation of the plan of management would adversely affect the conservation status of the species.”* However, in practice the Committee has adopted a more demanding requirement and to date has not recommended Conservation Dependent status for any species that was not also already demonstrably eligible for listing in the Vulnerable, Endangered or Critically Endangered categories.


















In performing its function under the EPBC Act of advising the Minister on commercial fish species that are candidates for Conservation Dependent status, the Committee gives weight to the following six issues being addressed by the plan of management (i.e. rebuilding strategy):

1. the rationale for the limit reference points identified for the species (*in considering this issue, the Committee will require an evaluation of previous management regimes and modelling that have led to the current status of the species/stock*)
2. a clear statement of the objectives to be achieved, including rebuilding targets and timeframes that recognise the objectives of the EPBC Act (*the Committee will expect this to include an estimation of the duration of the recovery process*)
3. specified actions required to achieve the objectives
4. identification of the key threats to the recovery of the species and strategies to counter these threats (*the Committee will expect to see a detailed mitigation strategy for the incidental take of the species*)
5. specification of all significant related environmental impacts (positive or negative) that will arise from the implementation of the plan (*this will include consideration of all relevant marine plans (e.g. other fishery management plans) in all appropriate jurisdictions*)
6. performance criteria and strategies for rigorous evaluation of the effectiveness of the plan against its objectives, with a clear description of the monitoring and review process and its associated timelines.




Table: Current species listed as Conservation Dependent

Species	Threatened category	Date listed	Jurisdictions harvested	'plan of management' (as per section 179(6)(b))
<i>Hoplostethus atlanticus</i> (orange roughy)	No listing advice	5 Dec 2006	Cwlth	Orange Roughy Rebuilding Strategy (AFMA 2014) Orange Roughy Conservation Programme (AFMA 2006)
<i>Galeorhinus galeus</i> (school shark)	Endangered	22 Jan 2009	Cwlth	School Shark Rebuilding Strategy (AFMA 2015) The School Shark Rebuilding Strategy 2008 (AFMA 2009) Addendum to the School Shark Rebuilding Strategy 2008 (AFMA 2009)
<i>Rexea solandri</i> (eastern Australian population) (eastern gemfish)	Endangered	22 Jan 2009	Cwlth, NSW	Eastern Gemfish Stock Rebuilding Strategy (AFMA 2015) The Eastern Gemfish Rebuilding Strategy 2008 (AFMA 2009)
<i>Thunnus maccoyi</i> (southern bluefin tuna)	Critically Endangered	15 Dec 2010	Cwlth	Management Procedure (CCSBT 2011)
<i>Centrophorus harrissoni</i> (Harrisson's dogfish)	Endangered	14 Jun 2013	Cwlth, NSW	Upper-Slope Dogfish Management Strategy (AFMA 2012) NSW Strategy to assist with the rebuilding of Harrisson's and Southern dogfish populations (NSW DPI 2012)
<i>Centrophorus zeehaani</i> (southern dogfish)	Endangered	14 Jun 2013	Cwlth, NSW	Upper-Slope Dogfish Management Strategy (AFMA 2012) Upper-Slope Dogfish Research and Monitoring Workplan (AFMA 2017) NSW Strategy to assist with the rebuilding of Harrisson's and Southern dogfish populations (NSW DPI 2012)
<i>Seriolella brama</i> (blue warehou)	Critically Endangered	14 Feb 2015	Cwlth, Tas	Blue warehou (Seriolella brama) Stock Rebuilding Strategy (AFMA 2014)

Threatened Species Scientific Committee

69th Meeting: 12 – 14 September 2017											
Agenda Item	7.12										
Title	FINAL ADVICE ON THE ELIGIBILITY FOR LISTING OF s22 HAMMERHEAD SHARKS										
Purpose	Finalise listing advice for the Minister										
Recommendations	 <ol style="list-style-type: none"> 1. Notes the information provided related to this assessment and the updates provided by the Queensland and Northern Territory governments on implementing fisheries management arrangements to support Conservation Dependent listing (<u>Items 7.12.5</u> and <u>7.12.6</u>). 2. Agrees subject to the suggested amendments, to provide the Listing Advices (<u>Items 7.12.1</u> to <u>7.12.3</u>) to the Minister as the Committee's written assessments. 3. Agrees to recommend that the Minister list <i>Sphyrna lewini</i> in the Conservation Dependent or Endangered category under the EPBC Act. 4.  5. 										
Stage	<table border="1"> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Initial discussion</td> <td>Draft for review</td> <td>Release for consultation</td> <td>Post consultation draft</td> <td>Final for endorsement</td> </tr> </tbody> </table>						Initial discussion	Draft for review	Release for consultation	Post consultation draft	Final for endorsement
											
Initial discussion	Draft for review	Release for consultation	Post consultation draft	Final for endorsement							
Previous Committee Consideration	<p>The Committee agreed to release the draft listing advice for consultation at TSSC55. Subsequent consideration of how to assess the species for Conservation Dependent listing was undertaken at TSSC60, at which time the Committee agreed to extend the assessment from 2015 to 2017.</p> <p>An update on the direction of the assessment was provided at TSSC67 following a meeting of senior managers and TSSC members in Brisbane on 20 February 2017.</p>										

¹ Icons in this document are being used under a creative commons CC-ND 3.0 licence and may be accessed from <https://icons8.com>.

	<p>At TSSC68, a draft Listing Advice for <i>Sphyrna lewini</i> (scalloped hammerhead) and an update to fisheries management arrangement was presented to the Committee for consideration. s47C</p> <p>[Redacted]</p>
<p>Next Steps for the Committee</p>	<p>Out-of-Session clearance if required.</p>
<p>Attachments</p>	<p> For TSSC review</p> <p><u>Item 7.12.1</u> Listing Advice for <i>Sphyrna lewini</i> (scalloped hammerhead)</p> <p>s22</p> <p> For reference</p> <p><u>Item 7.12.4</u> TSSC's June 2017 letters to Fisheries Queensland and NT Fisheries requesting clarification about management arrangements</p> <p><u>Item 7.12.5</u> Responses from Fisheries Queensland and NT Fisheries to the TSSC's June 2017 letters requesting clarification about management arrangements</p> <p><u>Item 7.12.6</u> Extra information provided by Fisheries Queensland on product form and data validation</p> <p><u>Item 7.12.7</u> TSSC statement regarding assessment of hammerhead species for release to industry stakeholders</p> <p> For TSSC review (if needed)</p> <p><u>Item 7.12.8</u> Conservation actions</p> <p><u>Item 7.12.9</u> Fisheries Queensland draft operational plan for proposed project to validating the catch composition of shark species.</p>

Issues

1. s47C

[Redacted]
2. Late June 2017 the Committee wrote to both Fisheries Queensland and NT Fisheries asking clarification on a number of matters (Item 7.12.4). The primary uncertainties for which the Committee sought clarification related to: s47C

[Redacted] s22

[Redacted]; s47C

[Redacted]

3. Both Fisheries Queensland and NT Fisheries provided responses to the Committee's letters ([Item 7.12.5](#)) and on 19 July members of the Committee (Prof Marsh and Dr Simpfendorfer) met with Departmental officers to discuss these responses. At this time Committee members agreed to seek further information from Fisheries Queensland. Subsequent correspondence between the Department and Fisheries Queensland is provided in [Item 7.12.6](#).
4. Fisheries Queensland expressed the desire to release the Committee's concerns to industry stakeholders. In early-August 2017, the Committee provided a statement to Fisheries Queensland ([Item 7.12.7](#)) for its use with its industry stakeholders.
5. Fisheries Queensland has drawn particular attention to the release of the Queensland Sustainable Fisheries Strategy 2017-2027. It notes that the Strategy will be "the biggest fisheries reform in Queensland's history". Fisheries Queensland considers many of the reforms contained within the Strategy will have benefits to the protection of hammerhead shark, including vessel tracking, logbook validation, harvest strategies for net fisheries, and novel monitoring (such as cameras). Fisheries Queensland have stated that they are unable to make further regulatory changes at this time. However, they have undertaken that a formal review of arrangements will be included as part of the assessment of the species in the stock status process around June 2019. The management arrangements in the net and line fisheries will be reviewed more broadly with the intention of developing harvest strategies and ecological risk assessments for all priority fisheries and species by 2020.
6. On 25 August 2017, Fisheries Queensland provided a 'draft operational plan' for a research project validating catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast (see [Item 7.12.9](#)). The project aims to determine species catch composition of harvest by sampling at ports, processors or on-board/on-water. It also aims to develop a profile of discards, by including data gathered from random on-board observations.
7. NT Fisheries has emphasised its approach "in adopting world's best practice in developing a new management framework for the Offshore Net and Line Fishery". NT Fisheries is proposing the introduction of a management plan under law for the fishery, which would incorporate fishery management measures such as total allowable commercial catch limits, data validation techniques including vessel tracking, electronic logbooks and all sharks to be landed with fins naturally attached. Where exemptions will be granted so that fishers can remove fins at sea, it is proposed that the fisher have electronic monitoring (e.g. digital video camera and computer system) installed on vessel.

Eligibility

8. The Department considers that scalloped hammerhead is eligible for listing as Endangered under Criterion 1 and is seeking the Committee's confirmation of that conclusion. The Committee's advice is also sought as to whether it considers that the proposed management arrangements identified by Queensland and Northern Territory Fisheries are sufficient to enable a listing recommendation in the Conservation Dependent category under section 179 of the EPBC Act.
9. If the Committee decides to recommend Conservation Dependent listing for scalloped hammerhead, the Department will ensure that appropriate briefing is provided to the Environment Minister, so that a decision on listing does not occur until the proposed

management arrangements become effective in Queensland and the Northern Territory.

10.

11.

12.

13.



Conservation Actions and Recovery Plan

14. If the Committee decides to recommend that scalloped hammerhead be listed as Endangered, the conservation actions at [Item 7.12.8](#) will be added to the advice.
15. The Committee will also need to make a decision on whether to recommend a recovery plan is required for any species listed in a category higher than Conservation Dependent.

Public/Expert Consultation

16. Consultation was undertaken for 32 business days from 22 May 2014 to 7 July 2014.

History and Background

17. In 2012, *S. lewini* (scalloped hammerhead) s22 [redacted] were publicly nominated by Humane Society International for threatened species assessment under the EPBC Act. s22 [redacted]

18. **The assessment timeframe for these species was extended from 30 September 2015 to 30 September 2017** to allow adequate time for technical analysis and consultation with State and Territory government agencies.

19. As part of the Committee's considerations for Conservation Dependent listing, the Queensland and Northern Territory governments are both required to put management

arrangements in force under law which satisfy the requirements of paragraph 179(6)(b) of the EPBC Act. Ideally, all management arrangements should be legally effective before the TSSC recommendation is provided to the Minister by 30 September 2017.

20. For the Minister to list as Conservation Dependent, management arrangements must legally be in force before he makes his decision (no more than 90 business days after receiving the Committee's advice – therefore likely decision due could be as late as February 2018).

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47F

GPO Box 46
BRISBANE QLD 4001

Dear s47F

The Threatened Species Scientific Committee (TSSC) thanks the Queensland Government for its update on the state's proposed management arrangements for hammerhead sharks, contained in your email dated 22 May 2017 to the Department of the Environment and Energy.

The email was provided to the TSSC at its June meeting, as part of our considerations of whether s22 hammerhead shark are eligible for listing as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The TSSC is continuing to consider whether fisheries management arrangements for the species are sufficient to satisfy the requirements of the EPBC Act to support listing in the Conservation Dependent category. The relevant extract from the EPBC Act is appended.

s47C

To inform our future consideration of whether fisheries management arrangements for hammerhead sharks support listing in the Conservation Dependent category, the TSSC has the following questions:

- s47C


s22

- s47C

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47C



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The TSSC's advice on this species assessment is required to be finalised and provided to the Minister for the Environment and Energy by 30 September 2017. The TSSC will meet from 12–14 September to finalise their advice. The TSSC therefore requests that the Queensland Government responds to the Department of the Environment and Energy by 20 July 2017 and advises of any further revisions to management arrangements for hammerhead sharks the Queensland Government is able to implement in support of a Conservation Dependent listing under the EPBC Act.

We look forward to your advice. Please contact the Department if you have any further queries.

Yours sincerely,

s47F



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Helene Marsh FAA, FTSE
Distinguished Professor
Chair

20 June 2017

179 Categories of threatened species

- (1) A native species is eligible to be included in the *extinct* category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
- (2) A native species is eligible to be included in the *extinct in the wild* category at a particular time if, at that time:
 - (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 - (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- (3) A native species is eligible to be included in the *critically endangered* category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- (4) A native species is eligible to be included in the *endangered* category at a particular time if, at that time:
 - (a) it is not critically endangered; and
 - (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- (5) A native species is eligible to be included in the *vulnerable* category at a particular time if, at that time:
 - (a) it is not critically endangered or endangered; and
 - (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- (6) A native species is eligible to be included in the *conservation dependent* category at a particular time if, at that time:
 - (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
 - (b) the following subparagraphs are satisfied:
 - (i) the species is a species of fish;
 - (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
 - (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;
 - (iv) cessation of the plan of management would adversely affect the conservation status of the species.
- (7) In subsection (6):

fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47F

GPO Box 3000
DARWIN NT 0801

Dear s47F

The Threatened Species Scientific Committee (TSSC) thanks the Northern Territory Government for its update on the territory's proposed management arrangements for hammerhead sharks, contained in your letter dated 19 May 2017 to the Department of the Environment and Energy.

The letter was provided to the TSSC at its June meeting, as part of our considerations of whether s22 hammerhead shark are eligible for listing as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The TSSC is continuing to consider whether fisheries management arrangements for the species are sufficient to satisfy the requirements of the EPBC Act to support listing in the Conservation Dependent category. The relevant extract from the EPBC Act is appended.

s47C

To inform our future consideration of whether fisheries management arrangements for hammerhead sharks support listing in the Conservation Dependent category, the TSSC has the following questions:


s22

- s47C

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47C



The TSSC's advice on this species assessment is required to be finalised and provided to the Minister for the Environment and Energy by 30 September 2017. The TSSC will meet from 12–14 September to finalise their advice. The TSSC therefore requests that the Northern Territory Government responds to the Department of the Environment and Energy by 20 July 2017 and advises of any further revisions to management arrangements for hammerhead sharks the Northern Territory Government is able to implement in support of a Conservation Dependent listing under the EPBC Act.

We look forward to your advice. Please contact the Department if you have any further queries.

Yours sincerely

s47F



Helene Marsh FAA, FTSE
Distinguished Professor
Chair

22 June 2017

179 Categories of threatened species

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 - (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
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fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

Queensland
GovernmentDepartment of
Agriculture and Fisheries

Reference: CTS 17244/17

30 JUN 2017

Professor Helene Marsh
Chair – Threatened Species Scientific Committee
GPO Box 787
CANBERRA ACT 2601

Helene
Dear Professor Marsh

Thank you for your letter of 20 June 2017 requesting further information about Queensland's proposed management arrangements for hammerhead shark as part of the Threatened Species Scientific Committee's (TSSC) considerations ahead of a formal recommendation on their listing under the EPBC Act. Thank you also for the opportunity to meet with you and Professor Simpfendorfer earlier in the year to discuss the matter.

A response to the specific questions raised in your letter is attached.

Since our initial response to the TSSC, the Queensland Government has also released the Sustainable Fisheries Strategy 2017-2027, which outlines the government's reform agenda for the next 10 years. The Sustainable Fisheries Strategy is the biggest fisheries reform in Queensland's history. The strategy outlines 33 actions to be delivered across 10 reform areas and sets targets to be achieved by 2020 and 2027.

To support the reforms, the government is investing more than \$20 million over three years. This will deliver a boost to compliance (including 20 more frontline compliance officers), more monitoring, better engagement and communication and more responsive decision-making. Some of the actions in the strategy include things like harvest strategies for each fishery, satellite tracking on all commercial fishing boats, regionally specific fishing rules and using new technologies more effectively. Many of these reforms will have benefits to the protection of hammerhead shark, including vessel tracking, logbook validation, harvest strategies for net fisheries (including preference for quota management), novel monitoring (e.g. cameras) etc.

While the broader fisheries reforms get underway, Fisheries Queensland is pressing ahead with implementation of the proposed new hammerhead shark management arrangements given the need to amend legislation ahead of the TSSC's recommendation to the Commonwealth in September 2017.

Fisheries Queensland considers the proposed management changes are an appropriate balance between safeguarding the species at a local level in Queensland and avoiding discards of hammerhead sharks by net fishers targeting other species.

Queensland is not inclined to make further changes beyond what is already proposed and believes that this is sufficient to protect the species and considers that the costs of any further restrictions will outweigh any benefits. Apart from being logistically problematic given the nature of our regulatory procedures, the intended changes, combined with the significant protection zones already in place and the planned reforms under the strategy, are considered appropriate for the small scale catch of the species by our commercial fishers compared to the more significant harvest on the stock internationally. As you know, hammerhead shark is part of a larger stock and Queensland's catch is only between 1% and 3% of the global harvest (2000-6000 tonnes per year).

Hammerhead shark is a low value byproduct species that is only worth around \$200,000 GVP per year. The costs of implementing more stringent requirements will have greater costs to industry and government than the fishery is worth. It is also considered unnecessary to protect the stock, the harvest of which is below sustainable levels and has been for the last five years, backed up by recent stocks assessments. The total catch is around 80-90 tonnes per year over the last five years, well below what the non-detriment finding suggested was a sustainable level and what is proposed for the TACC. Queensland has also significantly reduced the number of net licences over the last five years, with 120 licences removed since 2012 in buybacks. The actions currently in the process of being implemented are designed to ensure the intent of the non-detriment finding is respected.

Fisheries Queensland would be happy to meet again with representatives of the TSSC, the Department of Environment and Energy and other jurisdictions if appropriate to provide any further clarification of our responses to your questions and discuss the matter further. I am hopeful that with this information, the TSSC will strongly consider a 'conservation dependent' listing which will be the best outcome for industry, will avoid discards of shark and will ensure we can collect quality information to track the status of hammerhead over time.

Given the concerns from industry about the proposed changes and our desire to keep them informed through the process, I would also ask that you give permission for Fisheries Queensland to release your letter to our shark working group for information.

Could you please contact s47F [redacted] to arrange a meeting, tell us whether your letter can be released to industry and for any further information.

Yours sincerely

s47F [redacted]

s47F [redacted]

Department of Agriculture and Fisheries

Attachment 1: Response to specific questions raised by the TSSC

Attachment 1: Response to specific questions raised by the TSSC

1. s47C

Queensland is implementing a Total Allowable Commercial Catch (TACC). The 150 tonnes (t) Queensland TACC will be split into three regional TACCs, as follows:

- East Coast north of latitude 24°30'S – 78 t
- East Coast south of latitude 24°30'S – 22 t
- Gulf of Carpentaria (GoC) – 50 t

2. s47C

The TACCs will include the s22 species of hammerhead shark (*Sphyrna* sp.). It will not include the s22

s22

The NDF harvest levels were found to be 370 t for s22 *Sphyrna* species of hammerhead shark. The 370 t NDF became the basis of Queensland's 150 t TACC after discussions between the Commonwealth, Northern Territory and Western Australia about harvest shares.

3. s47C

All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. Fishers will be required to report at the end of each trip. The delay is the length of fishing trips, however AIVR provides more real-time reporting than paper-based logbook reporting.

On the East Coast many boats do day trips so this catch would be reported daily. There are also a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip. In the more remote Gulf of Carpentaria, most boats are multi-day/week freezer boats that report at trip end.

The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.

4. s47C

Trigger points will be established in the *Fisheries Regulation 2008* ahead of the TSSC's decision in September 2017. Fisheries Queensland will continue to consult with and

inform commercial fishers who catch hammerhead shark before the commencement of the new management arrangements – proposed to commence on 1 January 2018.

Hammerhead shark catch will be monitored by the Quota Reporting System. Fisheries Queensland will use this information to determine when to communicate with fishers about trigger points and TACCs to ensure TACC exceedances are avoided. Fisheries Queensland will use SMS and email as the primary way of communicating with fishers if a regional trigger is reached. If a fisher cannot be reached by these methods a letter will be mailed to them.

The proposed triggers are set at a level that allows for minor delays in providing information to fishers so that TACCs will not be exceeded unexpectedly.

s47C

Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the s22 *Sphyrna* species of hammerhead shark s22 Catch data will include numbers (from AIVR prior reporting) and weight (from AIVR unload reporting and from commercial logbooks). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.

The NDF harvest levels were found to be 370 t for three *Sphyrna* species of hammerhead shark. The 370 t NDF became the basis of Queensland's 150 t TACC after discussions between the Commonwealth, Northern Territory and Western Australia about harvest shares in February and May 2017.

Queensland's harvest of hammerhead shark has decreased significantly from the levels seen a decade ago. There are many reasons why this has occurred including market conditions, reform of the East Coast and Gulf of Carpentaria Inshore Fin Fish Fisheries, net free zones, marine park zoning and licence buybacks. About 120 net licences have been removed in last five years.

Fishers advise there is very little market demand for hammerhead shark (receiving around 80 cents per kilogram where a market can be found) which supports the information already provided that these species are by-catch of other target fisheries.

Attachment A shows the change in relevant fishery licence symbols since 2009-10.

s47C

No. The blanket requirement to land hammerhead sharks in whole form is only a requirement if a 75% regional trigger is reached. Feedback from fishers is that introducing this requirement prior to reaching the trigger will result in increased discarding and waste.

However, there are currently landed form requirements in place in Queensland for shark:

- Shark 'finning' (i.e. keeping the fins but throwing away the body of the shark) is prohibited.
- Sharks cannot be portioned in a way that prevents an inspector from reasonably counting them.
- s22 must only be landed with fins attached (despite any regional provisions).

There are also some specific form provisions relating to the East Coast and the Gulf of Carpentaria. On the East Coast:

- "S" (shark) symbol holders may fillet shark, but the fins and tail must be kept on board to meet the general 'no finning' provision.
- Fishers who do not hold an "S" symbol cannot fillet at sea but may remove the heads, tails and fins provided the tails and fins are secured to the body.

In the Gulf of Carpentaria:

- Shark may be filleted at sea by a commercial fisher, but the fins and tail must be kept on board to meet the general 'no finning' provision.
- Commercial line fishers may not possess any more than 100 kg of shark fillets.

s47C

Queensland's 150 t TACC was based on the NDF harvest levels of 370 t for the s22 *Sphyrna* species of hammerhead shark (and 300 t for the two of particular interest in Queensland). The model used in the recent Queensland stock assessment of s22 and hammerhead sharks (Leigh 2015) considered discards but determined maximum sustainable yield estimates without them.

The catch from the Queensland Shark Control Program (SCP) is low and will not be included in the TACC. Approximately 40 hammerheads per year have been caught in the SCP in the five years to 2016. It should be noted that the Queensland Government no longer deploys nets in the Great Marrier Reef Marine Park as part of the Shark Control Program. The program now only uses drum lines in the Marine Park.

Fisheries Queensland will require species level reporting of discards in logbooks from 1 January 2018. This will include the s22 TACC species of hammerhead shark (*Sphyrna*) s22. Discards will be reported by numbers only due to difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.

s47C

It is important to understand that it is unlikely that the regional triggers will be reached and the TACC even less likely to be reached. The table below outlines the current catch against the regional triggers and TACC's.

Region	2015-16 catch (trigger amount) tonnes	Last year trigger was exceeded	No of years exceeding trigger in last 5	Last year TACC was exceeded	No of years exceeding TACC in last 5
East coast north	55 (58.5)	2009-10	0	2008-09	0
East coast south	11 (16.5)	2011-12	1	2007-08	0
GOC	18 (37.5)	2013-14	1	2013-14	1

Regional catches would almost always be below the proposed regional triggers, based on catch over the last five years especially given the large number of netting authorities that have been removed from the East Coast during that period. The relatively high reported catch in the GOC in 2013-14 is likely due to one individual fisher reporting winghead shark as 'hammerhead - other'. This issue will be resolved by planned improvements to logbook reporting.

The 150 t TACC is set well above the currently catch levels of approximately 80-90 t and this will discourage discarding.

s47C

The new reporting requirements will be in place from 1 January 2018. Some aspects of the arrangements will be reviewed on an ongoing basis through our normal compliance program, e.g. compliance with AIVR and landed form. Other aspects such as discard reporting will be best reviewed once a representative data set is available.

A formal review of the arrangements will be included as part of the assessment of the species in the stock status process around June 2019. In addition, a number of actions under the Sustainable Fisheries Strategy will also review arrangements in the net and line fisheries, more broadly, over the next five years. This includes developing harvest strategies with sustainable catch limits based on Maximum Sustainable Yield for all fisheries by 2020 and ecological risk assessments for all priority fisheries and species by 2020.

s47C

Under section 521 of the *Fisheries Regulation 2008*, all N4 boats must currently have VMS installed and working. To be clear there are only five N4 authorities in Queensland, two of which are owned by a conservation group and as such are not operating.

Under the Sustainable Fisheries Strategy all net and line boats must have VMS installed by the end of 2018.

s47C

The size of the boats in these fisheries is a key constraint to an effective on board monitoring program – there are a number of work health and safety and practical issues to overcome. The East Coast boats landing hammerhead vary in length from 4.2 to 17.5 m, the average boat length being 7.5 m. In the GOC, boat length ranges from 7.0 to 20.0 m, the average boat length being 14.0 m.

For these reasons, the Sustainable Fisheries Strategy proposes approaches different from the use of onboard observers. While specific technologies need to be developed, Actions 1.3 and 1.4 of the Sustainable Fisheries Strategy outline the approach that Fisheries Queensland will take:

- Action 1.3 - Develop partnerships to trial the use of novel technologies for fisheries monitoring, such as apps, robotic vision, spatial interfaces and mapping, social media and citizen science.
- Action 1.4 – Develop and implement a data validation plan to provide:
 - mechanisms to independently validate data on catch and interactions with protected species
 - educational programs to improve submission of accurate catch data (including promoting a move to electronic logbooks)
 - robust systems for checking and forensically analysing incoming data.

Attachment A: Reductions in fisheries licence symbols since 2009-10

Symbol	N1 / K / N10		N2		N4		S		L1		L2		L3		N3		N9 / N12 / N13 / QFJA permits	
Year	All	HH	All	HH	All	HH	All	HH	All	HH	All	HH	All	HH	All	HH	All	HH
2009-10	391	123	166	64	6	4	170	92	392	50	212	11	1114	118	90	12	9	6
2015-16	159	45	126	37	5	2	144	54	250	16	204	5	1010	71	90	8	5	2
2015-16 as percentage of 2009-10	41%	37%	76%	58%	83%	50%	85%	59%	64%	32%	96%	45%	91%	60%	100%	67%	56%	33%

Table notes:

1. 'All' refers to the number of licences that held that fishery symbol within that financial year.
2. 'HH' refers to the number of licences reporting hammerhead shark catch that held that fishery symbol within that financial year.
3. N1 / K / N10 are reported as a group because K and N10 symbol holders have a right to use N1 apparatus.
4. N9 / N12 / N13 and QFJA permits are reported as a group because of the changes resulting from the Gulf Net review that became effective in 2012.
5. Two of the N4 symbols are held by WWF and do not fish.
6. Most hammerhead shark are taken by net fishers however some are taken by line fishers.
7. The numbers in this table cannot be summed because some fishers will hold more than one of these symbols.

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Makagon Road
DARWIN NT 0828

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GPO Box 3000
DARWIN NT 0800

s47F
F 08 8999 2065
s47F

File Ref: F2016/0366
Your File Ref:

Professor Helene Marsh
Distinguished Professor
Chair
Threatened Species Scientific Committee
c/o Species Information and Policy section
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Dear Professor Marsh

Re: Northern Territory Hammerhead Shark Management Arrangements

I write in response to your letter of 22 June 2017 to s47F s47F y seeking additional information on the management measures for Northern Territory fisheries that harvest hammerhead sharks. s47F has asked me to reply on his behalf.

It is the view of the Fisheries Division of the Department of Primary Industry and Resources, that if listing these species under the *Environment Protection and Biodiversity Conservation Act 1999* is deemed to be necessary, then we would support a 'Conservation Dependant' category listing.

We also ask the Threatened Species Scientific Committee to consider recognising the proactive approach taken by Northern Territory fishers in adopting world's best practice in developing a new management framework for the Offshore Net and Line Fishery. Noting there may be differing levels of risk posed by each of the jurisdictions based on the management regime in place, we ask that the Committee considers assessing sustainability risks to vulnerable sharks on a jurisdictional basis and allow precautionary harvest where agreed, conservative, management principles are in place to nurture and protect vulnerable sharks, including scalloped hammerhead.

We are confident that with the proposed management measures in place, fishing related risks to hammerheads from Northern Territory fisheries will be immediately contained and reduced over time.

Yours sincerely

s47F

s47F

19 July 2017

s22

s47C

Currently, there is a 1-4 month delay until fishery information is available to managers. Under the management plan, as was supplied to the TSSC for comment, the fishery will report catches electronically (e-logs). The implementation of e-logs into the Offshore Net and Line Fishery (ONLF) is currently underway. Delays in reporting catch information will be minimal with e-logs.

Until e-logs are commonly used, reporting of Spanish Mackerel, Scalloped and Great Hammerhead weights on the Catch Disposal Records at vessel unload will be regulated. Information received from CDR's is available to managers within a week of unload.

s47C

In order to facilitate proper enforcement and importantly, to enhance the communities confidence that species identification is as accurate as possible, and discarding and high-grading of animals is not occurring, it is proposed that all operators must land Sharks with fins naturally attached (FNA). In order to ensure sufficient validated information is gathered and to meet community expectations, it is proposed that the Department maintain the current level of observer coverage. Noting that if the fishery develops beyond current harvests, additional observer trips can be initiated at industry cost.

Until e-logs are commonly used, reporting of s22 Scalloped and s22 Hammerhead weights on the Catch Disposal Records at vessel unload will be regulated.

In the case of Hammerhead Sharks where there is no electronic monitoring in place, the heads need to remain attached to the body for accurate species identification. Fishing Monitoring Equipment (FME) (e.g. electronic monitoring) is proposed for any vessel which has approval to remove fins at sea. Approved FME is defined in Fisheries Regulations and means equipment that is fitted to a vessel; a) to detect when and where fishing occurs, and b) to record catch information. The equipment may include, for example, sensors, a digital video camera and a computer system.

The measures will ensure the catch of Hammerheads is maintained at levels acceptable to the Department of the Environment and Energy (DoEE) (e.g. max. 50t / sp.), while not actively encouraging discarding.

s47C

Under the management framework all Hammerhead heads and fins need to be intact upon landing unless special permission is provided from the director that allows for processing at sea. FME (e.g. electronic monitoring) is proposed for any vessel which has approval to remove fins at sea. In the case of Hammerhead Sharks where there is no electronic monitoring in place, the heads need to remain attached to the body for accurate species identification.

Note: all vessels must unload catch in Darwin, or have special approvals in place, such as compliance officers present or electronic monitoring to record the unloading processes.

s47C

The management framework includes the following:

“It is proposed to introduce a harvest limit of 50t for each CITES listed Hammerhead species. At this limit, if fishers can’t demonstrate a negligible catch of hammerheads (through observance) they will have to cease fishing. To ensure this limit is not exceeded, it is also proposed that appropriate measures would be implemented to control harvest when catches reach 40t for any of the species if required.”

These harvest controls would be based on there being an increased observer coverage implemented to ascertain the best course of action to ensure the 50 t limit for each species is not breached. This could include but is not limited by area closures, fishery closure, trip limits, gear restrictions and temporal closures.

From: s22
Sent: Monday, 24 July 2017 4:53 PM
To: S47F s47F
s47F
Cc: s47F
Richardson, Geoff
s22 TSSC Secretariat <TSSCSecretariat@environment.gov.au>
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Dear s47Fs47F

The Department of the Environment and Energy (the Department) would like to thank and acknowledge Fisheries Queensland's letter dated 30 June 2017. The letter has been passed on to the Threatened Species Scientific Committee (TSSC) for its consideration. As you are aware officers from the Department have discussed aspects with Fisheries Queensland officers to clarify a number of points, we also thank those officers for their time.

On 19 July a subcommittee of the TSSC met with us to discuss the new information you have provided. The Chair of the TSSC, Prof Helene Marsh, intends to formally write to you but in the interim has requested I email you with a summary of their discussion.

The TSSC questions the statement "there is very little market demand for hammerhead shark (receiving around 80 cents per kilogram where a market can be found) which supports the information provided that these species are by-catch of other target fisheries". While this is true of the meat, the TSSC are aware that fins from hammerhead shark command a significant value, a factor that must be considered in the value fishermen derive from these species.

The TSSC remains concerned at the inability to validate landed catch to species level, given the ability for fishers to process at sea (at least remove heads). For that reason, the TSSC considers there is a need for:

- All hammerhead catches to be landed with fins naturally attached to the trunk, noting that this is fast becoming standard practice globally and within Australia. Also noting that this will be a requirement of the Northern Territory Ocean Net and Line Fishery (ONLF); heads will also need to be attached in the ONLF where there is no electronic monitoring.
- s22

The TSSC is also concerned about the inability to validate discards, and to be able to monitor any changes in discard rates. Further, the TSSC notes the need for the incorporation of discards and the Queensland Shark Protection Program into the Queensland TACs.

The TSSC notes that the non-detriment finding for hammerhead sharks is likely to be reviewed by the Department once appropriate information becomes available, so management arrangements should be introduced which allow flexibility to change the TACs if the non-detriment finding changes in future.

The TSSC notes that the management arrangements for a Conservation Dependent species are reviewed annually by the TSSC and management arrangements should be able to be modified based on the outcomes of these reviews.

The TSSC thanks you for your offer to meet to discuss, they do not feel it is necessary at this point. Finally in relation to releasing TSSC correspondence to your stakeholders, the Chair requests that all correspondence is kept confidential at this stage and is not released.

Please feel free to call myself or Geoff Richardson if you would like to discuss.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

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www.environment.gov.au

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Response to TSSC queries

Basis of the TACC and reliance on the NDF:

- The TACC is based on the NDF which is the best available evidence
- The non-detriment finding is also supported by a shark stock assessment undertaken by Queensland Government and finalised in May 2016 (a copy of the stock assessment is available on our website at: <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/stock-assessment-reports/stock-assessment-of-whaler-and-hammerhead-sharks-carcharhinidae-and-sphyrnidae-in-queensland>). The stock assessment found that the current levels of shark catch are sustainable and below MSY limits, but there is some uncertainty around the exact MSY figures because of some of the uncertainty in data (particularly the confidence around species composition). The MSY for scalloped and great hammerhead ranged from 133 tonnes to 531 tonnes. This confirms that the proposed TACC of 150 tonnes is on the conservative end of the spectrum and is considered a 'sustainable limit'. The stock assessment noted that reducing uncertainties in data would improve the MSY estimates.
- As better information is collected, a more confident MSY estimate can be determined for the different species of shark (including hammerhead), which will allow Fisheries Queensland to potentially amend the TACC to reflect this information. At this stage, there is no other evidence on which to set a more specific hammerhead TACC.
- Changes to the TACCs can be made through a relatively straight forward regulatory amendment process when required (e.g. if the NDF is updated when new information is available)

Value of fins:

- The price of fins is typically less than \$20 per kg (pers. comm. Major shark fisher 23 June 2017)
- Scalloped hammerhead fin weight is approximately 3% of landed weight (Pleizer et al. 2015)
- Maximum fin weight is 2700kg, based on current (upper) average catch of 90 t landed weight
- GVP if all landed hammerhead sharks are finned and those fins are sold is \$54,000
- At most the total GVP for meat and fins is therefore approximately \$250,000, still a very low value fishery

Product form:

- Finning is prohibited across Queensland – i.e. taking fins and discarding trunk. Sharks can only be portioned in a way that allows an inspector to reasonably count them.
- Some processing is permitted for net fishers in the Gulf and for S symbol holders on the east coast – they can fillet but must keep the fins and tail on board.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% trigger point is reached.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, but all shark product.

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Incorporation of Shark Control Program (SCP) catch into the TACC:

- The SCP takes about 40 hammerhead sharks per year
- This is 6 t, based on 150 kg per shark
- Given the TACC is not likely to be reached this is not an important issue, but will be monitored.
- In addition, shark nets have recently been removed from the GBR, with only drum lines now used.

Validating catch and discards:

- Multiple lines of evidence will be used to ensure a robust TAC and reporting of catch:
 - Education – species id information will be provided to fishers to support the new logbooks
 - Quota reporting –AIVR All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.
 - Logbook improvements - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the s22 hammerhead shark s22. Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
 - Logbook validation activities – Fisheries Queensland currently conducts forensic auditing of commercial catch data. The process uses commercial logbooks, AIVR, boat location monitoring, Catch Disposal Records and other receipts. There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
 - At sea monitoring:
 - The size of the boats in these fisheries is a key constraint to an effective on board monitoring program – there are a number of workplace health and safety and practical issues to overcome. The East Coast boats landing hammerhead vary in length from 4.2 to 17.5 m, the average boat length being 7.5 m.
 - For these reasons, the Sustainable Fisheries Strategy proposes approaches different from the use of on board observers. While specific technologies need to be developed, actions in the Sustainable Fisheries Strategy commit to trialling novel technologies to help better validate data on catch and interactions. This work will be very relevant to improving the management of hammerhead shark in the longer term. An Advance Queensland SBIR innovation challenge was just released today seeking innovative solutions to automate fisheries information from commercial fishers on net, crab and

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trawl boats. See: <http://advance.qld.gov.au/small-business/sbir.aspx> and <http://advance.qld.gov.au/small-business/sbir/challenges/commercial-fishing-challenge.aspx>

- Enforcement – QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.
- Monitoring – As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition (e.g. blacktip species and hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.

Additional information for the TSSC on hammerhead shark – Queensland

Finning regulations and compliance processes

Regulations:

- The Queensland *Fishery Regulation 2008* governs the form requirements for hammerhead shark (and all shark).
- A summary of the current hammerhead shark form requirements for different regions and fishery symbol is attached (Appendix 1).
- The detail of how the regulations currently apply to hammerhead shark is set out in Appendix 2.

Enforcement:

- When Queensland Boating and Fishery Patrol (QBFP) Officers undertake an inspection they take a top down approach to shark inspection:
 - What fisheries symbols does the fisher hold and therefore what form are they allowed to keep the shark in? (refer to Appendix 1 and 2)
 - Does the form observed to the boat match what they are permitted to do under their fishery symbols?
 - Are fins and tails secured to the bodies where required?
 - Are there any fillets on the boat?
 - Do the fins and tails appear to match the bodies / fillets?
 - If officers are concerned they will conduct a detailed exercise where the fisher is required to match all fins with all bodies / fillets
- The value of fins for hammerhead (around \$50,000/year worth of fins vs \$200,000 year for the fillets) is not considered that high to provide fishers with an incentive to specifically target the species for its fins and discard the body.
- QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% regional trigger point is reached. This will ensure as fishers near the TACC, greater enforcement is possible.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, but all shark product.

Potential changes to form requirements:

- Fisheries Queensland has focused on other ways of validating data rather than product form changes, including extra monitoring at sea, phone reporting, forensic auditing of logbooks with receipts / catch disposal records / VMS etc. Further details are provided below. This is considered sufficient given the risk profile and still means businesses can be viable and importantly, discards are minimised. Requiring all shark to be kept whole is likely to lead to discards.
- Some of these broader issues (e.g. product form for all shark) can be considered as part of the fisheries reform process. The east coast inshore fishery is one of the priority fisheries for reform and Queensland Government will be commencing this process shortly.

Data validation activities

A data validation program is in place to provide confidence in the data that is provided by fishers on catch and effort. This includes:

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Existing:

- Fisheries Queensland currently conducts auditing of commercial catch data. The process uses commercial logbooks, AIVR, vessel tracking information, Catch Disposal Records and receipts.
- Where there are outliers or significant catches that are out of the ordinary, Fisheries Queensland follows up fishers to seek evidence of the catch (e.g. receipts etc). Where this is not provided, the data is not included.

New:

- Logbook improvements:
 - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the s22 hammerhead shark s22. Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
- Education
 - Species identification information will be provided to fishers to support the new logbooks
- Phone reporting through AIVR for all shark:
 - All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.
- Crosschecking of data sources:
 - Phone reporting (AIVR) , logbooks, VMS, catch disposal records and receipts from buyers
- Forensic auditing of logbooks:
 - There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
- Vessel tracking to validate effort and location data:
 - Vessel tracking systems are being rolled out across all fisheries by 2020, with a requirement for all crab, net and line boats to have vessel tracking in place by the end of 2018. This will provide another useful dataset to crosscheck data against (particularly effort and location information).
- At sea monitoring:
 - As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition (e.g. blacktip species and hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information

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and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.

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Appendix 1: Summary of current rules applying to hammerhead shark form under Schedule 2, part 2 of the Queensland *Fishery Regulation 2008*

Form	East Coast				Gulf of Carpentaria	
	Net – no S symbol	Line – no S symbol	Net + S symbol	Line + S symbol	Net	Line
A hammerhead shark can divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	No	No	No	No	No	No
The fin or tail can be separated from the body of the hammerhead shark	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail
Fins and tails must be secured to the body	Yes – but not necessarily naturally attached	Yes – but not necessarily naturally attached	No	Yes – but not necessarily naturally attached	No	No
Filleting hammerhead shark at sea	Not allowed	Not allowed	Allowed	Not allowed	Allowed	Allowed – subject to 100 kg trip limit

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Appendix 2: Current rules applying to hammerhead shark form under Schedule 2, part 2 of the Queensland Fishery Regulation 2008

Note: the shaded form provisions apply to all fishers in Queensland (including recreational fishers)

East Coast

East coast - net symbol holders without an S symbol

What is prohibited?	Who and how does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks. These fishers have a trip limit of 10 sharks so the task is relatively easy.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails on a boat must also possess the body. These fishers have a trip limit of 10 sharks so the task is relatively easy.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders without an S symbol must have the hammerhead shark fins and tail secured to the body. Fins and tails can be naturally attached or fishers can remove the fins and place them in a bag attached to the body in some way. These fishers have a trip limit of 10 sharks so the task is relatively easy to enforce.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders without an S symbol cannot fillet hammerhead shark on a boat. These fishers have a trip limit of 10 sharks so the task is relatively easy to enforce.

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East coast - line symbol holders without an S symbol

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast line symbol holders have to secure the retained fins and tail to the hammerhead shark body. Fins and tails can be naturally attached or fishers can remove the fins and place them in a bag attached to the body in some way.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast line symbol holders cannot fillet hammerhead shark on a boat. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.

ADDITIONAL INFORMATION SENT BY FISHERIES QUEENSLAND

SENT BY s47F – 1 AUGUST 2017

East coast - net symbol holders with an S symbol

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders with an S symbol using nets do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders with an S symbol can fillet hammerhead shark on a boat.

**ADDITIONAL INFORMATION SENT BY FISHERIES QUEENSLAND
SENT BY s47F – 1 AUGUST 2017**

East coast - line symbol holders with an S symbol (note that there are currently only 7 licences in this category)

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast S symbol holders who are line fishing must secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast S symbol holders who are line fishing cannot fillet hammerhead shark on a boat.

**ADDITIONAL INFORMATION SENT BY FISHERIES QUEENSLAND
SENT BY s47F [REDACTED] – 1 AUGUST 2017**

Gulf of Carpentaria

GoC - net symbol holders

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC net symbol holders do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC net fishers can fillet hammerhead shark on a boat.

**ADDITIONAL INFORMATION SENT BY FISHERIES QUEENSLAND
SENT BY s47F – 1 AUGUST 2017**

GoC - line symbol holders

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC line symbol holders do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC line fishers can fillet hammerhead shark on a boat, subject to the 100 kg limit (see below).
more than 100kg of the fish in filleted form	a person taking the fish in the Gulf of Carpentaria waters or possessing the fish taken in the waters while acting under a commercial fishing boat licence or developmental fishing permit authorising the taking of fish for trade or commerce using a fishing line	A GoC line fisher can fillet but the maximum amount of shark fillet that can be held on board is 100 kg.

From: [Richardson, Geoff](#)
To: s47F s47F
Cc: s47F ; s22 [Murphy, Paul](#); s22
Subject: TSSC statement on Hammerhead assessment [SEC=UNCLASSIFIED]
Date: Friday, 11 August 2017 5:28:29 PM

Hi s47F

The Threatened Species Scientific Committee has authored the attached statement for you to use in support of any further discussions you may wish to have with industry.

Regards Geoff
[Geoff Richardson](#)
AS - Protected Species and Communities Branch
Department of the Environment and Energy

s22

Advice from the Threatened Species Scientific Committee regarding consideration of the status of scalloped, great and smooth hammerhead sharks

The Threatened Species Scientific Committee (TSSC) is currently considering s22 hammerhead shark species, scalloped s22 for possible listing as threatened species under Part 13 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As part of these assessments, the TSSC is considering whether fisheries management arrangements for the species would satisfy the requirements of the EPBC Act for listing them as Conservation Dependent.

TSSC assessments focus on the status of native species within the national extent (i.e. within the Australian Exclusive Economic Zone – 200 nautical miles from the Australian coastline).

As required by the EPBC Act, the TSSC undertook public and expert consultation on draft assessments for the hammerhead sharks in June/July 2014. It was noted in the draft assessments that the scalloped hammerhead is expected to be eligible for listing in the Endangered category s22

However, it was also noted that that the TSSC would consider whether management arrangements in the relevant fisheries were sufficient to support a Conservation Dependent listing.

Under the EPBC Act, a native species is eligible for Conservation Dependent listing if, at that time:

- the species is a 'fish' (i.e. bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but not marine mammals or reptiles).
- the species is the focus of a plan of management that provides for management actions necessary to stop the decline, and support the recovery of the species so that its chances of long term survival in nature are maximised.
- the plan of management is in force under a law of the Commonwealth or of a State or Territory.
- cessation of the plan of management would adversely affect the conservation status of the species.

The TSSC is required under the EPBC Act to consider all the above in listing assessments for potential Conservation Dependent species. This includes a consideration of all fisheries management arrangements relevant to the species under assessment as to whether they collectively satisfy the above requirements.

While these species of hammerhead sharks are caught in several fisheries, the principal fisheries concerned are the East Coast Inshore Finfish Fishery and Gulf of Carpentaria Finfish Fishery in Queensland and the Offshore Net and Line Fishery in the Northern Territory.

The Committee has been in discussions with fishery managers to better understand the management arrangements in place in the relevant fisheries.

It is important to note that, while discussions are well advanced, the full Committee has not yet met to develop its final recommendation. That recommendation must be provided to the Minister by 30 September 2017. The Minister makes the final decision on whether to include the hammerhead shark species in the threatened species list, and if so, under which category.

Helene Marsh

Chair TSSC

DRAFT Operational Plan

Additional Biological Monitoring

SFS Implementation Program

Version: 1.0

Project name:	Develop monitoring strategies for validating the catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast.
Section number	1.2
Start date: July 2017	End date: June 2020
Project Manager:	S47F
Contact officer:	
Project staff	

1 Project Summary

Develop monitoring strategies for validating the catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast of Queensland.

The monitoring program objectives are:

- Determine species composition of harvest by sampling at ports, processors or on-water by targeted subsampling focusing on S symbol holders.
- Develop a profile of discards by
 - documenting fisher’s discards decisions,
 - direct observation of robs of net fisheries with high potential for discards of priority species.

1.1 Project background and description

Improved species level information was identified as a high priority for sharks during recent stock status discussions and in the 2015 Queensland shark stock assessment (Leigh 2015). Data for stock status and stock assessments would be improved if verified species composition data was available for net fisheries in the Gulf of Carpentaria (Gulf) and the East Coast (EC).

A key focus of the project will be hammerhead sharks **S22**. A review of the conservation status of hammerhead sharks makes this species group a priority for management in Queensland **S22**. Deliverables from this project will facilitate WTO ECIFF requirements including improved species ID, and informing on discards.

The Fisheries Regulation 2008 was amended on the 11/08/17 to help ensure the sustainable harvest of the hammerhead species in Queensland waters. From January 1st 2018 the commercial reporting of sharks in logbooks is changing, discards will be quantified (to large species groups) and harvested sharks by all net fishers will be reported to finer species groups, standardising the reporting of shark between fishery symbols. Logbook reporting still relies on fisher’s species identification. The prior reporting of shark harvest will also commence from January 1st 2018.

The threatened species scientific committee recommendation on hammerheads will be made late September or early October. It is expected that by late January 2018 the federal minister will have announced their decision on the recommendation. Outcomes from this process will be relevant to the risks of this project plan.

The monitoring of sharks is complex due to the species diversity of the group, difficulty in species level identification, fishery fleet dynamics and operations, the level of processing prior to landing a catch in port and access to catches. To develop a credible monitoring program that will representatively inform on harvested and discarded shark, preliminary works including reviewing existing data sources to inform on appropriate survey stratification and pilot testing of survey designs will be completed (see appendix 1 for detail).

The integrity of the monitoring program relies on expert species identification to the lowest taxonomic level. Shark are renowned for difficulties in identification even by experienced field experts. To manage this risk, the project is reviewing best practices methods of species identification and will trial the feasibility of suitable methods. Reliance on a single method of identification (such as in-situ visual observation) to determine catch composition is unlikely to address concerns of experts in this field. The project is therefore proposing a multi-method approach which may consist of visual identification, coupled with photographic images for morphometric identification (i.e. fins) and DNA verification.

A structured questionnaire will be carried out with commercial net fishers to document their views on the sharks they discard, the species involved, frequency, fate, numbers and their decision rules surrounding whether to harvest or discard caught sharks. Understanding the fisher's behaviour and perceptions of when and why they discard will be informative for interpreting the reported harvest and discard data collected in log books. The survey results are also expected to assist in stratifying the monitoring of discards and in identifying commercial fishers willing to assist in the monitoring program.

1.2 Related projects and activities

- The formation of fishery working groups and development of Harvest Strategies
- Existing data collection for Fishery Monitoring projects ^{S22}
- Review and implementation of revised logbooks
- Implementation of VSM for more commercial fishing vessels and AIVR for shark catches
- Innovation project for fishery information validation
- Hammerhead shark working group
- NESP Hammerhead shark stock definition

1.3 Benefits, descriptions and management plan (outcomes)

Improved inputs to state and national stock assessments and stock status determinations by the provision of verified species composition information of harvested and discarded shark in net fisheries in Queensland.

2 Project implementation/Deliverables 2017-2018

Activity <small>(in chronological order, and responsibility if activities are undertaken by several parties)</small>	Deliverable	Expected start date	Expected completion date	Deliverable Date	Dependency to other project activities
1. Best practice species identification a. Consult with experts on species identification methods (visual ID in-situ, DNA sampling, Fin morphology, dermal denticles, NIR) b. Consult with neighbouring jurisdictions on methods (NT, NSW, WA) c. Develop a feasibility matrix to identify suitable methods for QLD d. Deliver sampling protocol to project team for approval e. Assess the best method or set of methods and providers for sample processing (i.e. DNA, morphology) f. Tender or budget for equipment and training for sample processing	1. Feasibility matrix completed 2. Methods to trial in pilot surveys ratified by project team 3. Sampling protocols for key methods developed ready for pilot testing 4. Sample processors procured	Aug 17	Sept 17	1. 11/08/2017 2. 30/08/2017 3. 30/09/2017 4. 30/09/2017	<i>Successful tender process for sample processing; ECIFF – WTO shark guide</i>
2. Develop draft survey design for informing on harvest and discards. a. Identify what harvest and discard data is useful to managers stock assessors, stock status assessors and Data teams b. Consult with experts on existing or historic project work in this area c. Identify what netting methods are in/out of scope i.e. ocean beach netting. d. Determine what stratification and methods are required for a representative monitoring program e. Collate draft survey design for monitoring of harvest and discards and deliver to project team for consideration. f. Identify what elements of the draft survey design require testing during pilot surveys (such as accessibility of catches).	1. Draft survey design delivered to project team 2. Survey design elements identified for testing in pilots 3. Sampling stratifications refined (spatial, temporal, fishery)	Aug 17	Nov 17	1. 21/08/2017 2. 30/08/2017 3. 1/11/2017	<i>Activity 1; Activity 3;</i>
3. Background Research a. Identify historic datasets and where possible secure the departmental data and metadata	1. Sampling stratifications (spatial, temporal, fishery)	Aug 17	May 18	1. 1/11/2017 2. 1/11/2017 3. 1/05/2018	<i>Working with external research</i>

Activity (in chronological order, and responsibility if activities are undertaken by several parties)	Deliverable	Expected start date	Expected completion date	Deliverable Date	Dependency to other project activities
b. Review existing documentation, data summaries, publications and reports to identify key findings, c. Review existing data for catch compositions and harvest patterns (CFISH, observer, other) to inform survey stratifications d. Identify any additional parameters and analyses that could provide informative outputs for managers or insights into stock status e. Make recommendations for monitoring and research based on sustainability risks or data gaps identified	identified and informing survey design. 2. Additional analyses identified and proposed to project team 3. Historic datasets and recommendations for future research formally documented				<i>institutions; obtaining previous reports and access to historical data sets</i>
4. Training - Species ID and survey/sampling techniques for pilot surveys a. Arrange a tender process for shark species ID training workshops (initially for pilot and later for monitoring commencement) b. Organise logistics of the training course c. Acquire required training materials – ID resources (Specimens, books, software) d. Update previous shark ID training materials e. Conduct training of key staff in shark species ID – provided by contractor & survey method for pilots f. Establish ongoing QA for field staff (species ID training and testing package as per other fishery monitoring species groups; consider connections with ‘novel techniques’ project)	1. Technical/ casual staff trained in Species ID and pilot survey methods ready for conducting pilot surveys 2. QA system established for Shark ID	Oct 17	Nov 17	1. 30/11/2017 2. 30/11/2017	<i>Activity 5; Successful tender process</i>
5. Design pilot surveys a. Design a series of pilot surveys to trial monitoring of harvest and discards: identify times, locations, fishers, gear, sampling methods, catch accessibility and other stratifications to test. b. What additional meta data is required (gear type, water temp, size) c. Consider datasheets, data fields, databases, data checking and data entry strategies, sample collection and processing requirements	1. Sampling Protocol for pilot surveys delivered to project team 2. Data and sample handling requirements addressed 3. Sampling kits prepared	Oct 17	Nov 17	1. 31/10/2017 2. 30/11/2017 3. 30/11/2017	<i>Activity 1; Activity 2; Activity 3</i>

Activity (in chronological order, and responsibility if activities are undertaken by several parties)	Deliverable	Expected start date	Expected completion date	Deliverable Date	Dependency to other project activities
d. Purchase sampling equipment (including items for trailing species ID methods)					
6. Conduct pilots surveys a. Conduct the pilot trials at multiple locations covering multiple operators in gulf and east coast, on and at-water and port/processors to test the feasibility of survey methods b. Conduct a debrief with staff conducting pilot surveys c. Test data input and data checking procedures d. Samples processed and analysed to determine appropriate shark identification methods (noting where multiple methods will be required to improve certainty) e. Report on trials to project team	1. Pilots conducted 2. Samples processed and Species ID methods assessed 3. Report on pilots delivered to project team 4. Feedback received from project team on pilots to inform final survey design	Nov 17	March 18	1. 1/02/2018 2. 1/03/2018 3. 1/03/2018 4. 15/03/2018	<i>Activity 4; Activity 5 commercial fishers agree to staff accessing their catch</i>
7. Phone Survey a. Design a phone survey to document fishers discard decisions including social and economic considerations b. Draft survey developed and reviewed by project team and social research expert c. Obtain and filter proposed survey participants d. Design data input screen/datasheet e. Train staff to conduct survey f. Conduct phone survey of commercial fishers discard decisions g. Analyse and report on phone survey results	1. Phone Survey protocol and questionnaire completed 2. Phone survey conducted 3. Phone survey analysed and reported	Feb 18	May 18	1. 1/03/2018 2. 30/04/2018 3. 31/05/2018	<i>Permission to contact fishers using licence details</i>
8. Finalise survey design & commence monitoring for informing on harvest and discards. a. Incorporate learnings from pilot surveys and feedback from project team into the survey designs for representative sampling of harvest and submit proposed survey design to the project team b. Incorporate learnings from pilot surveys, discards phone survey, data modelling, new logbooks discard data, progress of proof of concept for on-board monitoring challenge and feedback from project team into the survey designs for on-water profiling of discards and submit proposed survey design to the project team c. Arrange staffing for monitoring harvest GoC & EC	1. Survey design for representative sampling the species composition of the harvest ratified by project team 2. Staff trained in species ID and survey methods 3. Sampling of harvest ready to commence from April 2018 4. Survey design for developing an on-water profile of	March 18	July 18	1. 31/03/2018 2. 31/03/2018 3. 31/03/2018 4. 30/06/2018 5. 30/06/2018 6. 31/07/2018	<i>Activity 2; Activity 3; Activity 4; Activity 6; Activity 7;</i>

Activity (in chronological order, and responsibility if activities are undertaken by several parties)	Deliverable	Expected start date	Expected completion date	Deliverable Date	Dependency to other project activities
d. Conduct training of staff in shark species ID and survey design e. Commence monitoring f. Complete an-end-of-quarter progress report on monitoring of the harvest (April- June 2018)-	discards ratified by project team 5. On-water profiling for discards ready to commence from July 2018 6. Quarterly progress report submitted to project team				
9. Ongoing project planning a. Develop operational plan and budget for 2018-19 monitoring b. Consideration of further biological data collection (e.g. ageing)	1. Operational Plan and budget for 2018/19 submitted 2. Submit recommendations to project team for future biological data collection	May 18	June 18	1. 30/06/2018	<i>Activity 7;</i> <i>Activity 8</i>

DRAFT

Appendix A – Survey Design detail

A series of pilots will trial the survey designs for monitoring harvest and discards in Gulf and East Coast locations, using on-water and port/ processor sampling events and will test the feasibility of different species identification methods. A pilot protocol will be developed and will likely consist of:

1. Observation of net fisheries operation on-water through
 - a. dedicated trips sampling net fisheries that catch shark on the East Coast and Gulf
 - b. during biological monitoring surveys targeting other species in the Gulf of Carpentaria s22

These surveys will:

- a. collect biological data from harvested shark
- b. collect biological data from discards (where robb observation is possible)
2. observations of landed catches through fishers and processors (mainly EC) through
 - a. dedicated trips focusing on prior reports of S symbol holders on the East Coast
 - b. during existing biological monitoring opportunities at fishers boats and residences and at commercial processors

Where possible data collected during these events will include parameters such as but not limited to (see appendix above for detail):

1. Biological information (Species, size data, sex and maturity data and fate data)
2. Catch details (time, date, location, vessel type and gear type)

Detail of Data collection – where possible (but not limited to)

1. Biological information
 - a. Species identification to the lowest possible taxonomic level – (species complexes as per 1/1/2018 logbook) using.
 - i. in-situ visual assessment based on external characteristics
 - ii. photos including ventral and lateral views, fin morphology and skin
 - iii. sampling for DNA or microscopic skin examination
 - iv. trial of body video cameras on monitoring staff for future electronic monitoring (EM) considerationsMorphometric Photos and DNA samples will be used for quantifying error in in-situ visual identification, facilitating the identification of cryptic species, developing methods to identify commercially processed sharks. These samples may also be made available to other research projects (fin morphology tool; genetic population size projects). Concurrent EM via body video may assist in cross validation of these different methods.
 - b. Size – Primary (e.g. total length/pre-caudal length) and/or alternative measurements (e.g. trunk length, girth, depth, weight, derived length from fin morphometric measurements). Measurements will enable to correlation with:
 - i. weight reported in logbooks
 - ii. discard decisions made by fishers
 - iii. available sexual maturity information
 - iv. development of length and length-weight conversions where data gaps have been determined
 - c. Sex and Maturity – visually determined and claspers length of males measured
 - i. assist with conversion in sexually dimorphic species
 - ii. inform on the impact of the fishery on reproduction
 - d. Fate – categorised as harvested, discarded alive or discarded dead
2. Catch details (Time and Date, Location, Water temperature)
3. Vessel and gear types (net length and mesh size, gear hauling type, boat size, target species, fishery symbols)



Australian Government

Department of the Environment and Energy

s47F

Queensland Department of Agriculture and Fisheries
GPO Box 46
BRISBANE QLD 4001

Dear s47F

As you may be aware, the Australian Government Threatened Species Scientific Committee (the Committee) is currently assessing s22 hammerhead sharks (scalloped, s22 for threatened species listing under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Committee's advice is due to the Australian Government Minister for the Environment and Energy by September 2017.

The Committee released a draft assessment of the conservation status of scalloped hammerhead from 22 May 2014 until 7 July 2014, which indicated that this species is likely to be eligible for listing in the 'Endangered' category under the EPBC Act. If listing under this category occurs, scalloped hammerhead sharks in Australia will effectively become 'no take' species in Commonwealth waters and export from all Australian waters will be prohibited.

s47C

s22

Alternatively, the Committee has scope to recommend that scalloped hammerheads be listed in the 'Conservation Dependent' category. Listing in this category would enable commercial fishing and export to continue under certain conditions. s47C

- | [Redacted]
- | [Redacted]
- | [Redacted]
- | [Redacted]

The Department is currently collating information for the Committee to inform its assessment of whether scalloped hammerheads s22 could be eligible for listing as 'Conservation Dependent'. Under the EPBC Act, the Committee may only consider management plans that are in force under law at the time of consideration. To that end, please complete the attached template, outlining the management arrangements for hammerhead sharks currently in force in Queensland. Completion of this template by 9 December 2016 will allow this information to be provided to the Committee for its March 2017 meeting. It is important to clearly articulate what measures are already in force under law, as the Committee cannot consider expressed intentions for future measures.

s47C

If you wish to discuss anything contained in this letter, please contact s22

Yours sincerely

s22

Geoff Richardson

Assistant Secretary

Protected Species and Communities Branch

s22

Acting Assistant Secretary

Wildlife Trade and Biosecurity Branch

Current management arrangements related to hammerheads in force in Queensland

Please complete separately for each fishery that takes hammerheads

Fishery information and overarching management

1. Fishery name:
2. Legislation currently in force relating to fishery:
3. Management Plan or regime where management measures are articulated:

Information on hammerhead harvest

4. Current catch levels of hammerheads by year and by species (for last 10 years if known):
5. How accurate are current estimates of hammerhead harvest?
6. Is take of hammerheads incidental or targeted?
7. Current estimate of discarded hammerheads by species (for last 10 years if known):

Status of hammerheads in this fishery

8. Are there sustainability concerns for hammerheads in this fishery?
9. Is there a biological bottom line for hammerheads in this fishery/jurisdiction? If yes, what is it?
10. What factors are considered in developing the biological bottom line?
11. How is the biological bottom line monitored and enforced? Are there triggers in place? What are the triggers?

Specific management measures for hammerheads

12. What are the objectives for hammerhead management?
13. What actions are in place to ensure objectives are met?
14. Is hammerhead take restricted in this fishery? If yes, how is it restricted?
15. Are there any proposed changes to management arrangements for hammerheads in this fishery? If yes, what are they?
16. What is the estimated timeframe for implementation of these measures?
17. Will the measures, when implemented, be in force under law?

s22





Reference: CTS 28066/16

Mr Geoff Richardson
Assistant Secretary
Protected Species and Communities Branch
Department of the Environment and Energy
GPO Box 787
CANBERRA ACT 2601

Dear Mr Richardson

I refer to correspondence received by **s47F** of the Department of Agriculture and Fisheries, requesting additional information on the management of hammerhead sharks in Queensland.

As requested, please find enclosed a detailed summary of current management arrangements for take of sharks in Queensland waters, and a historical summary of hammerhead shark take from both the Queensland east coast and the Gulf of Carpentaria.

Commercial harvest of sharks is an important component of the seafood industry in Queensland. As you are aware, the Queensland Government is undertaking a significant review into how fisheries are managed in the State. This review is ongoing and may have long-term implications for fisheries that target sharks in Queensland waters. In addition, the Wildlife Trade Operation (WTO) for the East Coast Inshore Fin Fish Fishery was recently approved with a number of conditions relating specifically to the management of shark fishing. Both these processes may lead to future management reform in fisheries targeting sharks in Queensland. The Department of Agriculture and Fisheries will advise the Department of Environment and Energy should relevant management changes occur.

The assessment process described in your letter may have significant implications for the commercial fishing industry in Queensland. This is particularly relevant for net fishers operating within the Great Barrier Reef Marine Park. The Department of Agriculture and Fisheries is now working closely with industry members to explore any additional management measures that may improve sustainability in these fisheries. I support the efforts of your agency to collate management information from the various jurisdictions so

that the Threatened Species Scientific Committee can provide well informed advice about the status of these species.

If you require any further information, please contact s47F

Yours sincerely

s47F

s47F

Department of Agriculture and Fisheries

Summary of current management arrangements related to hammerheads in force in Queensland

Queensland utilises a range of input and output controls to ensure that the management of Queensland's fisheries fulfil the objectives of the *Fisheries Act 1994* including those fisheries that specifically target shark species. Additional measures include the use of limited licensing, spatial and temporal closures, maximum size limits and no take species.

On the east coast of Queensland, commercial take of shark resources is restricted by a 600t Total Allowable Commercial Catch (TACC) limit. There is a limited number of shark (S) fishing endorsements and a corresponding shark specific logbook (SR01). Recreational fishers are restricted to a possession limit of one shark and are also subject to spatial closures, no take species and size limits.

Long-term management of shark resources in Queensland will be influenced by ongoing reform processes and conditions imposed by the Wildlife Trade Operation (WTO) approvals process.

Green paper on fisheries management reform

On 21 July 2016, the Queensland Government released a Green Paper on Fisheries Management Reform. The purpose of the green paper was to engage with the community and stakeholders about the best approach for managing Queensland's fisheries resources into the future. The green paper outlined:

- the Government's vision for the management of wild harvest fisheries;
- where the Government wants to be; and
- the proposed reforms required.

It also provided an overview of how harvest strategies could be used in the management of Queensland's fishing resources into the future. DAF anticipates that the outcomes of the review will have implications for the fisheries that target sharks and the (general) management of shark resources within the State. The government is currently consolidating feedback which will inform development of a Sustainable Fisheries Strategy that will set out the government's direction and reform agenda for the next ten years. The Green Paper on Fisheries Management Reform can be downloaded from:

<https://www.daf.qld.gov.au/fisheries/consultations-and-legislation/reviews-surveys-and-consultations/green-paper-on-fisheries-management-reform-in-queensland>.

Export accreditation

On 14 September 2016, the East Coast Inshore Fin Fish (ECIFFF) application for an extension of the Wildlife Trade Operation (WTO) was approved by the Department of the Environment and Energy (DoEE) (Cwth). This extension was granted with a number of conditions that deal specifically with how shark resources are managed on the Queensland east coast. This again has the potential to lead to change in the arrangements used to manage the take of sharks in Queensland.

Fisheries information and overarching management

1. Fishery name.

The majority of sharks are taken in the ECIFFF and the Gulf of Carpentaria Inshore Finfish Fishery (GOCIFFF). Both fisheries utilise line and net apparatus and have a commercial, recreational and indigenous sector. The vast majority of hammerhead shark catch is reported by commercial net fishers operating on the Queensland east coast or in the Gulf of Carpentaria.

More broadly, Queensland has a long-term Shark Control Program that relies on nets and drumlines to minimise the threat of shark attack on humans at popular beaches. The Shark Control Program also interacts with hammerhead shark species.

2. Legislation currently in force relating to the fishery.

DAF manages the take of sharks, including hammerheads, through the *Fisheries Act 1994* and its subordinate legislation (*Fisheries Regulation 2008*). Sharks are also afforded protection from fishing activities through non-fisheries legislation including legislation governing the use of resources in marine parks managed by the State of Queensland (e.g. the Great Sandy Marine Park and the Moreton Bay Marine Park) or the Commonwealth (i.e. the Great Barrier Reef Marine Park).

The ECIFFF remains a limited licence fishery where access to the fishing resources is limited through the use of line (L), net (N) and ocean beach (K) symbols. Of the symbols currently in use in the ECIFFF, the overwhelming majority of the shark product is reported from the net (N) fishing sector. The take of shark on the Queensland east coast is also managed through a 600 t Total Allowable Commercial Catch (TACC) limit.

The targeting of sharks in the ECIFFF is further restricted through the use of an 'S' fishery symbol. The 'S' fishery symbol is designed to be used in conjunction with the 'L' or 'N' fishery symbol and allows an operator to retain sharks in higher quantities. Operators without an S fishery symbol are restricted to an in-possession limit of 10 sharks and/or rays for net fishers and 4 sharks and/or rays for line fishers. As of 22 November 2016, the ECIFFF had 207 net fishing symbols (N1 = 86; N2 = 94; N4 = 5; N10 = 22)¹ and 224 line (L1)² fishing symbols. Of which, 114 operators also hold an 'S' fishery symbol and are able to target and retain shark product in higher quantities.

While the GOCIFFF is a limited licence fishery, the region does not have a shark specific fishing symbol, a shark-specific in-possession limit or operate under a shark Total Allowable Commercial Catch (TACC) limit. To this extent, all GOCIFFF operators are able to take larger quantities of shark. However, the GOCIFFF is smaller than ECIFFF with the region having a total

¹ Queensland has an additional 291 net symbols are used exclusively in the bait (N11) fishery and make limited to no contribution to the overall shark catch. The contribution of the tunnel net (N10) fishery to the total shark and ray catch would be higher than the N11 but still comparatively small.

² Queensland also has an L2 and L3 fishery symbol. These symbols though typically operate in the in the Great Barrier Reef Marine Park as part of the Coral Reef Fin Fish Fishery and the East Coast Spanish Mackerel Fishery. The minimal amount of shark product reported against the L2 and L3 fishery symbols is accounted for as part of the ECIFFF.

of 83 net fishing symbols (N3 = 79; N12 = 3; N13 = 1). A further 48 line endorsements operate in the region as part of the Gulf of Carpentaria Line Fishery; s22

In addition to the limited licensing and spatial/temporal closures, DAF utilises a range of gear restrictions in both the ECIFFF and GOCIFFF. In the net fishery where the majority of sharks are caught, fishing operations are subject to (among other things) restrictions on the number, length, drop and mesh size of nets being used. Gear restrictions are symbol specific and take into account the fishing environment that each symbol is used within. Net operators are also subject to vessel length restrictions and 'attendance' provisions which require net fishers to be 'in attendance' at the net while fishing so as to minimise harm to species of conservation concern.

3. *Management Plan or regime where management measures are articulated.*

No species-specific management arrangements or harvest strategies are currently in place for hammerhead sharks in Queensland. Rather, hammerhead catch is controlled as part of each fisheries broader management regime for the relevant fisheries (e.g. within the East Coast Inshore Finfish Fishery). Within this fishery, there are specific limits on shark take. The arrangements are contained within the *Fisheries Act 1994* and its subordinate legislation (*Fisheries Regulation 2008*).

Information on hammerhead harvest

4. *Current Catch levels of hammerheads by year and by species (for last 10 years if known).*

Catch and effort data in Queensland is available through Qfish; an interactive database that replaced the Coastal Habitat Resources Information System (CHRIS). Qfish is a publicly accessible web interface that allows stakeholders to access the latest commercial and recreational fishing statistics. It allows users to access catch and effort information by species, years, specific areas or regional and fishing methods. The only limitations placed on the Qfish data relate to the release of information that is protected by confidentiality *i.e.* where there are less than 5 boats. Table 1 describes reported commercial hammerhead shark take (in tonnes) from 2006 to 2016 inclusive.

While the data presented in Table 1 are based on the calendar year, all quota species in Queensland are managed by financial year. This includes on the Queensland east coast where shark catch is managed under a 600 t Total Allowable Commercial Catch (TACC) limit (refer to section 9). Since 2006-07 and the inception of the 600 t TACC, hammerhead sharks have comprised between 12 – 15% of the total shark catch on the Queensland east coast or 7.2 – 13.8% of the regional TACC. Fisheries that target sharks in the Gulf of Carpentaria are not subject to a TACC limit.

Limited recreational catch data is available for hammerhead sharks. The latest state-wide recreational fishing survey estimated that 3172 hammerhead sharks were caught by recreational anglers, of which 93% were released.

Table 1. Reported hammerhead shark catches from the East Coast of Queensland and the Gulf of Carpentaria. All data available through Qfish (<http://qfish.fisheries.qld.gov.au/>) with total catch presented in tonnes (t). Note that the Total Allowable Commercial Catch Limit for the East coast is 600t.

Year	East Coast		Gulf of Carpentaria	
	<i>S. lewini</i>		<i>S. lewini</i>	
2006	121.1		76.7	
2007	51.1		33.6	
2008	10.4			
2009				
2010	17.2			
2011	9.6			
2012	8.9			
2013	11.5			
2014	9.9			
2015	21.1		*	
2016**	13.8			

s22
 s22
 ** Data for the 2016 fishing season is incomplete
 s22

5. *How accurate are current estimates of hammerhead harvest?*

While logbooks differentiate between hammerhead sharks, the catch data has a low level of species resolution. This for the most part is due to similarities in the appearance of the three species. However, the complex is easily identified and the broader catch trends including total reported hammerhead shark catch is accurate.

DAF is working with industry to improve the accuracy of logbook data. A species identification guide and shark identification workshops were delivered to coincide with the introduction of the shark (S) fishing symbol.

<https://www.daf.qld.gov.au/fisheries/species-identification/shark-identification-guide>

6. *Is take of hammerheads incidental or targeted?*

Hammerhead sharks are taken in multi-species fisheries where the catch largely comprises s22 DAF considers the catch of hammerhead to be mostly incidental, s22

Putting restrictions on the take specifically of hammerhead would be challenging in a fishery where they are not the primary target species and would continue to be taken incidentally.

7. *Current estimate of discarded hammerheads by species (for the last 10 years)*

Discard rates for the commercial fishing sector are unknown. The last statewide recreational fishing survey (2013) indicated that over 93% of the hammerhead sharks caught by this sector were released.

Status of hammerheads in the fishery

8. *Are there sustainability concerns for hammerheads in this fishery?*

In 2014 the Department of Agriculture and Fisheries commissioned a scientific assessment of shark stocks. This assessment was completed by fisheries scientists from Animal Science Queensland and provides maximum sustainable yield (MSY) estimates for a range of species in the Gulf of Carpentaria and for the east coast of Queensland including s22 [REDACTED] the scalloped hammerhead (*Sphyrna lewini*) s22 [REDACTED]

This report concluded that existing levels of the shark harvest in Queensland were below the predicted maximum sustainable yield levels. However, the report also acknowledged a number of data limitations, particularly with respect to species identification and the quantity and reliability of the available shark catch data.

To ensure the veracity of the assessment report, the government commissioned an independent review of the report. The review found that the stock assessment was sound, but given concerns over the existing catch data, the results should be treated with caution. The reviewer further recommended that there should be no increase in total take of sharks in Queensland until a more reliable data set is collected for assessment.

Additional information on the Queensland shark stock assessment and the independent review is available at: <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/stock-assessment-reports>

9. *Is there a biological bottom line for hammerheads in this fishery/jurisdiction? If yes what is it?*

The catch and subsequent monitoring of hammerhead sharks occurs within the management regime for each of the respective fisheries. To this extent managing hammerhead shark catch in the GOCIFFF and ECIFFF are not based specifically on the life-history constraints of these species or biomass limit reference points. Monitoring of hammerhead shark catch is undertaken through the current logbook system and the catch of hammerhead sharks on the east coast is taken into account as part of the shark Total Allowable Commercial Catch (TACC) limit.

The east coast TACC was introduced in 2009 after a significant period of stakeholder consultation and with significant input from the Department of Sustainability, Environment, Water, Population and Communities (former title of the DoEE). At the time, the 600 t TACC was considered to be relatively conservative and was set at a level that would ensure the long-term sustainability of the fishery. When compared to the TACC, total shark catch in the ECIFFF remains below this 600 t limit. Additional information on shark catch totals and compositions can be accessed via Qfish (<http://qfish.fisheries.qld.gov.au/>).

The Green Paper released in 2016 identifies the need to set sustainable biomass targets for fish stocks and proposed a 60% target level. It didn't propose a limit reference point, but this will be considered in developing the government's Sustainable Fisheries Strategy.

10. *What factors are considered in developing the biological bottom line?*

Refer to comments for dot point 9.

11. *How is the biological bottom line monitored and enforced? Are there triggers in place? What are the triggers?*

Refer to comments for dot point 9.

Specific management measures for hammerheads

12. *What are the objectives for hammerhead management?*

Objectives surrounding the management of shark resources in Queensland reflect the objectives of the *Fisheries Act 1994*.

More broadly, shark resources are managed in accordance with other processes including but not limited to the National Plan of Action for Sharks and the Wildlife Trade Operations approval process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

With regards to the *Fisheries Act 1994*:

1) The main purpose of the *Fisheries Act 1994* is to provide for the use, conservation and enhancement of the community's fisheries resources and fish habitats in a way that seeks to—

- (a) apply and balance the principles of ecologically sustainable development; and
- (b) promote ecologically sustainable development.

In balancing the principles, each principle is to be given the relative emphasis appropriate in the circumstances.

2) Despite the main purpose of this Act, a further purpose of this Act is to reduce the possibility of shark attacks on humans in coastal waters of the State adjacent to coastal beaches used for bathing.

3) Subsections (1) and (3) do not limit the purposes of this Act.

4) In this section—

ecologically sustainable development (ESD) means using, conserving and enhancing the community's fisheries resources and fish habitats so that—

- (a) the ecological processes on which life depends are maintained; and
- (b) the total quality of life, both now and in the future, can be improved.

precautionary principle means the principle that, if there is a threat of serious or irreversible environmental damage, lack of scientific certainty should not be used as a reason to postpone measures to prevent environment degradation, or possible environmental degradation, because of the threat.

principles of ecologically sustainable development means the following principles—

- (a) enhancing individual and community wellbeing through economic development that safeguards the wellbeing of future generations;
- (b) providing fairness within and between generations;
- (c) protecting biological diversity, ecological processes and life-support systems;
- (d) in making decisions, effectively integrating fairness and short and long-term economic, environmental and social considerations;
- (e) considering the global dimension of environmental impacts of actions and policies;
- (f) considering the need to maintain and enhance competition, in an environmentally sound way;
- (g) considering the need to develop a strong, growing and diversified economy that can enhance the capacity for environmental protection;
- (h) that decisions and actions should provide for broad community involvement on issues affecting them;
- (i) the precautionary principle.

13. *What actions are in place to ensure objectives are met?*

Queensland utilises a range of input and output controls to ensure that the management of Queensland's fisheries fulfil the objectives of the *Fisheries Act 1994*. In fisheries that specifically target shark species, this may include use of limited licensing, spatial and temporal closures, a Total Allowable Commercial Catch (TACC) limit for the ECIFFF, maximum size limits and no take species.

Management regulations on the east coast are particularly advanced with access to shark resources restricted through the use of an 'S' fishing symbol, in possession limits for operators that do not hold an 'S' fishing symbol and a shark specific logbook (SR01).

14. *Is hammerhead take restricted in the fishery? If yes, how is it restricted?*

Queensland does not currently have any hammerhead-specific management restrictions in place for the ECIFFF or the GOCIFFF.

15. *Is there any proposed changes to management arrangements for hammerheads in this fishery? If yes, what are they?*

The management of hammerhead sharks will be considered within the broader ongoing review of fisheries management in Queensland. Detailed management changes will not be determined until the review has been completed and harvest strategies put in place.

The ECIFFF WTO includes conditions, which will require DAF to make some changes to management of shark fishing in Queensland. Condition 4 requires DAF to develop a strategy for the harvest of key fish and shark species in the ECIFFF. Condition 5 requires improved data

collection and validation techniques and Condition 6 requires changes to management arrangements for processing of sharks at sea.

16. *What is the estimated timeframe for implementation of these measures?*

DAF is unable to provide a timeframe at this point in time and / or details of the management changes that will be considered as part of the broader fisheries management review.

Government will consider the long term strategic policy direction for fisheries management in early 2017 and will consider fishery specific changes subsequent to this.

The ECIFFF WTO conditions expire on 28 September 2018.

17. *Will the measures, when implemented, be in force under law?*

See above.



Ref: 5289/16

FOI 190513
Document 24

s22

Acting Assistant Secretary
Wildlife Trade and Biosecurity Branch
Department of the Environment and Energy
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CANBERRA ACT 2601

Dear s22

PROPOSED THREATENED SPECIES LISTING OF SHARK SPECIES

Thank you for your letter of August 2016 regarding the proposed threatened species listing of s22 hammerhead species under the *Environment Protection and Biodiversity Conservation Act 1999*.

s22

the Department of Fisheries (Department) provides the attached information on the current management arrangements in force in Western Australia in relation to hammerheads (*Attachment 2*).

If you wish to discuss the Department's comments on this matter or require further clarification on the information provided, please contact s47F

Yours sincerely

s47F

s47F

7 December 2016

Current management arrangements related to hammerheads in force in Western Australia

1. Fishery name:

West Coast Demersal Gillnet and Demersal Longline Interim Managed Fishery and the Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery. These fisheries are collectively reported as the Temperate Demersal Gillnet and Demersal Longline Fisheries (TDGDLF).

2. Legislation currently in force relating to fishery:

- *West Coast Demersal Gillnet and Demersal Longline (Interim) Management Plan 1997*; and
- *Joint Authority Southern Demersal Gillnet and Demersal Longline Management Plan 1992*.

3. Management Plan or regime where management measures are articulated:

As above.

Information on hammerhead harvest

4. Current catch levels of hammerheads by year and by species (for the last 10 years if known):

Since the early 1990s, catches of hammerheads in WA have fluctuated between 35 and 60 tonnes per year (Figure 1). These catches are exclusively from the TDGDLF. The catches are dominated by s22 (~97% of the catch) with only 3% of the catch being comprised of s22 and scalloped (*Sphyrna lewini*) hammerheads. The ratio of s22 scalloped and s22 hammerhead sharks taken in the TDGDLF has been independently established through on-board monitoring by Department of Fisheries (Department) over a number of years (McAuley & Simpfendorfer, 2003). The distribution of fishery independent sampling events conducted by the Department with positive catches of hammerheads is shown in Figure 2. s22 show a high spatial overlap with the TDGDLF whereas scalloped and s22 hammerheads do not.

For recreational and other commercial fisheries in WA, the catch of hammerhead sharks is negligible (McAuley et al 2015, Ryan et al. 2015).

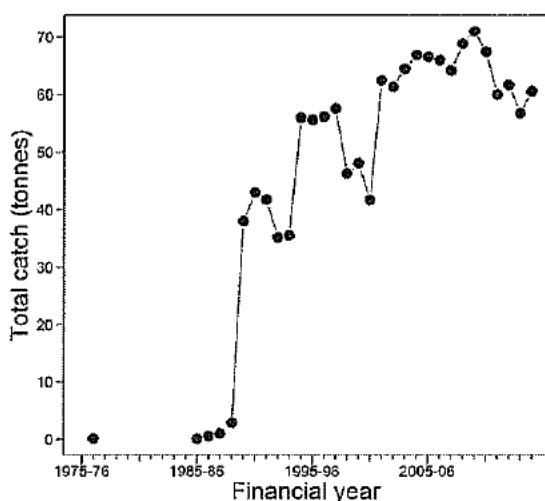
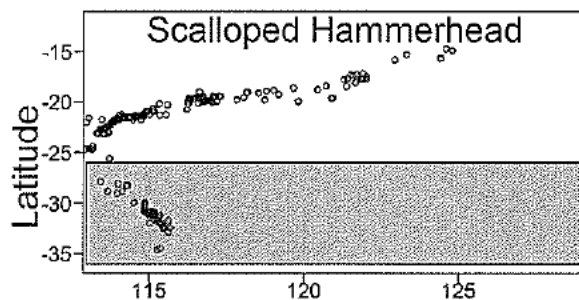


Figure 1. Annual catch of hammerhead sharks for the TDGDLF.

s22



s22

Longitude

Figure 2. Distribution of sampling events with positive catch of s22 scalloped s22 hammerheads between 1993 and 2016. The spatial extent of the TDGDLF in the management plan is shaded grey, noting not all areas are fished. Closed areas are not shown in this figure (e.g. Metropolitan closure, 31-33°S).

5. How accurate are current estimates of hammerhead harvest?

Two catch logbook verification projects in this fishery were undertaken in the late 2000s and early 2010s (McAuley et al. 2015; Taylor et al. 2016). Additionally, two integrated recreational surveys have been undertaken which have included estimates of the total catches and landings of sharks in WA (Ryan et al. 2013, 2015). Thus the harvest levels of all sharks in WA is well known.

Commercial catches of hammerhead sharks have been reported as 'hammerheads' due to the difficulties in differentiating between scalloped and s22 hammerheads. However, on-board monitoring by the Department over a number of years has determined that ~97% of the catch is comprised of s22 hammerheads (McAuley & Simpfendorfer, 2003), allowing a more precise allocation of commercial catches to the species level.

6. Is the take of hammerheads incidental or targeted?

Incidental.

7. Current estimate of discarded hammerheads by species (for last 10 years if known)?

The current estimate of discarded hammerheads for the last 10 years is largely unknown.

Estimates are available for 1994-1999 when ~ 35 tonnes per year (mostly s22 hammerheads) were likely to be discarded or not adequately reported in fishing returns (McAuley & Simpfendorfer, 2003).

Of the small number of hammerheads estimated to be incidentally taken by recreational fishers, approximately 90% are released (Ryan et al. 2013, 2015).

Status of hammerheads in this fishery

8. Are there sustainability concerns for hammerheads in this fishery?

There are no sustainability concerns for hammerheads.



9. Is there biological bottom line for hammerheads in this fishery/jurisdiction: If yes, what is it?

The Department uses an Ecosystem Based Fisheries Management (EBFM) framework using a risk-based, evidence-based approach to stock assessments of all fishery resources. Hammerheads are considered part of a State-wide shark resource.

Clear management objectives exist for the TDGDLF. Objectives focus on biological reference points (e.g. spawning biomass) for each of the four indicator species (see Department of Fisheries Western Australia 2011). s22

A draft harvest strategy exists as part of the Marine Stewardship Council (MSC) pre-assessment process undertaken in 2014/15. A process of formalising this harvest strategy is being considered. A constant catch harvest strategy has been developed to avoid recruitment overfishing.

10. What factors are considered in developing the biological bottom line?

As above.

11. How is the biological bottom line monitored and enforced? Are there triggers in place? What are the triggers?

As above.

The harvest strategy and catches are monitored by annual assessments as reported in *Status Reports of the Fisheries and Aquatic Resources of Western Australia* (e.g. Fletcher and Santoro, 2015). Catch ranges are in place (McAuley et al. 2015) that are annually reviewed. This fishery is input management (effort entitlement units) and monitored by the Department's Vessel Monitoring System (VMS) and thus effort limits are in place.

Specific management measures for hammerheads

12. What are the objectives for hammerhead management?

As above at 9.

13. What actions are in place to ensure objectives are met?

As above at 9.

In addition, updated integrated stock assessments are undertaken on a 3 - 5 year cycle to provide estimates and projections of biomass for each of the indicator species (whiskery and gummy) and updated risk assessments (all species) using a risk-based weight of evidence approach.

Fishers in the TDGDLF have been notified of the need to differentiate the three hammerhead species in daily trip catch and effort return logbooks (in both catches and discards). A shark species identification guide has been provided to all fishers in the TDGDLF. This guide separately identifies all three hammerhead species.

14. Is hammerhead take restricted in this fishery? If yes, how is it restricted?

The fishery has an effort cap and acceptable catch ranges that are reviewed annually. The fact that hammerheads are not targeted in the TDGDLF, that effort in this fishery is capped (and monitored), and the fishery spatially restricted, effectively places an upper limit on hammerhead catches.

Further, the spatial extent of the fishery represents a small subsection of the distribution of all hammerhead species. The fishery principally operates south of the centre of distribution of most of the species of hammerheads, s22

Thus the risk of this fishery to the stocks of hammerheads is low.

In addition, the Department monitors the catch of hammerheads in relation to the non-detriment finding (NDF) that is in place, particularly for smooth hammerheads, under the Convention on International Trade in Endangered Species of Wild Fauna and Flora Appendix II listing.

15. Are there any proposed changes to management arrangements for hammerheads in this fishery? If yes, what are they?

No.

16. What is the estimated timeframe for implementation of these measures?

Not applicable.

17. Will the measures, when implemented, be in force under law?

Not applicable.

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s22

Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
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CANBERRA ACT 2601

Dear s22

Re: Northern Territory Hammerhead Shark Management Arrangements

I write in response to your department's letter (received 23 August 2016) requesting information relating to management measures in place for Northern Territory fisheries that harvest Hammerhead Sharks. I have attached a response on behalf of the Department of Primary Industry and Resources (DPIR) for your consideration.

It is important to note in 2005, in response to growing global community concern for vulnerable sharks, tighter management measures were imposed on the Northern Territory Offshore Net and Line Fishery (ONLF). Since that time, catches of "Hammerhead" in the ONLF have remained relatively stable, while Catch per Unit Effort has actually increased, despite this species not being specifically targeted.

Whilst the Northern Territory stocks are considered healthy, DPIR is proposing to implement a range of conservative management measures that ensure shark species identified as being the most vulnerable to fishing (through Ecological Risk Assessment's etc.) maintain their healthy status in the Northern Territory.

Whilst there appears to be no noticeable decline in abundance a catch limit was determined (which reflects average catches between 2007 and 2012). This will prevent any growth in the catch of Scalloped s22 Hammerhead in the ONLF. The relevant management objectives and status are assessed annually against performance indicators and the 2015 assessment is detailed at question 9 in the Attachment.

It is DPIR's view that if it is deemed warranted listing this species under the *Environment Protection and Biodiversity Conservation Act 1999*, then we would support a 'Conservation Dependant' category listing.

DPIR is confident that with the proposed management measures in place, fishing related risks to hammerheads will be immediately contained and reduced over time.

s47F

s47F

16 December 2016

Specific questions

1. Fishery name:

NT Offshore Net and Line Fishery
Small numbers of this species is also taken in;
NT Barramundi Fishery
NT Coastal Line Fishery

2. Legislation currently in force relating to fishery:

Northern Territory "Fisheries Act" available at, http://www.austlii.edu.au/au/legis/nt/consol_act/

3. Management Plan or regime where management measures are articulated:

Division 5, Fisheries Regulations 96 through to 100A.

Legislation prohibiting the possession of sharks and shark product is in place for the Demersal, Spanish Mackerel and Timor Reef Fisheries. The Barramundi, Coastal Net and Coastal Line fisheries have legislated allowances for incidental catches of shark. Strict 'fin to meat' ratios also apply to these fisheries in addition to trip limits.

At present no management plan for the Offshore Net and Line Fishery (ONLF) is in force, however the fishery has been undergoing a major review of management arrangements since 2013 and there is a management plan proposed to be implemented within the coming year. Drafts of this management plan have been provided to the Federal Department of Environment and Energy and the Australian Government Threatened Species Committee (TSSC) whom have provided comment and these comments have been incorporated into the proposed management plan.

4. Current catch levels of hammerheads by year and species (for last 10 years if known):

The NT Department of Primary Industry and Resources (DPIR) have a long time series of logbook data. Over the time series there has been a decline in the combined catch of s22 Scalloped Hammerhead, however this needs careful interpretation to determine if declines in catches are reflecting declines in populations or are merely showing the results of changes in management practices. In the ONLF declines in catches of Hammerhead shark almost certainly reflect operational and management changes rather than changes in abundance.

In 2006 management measures were implemented to limit effort in the fishery. Particularly relevant to Hammerhead catches was the capping of longline days in the fishery as this is the gear type which taking the greatest proportion of the Hammerhead catch. Over the next five years catches remained relatively consistent, at or over 100 t per year. In 2012, the single longline vessel in the fishery ceased its operation and Hammerhead catches have since declined to just over 40 t in each of 2013 and 2014. s22

Year	Hammerhead Catch (t)
2005	159
2006	98
2007	107
2008	95
2009	118
2010	103
2011	142
2012	98
2013	43
2014	41
2015	14

5. How accurate are current estimates of Hammerhead harvest.

Estimates of Hammerhead harvest contained in fisheries logbooks are believed to be accurate. There are a small number of operators in the Offshore Net and Line Fishery, most of which have only one port of unloading which is Darwin. This makes compliance a relatively easy task. Although the meat of Hammerhead sharks is of a relatively low value, the fins are of significant value creating incentive for fishers to retain any incidentally captured Hammerheads.

Species specific reporting of the Hammerhead complex was introduced in 2006, s22 ONLF logbooks now also require s22 Scalloped Hammerhead to be reported separately.

A long running observer program (since 2001) has reported the Hammerheads to species level. The catch composition from the observer program indicates that there is even 50% distribution between Scalloped and s22 Hammerheads in the ONLF catch.

6. Is take of hammerheads incidental or targeted?

Hammerhead species taken in the ONLF are the Scalloped Hammerhead, s22 Hammerhead species caught in the ONLF, or any other Northern Territory fishery, are caught incidentally and are not targeted.

There are two forms of gear used in the Offshore Net and Line fishery, these namely being pelagic gillnet and demersal longline. Pelagic longline gear is permissible in the fishery but has not been

used. Since 2012, demersal longline has been used infrequently. The two main gears used in the fishery have different catches of Hammerhead sharks, with the longline gear taking greater proportion of the Hammerhead catch.

Pelagic gillnet gear is the most commonly used gear in the ONLF. s22

All three hammerhead species (Scalloped, s22) are caught incidentally using this gear, although catches are relatively low (Scalloped Hammerhead 1.6%, s22 s22 of the total catch by number).

Longline gear used in the ONLF targets sharks and Hammerhead species are taken as part of a suite of species caught using this gear. s22

the s22 Hammerhead species comprise 1.85%, s22 of the catch for Scalloped Hammerhead, s22

7. Current estimate of discarded Hammerheads by species (for last 10 years if known):

Logbook data and observer reports indicate current discard rates of Hammerheads are low.

s22

8. Are there sustainability concerns for Hammerheads in this fishery?

Analysis of catch and catch per unit effort (CPUE) data from the ONLF fail to indicate any sign of decline in abundance. This is significant, given that the ONLF is one of the principle fisheries taking this species in Australian waters. Catch per unit effort has remained relatively consistent and has even shown signs of an increasing, despite this species not being specifically targeted. There is a decline in catch over the preceding 10 years however this can largely be attributed to changes in fishery management arrangements which were introduced in 2006. Many of these management arrangements were enacted to specifically contain the take of large bodied, vulnerable species of shark such as s22 Scalloped Hammerhead. s22

It is recognised that during the mid 1970's and early 1980 that stocks of many species of shark were depleted across northern Australia by the Taiwanese gillnet fleet which was operating at the time. The removal of the Taiwanese fleet and its replacement with a much smaller domestic fleet saw an order of magnitude decrease in fishing effort. With this decrease in effort there is a growing body of

evidence that stocks of many shark species have recovered to pre-fishing levels. It is likely that Hammerheads have undergone a similar recovery, although the extent is unquantified.

Of concern is the extent, if any, of the shared nature of Hammerhead stocks between Australia and Indonesia. This is particularly important issue for the Northern Territory, given its northern border is shared with Indonesia. Evidence for shared stock is limited to one study which suggested that Australia shares a genetic stock with Indonesia. While the results of this study are informative, the limitations of using genetics alone to determine stock structure should be clearly understood. In particular very small levels of migration (one or two individuals) over large time frames (1000's years) can infer that stocks are shared, when functionally at the fisheries management level there is only very small levels of exchange between jurisdictions. To improve our understanding of stock structure, the DPIR is currently actively participating in a Hammerhead stock structure project which will enhance our current knowledge for these species. For this study DPIR has made available its comprehensive logbook and observer data set and has provided Hammerhead samples collected from NT waters over the preceding decade. The results of this project will guide future management arrangements. However it is important to note that Scalloped s22 Hammerheads remain common in NT waters, with no evidence of a decline in abundance from CPUE data, which would be expected if some proportion of the stock, in particular large females, was being subject to unsustainable catch rates in other jurisdictions.

9. Is there a biological bottom line for hammerheads in this fishery/jurisdiction? If yes what is it?

The current management objectives and status assessed annually against performance indicators for the Offshore Net and Line Fishery for 2015, as shown in the relevant table below.

Species or group	Management objective	Performance indicator	Performance measure	Harvest status for 2015	Management action
Byproduct species: s22 Hammerhead Sharks s22	Ensure ecological sustainability of these species in all fisheries.	Monitoring of commercial logbook returns. Onboard monitoring of ONLF.	The byproduct proportion of the total catch increases by (↑) >35% in the calendar year. Catch of any byproduct species increases to (↑) >10% of the total catch in the calendar year.	The proportion of byproduct species in the total catch decreased to 13% of the total catch in 2015 – TRP not reached. All byproduct species were within acceptable limits.	MACs to review fisheries annually and make recommendations to the Executive Director of Fisheries (EDF). Any amended arrangements will be implemented within 12 months of trigger being reached.

Note: In 2015, there was ~14 t of combined Hammerhead species taken in the ONLF. This level of harvest relates to ~3% of total catch in 2015.

The fishery has been undergoing a major review of management arrangements since 2013 and there a management plan has been developed in consultation with Industry and is proposed to be implemented within the coming year. Specific management measures are to be included into a management framework including a harvest strategy with operational decision rules for the ONLF. Under this framework, all vessels are required to be equipped with vessel monitoring systems with greater monitoring coverage for those vessels equipped with fishing gear most likely to catch Hammerheads (i.e. demersal long-lines). Additionally, all sharks must be landed with fins naturally attached. Operators may apply for an exemption to this rule in special circumstances. An exemption may be granted with the condition that there are 100% observers or e-monitoring equipment (e.g. cameras etc.) be fitted to the vessel (with ~10% viewing/analysis regime). The decision rules outline fishery Objectives, Performance Indicators, Trigger Points and Management Responses for the Key Shark species group which relate to Hammerheads and include mitigation measures such as;

- Cap the permitted catch of each Hammerhead species
- Ensuring fishing effort is appropriately spread over fishery
- Hammerheads are correctly identified and reported accurately on logbooks
- Confirmation of an appropriately determined Total Allowable Commercial Catch
- No reported incidences of discarding or high grading occurring
- Observer data validates catch composition and catch returns
- Length frequency analysis shows no anomalies
- Breach of performance Indicators by operators triggers additional observer trips to evaluate fishing operations
- Trigger points are conservatively set well below the TACC and when met initiate Management Responses such as:
 - Data gathering by observers (genetic samples if required, lengths etc.) to address higher harvest risks
 - Detailed analysis of all gathered data is undertaken. Fisheries to investigate species and compile and review biological data, this may require modelling, spatial analysis and stock assessments
 - Assessment surveys (may include tagging, stock structure work etc.) initiated as per agreed methodology
 - When catch limits reached, relevant Hammerhead species trip limits imposed at an appropriate level e.g. 5 / trip, to recognise incidental catches but discourage targeting
 - Development of a research program to better understand the impact of the fishery on the Scalloped Hammerhead population
 - A review of the appropriateness of the current TACC is undertaken using all data
 - A review of the fisheries operating practices
 - Gear in the fishery to be reviewed by ONLAG (the established advisory group) to evaluate impacts. Gear may be modified or abolished to address identified issues
 - If TACC is reached, all activity in the fishery is halted until next allocation period.

10. What factors are considered in developing the biological bottom line?

After 2006, when there was a review of the fishery and tighter management measures were put in place, catches of “Hammerhead” in the Northern Territory Offshore Net and Line Fishery have remained relatively stable, while Catch per Unit Effort has actually increased, despite this species not being specifically targeted.

Given that there appears to be no noticeable decline in abundance a catch limit was determined (which reflects average catches between 2007 and 2012) and will be introduced to the fishery in the pending management plan. This will prevent any growth in the catch of Scalloped s22 Hammerhead in the ONLF.

11. How is the biological bottom line monitored and enforced? Are there triggers in place? What are the triggers?

Please refer to DPIR response at question 9 for specifics on triggers and management responses. The Water Police Unit of Northern Territory Police, Fire and Emergency Services undertakes enforcement of the Fisheries Act on behalf of DPIR.

Specific management measures for hammerheads

12. What are the objectives for hammerhead management?

Please refer response to question 9.

13. What actions are in place to ensure objectives are met?

Regular observer monitoring and species-specific analysis of catch and effort data.

14. Is hammerhead take restricted in this fishery? If yes, how is it restricted?

Please refer response to question 9.

15. Are there any proposed changes to management arrangements for hammerheads in this fishery? If yes, what are they?

Please refer response to question 9.

16. What is the estimated timeframe for implementation of these measures?

It is planned to have revised arrangements in place by August – November 2017, dependent upon drafting and legislating timeframes.

17. Will the measures, when implemented, be in force under law?

Yes.



Mr Bruce Elliot
General Manager
Biodiversity Conservation and Sustainable Use Branch
Great Barrier Reef Marine Park Authority
PO Box 1379 Townsville
Queensland 4810

Dear Mr Elliot

In August, s22 [redacted], Acting Assistant Secretary, Wildlife Trade and Biosecurity Branch and I wrote to you seeking your input into the management of fisheries interacting with hammerhead sharks to inform the Commonwealth threatened species assessment.

We have now received responses from the relevant fishery managers and I thank you for responding promptly to our request. s47C [redacted]

s47C [redacted]

The deadline for the Committee's advice to our Minister on the threat status of hammerhead sharks is approaching rapidly. In our experience with other fish species, refining management approaches to the satisfaction of the Committee has necessarily been an iterative process. Given the tight timeframes, and the need to assess the conservation effect of a diverse suite of measures integrated across multiple fisheries and the Great Barrier Reef Marine Park, the Committee have asked to meet with key managers to ensure clarity of understanding. I invite you or a senior representative of your agency, to attend the meeting with key Committee members before the Committee next meets in March 2017.

I propose to hold this meeting in Brisbane on 20 February 2017. Please advise of your availability, and likely attendees, to s22 [redacted]. Similarly, if you have any questions about the meeting or the listing process, please direct them to s22 [redacted].

Yours sincerely

Geoff Richardson
Assistant Secretary
Protected Species and Communities Branch
21 December 2016



Mr Bruce Elliot
General Manager
Biodiversity Conservation and Sustainable Use Branch
Great Barrier Reef Marine Park Authority
PO Box 1379 Townsville
Queensland 4810

Dear Mr Elliot *Bruce*

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Yours sincerely

s22

Geoff Richardson
Assistant Secretary
Protected Species and Communities Branch
21 December 2016



Mr Alistair Trier
Chief Executive Officer
Northern Territory Department of Primary Industries and Fisheries
GPO Box 3000
Darwin
NT 801

Dear Mr Trier

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Yours sincerely

s22

Geoff Richardson
Assistant Secretary
Protected Species and Communities Branch
21 December 2016



s47F

Queensland Department of Agriculture and Fisheries
GPO Box 46
Brisbane
Queensland 4001

Dear s47F

In August, s22 Acting Assistant Secretary, Wildlife Trade and Biosecurity Branch and I wrote to you seeking your input into the management of fisheries interacting with hammerhead sharks to inform the Commonwealth threatened species assessment.

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Yours sincerely

Geoff Richardson
Assistant Secretary
Protected Species and Communities Branch
21 December 2016



s47F

Queensland Department of Agriculture and Fisheries
GPO Box 46
Brisbane
Queensland 4001

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Yours sincerely

s22

Geoff Richardson
Assistant Secretary
Protected Species and Communities Branch
21 December 2016

From: s47F
To: s22
Cc: s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Date: Wednesday, 17 May 2017 5:00:07 PM
Attachments: s22

Hi s22

We have a response ready, but are waiting on the Minister to sign a brief on the matter first. Hopefully this week, but it may be Monday/Tuesday. I presume this is still ok given that the TSSC doesn't meet til 6-8 June. We would rather give clear and definitive advice rather than something more vague.

s47F

s47F

Executive Director, Fisheries Queensland

Department of Agriculture and Fisheries

s47F

Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000

GPO Box 46, Brisbane QLD 4001

Customer Service Centre 13 25 23

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From: s22

Sent: Wednesday, 17 May 2017 4:44 PM

To: s47F, s47F, s47F, s47F

Cc: Elliott Bruce; s47F

s47F, s22; Richardson, Geoff

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi s47F, s47F, s47F and s47F (and others)

Just a reminder that we'd really like to get your response to the below email by COB this coming Friday so that we can incorporate into the up-date paper we are providing to the TSSC on the hammerhead shark listing assessment.

Thanks and regards

s22

s22

Director, Marine and Freshwater Species Conservation, Wildlife, Heritage and Marine Division.

Department of the Environment and Energy

s22, GPO Box 787 CANBERRA ACT 2601

s22, www.environment.gov.au

From: Richardson, Geoff

Sent: Monday, 8 May 2017 12:16 PM

To: s47F s47F
s47F s47F s47F s47F

Cc: 'Simpfendorfer, Colin' s47F; s22
; Elliott Bruce s47F >; s47F
>; 'Marsh, Helene' s47F >;
s22 s47F
s47F s22
s22 Murphy, Paul
s22 s47F

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi s47F s47F, s47F and s47F (and others)

Thank you for verbal updates in the teleconference last week of progress in the development and rollout of new management measures for hammerhead sharks.

As discussed in the teleconference, the Threatened Species Scientific Committee next meeting is 6 – 8 June in Canberra. We would like to provide the Committee with a written update on progress at that meeting and I asked that you each provide a written update to support the Committee’s discussion in June.

It would be helpful for that update to cover progress against each of the “minimum requirements” and “longer term management intentions” as agreed at the Hammerhead Meeting on 20 February. The record of those discussions is in the attached document.

As you are aware, for the purposes of considering Conservation Dependent category for listing under the EPBC Act, management measures need to be implemented under law (i.e. relevant fisheries act or regulation).

I would appreciate the written update being provided to s22 by **Friday 19 May 2017** to enable us to provide this information to Committee for consideration at its June meeting.

Regards Geoff

Geoff Richardson

Assistant Secretary | Protected Species and Communities Branch
Department of the Environment and Energy

s22

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

From: s47F
Sent: Monday, 20 February 2017 1:51 PM
To: s22 Elliott Bruce
s47F s47F
'Marsh, Helene'
s47F ; 'Simpfendorfer, Colin' s47F ;
s47F
s47F s47F ; Richardson, Geoff
s47F > s22
s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi all

Please find attached the notes from the discussion today on the hammerhead listing.

s22 will add in the information about the impacts of an endangered listing. Please let us know if you would like any changes or additions to the notes by Monday next week.

Please also find attached the Qld presentation from today.

s47F

s47F

Executive Director, Fisheries Queensland

Department of Agriculture and Fisheries

s47F

Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000

GPO Box 46, Brisbane QLD 4001

Customer Service Centre 13 25 23

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From: s22
Sent: Friday, 3 February 2017 2:40 PM
To: Elliott Bruce; s47F ; 'Marsh, Helene';
'Simpfendorfer, Colin'; s22 ; s47F ; Richardson, Geoff;
s22 s22 ; s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hello everyone,

Please find attached an agenda for our discussion on hammerhead shark listing on 20 February.

I am starting to organise catering too – I'd appreciate if you'd let me know if you have any special requirements.

Cheers,

s22

s22

Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
Department of the Environment and Energy

s22

-----Original Appointment-----

From:

Sent: None

To: s22 Elliott Bruce; s47F ; 'Marsh, Helene';
'Simpfendorfer, Colin'; s47F s47F ; Richardson, Geoff;
Murphy, Paul; s22 s47F

Cc: s47F ; Bruce Elliot

Subject: Hammerhead threatened species status assessment

When: Monday, 20 February 2017 9:00 AM-3:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.

Where: Primary Industry Building, Level 7, 80 Ann Street, Brisbane QLD 4000

Hi folks,

I'm sending this now as I'm cognisant that time is getting away and I wanted to ensure that everyone hadn't either forgotten about this upcoming meeting or thought we'd changed plans. I hope that I will follow with a more detailed agenda tomorrow, once I can run it by a couple of folks here.

In a nutshell, the meeting is for all concerned to gain understanding of, and move towards, the management arrangements required to enable scalloped hammerhead sharks to be eligible for listing as Conservation Dependent under the EPBC Act. Only representatives of the key management agencies are attending so that discussion can remain focussed.

The advice of the Threatened Species Scientific Committee (TSSC) is due to the Minister in September of this year, and their advice with regard to fishery management arrangements can only be made with respect to that which is in force under law at that time. We need to know what each of us is doing, and able to do, by that time and to see how it fits together to satisfy the TSSC that the arrangements are sufficient to support the recovery of the species.

Note that the focus of the discussion will be on the scalloped hammerhead, s22

Cheers,

s22

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Department of the Environment and Energy

Options for Conservation Dependent listing of hammerhead sharks under *Environment Protection and Biodiversity Conservation Act (1999)*

Meeting Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000

On arrival please call §47F [REDACTED] for entry – §47F [REDACTED]

February 20 2017

Purpose: to gain understanding of, and move towards, the management arrangements required to enable scalloped hammerhead sharks to be eligible for listing as Conservation Dependent under the EPBC Act.

Issues: Scalloped hammerhead sharks likely eligible for listing as Endangered under the EPBC Act.

Another option is to list the species in the Conservation Dependent category which allows fishing to continue if management can be demonstrated not to impede recovery of species.

Management measures must be in force under law.

GBRMP Act does not recognise Conservation Dependent category.

Agenda:

9:00 Introduction, apologies, housekeeping

9:15 Hammerhead nomination(s) – focus on scalloped (*S. lewini*)

9:30 The EPBC listing process and status of hammerheads (incl. timeline)

9:45 Conservation Dependent requirements and experience to date

Multiple plans as one management plan

Commonwealth mechanisms

10:30 Morning tea

11:00 Northern Territory – steps taken and planned

11:20 Queensland– steps taken and planned

11:40 EPBC Listing and Great Barrier Reef Marine Park Act

12:00 TSSC response and discussion

12:45 lunch

1:30 Synthesis and next steps

2:00 §22 [REDACTED]

3:00 Finish (to suit approx. 4:00pm flights)

Key outcomes from Hammerhead discussion by Australia, Qld and NT Governments and GBMRPA and members of TSSC – 20 February 2017 – in confidence

The group discussed the upcoming consideration by the TSSC to list scalloped s22 hammerhead.

Minimum requirements in the interim (s47C):

1. Catch limits for hammerhead in the interim to ensure catch doesn't exceed the amount in the NDF (300t) with jurisdictions (Qld, NT, WA) to work together to ensure appropriate limits are set
2. Each jurisdiction would need to ensure once the limit is reached catch doesn't continue (eg revert to trip limits at an earlier trigger point, spatially explicit rules to limit interactions etc)
3. Some form of data validation to verify catches and estimate discards (not necessarily observers, but could involve prior reporting, cameras, logbook validation)
4. Commitment to review and improve over time and to monitor and measure stocks to feed into future assessments, support recovery and provide regular updates to TSSC
5. GBMRPA commit to working with DoE and Qld to maximise consistency of treatment of conservation dependent species in GBR

Longer term management intentions:

- Harvest strategies
- VMS
- Improved monitoring and reporting

Timing:

- Jurisdictions to provide updated information before TSSC meeting (eg Qld to provide spatial/temporal closures, other measures in place to meet minimum requirements)
- Minimum requirements to be discussed at TSSC March meeting – TSSC to write to each jurisdiction to consider following the meeting to advise
- GBMRPA board meeting 5 April (Helene to attend)
- Advice to TSSC on what jurisdictions are able to do – June TSSC meeting
- Advice to Minister September
- 90 days for Minister to decide

Back up plan:

- TSSC recommendation to Minister conditional on minimum requirements before his decision (ie having catch limits in place in law before decision is made).
- Would provide an additional 90 business days to implement

Key points for industry communication:

- There is recognition that much has been done (and is planned) to sustainably manage shark (in both Qld and NT)
- s47C

- s47C [REDACTED]
[REDACTED]
[REDACTED]
- Australian, Qld, NT governments and GBRMPA are working together to ensure a consistent approach across jurisdictions wherever possible

Impacts of an endangered listing

- s22 [REDACTED] to provide....
- Harmonisation across states/Cth

Hammerhead shark take in Qld

- Primarily taken in the East Coast Inshore Fin Fish Fishery (ECIFFF) and the Gulf of Carpentaria Fin Fish Fishery (GOCIFFF)
- Most species are managed at a whole of fishery level vs. species specific management arrangements.
- Majority of catch recorded by net fishers: typically >95%
- No hammerhead specific management arrangements in place

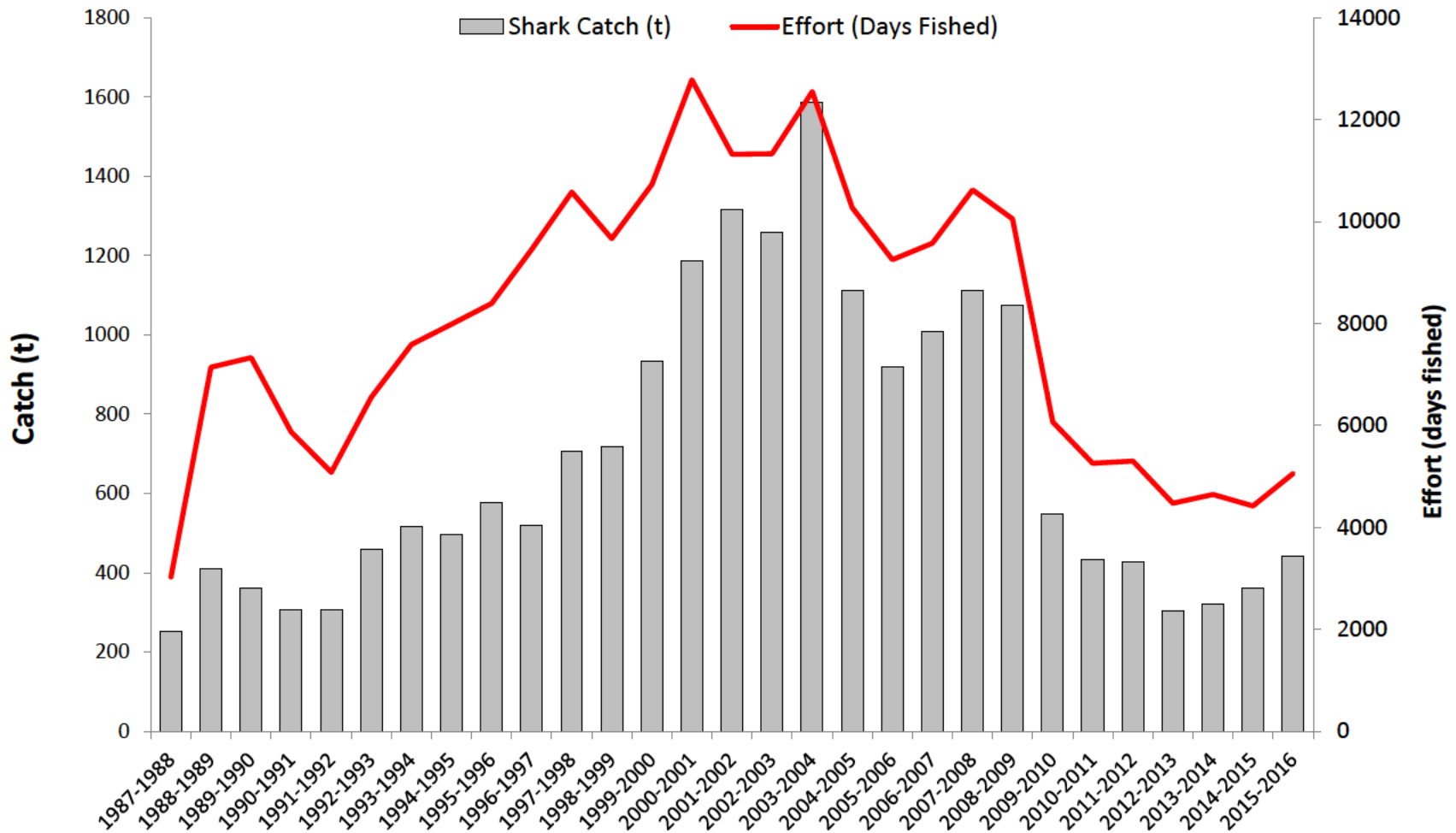
East Coast Inshore Fin Fish Fishery (ECIFFF)

- Limited licence fishery
- Shark Managed under a 600 t TACC limit
- Access to shark resources restricted through S-fishing symbol
 - Non-S in possession limit → Line (4) and Net (10)
 - Recreational fishers → 1 shark or ray
- 1.5 m / 60 cm interdorsal Maximum Size Limit (line fishers & net fishers without an S-fishing symbol)
- Shark specific logbook (SR01)

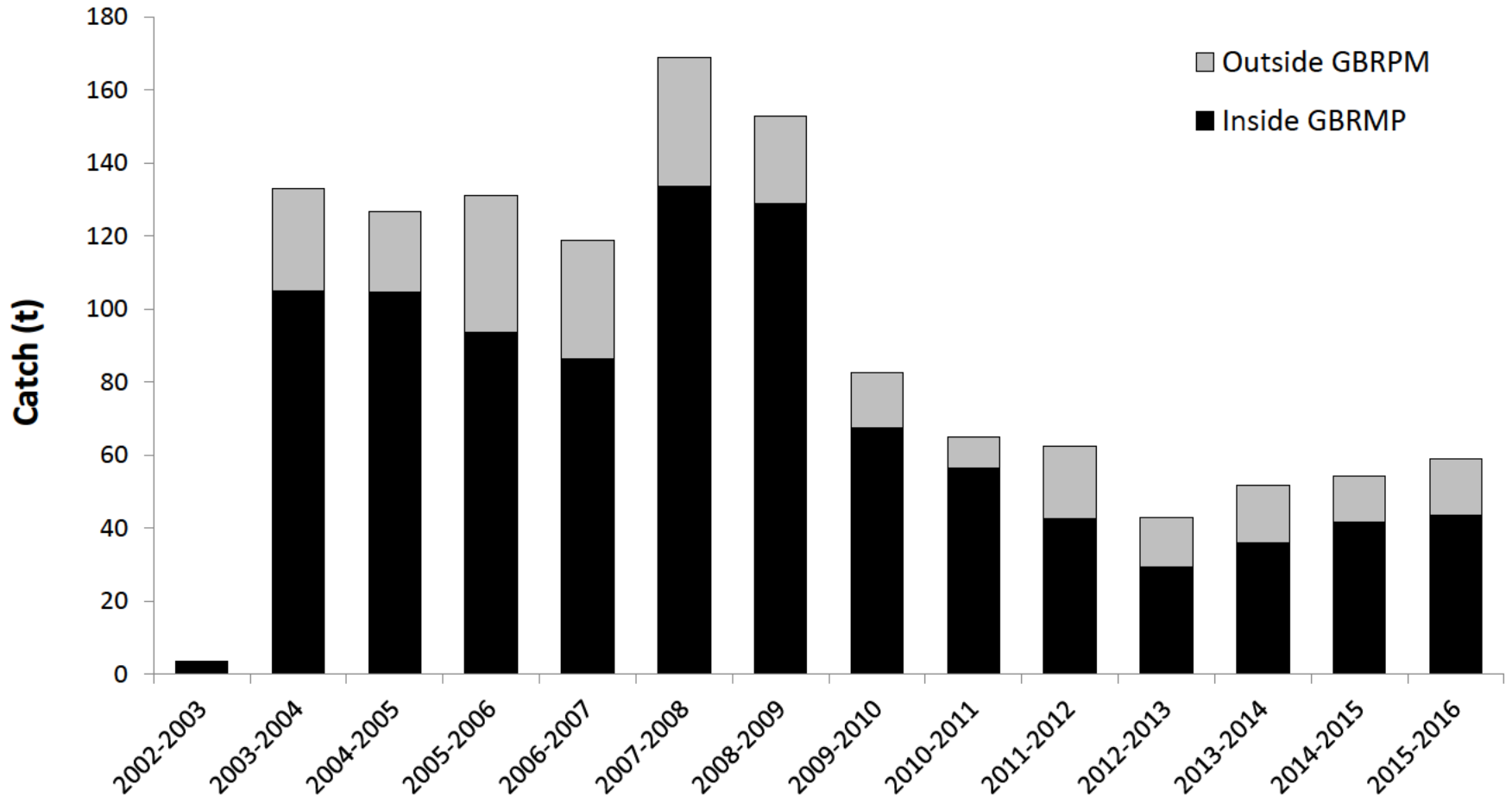
Total Shark Catch & Effort – QLD east coast

- Total shark catch
 - 1990/01 -98/99 (average 512 t, range 307 -718 t)
 - 2000 – 2008/9 (average = 1175 t, range 934 – 1587 t)
 - 2009/10 – 2015/16 (average = 404 t, range 302 – 548 t)
- Decline post 2009 attributed to management reforms *i.e.* S fishing symbol, initiatives to reduce effort and platform reductions
- QLD Catch dominated by blacktip sharks
- Hammerhead shark catch = 13 – 16 % of total shark catch (2009 – 2016)

Total Shark Catch & Effort – QLD east coast



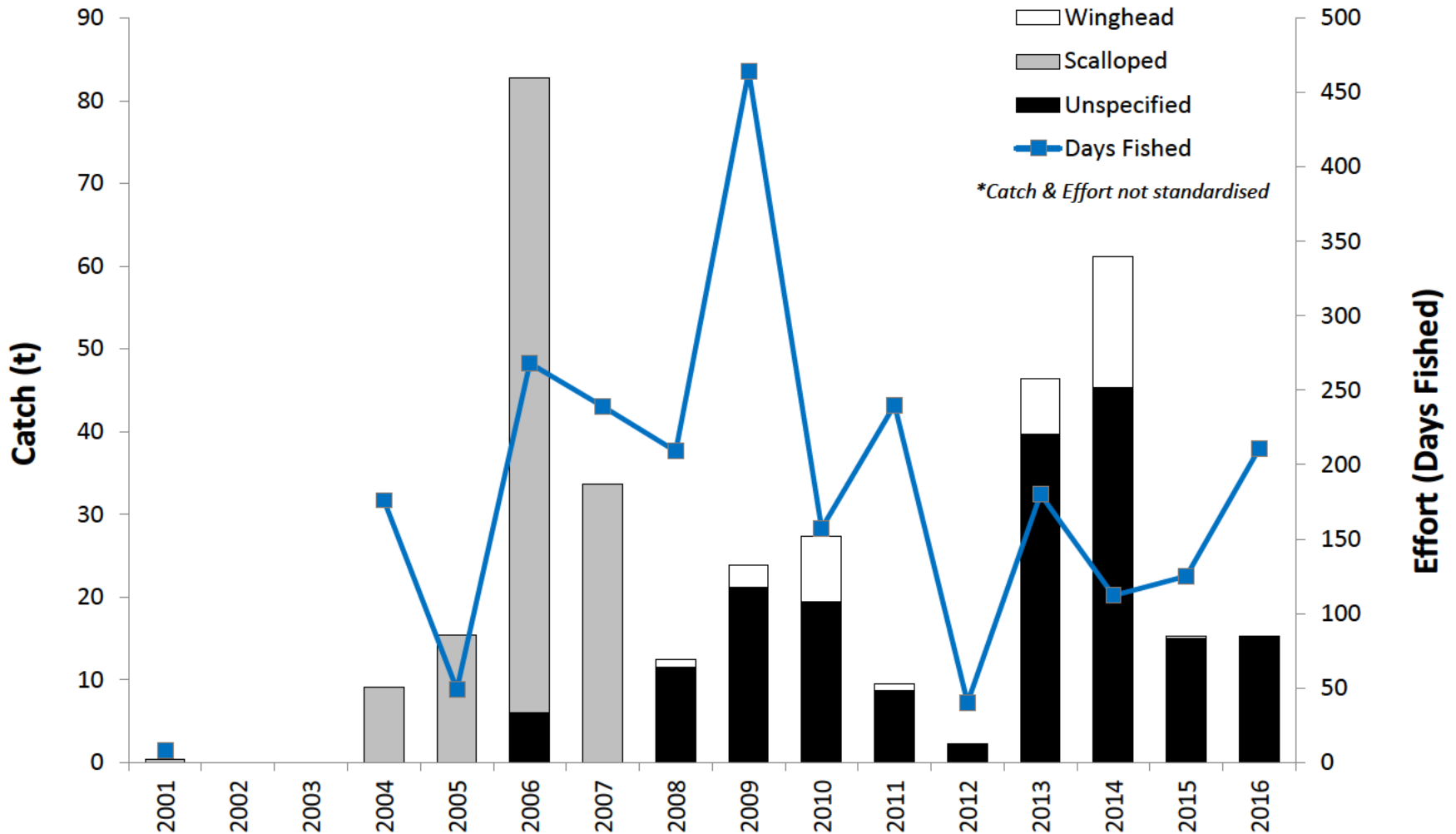
Hammerhead Shark Catch - ECIFFF



Gulf of Carpentaria Inshore Fin Fish Fishery (GOCIFFF)

- Smaller fishery when compared to ECIFFF
- Limited licence fishery with closures and gear restrictions.
- Shark catch not managed under a TACC
- No S symbol or analogous arrangements
- No in possession limits for commercial operators
- Rec. limit → 1 shark or ray
- 1.5 m / 60 cm interdorsal Maximum Size Limit (line only)
- 100 kg fillet fish restriction

Gulf of Carpentaria Inshore Fin Fish Fishery (GOCIFFF)



Reforms to fisheries management in Qld

- Green Paper 2016 – 11,800 submissions
- The overwhelming message was that all stakeholders wanted reform in the way we manage fisheries.
- There was strong support from all sectors for better fishery monitoring, more effective engagement, more responsive decision making and greater fisheries compliance.
- The Queensland Government is committed to reforming fisheries, and is currently preparing a Sustainable Fisheries Strategy which will outline the government's reform agenda for the next ten years, taking into account the public feedback on the Green Paper.
- The government is aiming to finalise the Strategy by mid 2017.

Example of types of reforms

- More monitoring and regular stock assessments
- Logbook validation
- VMS on net boats
- Harvest strategies for key stocks with trigger points for action
- Moving to more quota managed fisheries (rather than input controlled)
- New consultation (e.g. expert panel and fishery specific working groups (e.g. shark))
- Implementation to commence mid year

EPBC Wildlife Trade Operation

- September 2016 – 3 year approval for East Coast Inshore Finfish Fishery (expires Sept. 2018)
- Range of conditions for shark:
 - *Condition 4* - DAF to develop a strategy for the harvest of key fish and shark species...
 - *Condition 5* - DAF to work with stakeholders to determine an improved data collection and validation approach...
 - *Condition 6b* - Commence consultation on alternate provisions for the processing of sharks at sea including; introducing a prohibition on the removal of fins & filleting sharks

Engagement with industry about hammerhead

- 2 day workshop with Industry / Scientific / Government representatives (8 – 9 December);
- Industry letter sent to all net operators on the East Coast and Gulf.
- No consensus from industry members of proposed options to further limit hammerhead catch (some supported a TACC, others didn't)

Options

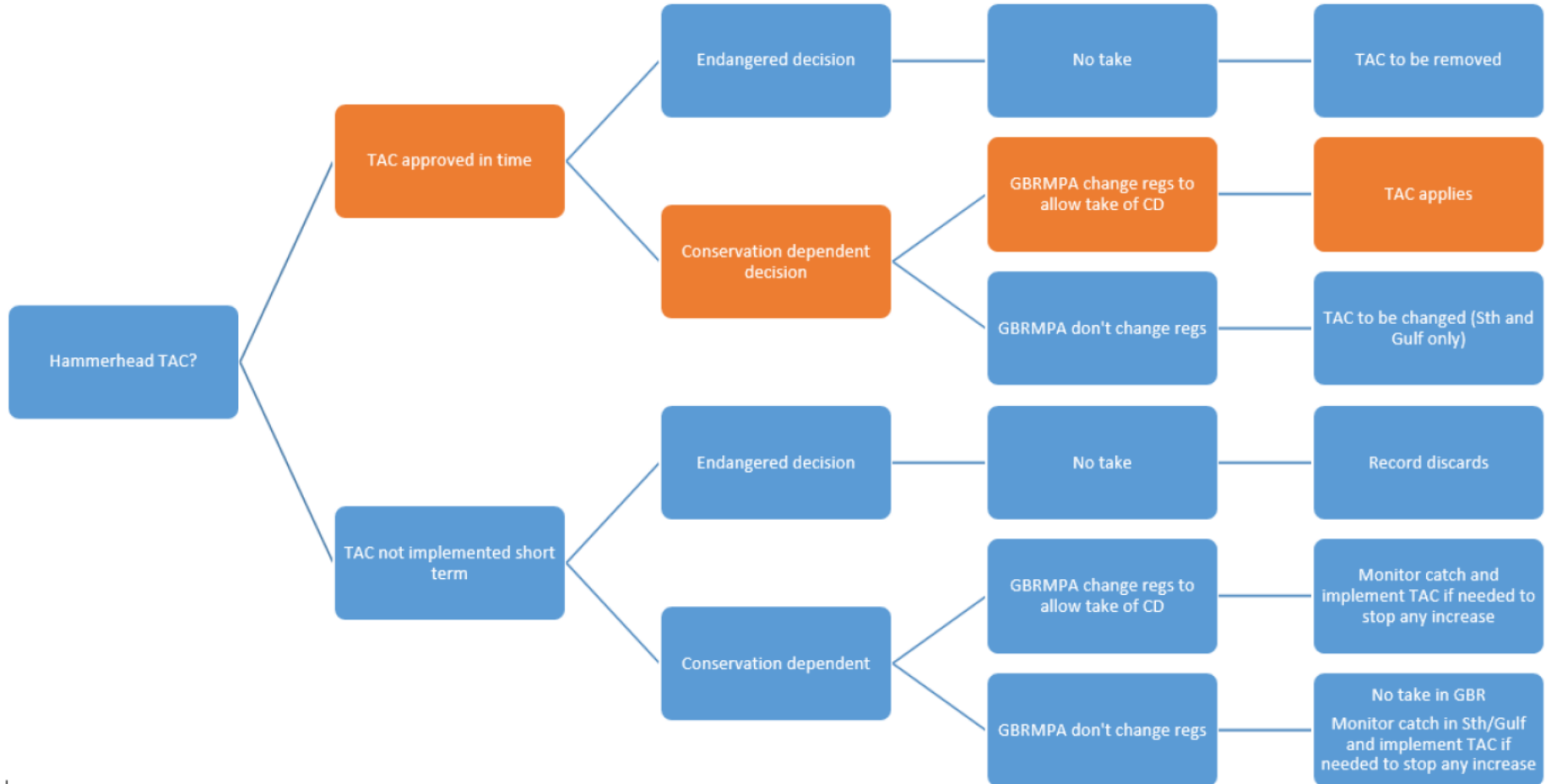
- Commercial TACC (e.g. 100t East Coast, 50t Gulf) with trigger points for changes
- Better reporting of shark catch (AIVR, recording discards etc.)
- Education (e.g. better shark id)
- No-take for line fishers
- Better monitoring (e.g. cameras on boats)

Ideally all of these should be considered as part of a shark harvest strategy, not in isolation

Challenges

- DAF is still considering options and timeframes
- Need to consider:
 - Timing of any management changes
 - Will be challenging to implement any changes before September in terms of consultation requirements and legislative amendments
 - Would potentially run ahead of other more holistic reforms and then be inconsistent
 - Discards from incidental catch
 - Impact of GBRMP Regs if conservation dependent
- Will require Ministerial support

Complexity of multiple jurisdictions



From: s22
To: "Marsh, Helene"; "Simpfendorfer, Colin"; s47F
Cc: S22 ; S22 ; S22
Subject: Papers for teleconference Friday 17 Feb [SEC=UNCLASSIFIED]
Date: Thursday, 16 February 2017 1:59:19 PM
Attachments: [CD 6 issues for TSSC.docx](#)
[Hammerhead - post NDF update from states - summary.docx](#)
s22

Hi all,

Attached are a couple of documents that may be useful for our discussion tomorrow. They are:

1. An extract from a letter to AFMA stating the issues that the TSSC expected to be addressed in a plan of management for previous Conservation Dependent assessments.
2. A summary of developments in relevant hammerhead fisheries, based largely on the response from jurisdictions to a letter from Geoff and Paul in late 2016.
3. s22
[Redacted]

Note that Geoff Richardson is unable to attend, but will be briefed afterwards in anticipation of the Monday meeting.

Will look forward to speaking tomorrow. And just for completeness, here again is the number to call in:

The number to call is: s22

The participant code is s22

Cheers,

s22

s22

Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
Department of the Environment and Energy

s22

Extracted from previous letter to AFMA in 2008

In performing its function under the EPBC Act of advising the Minister on commercial fish species that are candidates for Conservation Dependent status, the Committee gives weight to the following six issues being addressed by the plan of management (i.e. rebuilding strategy):

1. the rationale for the limit reference points identified for the species (*in considering this issue, the Committee will require an evaluation of previous management regimes and modelling that have led to the current status of the species/stock*)
2. a clear statement of the objectives to be achieved, including rebuilding targets and timeframes that recognise the objectives of the EPBC Act (*the Committee will expect this to include an estimation of the duration of the recovery process*)
3. specified actions required to achieve the objectives
4. identification of the key threats to the recovery of the species and strategies to counter these threats (*the Committee will expect to see a detailed mitigation strategy for the incidental take of the species*)
5. specification of all significant related environmental impacts (positive or negative) that will arise from the implementation of the plan (*this will include consideration of all relevant marine plans (e.g. other fishery management plans) in all appropriate jurisdictions*)
6. performance criteria and strategies for rigorous evaluation of the effectiveness of the plan against its objectives, with a clear description of the monitoring and review process and its associated timelines.

Table 1. Summary of Actions of jurisdictions on hammerhead shark management since the 2014 NDF came into place.

	NT	QLD	Commonwealth (AFMA)
2014	<p>Major review of management arrangements.</p> <p>- Development of management plan in consultation with industry</p> <p>- NESP Hammerhead stock structure project participation</p>	<p>QLD DAF commissioned assessment of shark stocks</p>	<p>No information on changed management arrangements provided.</p> <p>Take has reduced further since NSW ban on the sale of hammerhead shark (approx. 5 t per year).</p> <p>Given this, AFMA is not pressing for a conservation dependant listing by the TSSC that would allow continued export.</p>
2015	<p>Stock assessment of s22 hammerhead sharks in Queensland published (Agri-science Queensland – QLD DAF)</p> <p>QLD DAF commissions independent review of stock assessment report</p>		
2016	<p>Desk review of Queensland shark stock assessment for fisheries Queensland.</p> <p>QLD Government releases green paper on fisheries management reform.</p> <p>ECIFFF WTO approved by DoEE.</p>		

s22

Northern Territory

Source: Update letter to Protected Species and Communities branch (16/12/2016)

Fisheries in NT that take Hammerhead shark:

NT Offshore Net and line Fishery (ONLF)

Small numbers also taken in:

NT Barramundi Fishery

NT Coastal Line Fishery

Take:

Year	Catch (t)
2005	159
2006	98
2007	107
2008	95
2009	118
2010	103
2011	142
2012	98
2013	43
2014	41
2015	14

Hammerhead catch data accuracy:

A long running observer program (since 2001) has reported hammerheads to species level and indicates that there is an even 50% distribution between scalloped s22 hammerheads in the ONLF.

Timeline:

2013-2016: Major review of management arrangements.

- Development of management plan in consultation with industry (hammerhead specific measures mentioned below).
 - Vessels required to be equipped with vessel monitoring systems with greater monitoring coverage for those with gear most likely to catch hammerheads (demersal long-lines).
 - All sharks to be landed with fins naturally attached (with exemptions applied under special circumstances).
 - cap permitted catch of hammerhead species (TACC to be set at average of 2007-2012 levels) will prevent growth in the level of catch of hammerheads in the ONLF.
 - hammerheads correctly identified and reported on logbooks.
 - Assessment surveys.
 - trip limits imposed when catch limits reached.
 - if total allowable commercial catch (TACC) is reached all activity in fishery halted until next allocation period.

- NESP Hammerhead stock structure project participation (DPIR provided logbook and observer data and hammerhead samples)

2017: Management plan intended to be formalised in 2017 which will implement the above measures

Queensland

Update letter to Protected Species and Communities branch (13 December 2016)

Fisheries in QLD that take Hammerhead shark:

East Coast Inshore Fin Fish Fishery (ECIFFF)

Gulf of Carpentaria (GOCIFFF)

Take:

ECIFFF	s22	Scalloped hammerhead (<i>S. lewini</i>) (t)	GOCIFFF	s22	Scalloped hammerhead (<i>S. lewini</i>) (t)
2006		121.1	2006		76.7
2007		51.1	2007		33.6
2008		10.4	2008		
2009			2009		
2010		17.2	2010		
2011		9.6	2011		
2012		8.9	2012		
2013		11.5	2013		
2014		9.9	2014		
2015		21.1	2015		
2016*		13.8	2016**		

** Data for 2016 fishing year incomplete

Hammerhead catch data accuracy:

Logbook catch data has low species resolution. QLD Department of Agriculture and Fisheries working with industry to improve.

Timeline:

2014 QLD Department of Agriculture and Fisheries commissioned assessment of shark stocks

2015 May: Stock assessment of whaler and hammerhead sharks in Queensland published (Agri-science Queensland – QLD DAF)

2015: QLD DAF commissions independent review of stock assessment report

2016 Feb: Desk review of Queensland shark stock assessment for fisheries Queensland (Cortez 2016)

Review finds stock assessment sound but given concerns over existing catch data that results should be treated with caution. Review further recommended that there should be no increase in total take of sharks in QLD until a more reliable data set is collected and assessed.

2016 July: Queensland Government releases green paper on fisheries management reform.

Paper to engage community and stakeholders regarding best approach for managing Queensland fisheries resources (QLD government currently consolidation feedback).

Outcomes may have implications for QLD fisheries that target sharks.

QLD DAF unable to give timeframes for implementation of management changes but stated that “*QLD government will consider long term strategic policy direction for fisheries management in early 2017 and will consider fishery specific changes subsequent to this*”.

2016 Sept: ECIFFF WTO approved by DoEE.

Approval has a number of conditions that relate directly to the take of sharks.

Condition 4 “*develop a strategy of key fish and shark species in the ECIFFF*”

Condition 5 requires “*improved data collection and validation techniques*”

Condition 6 requires “*changes to management arrangements for processing sharks at sea*”

s22

s22

Commonwealth (AFMA)

Source: Update letter to Protected Species and Communities branch (21/09/2016)

AFMA fisheries that take Hammerhead shark:

Taken in some AFMA managed fisheries in small quantities (10-12 t per year).

Note: Take has reduced further since NSW ban on the sale of hammerhead shark (approx. 5 t per year).

Given this AFMA is not pressing for a conservation dependant listing by the TSSC that would allow continued export.

Take:

Commonwealth trawl	Scalloped hammerhead (<i>S. lewini</i>) (t)
2007/08	
2008/09	
2009/10	
2010/11	
2011/12	
2012/13	
2013/14	
2014/15	0.144
2015/16	

Coral sea	Scalloped hammerhead (<i>S. lewini</i>) (t)
2007/08	2.387
2008/09	0.102
2009/10	
2010/11	
2011/12	
2012/13	0.050
2013/14	
2014/15	
2015/16	

Eastern Tuna and Billfish	
2007/08	
2008/09	
2009/10	
2010/11	
2011/12	
2012/13	
2013/14	
2014/15	
2015/16	

Gillnet, Hook and Trap	S22	Scalloped hammerhead (<i>S. lewini</i>) (t)
2007/08		
2008/09		0.012
2009/10		
2010/11		0.083
2011/12		
2012/13		0.018
2013/14		
2014/15		
2015/16		

Great Australian Bight	S22
2007/08	
2008/09	
2009/10	
2010/11	
2011/12	
2012/13	
2013/14	
2014/15	
2015/16	

Western Tuna and Billfish	S22
2007/08	
2008/09	
2009/10	
2010/11	
2011/12	
2012/13	
2013/14	
2014/15	
2015/16	

Research work/assessments on Australian hammerheads since the 2014 NDF

Exploring the status of Australia's hammerhead sharks -

National Environmental Science Programme (NESP) Marine Biodiversity Hub.

<https://www.nespmarine.edu.au/document/exploring-status-australia%E2%80%99s-hammerhead-sharks> (December 2015)

Led by the Australian Institute of Marine Science (AIMS) the project examines the current state of knowledge on hammerhead sharks in Australia waters to define what is currently known and identify data and knowledge gaps. The projects goal is to provide information to help inform Australian and international conservation and management initiatives.

The project used tagging and genetic sampling to see how hammerhead shark populations are connected. Findings were combined with biological, ecological and fisheries data to assess the potential stock structure and population status of hammerhead sharks in Australian waters.

The project also investigated the potential connections between Australian hammerhead populations with those from Indonesia, Papua New Guinea and islands of the Pacific.

Project findings:

Regional and broad-scale analysis indicated several gaps in current data. Several regions are less well sampled than others (e.g. less populated, remote regions such as the Gulf of Carpentaria and NW Western Australia had lower numbers of samples than adjacent regions. Likely the result of limited sampling than the lack of species occurrence).

Based on the current data it is unclear how much individuals move between regions and what is causing differences in size and sex class distributions. This lack of data precludes any estimation of connectivity within and beyond Australia. Although stock structure models can be developed, current data are not adequate to discard any of the current stock structure hypotheses (e.g. movement between Australia and Indonesia and PNG, adults moving along the margins of the continental shelf or limited movement of populations).

Project recommendations:

Full definition of the status of Australia's tropical hammerheads requires a significant amount of additional data. This analysis highlights what is currently known, where knowledge gaps are present and provides several hypotheses related to the stock structure of scalloped hammerheads. Continued monitoring and additional research are a priority for developing effective conservation and management policy around these species. This should include:

- Species-specific data in fisheries catch, including size and sex where possible
- Examination of population connectivity via movement and genetic approaches
- Examination of post-release survival after fishery interaction
- Improved data sharing between State and Territory agencies

s22

Stock assessment of s22 and hammerhead sharks in Queensland –
Agri-science Queensland – Queensland Department of Agriculture and Fisheries
(May 2015)

The report provides detailed stock assessments for the most common types of sharks encountered by Queensland including the scalloped hammerhead (*Sphyrna lewini*)
s22

The majority of data on shark populations used in the stock assessment comes from the commercial fishing sector, there was a heavy reliance on information obtained through the logbook program. Close examination of the logbook data revealed that it is less informative than similar logbook data for bony fish populations. However, more reliable data on the species composition of commercial shark catches were collected as part of the Fishery Observer Program (FOP) which was run by Fisheries Queensland between 2006 and 2012. This data provides a snapshot of the shark species caught by commercial fishers.

The report highlighted concerns about data quality and the availability of data on shark discard rate. The report went on to recommend future stock assessments would also benefit from improved catch composition data. Reducing these uncertainties and improving fisheries data on sharks are likely to increase confidence around Maximum Sustainable Yield estimates, supporting the finding that catch levels for shark species covered by this assessment are currently sustainable.

Desk review of Queensland shark stock assessment for fisheries Queensland –
Enric Cortes (February 2016)

The review found that the QLD DAF Stock assessment of s22 and hammerhead sharks in Queensland is sound but given concerns over existing catch data results should be treated with caution. The review further recommended that there should be no increase in total take of sharks in QLD until a more reliable data set is collected and assessed.

From: [Marsh, Helene](#)
To: [Geoff Richardson](#); s22
Cc: [Simpfendorfer, Colin](#); s22
Subject: GBRMPA and Hammerheads
Date: Wednesday, 5 April 2017 3:53:51 PM
Attachments: [Advise GBRMPA hammerhaeds.docx](#)

Dear Colleagues

I verbally briefed the GBRMPA Board today. Russell Reichelt, Emma Johnston and Margie McKenzie were present; Melissa George was on the phone. I think s47F was representing Dave Stewart the Board member from the Qld government.

s47C

Regards

Helene

Helene Marsh FAA, FTSE
Dean, Graduate Research,
Distinguished Professor, Environmental Science
James Cook University,
Townsville 4811
Australia

s47F

s47F

From: s22
To: s47F
Cc: s47F; [Paul Murphy](#); [Geoff Richardson](#); s22
Subject: RE: Hammerheads in WA [SEC=UNCLASSIFIED]
Date: Thursday, 11 May 2017 10:38:53 AM

Hi s47F

Thanks again for your email. And apologies for coming back to you later than expected. I was in Brisbane with QDAF all last week.

I understand that WA are entering this conversation later than Qld and NT. Apologies for this. We became aware that there is increasing interest from some parts of the sector to reinvigorate WA's Northern Shark Fishery – hence our conversation with s47F - and I note the information below regards the take within the temperate fishery. For these reasons, it is timely to include WA Fisheries in the Hammerhead/TSSC discussions.

s22

In mid-2014, the TSSC published its preliminary assessment on the department's website for consultation which noted that the scalloped hammerheads was eligible for listing in the Endangered category (s22). Since that assessment, the levels of hammerhead catch in fisheries has become more widely understood. Based on this information and fisheries management measures being implemented or proposed, a Conservation Dependant listing is now also being considered by the TSSC.

For the TSSC to recommend that the scalloped hammerhead be listed as conservation dependant, all relevant jurisdictions are required to have management arrangements in force under legislation, so that the case for a conservation dependant listing is not jeopardised across all jurisdictions. It is important for the TSSC to understand management arrangements for all hammerhead species during this assessment due to the similar species provisions.

The TSSC have indicated that to consider a conservation dependent listing recommendation, that the following must be taken into account when developing these management arrangements:

1. Catch limits for all hammerhead species to ensure total catch doesn't exceed the amount in the NDF (300t) with jurisdictions (Qld, NT, WA) to work together to ensure appropriate limits are set
2. Each jurisdiction would need to ensure once the limit is reached catch doesn't continue (eg revert to trip limits at an earlier trigger point, spatially explicit rules to limit interactions etc)
3. Some form of data validation to verify catches and estimate discards (not necessarily observers, but could involve prior reporting, cameras, logbook validation)
4. Commitment to review and improve over time and to monitor and measure stocks to feed into future assessments, support recovery and provide regular updates to TSSC

5. GBRMPA commit to working with DoE and Qld to maximise consistency of treatment of conservation dependent species in GBR

As discussed in the recent teleconference with Qld and NT two weeks ago, the TSSC will next meet in Canberra from 6 – 8 June. The Department would like to provide the TSSC with a written update on progress at that meeting and have asked that each jurisdiction provide a written update to support the Committee's discussion in June.

These updates are expected to cover off on points 1-4 (and 5, where relevant to Qld). Should WA have information they would like to contribute, it will need to be provided to s22 by Friday 19 May 2017 to enable the information to be provided to the Committee for consideration at its June meeting.

For clarification, please note that s22 team is responsible for all TSSC related issues and that my team looks after fisheries, hence our engagement with you – unfortunately on this subject matter, it can get a little blurry. Please feel free to contact s22 directly if you would like to discuss the TSSC process.

If you would like to discuss implications regards fisheries management, please let me know as I am happy to discuss. Alternatively, I will be in Perth from Mon 29 May to Thursday 1 June and can make a time to meet.

s22

Director
Sustainable Fisheries Section
Department of the Environment and Energy

s22

From: s47F

Sent: Monday, 24 April 2017 4:47 PM

To: s22

Cc: s47F

s47F

Subject: Hammerheads in WA

s22 – I understand that are co-ordinating the approach to the take of hammerhead species on a national basis and that Dept of Environment has recognised the need to include WA in that approach.

For further contact on the matter, my details are below. s47F (as s47F s47F) will also need to be included.

Note that my involvement is essentially limited to the northern (currently inactive) tropical shark fishery. However, the matter of the approximately 60t take of Hammerheads in the temperate fishery will also need 'factoring in' – and s47F will be the person who will need to be engaged on that issue.

Regards

s47F

s47F

s47F

s47F

3rd Floor, The Atrium, 168 St Georges Tce, Perth, Western Australia
Locked Bag 39, Cloisters Sq Post Office, Perth WA 6850



From: s22
To: s47F
Cc: s47F [Geoff Richardson; TSSC Secretariat](#)
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Date: Friday, 23 June 2017 11:40:09 AM
Attachments: [Correspondence - TSSC letter to NT Fisheries June 2017 - 20170622.pdf](#)

Dear s47F

Please find attached letter from the Chair of the Threatened Species Scientific Committee in relation to their consideration of hammerheads for EPBC Act listing.

If you have an questions please do not hesitate to get in touch.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

 Save paper. Do you really need to print this email?

From: s47F
Sent: Friday, 19 May 2017 3:45 PM
To: s22
Cc: s47F s47F
Subject: Hammerhead threatened species status assessment

Dear s22

Please find attached the Northern Territory Department of Primary Industry and Resources response to the progress against the minimum and long term requirements for the management of Scalloped s22 Hammerheads as agreed upon during the meeting in Brisbane on 20 February 2017.

s47F

s47F

Department of Primary Industry and Resources

Goff Letts Building, Berrimah Farm
Makagon Road, Berrimah NT 0828
GPO Box 3000 Darwin NT 0801

s47F

s47F

w... www.dpif.nt.gov.au

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Berrimah Farm
Makagon Road
DARWIN NT 0828Postal Address
GPO Box 3000
DARWIN NT 0801s47F
F 08 8999 2010

s47F

File Ref:

s22

Dear s22

Please find following a summary of the Northern Territory Department of Primary Industry and Resources (DPIR) progress against the minimum and long term requirements for the management of Scalloped s22 Hammerheads as agreed upon during the meeting in Brisbane on 20 February 2017. The Offshore Net and Line Fishery (ONLF) is the Northern Territory fishery with the most significant interactions with Scalloped s22 Hammerhead Sharks. This fishery is currently in the final stages of implementing a new management plan that will set catch limits and harvest control rules for all species under a harvest strategy.

Within this management plan a total allowable catch (TAC) of 100t for Scalloped (50t) s22 Hammerhead sharks will be implemented, along with prescribed harvest control rules when reference points are triggered to ensure these TACs are not breached. Also detailed within the plan are improvements to monitoring and reporting of Hammerhead Shark catches. It should be noted that the Department of Environment and Energy has been supplied with a copy of this plan and has provided comment. DPIR has received these comments and revised the management framework accordingly.

The current status of the ONLF Management plan is that it has been accepted by Industry and is undergoing the final changes prior to implementation. The plan is expected to be in force by September 2017.

To summarise DPIR's progress against minimum requirements set out in the Brisbane meeting;

- 1. Catch limits for hammerhead in the interim to ensure catch doesn't exceed the amount in the NDF (300t) with jurisdictions (Qld, NT, WA) to work together to ensure appropriate limits are set.**

DPIR will implement catch limits for s22 Scalloped Hammerheads in ONLF under the new management framework. Under the framework a TAC of 50 t s22 Scalloped Hammerheads has been set. This level of catch is consistent with long term average catch of these species in the NT and consultation with Western Australia and Queensland have identified that all jurisdictions will not exceed the Non Detriment Finding catch limit of 300 t across Northern Australia.

2. Each jurisdiction would need to ensure once the limit is reached catch doesn't continue (eg revert to trip limits at an earlier trigger point, spatially explicit rules to limit interactions etc)

Within the harvest strategy of the ONLF management frame work there will be trigger and limit reference points that will have associated management responses to limit or stop further harvesting of Hammerhead Sharks. In the case of the limit reference point (50t) no further fishing will be permitted that allows the harvest or discard of either of these species.

3. Some form of data validation to verify catches and estimate discards (not necessarily observers, but could involve prior reporting, cameras, logbook validation)

The ONLF already has an effective logbook programme which provides species specific catch information and records shot by shot effort information. Supporting and verifying the ONLF logbook program is a long running observer program. Information from these two sources has been used extensively during the EPBC Act listing process, having been supplied to ABARES, Fishwell Consulting and AIMS.

Despite the good quality of DPIR's current data it is recognised there is a need for increased levels of data validation and monitoring of Hammerhead Shark catches within the ONLF. The new ONLF management plan will address this by;

- Implementation of Vessel Monitoring Systems (VMS) on all ONLF vessels;
- Introduction of electronic logbooks to facilitate efficient and timely access to logbook data;
- Restriction of product unloads to Darwin or Gove;
- All sharks landed fins naturally attached (unless exemption granted);
- Specific recording of Hammerhead Sharks on Catch Disposal Records;
- Random port inspection compliance program; and
- Increased monitoring program of at least 20% coverage where high risk of Hammerhead Shark interactions exist;

4. Commitment to review and improve over time and to monitor and measure stocks to feed into future assessments, support recovery and provide regular updates to TSSC

DPIR has been and continues to be committed to improving information collected on Hammerhead Sharks. DPIR is actively participating in research into these species, and as previously stated has supplied our logbook and observer information to several organisations involved in the EPBC Act listing of these species.

Furthermore, DPIR is currently participating in a number of Hammerhead Shark projects. A summary of the DPIR's logbook and observer data was recently published (Chin *et al* 2017). DPIR have supplied the most comprehensive set of genetic samples to a current stock structure project being undertaken by CSIRO. Additionally a significant portion of an NT Fisheries shark Scientist's time is assigned to contribute to the NESP Hammerhead Shark project. DPIR has undertaken this work, mostly on the back of its own initiative. DPIR believe this

more than adequately demonstrates our commitment to supporting research into Hammerhead Shark populations in Australian waters.

5. GBRMPA commit to working with DoE and Qld to maximise consistency of treatment of conservation dependent species in GBR

Not applicable to the Northern Territory Jurisdiction.

To summarise DPIR's progress against long term requirements set out in the Brisbane meeting;

1. Harvest strategies

DPIR commits to introducing a new management framework that includes a harvest strategy for the ONLF.

2. VMS

As part of the new management arrangements DPIR will make mandatory VMS to all operators working in the ONLF.

3. Improved monitoring and reporting

DPIR is committed to ongoing improvement of monitoring and reporting of catches of Hammerhead Shark catches within the ONLF. This includes; increased levels of observer coverage on vessels, electronic logbook reporting and Catch and Disposal Records to facilitate quicker identification of catch levels of Hammerhead Sharks and development of Fishery Status Reports that assess the performance of the ONLF against the harvest strategy.

Yours sincerely

s47F

s47F

s47F

19/05/2017

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47F

s47F

Fisheries and Product Integrity
Department of Primary Industry and Resources
GPO Box 3000
DARWIN NT 0801

s47F

The Threatened Species Scientific Committee (TSSC) thanks the Northern Territory Government for its update on the territory's proposed management arrangements for hammerhead sharks, contained in your letter dated 19 May 2017 to the Department of the Environment and Energy.

The letter was provided to the TSSC at its June meeting, as part of our considerations of whether s22 species of hammerhead shark are eligible for listing as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The TSSC is continuing to consider whether fisheries management arrangements for the species are sufficient to satisfy the requirements of the EPBC Act to support listing in the Conservation Dependent category. The relevant extract from the EPBC Act is appended.

s47C

To inform our future consideration of whether fisheries management arrangements for hammerhead sharks support listing in the Conservation Dependent category, the TSSC has the following questions:

- s47C

- s47C

- s47C

- s47C

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47C

- s47C

The TSSC's advice on this species assessment is required to be finalised and provided to the Minister for the Environment and Energy by 30 September 2017. The TSSC will meet from 12–14 September to finalise their advice. The TSSC therefore requests that the Northern Territory Government responds to the Department of the Environment and Energy by 20 July 2017 and advises of any further revisions to management arrangements for hammerhead sharks the Northern Territory Government is able to implement in support of a Conservation Dependent listing under the EPBC Act.

We look forward to your advice. Please contact the Department if you have any further queries.

Yours sincerely

s47F

Helene Marsh FAA, FTSE
Distinguished Professor
Chair

22 June 2017

179 Categories of threatened species

- (1) A native species is eligible to be included in the *extinct* category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
- (2) A native species is eligible to be included in the *extinct in the wild* category at a particular time if, at that time:
 - (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 - (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- (3) A native species is eligible to be included in the *critically endangered* category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- (4) A native species is eligible to be included in the *endangered* category at a particular time if, at that time:
 - (a) it is not critically endangered; and
 - (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- (5) A native species is eligible to be included in the *vulnerable* category at a particular time if, at that time:
 - (a) it is not critically endangered or endangered; and
 - (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- (6) A native species is eligible to be included in the *conservation dependent* category at a particular time if, at that time:
 - (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
 - (b) the following subparagraphs are satisfied:
 - (i) the species is a species of fish;
 - (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
 - (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;
 - (iv) cessation of the plan of management would adversely affect the conservation status of the species.
- (7) In subsection (6):

fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

From: s47F
To: [Geoff Richardson](#)
Cc: [Elliott Bruce](#); s47F; s22; s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Date: y 2017 4:13:06 PM
Attachments: s22
[HH letter to Frydenburg.pdf](#)

Geoff

Further to s47F email, attached is a copy of the letter to Minister Frydenburg re hammerhead shark for your information.

Bruce – It has been CCd to Russell.

s47F

s47F

s47F

s47F

W www.daf.qld.gov.au

Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000

GPO Box 46, Brisbane QLD 4001

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From: s47F
Sent: Monday, 22 May 2017 2:56 PM
To: Richardson, Geoff; s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Importance: High

Geoff,

Apologies in the delay in responding.

As requested, I can advise the steps that Queensland proposes to take to strengthen management arrangements for hammerhead sharks in the short and longer term, are detailed below:

Implementing the minimum requirements as set out by the TSSC

The Queensland Government is intending to amend the Fisheries Regulation 2008 to:

- establish a Total Allowable Catch (TAC) of 150 tonnes (split across the Gulf of Carpentaria and East Coast),
- establish a trigger point (once 75 per cent of TAC is reached) at which time:
 - a trip limit of 10 hammerhead sharks for net fishers and four for line fishers applies; and
 - all commercial fishers will be required to land their catch of hammerheads in whole form (i.e. gilled and gutted with head and fins attached); and

In addition, Fisheries Queensland will also improve reporting requirements for commercial fishers to, including:

- data validation measures such as prior and unload reporting; and
- reporting of discards and species-specific catch information in logbooks.

It is intended that the regulatory changes required to implement these changes will be in place before September 2017 ahead of the Threatened Species Scientific Committee's recommendation and all changes would commence on 1 January 2018. Fisheries Queensland will advise as soon as the legislative amendments have been finalised through Executive Council.

I understand my Minister is writing to your Minister about this matter confirming the steps Queensland intends to take. We have also arranged a further discussion with industry in late May to discuss the finer details of this proposal. As previously mentioned there is on-going debate in some parts of industry about this entire matter and we will need to manage this issue. I will write to all industry participants prior to the workshop to outline the intended steps.

Longer term management changes

The Queensland Government is committed to ensuring fisheries resources are managed in a sustainable and responsible manner that recognises the interests of all Queenslanders.

The Green Paper on fisheries management reform in Queensland (the Green Paper) was released for public consultation from July to October 2016. The Green Paper outlined where we are now, where we want to be, and how we can get there. Over 11,800 responses were received and officers from Fisheries Queensland met with over 230 people during the consultation period to gather their views.

The overwhelming message was that all stakeholders wanted reform in the way we manage fisheries. There was strong support from all sectors for better fishery monitoring, more effective engagement, more responsive decision making and greater fisheries compliance. The Queensland Government is committed to reforming fisheries, and is currently preparing a Sustainable Fisheries Strategy which will outline the government's reform agenda for the next ten years, taking into account the public feedback on the Green Paper. The aim is to finalise the Strategy by mid-2017.

Please contact either myself or s47F if you require further information.

regards

s47F

s47F

s47F

GPO Box 46 Brisbane Qld 4001

From: Richardson, Geoff [[mailto:s22](#)]

Sent: Monday, 8 May 2017 12:16 PM

To: s47F s47F

s47F s47F s47F

Cc: 'Simpfendorfer, Colin' s47F s22

; Elliott Bruce s47F s47F

'Marsh, Helene' s47F ;

s22 & 47F

Murphy, Paul

s22 s22 & 47F

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi s47Fs47F, s47F and s47F (and others)

Thank you for verbal updates in the teleconference last week of progress in the development and rollout of new management measures for hammerhead sharks.

As discussed in the teleconference, the Threatened Species Scientific Committee next meeting is 6 – 8 June in Canberra. We would like to provide the Committee with a written update on progress at that meeting and I asked that you each provide a written update to support the Committee's discussion in June.

It would be helpful for that update to cover progress against each of the "minimum requirements" and "longer term management intentions" as agreed at the Hammerhead Meeting on 20 February. The record of those discussions is in the attached document.

As you are aware, for the purposes of considering Conservation Dependent category for listing under the EPBC Act, management measures need to be implemented under law (i.e. relevant fisheries act or regulation).

I would appreciate the written update being provided to s22 by **Friday 19 May 2017** to enable us to provide this information to Committee for consideration at its June meeting.

Regards Geoff

Geoff Richardson

Assistant Secretary | Protected Species and Communities Branch
Department of the Environment and Energy

s22

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

From: s47F

Sent: Monday, 20 February 2017 1:51 PM

To: s22 Elliott Bruce

s47F s47F

'Marsh, Helene'

s47F 'Simpfendorfer, Colin' s47F

s47F

s47F s47F >; Richardson, Geoff

s22 ; s22 & 47F

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi all

Please find attached the notes from the discussion today on the hammerhead listing.

s47F will add in the information about the impacts of an endangered listing. Please let us know if you would like any changes or additions to the notes by Monday next week.

Please also find attached the Qld presentation from today.

s47F

s47F

s47F

s47F

W www.daf.qld.gov.au

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From: s22

Sent: Friday, 3 February 2017 2:40 PM

To: Elliott Bruce; s47F; 'Marsh, Helene';
'Simpfendorfer, Colin'; s47F; s47F; Richardson, Geoff;
s22 & 47F

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hello everyone,

Please find attached an agenda for our discussion on hammerhead shark listing on 20 February.

I am starting to organise catering too – I'd appreciate if you'd let me know if you have any special requirements.

Cheers,

s22

s22

Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
Department of the Environment and Energy

s22

-----Original Appointment-----

From:

Sent: None

To: s22; Elliott Bruce; s47; 'Marsh, Helene';
'Simpfendorfer, Colin'; s47F; s47F; Richardson, Geoff;
Murphy, Paul; s22

Cc: s47F; Bruce Elliot

Subject: Hammerhead threatened species status assessment

When: Monday, 20 February 2017 9:00 AM-3:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.

Where: Primary Industry Building, Level 7, 80 Ann Street, Brisbane QLD 4000

Hi folks,

I'm sending this now as I'm cognisant that time is getting away and I wanted to ensure that everyone hadn't either forgotten about this upcoming meeting or thought we'd changed plans. I hope that I will follow with a more detailed agenda tomorrow, once I can run it by a couple of folks here.

In a nutshell, the meeting is for all concerned to gain understanding of, and move towards, the management arrangements required to enable scalloped hammerhead sharks to be eligible for

listing as Conservation Dependent under the EPBC Act. Only representatives of the key management agencies are attending so that discussion can remain focussed.

The advice of the Threatened Species Scientific Committee (TSSC) is due to the Minister in September of this year, and their advice with regard to fishery management arrangements can only be made with respect to that which is in force under law at that time. We need to know what each of us is doing, and able to do, by that time and to see how it fits together to satisfy the TSSC that the arrangements are sufficient to support the recovery of the species.

Note that the focus of the discussion will be on the scalloped hammerhead, **s22**

Cheers,

s22

The information in this email together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. There is no waiver of any confidentiality/privilege by your inadvertent receipt of this material.

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Hon Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development

Reference: CTS 11676/17

22 MAY 2017

1 William Street Brisbane 4000
GPO Box 46 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7560
Email agriculture@ministerial.qld.gov.au

The Honourable Mr Josh Frydenberg MP
Minister for the Environment and Energy
M1:17, Parliament House
CANBERRA ACT 2600

Dear Minister

I am writing to you to inform you of the steps the Queensland Government is taking to strengthen fisheries management arrangements for hammerhead shark ahead of your decision on whether to list it as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

s47C

This is a situation that the Queensland Government would like to avoid.

The hammerhead shark catch in Australia is around one per cent of the global harvest of the stock. Queensland's fisheries has contributed very little to the declining abundance of hammerhead. Despite this, the Queensland Government committed to doing all we can at a local level to ensure the sustainable harvest of the species in Queensland waters.

To support a conservation dependent listing, I am amending the *Fisheries Regulation 2008* to strengthen management arrangements in Queensland. The amendments will:

- establish a Total Allowable Catch (TAC) of 150 tonnes (split across the Gulf of Carpentaria and East Coast)
- establish a trigger point (once 75 per cent of TAC is reached) at which time:
 - a trip limit of 10 hammerhead sharks for net fishers and four for line fishers applies

- all commercial fishers will be required to land their catch of hammerheads in whole form, i.e. gilled and gutted with head and fins attached.

In addition, Fisheries Queensland will also improve reporting requirements for commercial fishers to, including:

- data validation measures such as prior and unload reporting
- reporting of discards and species-specific catch information in logbooks.

Fisheries Queensland is working with the Federal Government Department of Environment and other Australian jurisdictions to ensure regulatory changes to strengthen management arrangements are in place ahead of the TSSC's recommendation in September 2017. Queensland's regulatory arrangements will commence on 1 January 2018.

The Queensland Government is taking some quite proactive steps to support a sensible decision from you to list the species as 'conservation dependent'. I am calling on you to make a timely and responsible decision that will give certainty to industry and reduce unnecessary discards. Any decision should recognise the small scale of the catch in Australia and the steps taken to further protect hammerhead sharks by the relevant states, consistent with the requirements set out by the TSSC.

I am also concerned that despite our steps, the Great Barrier Reef Marine Park Authority will still need to exempt hammerhead sharks from being a no-take species in the marine park even if they are listed as conservation dependent. There is a good chance that Queensland will have a TAC in place that cannot be taken, which would damage our relationship with the industry. I would like your assurance that you will work with the Marine Park Authority to ensure a consistent Federal Government approach on this matter.

Beyond the pressing issues relating to the hammerhead shark, the Queensland Government is also working to finalise its fisheries reform agenda. The green paper on fisheries management reform in Queensland was released for public consultation from July to October 2016. The green paper outlined where we are now, where we want to be, and how we can get there. Over 11 800 responses were received, including 192 written submissions, 476 responses to the online long survey, 663 responses to the online short survey and over 10 500 form emails from the conservation sector. Officers from Fisheries Queensland met with over 230 people at 126 meetings across Queensland during the consultation period to gather their views.

The overwhelming message was that all stakeholders wanted reform in the way we manage fisheries. There was strong support from all sectors for better fishery monitoring, more effective engagement, more responsive decision making and greater fisheries compliance.

The Queensland Government is committed to reforming fisheries, and is currently preparing a Sustainable Fisheries Strategy which will outline the government's reform agenda for the next 10 years, taking into account the public feedback on the green paper. The government is aiming to finalise the strategy by mid-2017.

I trust that this information is of assistance.

If you require any further information regarding this matter, please contact my Chief of Staff, Tim Grau on telephone s47F

Yours sincerely



The Honourable Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development

CC: Dr Russell Riechelt
Chairman
Great Barrier Reef Marine Park Authority
PO Box 1379
TOWNSVILLE QLD 4810

From: s22
To: s47F
Cc: s47F [Geoff Richardson; TSSC Secretariat](#)
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]
Date: Friday, 23 June 2017 11:42:58 AM
Attachments: s22
[Correspondence - TSSC letter to Qld Fisheries June 2017 - 20170620.pdf](#)

Dear s47F

Please find attached letter from the Chair of the Threatened Species Scientific Committee in relation to their consideration of hammerheads for EPBC Act listing.

If you have an questions please do not hesitate to get in touch.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

www.environment.gov.au

 Save paper. Do you really need to print this email?

From: s47F
Sent: Wednesday, 17 May 2017 5:01 PM
To: s22
Cc: s47F s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi s22

We have a response ready, but are waiting on the Minister to sign a brief on the matter first. Hopefully this week, but it may be Monday/Tuesday. I presume this is still ok given that the TSSC doesn't meet til 6-8 June. We would rather give clear and definitive advice rather than something more vague.

s47F

s47F

s47F

s47F

www.daf.qld.gov.au

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From: s22
Sent: Wednesday, 17 May 2017 4:44 PM
To: s47F ; s47F s47F s47F
Cc: Elliott Bruce; s47F
s22 Richardson, Geoff
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi s47F, s47F, s47F and s47F (and others)

Just a reminder that we'd really like to get your response to the below email by COB this coming Friday so that we can incorporate into the up-date paper we are providing to the TSSC on the hammerhead shark listing assessment.

Thanks and regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

www.environment.gov.au

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From: Richardson, Geoff
Sent: Monday, 8 May 2017 12:16 PM
To: s47F s47F
s47F s47F s47F s47F >; s47F
Cc: 'Simpfendorfer, Colin' s47F ; s22
Elliott Bruce s47F s47F
'Marsh, Helene' s47F
s22 & 47F
Murphy, Paul
s22 s22 & s47F
Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi s47F, s47F, s47F and s47F (and others)

Thank you for verbal updates in the teleconference last week of progress in the development and rollout of new management measures for hammerhead sharks.

As discussed in the teleconference, the Threatened Species Scientific Committee next meeting is 6 – 8 June in Canberra. We would like to provide the Committee with a written update on progress at that meeting and I asked that you each provide a written update to support the Committee’s discussion in June.

It would be helpful for that update to cover progress against each of the “minimum requirements” and “longer term management intentions” as agreed at the Hammerhead Meeting on 20 February. The record of those discussions is in the attached document.

As you are aware, for the purposes of considering Conservation Dependent category for listing under the EPBC Act, management measures need to be implemented under law (i.e. relevant fisheries act or regulation).

I would appreciate the written update being provided to **s22** by **Friday 19 May 2017** to enable us to provide this information to Committee for consideration at its June meeting.

Regards Geoff

Geoff Richardson

Assistant Secretary | Protected Species and Communities Branch

Department of the Environment and Energy

s22

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

From: **s47F**

Sent: Monday, 20 February 2017 1:51 PM

To: **s22**; Elliott Bruce

s47F; **s47F**

'Marsh, Helene'

s47F; 'Simpfendorfer, Colin' **s47F**

s47F

s47F; **s47F**; Richardson, Geoff

s22; **s22 & 47F**

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hi all

Please find attached the notes from the discussion today on the hammerhead listing.

s47F will add in the information about the impacts of an endangered listing. Please let us know if you would like any changes or additions to the notes by Monday next week.

Please also find attached the Qld presentation from today.

s47F

s47F

s47F

s47F

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From: s22

Sent: Friday, 3 February 2017 2:40 PM

To: Elliott Bruce; s47F; 'Marsh, Helene';
'Simpfendorfer, Colin'; s47F; s47F; Richardson, Geoff;
s22 & 47F

Subject: RE: Hammerhead threatened species status assessment [SEC=UNCLASSIFIED]

Hello everyone,

Please find attached an agenda for our discussion on hammerhead shark listing on 20 February.

I am starting to organise catering too – I'd appreciate if you'd let me know if you have any special requirements.

Cheers,

s22

s22

Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
Department of the Environment and Energy

s22

-----Original Appointment-----

From:

Sent: None

To: s22; Elliott Bruce; s47F; 'Marsh, Helene';
'Simpfendorfer, Colin'; s47F; s47F; Richardson, Geoff;

Murphy, Paul; s22

Cc: s47F; Bruce Elliot

Subject: Hammerhead threatened species status assessment

When: Monday, 20 February 2017 9:00 AM-3:00 PM (UTC+10:00) Canberra, Melbourne, Sydney.

Where: Primary Industry Building, Level 7, 80 Ann Street, Brisbane QLD 4000

Hi folks,

I'm sending this now as I'm cognisant that time is getting away and I wanted to ensure that everyone hadn't either forgotten about this upcoming meeting or thought we'd changed plans. I hope that I will follow with a more detailed agenda tomorrow, once I can run it by a couple of folks here.

In a nutshell, the meeting is for all concerned to gain understanding of, and move towards, the management arrangements required to enable scalloped hammerhead sharks to be eligible for listing as Conservation Dependent under the EPBC Act. Only representatives of the key management agencies are attending so that discussion can remain focussed.

The advice of the Threatened Species Scientific Committee (TSSC) is due to the Minister in September of this year, and their advice with regard to fishery management arrangements can only be made with respect to that which is in force under law at that time. We need to know what each of us is doing, and able to do, by that time and to see how it fits together to satisfy the TSSC that the arrangements are sufficient to support the recovery of the species.

Note that the focus of the discussion will be on the scalloped hammerhead, **s22**

Cheers,

s22

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THREATENED SPECIES SCIENTIFIC COMMITTEEEstablished under the *Environment Protection and Biodiversity Conservation Act 1999*

s47F
[Redacted]

Department of Agriculture and Fisheries
GPO Box 46
BRISBANE QLD 4001

Dear s47F [Redacted]

The Threatened Species Scientific Committee (TSSC) thanks the Queensland Government for its update on the state's proposed management arrangements for hammerhead sharks, contained in your email dated 22 May 2017 to the Department of the Environment and Energy.

The email was provided to the TSSC at its June meeting, as part of our considerations of whether s22 species of hammerhead shark are eligible for listing as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The TSSC is continuing to consider whether fisheries management arrangements for the species are sufficient to satisfy the requirements of the EPBC Act to support listing in the Conservation Dependent category. The relevant extract from the EPBC Act is appended.

s47C
[Redacted]

To inform our future consideration of whether fisheries management arrangements for hammerhead sharks support listing in the Conservation Dependent category, the TSSC has the following questions:

- s47C [Redacted]
- s22 [Redacted]
- s47C [Redacted]
- s47C [Redacted]
- s47C [Redacted]

THREATENED SPECIES SCIENTIFIC COMMITTEE

Established under the *Environment Protection and Biodiversity Conservation Act 1999*

s47C

- s47C

The TSSC's advice on this species assessment is required to be finalised and provided to the Minister for the Environment and Energy by 30 September 2017. The TSSC will meet from 12–14 September to finalise their advice. The TSSC therefore requests that the Queensland Government responds to the Department of the Environment and Energy by 20 July 2017 and advises of any further revisions to management arrangements for hammerhead sharks the Queensland Government is able to implement in support of a Conservation Dependent listing under the EPBC Act.

We look forward to your advice. Please contact the Department if you have any further queries.

Yours sincerely,

s47F

Helene Marsh FAA, FTSE
Distinguished Professor
Chair

20 June 2017

179 Categories of threatened species

- (1) A native species is eligible to be included in the *extinct* category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
- (2) A native species is eligible to be included in the *extinct in the wild* category at a particular time if, at that time:
 - (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
 - (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- (3) A native species is eligible to be included in the *critically endangered* category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- (4) A native species is eligible to be included in the *endangered* category at a particular time if, at that time:
 - (a) it is not critically endangered; and
 - (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- (5) A native species is eligible to be included in the *vulnerable* category at a particular time if, at that time:
 - (a) it is not critically endangered or endangered; and
 - (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- (6) A native species is eligible to be included in the *conservation dependent* category at a particular time if, at that time:
 - (a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
 - (b) the following subparagraphs are satisfied:
 - (i) the species is a species of fish;
 - (ii) the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
 - (iii) the plan of management is in force under a law of the Commonwealth or of a State or Territory;
 - (iv) cessation of the plan of management would adversely affect the conservation status of the species.
- (7) In subsection (6):

fish includes all species of bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but does not include marine mammals or marine reptiles.

s47c

s47c

s47C

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

s22

www.environment.gov.au

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From: Marsh, Helene [s47F]

Sent: Wednesday, 5 July 2017 1:51 PM

To: s22

Simpfendorfer, Colin

s47F

Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi

After talking to s22, I wonder if a i-phone APP could be developed to upload some of the information we need.

Regards

Helene

From: s22]

Sent: Wednesday, 5 July 2017 11:28 AM

To: Marsh, Helene s47F

Simpfendorfer, Colin

s47F

Subject: FW: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi there

s22 just let me know I got Geoff's phone number wrong – number is s22

Sorry!

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

s22

www.environment.gov.au

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From: s22
Sent: Wednesday, 5 July 2017 11:26 AM
To: s22
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

There is a typo in Geoff's number...

From: s22
Sent: Wednesday, 5 July 2017 11:10 AM
To: 'Marsh, Helene' <s47F>
Cc: Dean Graduate Research <deangrs@jcu.edu.au>; s22
> Simpfendorfer, Colin <s47F>
> s22
> >; Richardson, Geoff
> s22 > s22 >
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Ok, then best if you phone us on Geoff's number -s22


Thanks

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

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From: Marsh, Helene <s47F>
Sent: Wednesday, 5 July 2017 11:08 AM
To: s22 >
Cc: Dean Graduate Research <deangrs@jcu.edu.au>; s22
> Simpfendorfer, Colin <s47F>
> s22
> Richardson, Geoff
> s22 > s22 >
Subject: Re: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

We will meet together and phone you
Helene

Sent from my iPad

On 5 Jul 2017, at 9:39 am, s22

wrote:

Hi Helene

Yes that works, I'm still trying to confirm Geoff's availability but s22 and I will be available.

Will you and Colin be together on one phone? If so, please let me know what number to call.

Otherwise you and Colin can both phone in on the following teleconference details:

Toll Free Dial-In Number(s):

Australia s22

Participant Passcode: s22

Thanks and regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601

s22

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From: Marsh, Helene s47F

Sent: Tuesday, 4 July 2017 4:30 PM

To: s22 >; Dean

Graduate Research <deangrs@jcu.edu.au>; s22

; Simpfendorfer, Colin

s47F

s22

Richardson, Geoff

s22 >; s22

Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi

Have just spoken to Colin. We suggest 11.30 am you time tomorrow.

Would that work?

Helene

From: s22]
Sent: Tuesday, 4 July 2017 1:36 PM
To: Marsh, Helene s47F ; Dean Graduate Research <deangrs@jcu.edu.au>; s22 >;
Simpfendorfer, Colin s47F
Cc: s22
Richardson, Geoff
s22 >; s22
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Helene

No worries. Ivan has just let me know he has to leave early today so after 3pm wouldn't be good – but tomorrow or Thursday is good.

Regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22

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From: Marsh, Helene s47F
Sent: Tuesday, 4 July 2017 12:53 PM
To: s22 >; Dean Graduate Research <deangrs@jcu.edu.au>; s22 >;
Simpfendorfer, Colin
s47F
Cc: s22
Richardson, Geoff
s22
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi

I am waiting to hear from Colin.

We are both at the s22 .

Cheers

Helene

From: s22

Sent: Tuesday, 4 July 2017 12:28 PM

To: Dean Graduate Research <deangrs@jcu.edu.au>; s22

Marsh, Helene s47F

Simpfendorfer, Colin s47F

Cc: s22

Richardson, Geoff

s22

>

Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi Helene

We are flexible, let us know when suits you for a chat and we'll make it happen.

Cheers

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601

s22

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From: Dean Graduate Research [<mailto:deangrs@jcu.edu.au>]

Sent: Tuesday, 4 July 2017 12:15 PM

To: s22 >; Marsh, Helene

s47F Simpfendorfer, Colin

s47F

Cc: s22

Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi

Colin and I are at the s22. I will liaise with Colin and make a time for us to talk with s22 when would be possible please.

Regards

Helene

From: s22

Sent: Tuesday, 4 July 2017 10:58 AM

To: Marsh, Helene s47F >; Simpfendorfer, Colin

s47F Dean Graduate Research

<deangrs@jcu.edu.au>

Cc: s22

s22

Subject: FW: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Hi Helene & Colin,

Please see attached s47F response to the your letter on management arrangements for hammerhead sharks in Queensland.

s22 is happy to discuss by phone if required. We will forward though the response from NT as soon as we receive it.

s22

Threatened Species Scientific Committee Secretariat

Species Information & Policy Section

Department of the Environment and Energy

GPO Box 787 | CANBERRA ACT 2601

s22 **Mailbox:** TSSCSecretariat@environment.gov.au

From: s47F]

Sent: Friday, 30 June 2017 11:12 AM

To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>

Cc: s47F s47F s47F

Richardson, Geoff s22 >; s22

Subject: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark

Dear Helene,

An electronic copy of s47F response to your recent letter regarding hammerhead shark is attached.

If you have any questions please give me a call.

Regards,

s47F

s47F

s47F

s47F

W www.daf.qld.gov.au

Level 5, 41 George Street, Brisbane QLD 4000

GPO Box 46, Brisbane QLD 4001

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From: s22
To: "Marsh, Helene"; "Simpfendorfer, Colin"
Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]
Date: Monday, 17 July 2017 12:51:47 PM

Hi Helene

We haven't received anything from either NT or WA yet. I suspect we won't get anything from WA and we're chasing NT, but we did give them a deadline of 20 July so we should get something from them soon.

You will see a diary calendar invite has gone to the both of you for a teleconference 4-5pm on Thursday this week – we've worked it around both Geoff and Paul's diaries and that seems to be the only time they are both available. Hopefully this fits with you both?

Kind Regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

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From: Marsh, Helene s47F
Sent: Monday, 17 July 2017 11:26 AM
To: s22; Simpfordorfer, Colin
s47F
Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]

Thanks s22

s47C

I look forward to your advice on what is possible under the act. Any word from the NT? Or WA?

Regards

Helene

From: s22
Sent: Friday, 14 July 2017 4:48 PM
To: Marsh, Helene s47F; Simpfordorfer, Colin
s47F
Subject: FW: Hammerhead Shark [SEC=UNCLASSIFIED]

FYI, below and attached received today, forwarding as clearly relevant to our discussion yesterday

Kind regards

s22

Sent with Good (www.good.com)

From: Richardson, Geoff
Sent: Friday, 14 July 2017 3:49:53 PM
To: s22
Cc: Murphy, Paul
Subject: FW: Hammerhead Shark [SEC=UNCLASSIFIED]

FYI

Geoff Richardson
AS - Protected Species and Communities Branch
Department of the Environment and Energy
s22

From: ^{s47F} s47F
Sent: Friday, 14 July 2017 1:43 PM
To: Richardson, Geoff <s22
Cc: s47F
Subject: FW: Hammerhead Shark
Importance: High

Geoff,

s47C

regards

s47F

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

From: s47F

Sent: Friday, 14 July 2017 1:38 PM

To: [bruce.elliott](#) s47F

Cc: s47F

Subject: Hammerhead Shark

Dear Bruce

Thank you for our discussion of 10 July 2017 concerning the proposed new management arrangements for hammerhead shark. While you indicated you intend to write to us about this matter I believe it will be useful for me to provide further comments which may assist in that process.

The new management arrangements will cap harvest at sustainable levels, improve commercial fishing hammerhead shark data and improve data validation. Attached for your reference again is the response provided to TSSC on some of their queries.

I understand from our discussion that the GBRMPA Board would like some additional information on the rationale for why the TACC was set at the proposed level and some information that will provide greater confidence in the data that will be collected. I hope the responses below will assist with your discussions with the Board. As discussed, Queensland Government is not proposing to make any further changes beyond what has been proposed. The legislative amendments will be finalised in the next couple of weeks and will be in place before September, to commence from 1 January 2018.

Rationale for setting the Total Allowable Commercial Catch (TACC) at 150 tonnes

The 150 tonne TACC for hammerhead sharks was set based on the Non-Detriment Finding (NDF) published by the Commonwealth in 2014 and an agreement between the Commonwealth, Northern Territory and Western Australia about catch shares.

The NDF reported that a harvest level of 300 tonnes of scalloped s22 hammerheads across Australia was non-detrimental. s22 . The NDF recognised that discarding of hammerhead shark occurred and therefore presumably accepted that total mortality was greater than the non-detrimental 300 tonne harvest level.

Queensland agreed the catch sharing arrangements for the 300 tonne non-detrimental

harvest in discussions between the Commonwealth, the Northern Territory and Western Australia. Queensland agreed to cap harvest at 150 tonnes and the Northern Territory at 100 tonnes. Those arrangements left Western Australia with scope for some harvest in the event that the State's northern shark fishery recommenced fishing.

The purpose of the 150 tonne TACC is to ensure that hammerhead harvest can never reach a detrimental level and that significant expansion of the catch is restricted. The intent is not to cap catch at current harvest levels using a TACC. There is no advantage in setting the Queensland TACC at less than 150 tonnes as hammerhead shark are not a target species and fishers only generally catch them incidentally while targeting other species. Setting a lower TACC (around current catch levels, for example) may just increase the likelihood of wasteful discarding without significantly decreasing total mortality.

Queensland's hammerhead harvest has decreased significantly from the levels seen a decade ago. There are many reasons why this has occurred including market conditions, reform of the East Coast and Gulf of Carpentaria Inshore Fin Fish Fisheries, net free zones, marine park zoning and licence buybacks. There is a significant market disincentive for fishers to target hammerhead shark. Fishers advise that there is very little market demand for hammerhead shark, receiving around 80 cents per kilogram where they can find a market.

The non-detriment finding is also supported by a shark stock assessment undertaken by Queensland Government and finalised in May 2016 (a copy of the stock assessment is available on our website at: <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/stock-assessment-reports/stock-assessment-of-whaler-and-hammerhead-sharks-carcharhinidae-and-sphyrnidae-in-queensland>). The stock assessment found that the current levels of shark catch are sustainable and below MSY limits, but there is some uncertainty around the exact MSY figures because of some of the uncertainty in data (particularly the confidence around species composition). The MSY for scalloped and ^{s22} hammerhead ranged from 133 tonnes to 531 tonnes. This confirms that the proposed TACC of 150 tonnes is on the conservative end of the spectrum and is considered a 'sustainable limit'. The stock assessment noted that reducing uncertainties in data would improve the MSY estimates. As better information is collected (see more below about planned improvements to data), a more confident MSY estimate can be determined for the different species of shark (including hammerhead), which will allow Fisheries Queensland to potentially amend the TACC to reflect this information. At this stage, there is no other evidence on which to set a more specific hammerhead TACC.

Improved hammerhead shark data

A range of improvements are being made to improve commercial fishing hammerhead shark data and improve data validation. These are outlined below.

Automated Interactive Voice Reporting

All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC.

On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks).

The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.

Species-specific reporting of catch and discards

Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. s22

Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking).

Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.

Data validation

For many of our quota managed fisheries, we have high confidence in the data as it can be verified through a range of different data sources.

Fisheries Queensland currently conducts forensic auditing of commercial catch data. The process uses commercial logbooks, AIVR, boat location monitoring, Catch Disposal Records and other receipts.

There will be a boost to resources to further strengthen this auditing work as part of the *Sustainable Fisheries Strategy*. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring (described below).

Automated Interactive Voice Reporting

The use of AIVR (described above) assists data validation in the following ways:

- It provides an opportunity for a compliance inspection by the Queensland Boating and Fisheries Patrol in a targeted way
- It enables audits to be conducted between commercial logbooks, unload weights and Catch Disposal Records

Monitoring of boat location

Under the *Sustainable Fisheries Strategy* all net and line boats must have VMS installed by the end of 2018. This positional data will be used to cross check reported logbook effort data and when fishing occurs.

At sea monitoring of fishing activities

The size of the boats in these fisheries is a key constraint to an effective on board monitoring program – there are a number of workplace health and safety and practical issues to overcome. The East Coast boats landing hammerhead vary in length from 4.2 to 17.5 m, the average boat length being 7.5 m.

For these reasons, the *Sustainable Fisheries Strategy* proposes approaches different from the use of on board observers. While specific technologies need to be developed, actions in the *Sustainable Fisheries Strategy* commit to trialling novel technologies to help better validate data on catch and interactions. This work will be very relevant to improving the management of hammerhead shark in the longer term. GBRMPA staff have been and will continue to be engaged in this process, as part of an upcoming Advance Queensland challenge.

I trust that this information assists, but if you need anything further, please let me know.

Please note that as we have received similar queries from the Department of Environment and Energy I will be forwarding a copy of this email to that Department under separate cover for information.

regards

s47F

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

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From: [TSSC Secretariat](#)
To: [Helene Marsh \(TSSC\)](#); [Colin Simpfendorfer \(TSSC\)](#)
Cc: s22
Subject: FW: DPIR response to TSSC committee_19 July 2017 [DLM=For-Official-Use-Only]
Date: Wednesday, 19 July 2017 11:42:51 AM
Attachments: [lett_TSSC response July 2017.pdf](#)
[DPIR response to TSSC committee_19 July 2017.pdf](#)

Dear Members,

Please find herewith the response from NT on hammerheads

s22

Threatened Species Scientific Committee Secretariat
Species Information & Policy Section
Department of the Environment and Energy
GPO Box 787 | CANBERRA ACT 2601

s22 | Mailbox: TSSCSecretariat@environment.gov.au

-----Original Message-----

From: s47F]
Sent: Wednesday, 19 July 2017 11:34 AM
To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>
Cc: s47F
Subject: DPIR response to TSSC committee_19 July 2017

Hello,

Please find attached the Department of Primary Industry and Resources response to your recent information request for your consideration.

Happy to discuss if required.

Kind Regards

s47F | s47F Department of Primary
Industry & Resources Goff Letts Building, Berrimah Farm, Makagon Road, Berrimah PO Box 3000, Darwin,
NT 0801

s47F

W: www.nt.gov.au/d/

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Commitment to Service | Ethical Practice | Respect | Accountability | Impartiality | Diversity

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From: [Simpfendorfer, Colin](#)
To: s22; [Marsh, Helene](#)
Cc: [Geoff Richardson](#); s22
Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]
Date: Friday, 21 July 2017 4:45:33 AM
Attachments: [Old_email.docx](#)

I have made some edits on the email text (attached).

Let me know if you have any questions.

Cheers
Colin

Professor Colin Simpfendorfer
Director, Centre for Sustainable Tropical Fisheries and Aquaculture
College of Science and Engineering
Building 142
James Cook University
Queensland 4811
Australia
E: s47F
s47
Web: jcu.me/colin.simpfendorfer
Twitter: @sharkcolin
Instagram: @sharkcolin

From: s22
Sent: Thursday, 20 July 2017 5:14 PM
To: Simpfendorfer, Colin s47F; Marsh, Helene s47F
Cc: Richardson, Geoff s22; s22
Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]

Hi Colin and Helene

Following our phone call yesterday, we have drafted the below email that I will send to s47F Spencer once you are happy with the wording. Can you please let me know if you would like any changes.

Thanks and regards
s22

s47C

s47C

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

s22

| GPO Box 787 CANBERRA ACT 2601

| www.environment.gov.au

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From: Simpfendorfer, Colin s47F

Sent: Wednesday, 19 July 2017 3:49 PM

To: s22

Marsh, Helene

s47F

Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]

I fiddled with the agenda a little from Helen's version. I figured deal with CITES issues first and the CITES folks can leave if no interest in other aspects

Colin

s47C

Professor Colin Simpfendorfer
Director, Centre for Sustainable Tropical Fisheries and Aquaculture
College of Science and Engineering
Building 142
James Cook University
Queensland 4811
Australia

s47F

s47F

Web: jcu.me/colin.simpfendorfer

Twitter: @sharkcolin

Instagram: @sharkcolin

From: s22

Sent: Wednesday, 19 July 2017 8:40 AM

To: Marsh, Helene s47F; Simpfendorfer, Colin

s47F >

Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]

No worries Helene, Colin are you happy to Chair?

Sent with Good (www.good.com)

From: Marsh, Helene

Sent: Wednesday, 19 July 2017 7:05:06 AM
To: s22 [redacted] Simpfendorfer, Colin
Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]

Dear Lesley and Colin

s22



s47C



Please feel free to refine.

Regards

Helene

From: s22 [redacted]

Sent: Monday, 17 July 2017 12:52 PM

To: Marsh, Helene s47F [redacted] Simpfendorfer, Colin

s47F [redacted]

Subject: RE: Hammerhead Shark [SEC=UNCLASSIFIED]

Hi Helene

We haven't received anything from either NT or WA yet. I suspect we won't get anything from WA and we're chasing NT, but we did give them a deadline of 20 July so we should get something from them soon.

You will see a diary calendar invite has gone to the both of you for a teleconference 4-5pm on Thursday this week – we've worked it around both Geoff and Paul's diaries and that seems to be the only time they are both available. Hopefully this fits with you both?

Kind Regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

s22

GPO Box 787 CANBERRA ACT 2601

www.environment.gov.au

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From: s22
To: s47F s47F
Cc: s47F ; [Richardson, Geoff](#); [TSSC Secretariat](#)
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]
Date: Monday, 24 July 2017 5:18:15 PM
Attachments: s22

Hi s47F

I'll get Geoff's EA to liaise with your office to find a time this week.

Regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

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From: s47F s47F
Sent: Monday, 24 July 2017 5:09 PM
To: s22 s47F
Cc: s47F Richardson,
Geoff s22 TSSC Secretariat
<TSSCSecretariat@environment.gov.au>
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Thank you s22

Could you please advise a suitable time to call you/Geoff. Our changes to Regulations are in our Executive Government process and it is not possible to change them.

regards

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

From: s22 [redacted]

Sent: Monday, 24 July 2017 4:53 PM

To: s47F [redacted] s47F [redacted]

s47F [redacted]

Cc: s47F [redacted]

[redacted] Richardson,

Geoff s22 [redacted]; TSSC Secretariat

<TSSCSecretariat@environment.gov.au>

Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Dear s47F [redacted] s47F [redacted]

s47C [redacted]
[redacted]
[redacted]
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[redacted]

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[redacted]
[redacted]
[redacted]

s47C [redacted]
[redacted]
[redacted]
[redacted]

[redacted]

s47C

The TSSC thanks you for your offer to meet to discuss, they do not feel it is necessary at this point. Finally in relation to releasing TSSC correspondence to your stakeholders, the Chair requests that all correspondence is kept confidential at this stage and is not released.

Please feel free to call myself or Geoff Richardson if you would like to discuss.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

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From: s47F

Sent: Friday, 30 June 2017 11:12 AM

To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>

Cc: s47F ; s47F ; s47F

Richardson, Geoff s22 ;

s22

Subject: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark

Dear Helene,

An electronic copy of s47F response to your recent letter regarding hammerhead shark is attached.

If you have any questions please give me a call.

Regards,

s47F

s47F

s47F

Department of Agriculture and Fisheries

s47F

Level 5, 41 George Street, Brisbane QLD 4000
GPO Box 46, Brisbane QLD 4001

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From: s22
To: "Simpfendorfer, Colin"; Marsh, Helene
Cc: s22
Subject: FW: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]
Date: Monday, 24 July 2017 4:53:28 PM
Attachments: s22

FYI below sent today

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

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From: s22
Sent: Monday, 24 July 2017 4:53 PM
To: s47F >; s47F
s47F
Cc: s47F
Richardson,
Geoff s22 | TSSC Secretariat
<TSSCSecretariat@environment.gov.au>
Subject: RE: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark [SEC=UNCLASSIFIED]

Dear s47F and s47F

s47C

s47C

s47C

s47C

s47C

[Redacted]

[Redacted]

[Redacted]

[Redacted]

The TSSC thanks you for your offer to meet to discuss, they do not feel it is necessary at this point. Finally in relation to releasing TSSC correspondence to your stakeholders, the Chair requests that all correspondence is kept confidential at this stage and is not released.

Please feel free to call myself or Geoff Richardson if you would like to discuss.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 GPO Box 787 CANBERRA ACT 2601
s22 |www.environment.gov.au

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From: s47F
Sent: Friday, 30 June 2017 11:12 AM
To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>
Cc: s47F s47F s47F
Richardson, Geoff <s22>
s22
Subject: Queensland's response to TSSC letter dated 20 June 2017 regarding hammerhead shark

Dear Helene,

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If you have any questions please give me a call.

Regards,

s47F

s47F

s47F

Department of Agriculture and Fisheries

s47F

Level 5, 41 George Street, Brisbane QLD 4000

GPO Box 46, Brisbane QLD 4001

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From: s47F
To: s22
Cc: s47F ; s22
Subject: RE: DPIR response to TSSC committee_24 July 2017 [SEC=UNCLASSIFIED]
Date: Monday, 11 September 2017 1:59:39 PM
Attachments: [Final Draft Stage 1 ONLF Framework - 11 September 2017.pdf](#)

Hi s22

Sorry to take so long to get back to you, we were finalising the Licence Holder consultation to the Stage One Framework document which includes our proposed measures to cap Scalloped and s22 Hammerhead catches and provide for reporting and verification of all catches, including discards. This consultation has now concluded and the Stage One framework will progress to the regulation drafting process. However, this normally takes some months and we envisage the measures outlined in the Stage One framework will not be in legislation for ~4-6 months.

In the Interim, Industry have agreed to put the following measures into legislation, via licence condition where indicated, effective immediately.

Measures that NT Fisheries will have in place by September 2017 are proposed as:

- All product unloaded in Darwin, Gove or Karumba (currently in place)
- Random port inspection compliance program (currently in place)
- Species specific logbook reporting, including discards (currently in place)
- Risk-based monitoring program in place to validate logbooks (observers etc.) (currently in place)
- Electronic logbooks (species specific reporting, including discards, shot by shot spatial catch & effort) are being trialled now on active vessels
- Specific 50 t catch limits (TAC) for Hammerheads s22 Scalloped), 75% harvest trigger for each species. When trigger is reached, fish to be landed heads and fins on. Implemented as a Licence condition effective immediately until Stage One regs in place. TACC and trigger measure to be reviewed as Harvest Strategy developed during Stage Two.

I have attached the Stage One framework which will be used as the basis for drafting instructions. The following points set out the NT's position and key measures are as follows:

- Fishery to be catch quota managed via ITQ's (utilising industry allocation mechanism)
- VMS.
- Electronic logbooks
- All product unloaded in Darwin or Gove (unless exemption granted- additional monitoring applies)
- All sharks landed Fins Naturally Attached (FNA) (unless exemption granted)
- Species specific logbook reporting, including discards
- All product (hammerheads separated) to be weighed into quota species groups and

recorded (Catch Disposal Record)

- Random port inspection compliance program
- Risk-based monitoring program (for FNA operators- 1 observer for each combined 300 t landed. For FNA exemption operators-approved monitoring equipment installed (incl. cameras) or 20% observer coverage as minimum)
- Management framework incorporating agreed decision rules addressing impacts to each species group, bycatch, ecosystems and TEPS empowered into legislation

s22

- Specific management for Hammerheads (50 t TAC each for s22 Scalloped), 75% t harvest trigger for each species. When this is met, fish to be landed heads and fins on. It would be important that the TSSC consider some trigger or option for review of the national 300t TACC be agreed to as we are yet to understand the impact on effort that the ONLF will undergo as it transitions to a quota managed fishery. Perhaps a review of the national TACC in a year as more detailed national catch information becomes available?

Please don't hesitate to contact me to discuss any aspect of the Offshore Net and Line Fishery proposed new management arrangements.

s22 I have cc'd you in so you know what is happening as it is linked to the upcoming WTO re-assessment process as well.

Kind regards

s47F | s47F

s47F

Department of Primary Industry & Resources
Goff Letts Building, Berrimah Farm, Makagon Road, Berrimah
PO Box 3000, Darwin, NT 0801

s47F

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From: s22
Sent: Monday, 4 September 2017 1:07 PM
To: s47F
Cc: s47F
s47F s47F ;s22

Subject: RE: DPIR response to TSSC committee_24 July 2017 [SEC=UNCLASSIFIED]

Hi s47F

The TSSC is set to meet next week to consider and discuss the suite of proposed management arrangements to be implemented for hammerhead sharks.

One question for the Northern Territory - the Committee will need to know when the Northern Territory's proposed management arrangements are to be effective under law, noting that this is required for any measures to be considered against the Conservation Dependent criteria. In reviewing the information you have forwarded to us, unless we have missed it, we can't see an indication of timing.

Are you able provide an indicative date of when this will occur?

Thank and kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

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From: s47F
Sent: Tuesday, 25 July 2017 8:35 AM
To: s22
Cc: TSSC Secretariat <TSSCSecretariat@environment.gov.au>; s47F
Richardson, Geoff s22 ;
s47F s47F >

Subject: RE: DPIR response to TSSC committee_24 July 2017

Hi s22 ,

Thanks for the early advice, much appreciated. I have responded to your queries below for your consideration.

The Offshore Net and Line Fishery electronic logbooks (e-logs) program has been developed and

is currently being trialled with selected (i.e. the most active) operators in the fishery. It is expected that most of the active operators in the fishery will have e-logs installed by the end of this year (2017), with all operators utilising the program by end June 2018.

As you are aware, specific conservative harvest limits of 50 t each for Scalloped **s22** Hammerhead Sharks are proposed to be legislated. The Minister currently has the powers to set, and amend these limits if, and when required.

We look forward to receiving the Threatened Species Scientific Committee (TSSC) response to the NT's proposed management arrangements.

Thanks again for the advice.

Kind regards

s47F | **s47F**

s47F

Department of Primary Industry & Resources
Goff Letts Building, Berrimah Farm, Makagon Road, Berrimah
PO Box 3000, Darwin, NT 0801

s47F

Our Vision: Creating a public sector that provides the highest quality service to Territorians

Our Values: **Commitment to Service** | **Ethical Practice** | **Respect** | **Accountability** | **Impartiality** | **Diversity**

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From: **s22**

Sent: Monday, 24 July 2017 5:05 PM

To: **s47F**

Cc: TSSC Secretariat <TSSCSecretariat@environment.gov.au>; **s47F**

s47F Richardson, Geoff <**s22**>

Subject: RE: DPIR response to TSSC committee_19 July 2017 [DLM=For-Official-Use-Only]

Dear **s47F**

The Department of the Environment and Energy (the Department) would like to thank you and acknowledge Northern Territory Fisheries' letter dated 19 July 2017. The letter has been passed on to the Threatened Species Scientific Committee (TSSC) for its consideration.

On 19 July, after receiving your letter, a subcommittee of the TSSC met with us to discuss the new information you and Queensland Fisheries have provided. The Chair of the TSSC, Prof

Helene Marsh, intends to formally write to you but in the interim has requested I email you with a couple of further questions.

For consideration in its assessment, the TSSC would like to know when the use of e-logs (electronic reporting) is likely to be implemented across the Ocean Net and Line Fishery?

The TSSC notes that the non-detriment finding for hammerhead sharks is likely to be reviewed by the Department once appropriate information becomes available, so management arrangements should be introduced which allow flexibility to change the TACs if the non-detriment finding changes in future.

The TSSC also notes that the management arrangements for a Conservation Dependent species are reviewed annually by the TSSC and management arrangements should be able to be modified based on the outcomes of these reviews.

Please feel free to call myself or Geoff Richardson if you would like to discuss.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

| GPO Box 787 CANBERRA ACT 2601

s22

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-----Original Message-----

From s47F

Sent: Wednesday, 19 July 2017 11:34 AM

To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>

Cc: s47F

Subject: DPIR response to TSSC committee_19 July 2017

Hello,

Please find attached the Department of Primary Industry and Resources response to your recent information request for your consideration.

Happy to discuss if required.

Kind Regards

s47F

| s47F

Department of Primary Industry & Resources Goff Letts Building, Berrimah Farm, Makagon Road,
Berrimah PO Box 3000, Darwin, NT 0801

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PROPOSED MANAGEMENT ARRANGEMENTS FOR
THE
NORTHERN TERRITORY

**Offshore Net & Line
Fishery (ONLF)**

s22

STAGE 1 - INTRODUCING AN INDIVIDUAL TRANSFERABLE
QUOTA
MANAGEMENT FRAMEWORK

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INTRODUCTION / BACKGROUND

The Offshore Net & Line Fishery (ONLF) is a limited entry fishery, operating in Northern Territory (NT) waters from the high water mark to the boundary of the Australian Fishing Zone. The area of the fishery is approximately 542,000 nm². The ONLF is currently managed via input (gear and effort based) controls. Primary gears include pelagic net and demersal line.

With the exception of no-take species (as defined under NT Fishery Regulations), the ONLF can take any cartilaginous fish or any bony fish taken while targeting cartilaginous fish using approved methods.

s22

The NT and Commonwealth via the Northern Territory Fisheries Joint Authority (NTFJA) share responsibility for the management of the ONLF. The Fisheries Division of the Department of Primary Industry and Resources (Fisheries) undertakes day-to-day management of the fishery.

The NTFJA has given 'in principle' support, for the use of Total Allowable Commercial Catch (TACC) and Individual Transferable Quota (ITQ) in the management of the ONLF, subject to satisfactory outcomes for government regarding the cost of management, research and compliance. The Offshore Net and Line Advisory Group (ONLAG), at the request of Offshore Net & Line Licensee Committee, have developed draft new management arrangements in the fishery that primarily focus on output (catch based) controls.

This document describes stage one of the proposed framework as developed by the ONLAG for new management arrangements in the ONLF aimed at addressing contemporary concerns identified through community consultation.

At the request of Industry, the proposed strategy is developed in two stages;

Stage 1: the introduction of an Individual Transferable Quota (ITQ) framework to the fishery, along with monitoring measures necessary to address primary environmental concerns, and

Stage 2: the development of a complementary Harvest Strategy within one year of Stage 1 being implemented.

PROPOSAL OVERVIEW

The key objectives for the ONLF are:

- sustainable use of the resources
- to address the environmental impacts of the fishery and community concerns whilst maintaining licence holder entitlements where possible, and
- to enhance the fisheries economic viability where possible

By setting a TACC and allocating it to licences as ITQ, rights to access the catch are established. After an initial allocation, market forces see the quota distributed among those fishers who value the rights most highly. Often these same fishers are able to utilise the resource most efficiently. It is expected the fishery will autonomously adjust using this approach. Because quota holders are guaranteed a proportion of the total harvest, there is a reduced incentive to compete for catch and operators can concentrate on taking their share of the TACC in the most efficient way for their business.

The TACC for any species provides for long-term sustainability and long-term profitability. Biological systems, which include commercial fish stocks and economic factors affecting fishing are not static and it would be unrealistic to think that the TACC for any given species will be static between years. The maximum sustainable yield may also not correlate to the maximum economic yield in a fishery.

There are three main components to a quota structured fishery;

- the 'licence to fish'
- the 'fishery unit' (Fishery Unit, Entitlement or ownership share) , and
- the annual 'catch allocation' (Quota Unit or Individual Transferable Quota)

A licence is required for a person to take fish for commercial purposes in accordance with Section 10 of the *Fisheries Act*. It is important to note that in the transition of a fishery from input controlled to output controlled; the value of a licence may shift from the licence to the fishery units. Under this proposal, the number of new licences issued need not be restricted, providing whole of fishery bycatch limits and overall ecological impacts of fishing are adequately addressed. Sustainability of stocks within the fishery will be maintained via the annual TACC process.

A 'Fishery Unit' is a single share of the total available shares in the fishery. Upon implementation of these new management arrangements, fishery units are allocated to licences.

A 'Quota Unit' is the fishery unit's annual allocation. The issue of quota units, i.e. 1 kg of whole fish of a particular species/species group allocated (in 1 kg units) to a licence, based on the number of fishery units attached to that licence and the TACC for that licensing year. ITQ (as quota units) means the same as a quota unit. While a licence cannot be transferred, fishery units or quota units can be transferred between licences.

It is proposed that all Shark fishery units s22 [REDACTED] will be allocated to individuals based on current entitlement holdings. s22 [REDACTED]

1. Total Allowable Commercial Catch (TACC)

The ONLF management framework describes the proposed measures for the commercial harvest of s22 [REDACTED], along with a number of associated Sharks s22 [REDACTED]

[REDACTED] There is currently little information available on the harvest levels of other sectors (e.g. Amateurs or Fishing Tour Operators). However, the introduction of the TACC mechanism (which may be conservative in terms of possible Total Allowable Catch) allows for consideration of a potential additional resource allocation to other sectors in the future i.e. scope remains for any future sector allocations. The introduction of an ITQ system into the ONLF will align this fisheries management arrangements with other NT ITQ fisheries and will allow for cross-fishery transfer of quota to permit retention of sharks (currently not permitted) in these fisheries.

Where stock levels for target species are believed to be healthy, a precautionary TACC reflecting a conservative increase to estimated historical targeted catch levels will be allocated to cover all retained species. This will reduce compliance and monitoring costs to licensees, ensure sustainability and provide for growth in the fishery. The proposed arrangements have been developed to provide incentives to harvest catch in a more efficient manner and encourage a greater spread of effort across the fishery through the introduction of spatial management zones thus reducing the risk of localised depletion s22 [REDACTED]

A compliance risk assessment will be triggered by a transition to output controls (quota). It is anticipated that additional checks and balances will be required to ensure catch does not exceed quota holdings. The introduction of vessel monitoring systems will provide for better environmental outcomes for the fishery, improved economic performance for operators through optimised monitoring for access to stock management zones and increased community support.

1.1 Setting the TACC

Under Fisheries legislation, the Minister for Fisheries is responsible for setting a TACC and may, before the start of each fishing season, review and/or determine the TACC for each quota species / or species group. In reviewing and/or determining the allowable catch the Minister may consider, amongst other things:

- The adequacy of government stewardship of aquatic resources promoting fairness, equity and access to aquatic resources by all recognised stakeholder groups the agreed decision rules
- information given by the Offshore Net and Line Advisory Group (ONLAG), and any subsidiary Committee if established
- information about the sustainability of marine species in the area of the fishery
- potential impacts from other community sectors
- the reference points set for the stocks of quota species
- the precautionary principle; and
- any decision made by the Director of Fisheries ('the Director') or the NTFJA

The proposed Regulations shall describe the parameters for determining TACC's, and the annual TACC may be prescribed by the Minister in those regulations. The TACC will remain as set by the Minister until the Minister determines a new TACC. If the Minister for Fisheries does not set a new TACC prior to a fishing season, then the TACC set for the previous season will apply.

The Director may develop decision rules and management actions associated with the implementation of TACC's in a fishery. The decision rules should be included in the regulations (where appropriate) and include as a minimum; objectives, performance indicators, trigger points and management actions covering:

- monitoring the fishery effectively and minimising high grading / discarding
- establishing and maintaining confidence in TACCs
- maintenance of bycatch within acceptable parameters
- review of retained and non-retained catch composition
- interactions with threatened, endangered, protected or listed species
- effects of fishing on the ecosystem

In approving any decision rules the Director may consider, amongst other things:

- information given by the Offshore Net and Line Advisory Group (ONLAG), and any subsidiary Committee
- the total estimated catch by commercial, recreational, indigenous fishers and any other users of the fishery
- impacts on other sectors equitable access to resources in key areas
- information about the sustainability of marine species and ecosystems in the area of the fishery and conformity with the *Environmental Protection and Biodiversity Conservation Act* (the *EPBC Act*)
- the reference points set for the stocks of quota species
- the precautionary principle; and
- any decision made by the Minister

s22

s22

1.4 Combined Shark Species

s22

The period used to determine average targeted catch was 2007-08 – 2011-12. It is proposed to formalise the historical harvest levels as TACC. The historical harvest average has been used as catch and CPUE trends have shown no clear evidence of decline in the stocks of these species. However, given the recent listing of Hammerheads on the Convention on International Trade in Endangered Species (CITES) Appendix II, precautionary management measures are required for the two relevant species. The measures will ensure the catch of Hammerheads is maintained at levels acceptable to the Department of the Environment and Energy (DoEE) (e.g. ~50t / sp.), while not actively encouraging discarding. You can find more on this topic at section 11.

Acknowledging the limited information for the species contained in this group, the management framework provides for a regular review of quota limits, allowing limits to be adjusted as more information becomes available.

s22

s22

2. Fishery Access

2.1 Background Information

When determining a licence's potential access and allocations, it is relevant to provide some background information to the progressive evolution of the ONLF's management arrangements. On the establishment of the NTFJA in 1995, eligibility of existing Commonwealth permit holders to participate in the future was determined on proper grounds. Those eligible permit holders were granted access into the new NTFJA fishery. In 1996 industry requested Government to introduce a 3 for 1 licence reduction scheme to coincide with the amalgamation of the then Commonwealth and NT fishery Inshore, Offshore and a GoC zone. The 3 for 1 licence reduction scheme has reduced the licence numbers from 38 to 17. Note: this scheme no longer serves any useful purpose and will not be carried forward.

During 2004-05, the fisheries management arrangements were amended to cap the total allowable effort that could be used in the fishery to historical levels. This was considered necessary to address community concerns about rapidly increasing Shark catches in the fishery. At this time, there was an average of 10-14 licences active in the fishery annually, though some of these were only active for a relatively small portion of the year. These active licences comprised on average 2 restricted and 10 unrestricted licences.

At the request of industry, the 2004-05 effort allocation was equal to each licence based upon the type of licence held (e.g. 'restricted' or 'unrestricted'). It was noted at the time that this mechanism placed significant operational restrictions upon all active operators. A recognised advantage available to an operator from leasing out effort (or catch) units each year is for the development of a more flexible income stream regardless of what type of licence previously held or whether they were 'inactive' or considered to be 'latent effort'. This additional income stream could be used to offset any potential financial discrepancies between the old and new schemes. Note; only those licences current prior to the commencement of the new Regulations will transition into the new scheme.

2.2 Allocation

It is proposed that 100% of the fishery units for each Shark species/species group s22 will be allocated to licence holders based on their existing ONLF holdings. s22

The period used to determine allocation to licence holders, 2007-08 – 2011-12 was the five years immediately prior to fishers being notified of the review in late 2012 and the consultation paper being released in early 2013.

The number of fishery units issued to the ONLF is as follows:

s22

Combined Shark species: 246,441 fishery units

s22

The number of fishery units equally allocated to one Pelagic Net fishery unit is as follows:

s22

Combined Shark species 1/ fishery units

s22

The number of fishery units equally allocated to one Demersal Long-line fishery unit is as follows:

s22

Combined Shark species 937 fishery units

s22

s22

s22

2.4 Development of an emerging Species

Provision for development of other Shark species is provided for through the quota allocated to the Combined Other Shark Group. Triggers to review an emerging Shark species within the Combined Other Shark Group are risk-based and proposed to be set at 10%.

The ONLAG can recommend to Fisheries that an individual Shark species be elevated from the group to have an individual species-specific quota. Such a recommendation would be made to the Director of Fisheries and, if approved, referred to the Minister for consideration.

3 Individual Transferable Quota (ITQ)

ITQs are the annual allocation of quota units to a licence, based on the number of fishery units held by that licence. The TACC in any given year may need to change, based on the estimate of the sustainable harvest level. To change the level of harvest from a stock, the value (not the number) of a fishery unit will be changed. If the estimate of sustainable harvest goes up, the value of the fishery unit will go up and vice versa. One quota unit will always equal 1 kilo of whole fish.

To work out how much quota will be held by any one licence, divide the number of fishery units held by that licence by the total number of fishery units for a species or species group; then multiply the product by the TACC for that species or species group. Note; partial numbers will be rounded to the nearest whole number.

4. Licensing and Quota Provisions

A key difference under this proposal is that there will be fishery units attached to the licences which entitle the licence holder to an annual quota unit allocation. A fishing licence currently provides access to the fishery for licensees, subject to provisions of the Fisheries Act and additional management arrangements in place for that fishery.

To assist in the administration within NT Fisheries, unique licence numbers are used as the lynchpin holding the various identifying elements of a complicated structure together. A number of elements, such as party, contact details, vessels, gear, catch and effort logs, fishery units and quota, any special catch or gear conditions and crew are linked to the licence within the database mainframe. The fishing licence is a mechanism that can be used to control multiple species, bycatch (discards) and gear impacts on the ecosystem. Licences are proposed to be non-transferable.

All renewed licences immediately prior to the commencement of the new Regulations will be automatically transferred under the new Regulations. Additionally, it is proposed that a new entrant who is purchasing **fishery units or quota units** in the fishery shall simultaneously apply for and, if approved, the Director shall issue an **A5/5xxx** series licence to the new entrant.

4.1 Non-transferable Licences

Licences issued under Fisheries Regulations 97 or 98 (subject to Reg.96B) are currently fully transferable. This capacity is not required under a quota system as there will be no restrictions on new licences issued. Licences will not be transferable under the new scheme. Licences currently in the fishery will be transferred into the new Regulations framework and will provide for the initial allocation of fully transferable fishery units.

4.2 Fishery Unit Transfer

A licence holder's fishery unit may be sold (i.e. permanently transferred) subject to the following conditions pertaining to the transfer of fishery unit. Note, if the licence holder sells ALL his fishery units he will not be entitled to receive any future allocation of quota units. The new holder of the transferred fishery unit will not have any quota units issued until the next licensing period.

The existing Shark Unit Entitlement transfer fee of \$10 per unit will be removed under the new scheme. The minimum amount of fishery units that may be sold is undecided but will depend on the varying cost of administration to transfer one or a set amount of fishery units. A fishery unit holder may sell some of or their entire fishery units. Note; as the nominal 'value' of a licence will shift from the licence to the fishery unit, the sale of fishery units may attract stamp duty obligations.

4.3 Quota Unit Transfer

Under this proposal, quota units are considered to be a separate entity to fishery units. Once they have been allocated to a licence, they have a nominal 'life' of the licencing period in which they were issued (i.e. one licencing year) and as such quota units may be transferred. A quota unit holder may transfer some or all of their quota unit allocation. Note: as quota units only have a nominal 'life' of twelve months, they may be transferred only within the licensing year to which the quota unit relates. A new entrant to the fishery must apply for, and be approved, an Offshore Net & Line licence simultaneously for the transfer of quota units to be approved.

The introduction of an ITQ system into the ONLF will align this fisheries management arrangements with other ITQ managed fisheries and will allow for transfer of quota between ITQ fisheries.

S22

s22

5. Permitted fishing gear

At the commencement of the new plan, licensees will be entitled to use the gear currently permitted in the fishery (demersal long-lines, gaffs and pelagic net gear). Each Offshore Net & Line licence would be

endorsed to utilise demersal long-lines and pelagic net in the same areas of the fishery as currently permitted.

To make more efficient fishing operations, structured development of alternative or innovative gear types in the fishery is encouraged. As is the case now, all new gear being proposed for trial in the fishery will be subject to approval by Fisheries. Under the Fisheries legislation there is provision for permitting the possession of fishing gear which otherwise would not be allowed (a Section 17 permit). Applications for Section 17 permits must be made in writing on the prescribed form, and be accompanied by all relevant information supporting the application. The NTJFA has an endorsing role for S17 applications in NTJFA fisheries, and the permit is approved by the Director. Consideration must be given to the potential impacts of the gears on the environment.

The NTFJA will necessarily take a precautionary approach, in accordance with the principals of the *Fisheries Act (1988)* and will regularly monitor and review the overall impacts of the fishery on the resource. If the application is approved, validated fact finding trials could then be conducted on the gear by the operator to evaluate its potential impacts on the fishery's catch composition, other sectors, fisheries and the ecosystem.

6. Cryptic Mortality

Cryptic mortality refers to unknown or unreported mortality of a species. The main issues identified through this process are unresolved cryptic mortality uncertainty (including species identification), community perception issues relating to potential for high grading and potential discarding of unwanted fish and to a lesser extent, humane treatment concerns. s22

[REDACTED]

[REDACTED]

[REDACTED]

It is important to note that the practice of removing fins from live Sharks and discarding of the body back into the sea is not permitted in Australia and is definitely not supported by any licence holders in the fishery.

7. Processing At Sea

To better address the cryptic mortality risk posed to the fishery, it is proposed to implement measures intended to reduce the potential of 'finning' (i.e. at-sea removal of fins from dead Sharks and discarding the carcass) occurring.

Currently the fishery operates under a fin to meat ratio system; which encourages operators to utilise as much of the animal as possible while recognising limitations caused by unintentional equipment failure, Shark or lice bitten product and preserving as much practical and economic flexibility as possible within a professional fishing operation. However, processing at sea impedes the collection of accurate species-specific scientific data that are essential for monitoring catches and landings and implementing sustainable Shark fisheries management.

Additionally, the NT settings for fin ratios have been criticised by a number of external stakeholders as not aligning with scientifically determined ratios. The argument being this allows poor operational and unreported practices to occur unless a robust and defensible monitoring program is in place. Additionally, there are significant differences in fin-to-carcass-mass ratios between species, fin sets or cutting procedure demonstrating that the ratios can be problematic. Having a rigorous validation process in place for the catch will be important as it provides confidence in the level of take, accuracy of species identification and of discard levels.

In order to facilitate proper enforcement and importantly, to enhance the communities confidence that species identification is as accurate as possible, and discarding and high-grading of animals is not occurring, it is proposed that all operators must land Sharks with fins naturally attached (FNA). In the

case of Hammerhead Sharks when 75% of the TACC has been taken, and there is no electronic monitoring in place, the heads need to remain attached to the body for accurate species identification. There is an acceptable exception to this rule, refer note below.

Note: an operator who believes they have a case for special circumstances (e.g. the lack of viable ports (GoC), remote nature of the fishing grounds and/or product quality / maintenance issues with on-board brine space and cold storage of whole/trunked animals) may apply to the Director for an exemption to the FNA rule. As each vessel setup is unique, the Director may assess each application on a “case by case” basis. If the Director believes the operator has a valid circumstance, he may grant a ‘conditional’ exemption to the FNA rule. However, in order to maintain the community’s confidence in the fishery, and not undermine the efforts of other fishers to improve the fisheries social licence, the operator would need to provide safeguards to ensure species were recorded accurately, no discarding of trunks/carcasses and the volume of fins matched the quantity of Shark landed. To meet this requirement, Fishing Monitoring Equipment (FME) (e.g. electronic monitoring) is proposed for any vessel which has approval to remove fins at sea. Approved FME is defined in Fisheries Regulations and means equipment that is fitted to a vessel; a) to detect when and where fishing occurs, and b) to record catch information. The equipment may include, for example, sensors, a digital video camera and a computer system.

These two measures meet Marine Stewardship Council “80” requirements for robust external validation purposes, minimises cryptic mortality concerns, assists with species identification and is expected to significantly enhance the community’s confidence in the fishery. The Department is in the process of developing a set of protocols which will govern the collection, storage, monitoring and sharing of information obtained by FME. It is not yet determined what level of viewing of the cameras there will be, but is expected to be similar to other States / Cth processes (e.g. 10% viewing as a base and additional if issues are detected); however, the level needs to comply with accepted scientific rigour in order to achieve the goal (i.e. validate the logbook information) and meet community expectations. To reduce the storage costs for large volumes of footage, it is proposed to delete footage not required for prosecution purposes after six months of the review. Any information collected by these methods is confidential with only non-commercial in confidence information and agreed outcomes with a summary discussed at ONLAG.

It is intended to continue to encourage full utilisation of Sharks under the new scheme and each licence is proposed to have revised conditions attached as outlined below;

“A person, during the conduct of a fishing operation under a licence or permit, shall not discard a Shark unless he/she reports the reason (e.g. equipment failure, no marketability or lice bitten) and subsequent discards on the logbook returns.”

7.1 Minimum trip holdings

Minimum quota unit holdings for each of the species groups are required for the licence holder to enter the fishery (i.e. go fishing). The requirement for minimum holdings is recognition that as demonstrated historically the proposed quota target species cannot be caught in isolation from other species. The level to which minimum holdings are set is important as the appropriate level will minimise incentives for high-grading of target or high value species and discarding of less valuable species and for managing access to more vulnerable species in the ONLF.

To ensure effectiveness the amount of minimum holdings generally represents one and a half times the amount of fish that could be expected from a productive trip. Additionally, the makeup of the minimum holdings quota should represent the types of species the operator is likely to catch while fishing. Minimum holdings also reduce compliance monitoring and analysis costs and assists with limiting overcatch and subsequent reconciliation issues. Operators who take in excess of allocated quota not only undermine the principals of the NT *Fisheries Act*, it also affects the integrity of other operators’ holdings.

Important note

Sufficient quota must be held to cover the entire catch for each trip. The onus is on licence holders to ensure that they check their quota balance thoroughly and report any discrepancies or errors to Fisheries.

7.2 Demersal Longline Minimum Holdings

When Demersal Long-line gear methods are used, it is proposed a total minimum holding of 13,700 kgs will apply. This minimum holding comprises:

s22

- Combined Shark species (35%* of 13,700 kgs), rounded off to: **4700** kgs**

s22

* These figures will change as the catch composition average changes over time.

**Figures rounded off to the nearest 100 kg.

7.3 Pelagic Net Minimum Holdings

When Pelagic Net gear methods are used, a total minimum holding of 4,500 kgs will apply. This minimum holding comprises:

s22

- Combined Shark species (3%* of 4,500 kgs), rounded off to: **150** kgs**

s22

* These figures will change as the catch composition average changes over time.

**Figures rounded off to the nearest 50 kg.

The level of minimum ITQ holdings are intended to be set so as not to prematurely place inappropriate restrictions on operators, i.e. not so large as to restrict entry to the fishery, but sufficient to discourage high-grading and issues associated with unrestricted access to non-quota species.

A licensee must ensure minimum ITQ holdings for each species group is held prior to commencing a voyage. Suitable penalties for non-compliance of these provisions will be imposed.

7.4 Mechanism to determine average catch composition for each species group

It is anticipated that the catch composition of the fishery may change with the introduction of ITQ. To monitor this change, the catch composition for each gear will be reviewed annually by Fisheries. Fisheries will determine the average catch composition for each gear type and quota species group using the fisheries catch composition rolling average for the last three years.

This section is included to clarify the process for reviewing minimum holdings amounts. There is no cost to industry in this process.

8. Bycatch

All Combined bycatch species currently have a review trigger of 10% of the total annual catch for the Offshore Net & Line fishery.

Additionally, to reduce unnecessary discarding and encourage better utilisation of sharks, it is proposed to maintain an individual vessels bycatch to less than 20% of the total fisheries estimated bycatch in any one year. The measure is designed to provide an individual operator incentive to develop markets for a

range of mixed species and not to discard other target species s22
However, if there is an individual operator deliberately discarding target species thus risking the fisheries social licence, this unsustainable practice will trigger additional monitoring to review their operations. It is proposed the operations review and education cost should only be borne by the individual operator, not shared with other operators in the fishery.

Fisheries will periodically review the fishery's catch composition to ensure the bycatch triggers are maintained at an appropriate level. There is no cost to industry in this process. If concerns arise over combined group, bycatch or other catch issues the information may be sought from an operator suspected of being in breach seeking him to 'show cause' as to why an observer should not be placed on his vessel to monitor his fishing activities at his expense..

8.1 Byproduct

These combined species groups are the Combined Shark, s22
. In recognition of emerging research needs for vulnerable species as identified by the ONLAG, triggers to review emerging species within the Combined Shark Species group, s22
species are proposed to be developed during Stage 2 of this review (i.e. the Harvest Strategy).

9. Reporting

Logbooks currently record individual species by number and weight. Bycatch species are recorded by weight. Observer data is often used to verify logbook data. To enable the timely identification of individual species, it is proposed that logbooks will be completed daily and provided to Fisheries within twenty eight days of the end of the month. Fisheries are also trialling an electronic logbook (e-logs) where daily catch and effort information can be submitted electronically to Fisheries by email when in port. This program will be field tested in coming months and be available for roll out across the fleet from July 2017. Monthly market detail logbooks shall remain as currently provided; i.e. within twenty eight days of the end of the month.

To minimise 'offshore' compliance costs, enforcement of the quota system will be assisted through the licensee completing a Catch Disposal Record (paper, CDR) designed to record weights of fish unloaded (Fisheries Act s34). The final design and printing of the CDR is being reviewed for use in the ONLF, and is anticipated to be similar to that used in the nearby offshore s22 fisheries. A key difference in the interim (at least until e-logs are commonly used), will be reporting of s22, Scalloped s22 weights on the CDR's in addition to the Combined Species Groups. A mechanism to report notices electronically is currently being explored through the vessel monitoring system and e-log system and may provide operators an alternative to paper forms.

9.1. Monitoring

The current base-level of observer coverage (funded by government) is proposed to be maintained to minimise the communities' concerns and uncertainty relating to perceived cruelty to animals, discarding, cryptic mortality, and provision of adequate species identification training or monitor changes in fishery practices anticipated under a quota system.

In order to ensure sufficient validated information is gathered and to meet community expectations, it is proposed that the Department maintain the current level of observer coverage. The framework reflects this requirement with one government funded observer trip conducted in the fishery for each 300t combined catch, up to a combined catch of 900t, e.g. current levels. It is proposed that as the fishery develops beyond this point, industry fund observer trips as required (eg. every 300 t over 900 t).

To address increased risk to sustainability with increasing harvest levels, it is proposed there is fishery wide observer monitoring initiated by harvest rules developed for each species (or species groups). Note: if the fishery does not develop beyond the current harvest levels, additional monitoring is not triggered under these harvest rules, therefore costs to industry are contained. It is anticipated that these proposed

monitoring levels will promote community confidence and minimise cryptic mortality concerns. (Refer Appendix 1).

To ensure effective enforcement of quota, it will be a requirement that all unloading of catch by operators be carried out in Darwin or Nhulunbuy (may be additional compliance costs for operators using this port). As is the case in other NT quota managed fisheries, a licensee may apply to the Director seeking approval to unload quota species in another port in special circumstances (e.g. cyclonic weather, approved mother-boat or crew safety concerns, etc.) to be outlined in a brief written application.

It is also proposed for individual operators who wish to unload catch in another port (e.g. Karumba) on a more permanent basis to apply to the Director for approval as is the case in other NT quota managed fisheries. Approval to this scenario will require the operator to establish an approved alternate compliance monitoring regime (e.g. Compliance Officers or installation of Fishing Monitoring Equipment) to maintain integrity of the Quota system and fishery regulations. It is also proposed that any additional monitoring costs would be borne by the requesting operator (i.e. via the Level 2 mechanism), not borne by the ONLF fishery as a whole. Note: if the vessel has approved fishing monitoring equipment installed to comply with an exemption to the FNA rule or approval to unload to a mother-ship (for example), any additional monitoring costs would likely be minimal.

No quota species (or their products) intended for sale will be allowed on board a vessel upon commencement of a voyage. This is required to assist enforcement activities and will greatly reduce the cost of ensuring compliance with the proposed management arrangements. However, as is the case in other NT quota managed fisheries, a licensee may apply to the Director seeking approval to store quota species on board in special circumstances (e.g. on-board storage of product for export etc.) to be outlined in a written application.

9.2 Vessel Monitoring Systems (VMS)

It is proposed to introduce Vessel Monitoring Systems to all vessels operating in the ONLF. This system would provide for accurate, real-time monitoring of a vessels location and two-way transfer of data between the Fisheries monitoring office and the vessel.

The introduction of VMS into the ONLF, along with the Timor Reef and the Demersal fisheries would enable cost-sharing of VMS related establishment, administration and monitoring costs and provide a cost effective monitoring alternative to observers. It is proposed that VMS administration costs are to be funded by Fisheries for the first year (or remainder of) to enable the fleet transition into the new arrangements. s22

Additionally, the Department is working closely with Commonwealth Parks Australia to explore VMS monitoring cost-sharing options for when vessels are in a Commonwealth Marine Reserve. A Technical Fact Sheet explaining VMS is available from Fisheries upon request.

9.3 Scales and weights to be used when quota species are unloaded from vessel.

An operator must not unload or attempt to unload product for sale unless the fish is in a standard product form (e.g. whole or trunked (FNA) or pieces or fillet (under a FNA exemption)). An operator must not unload or attempt to unload quota species for sale unless the operator has in his or her possession a suitable trade weight for the purpose of testing the scales used by the operator to weigh quota species. On any day that a quota species is weighed, the operator must use the suitable trade weight to test the scales for accuracy before weighing the quota species. Note: product for sale must be weighed on certified scales. If product is weighed and bagged/boxed at sea, certified motion compensated scales must be used and a label applied to each product box or container displaying species name, cut (whole, trunked, fillet etc.), net weight, vessel name / licence number, along with date caught. A contravention of this clause is proposed to be an offence. Compliance Officers will randomly monitor weights as the cartons etc. come off the vessel at unload.

After testing the scales with the trade weight, it is permissible to 'tare' off the scales using an empty product container (dry), lid (if applicable), plastic liner before weighing the product off the vessel. Observers or Compliance Officers will randomly monitor this process and significant penalties may be applied if fraud is evidenced.

9.4 Transfer of catch between vessels

In order to ensure that the compliance and administrative issues of the new arrangements can be simplified, the plan will not allow for transshipping of product without prior approval.

However, operators working in remote regions of the NT (e.g. GoC), may apply to the Director seeking annual approval to tranship quota species at sea to an approved mother boat to be outlined in a written application. It is also proposed that any additional monitoring costs would be borne by the requesting operator (i.e. via the Level 2 mechanism), not borne by the ONLF fishery as a whole. Note: if the vessel has approved fishing monitoring equipment installed to comply with an exemption to the FNA rule or approval to unload in Karumba (for example), any additional monitoring costs would likely be minimal.

10. Costs

It is anticipated that there will be some additional financial costs to Government and industry as the proposed Offshore Net and Line Fishery moves to a Quota Management System (QMS). With QMS, the timing of CDR data entry becomes critical to effective monitoring of quota allocations. Additionally, strict enforcement of fishing zones and catch landings to ensure compliance becomes critical to maintain transparency and confidence in the TACC. This will require additional resources.

Government is unable to support, on behalf of the community, any increase in current management costs that are associated with implementation of QMS into the Offshore Net & Line Fishery (other than assistance with VMS setup costs and transition scheme as proposed in section 9.2).

A proposed licence fee and levy quota cost recovery system has been developed as a guide for setting up a similar cost recovery process for the Timor Reef & Demersal quota fisheries, and now, the ONLF fishery. It is proposed Fisheries review operating costs annually in collaboration with industry.

10.1 Review of Current costs

Fisheries have reviewed research, management and administration costs associated with the current administration of the fishery. Fisheries fund three monitoring trips per year, a portion of a manager's time (generally risk-based evaluation of operations, assessment of operations with alignment to communities expectations and reviews appropriateness of policy and legislation), a portion of a scientist's time (generally in-depth analysis of fishery) and licensing, vessel registration and logbook data entry and verification.

The current costs of administering the Offshore Net & Line Fishery are not included in the additional costs referred to in section 10.2. Note: Transfers of units between licensees are not expected to be administratively onerous and it is not proposed to set a transfer fee. New costs identified as a consequence of moving to quota are outlined below.

10.2 Additional Administration, Management, Compliance and Research costs

A change to ITQ management will generate some additional costs to government and industry. There may be further costs yet to be identified or uncovered as implementation of ITQ is advanced in the fishery. These costs are additional to those costs attributed to breaches and triggers of management objectives and performance indicators.

Additional 'one off' and ongoing management costs which have been identified and preliminary costings are detailed below;

- Design and printing of Catch Disposal Record logbooks (~\$450)

- Provision for logbook and licensing operator resources (costs can be shared with TRF & DF operators) to enter and acquit units/quota and CDR data (ONLF share ~\$21,890), Note: uptake of e-notices will be reviewed annually and could significantly reduce the ongoing cost by up to 15%.
- database maintenance 3% (Offshore Net & Line ITQ component) of database budget (~\$3,860)
- Compliance Costs, incl. vessel monitoring resource costs (~\$28,000), Note: uptake of e-logs/e-notices to be reviewed annually and could significantly reduce the ongoing cost by up to 15%.

Additional ongoing costs have been identified at ~\$54,200. There are potential savings of \$7,500.00 from more efficient reporting processes if e-notices are utilised throughout the fleet (e.g. e-Catch Disposal Records and e-notices) which lower the ongoing costs.

Important Note: It is proposed for Fisheries to offset VMS administration setup and monitoring costs to industry for the first year of operations to assist with transition into the new scheme, s22 [REDACTED]. This amount is expected to be approximately \$15,000; reducing first year costs to industry to ~\$39,200 (i.e. \$54,200 - \$15,000).

10.3 Cost sharing mechanisms

Revenue raising measures required to share additional costs from industry would start as soon as the scheme is implemented into the fishery. If the scheme is implemented prior to the start of a licensing year, costs will be recovered on a pro-rata basis.

Note: the Northern Territory Seafood Council (NTSC) levy, currently collected at licence application or renewal time by Fisheries on behalf of the NTSC, will not be affected by these measures. Licence holders will need to factor the NTSC levy into licence renewal costs upon application / renewal.

10.3.1 Recovery of 'Once off' start up management costs

There are no identified 'one-off' start-up management costs. Fisheries proposes to offset VMS administrative setup and monitoring costs to industry for the first year of operations to assist with transition into the new scheme, s22 [REDACTED]. The work required to restructure the fisheries database and establish administrative mechanisms have been largely completed by existing quota fisheries (TRF & DF).

10.3.2 Recovery of 'on-going' Management Costs

It is proposed to retain annual licence administration fees and to increase those fees annually by CPI to offset existing costs to government (i.e. the current 'base level' fee for an A5 licence is \$1180 for 2016-17).

Additionally, determination of a licence holder's 'on-going' additional costs **after** the first year will be from the Level 1 mechanism of cost recovery (described below) and their licence fee each year will be adjusted accordingly: i.e. Based on a licence holders unit holdings for each species group, not just holding a licence.

10.3.3 Proposed Mechanism for funding Decision Rules Management Response

Management actions need to be clearly defined and costs estimated in order to develop an acceptable, agreed system of cost sharing.

This will be done for each management action and will sit behind the Performance Measures (refer to Appendix 1). Proposed Management Responses (MR) for specific breaches of the Trigger Points (TP) relating to Performance Measures (PM) has been developed. In the attached PM table, each MR has been allocated a number (MR1, MR2, etc.) to distinguish it from other MR's following a breach of a PM.

A cost recovery mechanism proposed to recover 'on-going' additional management costs based on a licence holders fishery unit holdings, is described below in section 10.3.4 (Level 1).

In addition, it is proposed to structure a staged cost recovery system which will be applied when a trigger point is breached. The costs to be recovered from an individual operator can be a fixed cost per day for an observer to go on a vessel (Level 2). Refer to Appendix 2 for working examples of the cost recovery mechanisms.

10.3.4 Level 1 mechanism

A Level 1 cost recovery mechanism is proposed to recover 'on-going' additional management costs after the first year, plus CPI increases, including some monitoring and compliance costs. Note: Licences will not be renewed, nor will Undercatch or ITQ be allocated until all outstanding fees and charges are addressed.

10.3.5 Level 2 mechanism

It is proposed to apply a Level 2 cost recovery mechanism to recover the cost of an observer = ~ 700 penalty units / day. When Level 2 is applied costs will be recovered through the issue of an Invoice payable before the next quota allocation can be issued. Note: the number of observed fishing days on the trip should be at least as long as the average number of fishing days for the past 3 voyages. If the observer monitors less than this amount of time, and the information gathered is not sufficient to adequately address the reason for the trip, the fisher may be required to repeat the exercise at the discretion of the NTFJA.

10.3.6 Management Costs Recovery Summary

It is proposed to recover costs via the three Level mechanisms. Level 1 will be used to recover 'on-going' additional costs; Level 2 will be used to recover the cost of an observer (to an individual licence holder) and Level 3 to recover monitoring, research and compliance costs for analysis and reports.

Cost sharing arrangements in the **first** full year of quota in the ONLF fishery are estimated to be ~\$39,200. A licence holders share of the on-going additional cost of \$39,200 (the base Level licence fee for 2016-17 has already been received) is levied pro-rata based on proposed fishery unit holdings for each species group. This levy will be payable on re-issue of the licence or pro-rata on the commencement of the Regulations.

On-going additional administration costs from year 2 are comprised of the estimated on-going additional costs + base Level licence fee for 2017-18 + CPI and will be recovered from the Level 1 method of cost recovery. These costs will be evaluated each year by the department and amended if required. Compliance and administration costs are still being reviewed and as a result, estimates may change.

11. Additional Considerations

The Offshore Net & Line fishery gears and operating practices have been independently assessed by the Department of the Environment and Energy (DoEE) for environmental sustainability and the fishery granted a six month Wildlife Trade Operation (WTO). This exemption extends until 27 October 2017. Details of the WTO can be accessed at: <http://www.environment.gov.au/marine/fisheries/nt/offshore-net-line>

DoEE supports the continued reporting of future assessment needs for each fishery, but reinforces the requirement for Fisheries to advise DoEE of any intended change to the NT ONLF management arrangements, including legislated amendments that may affect sustainability of the target species or negatively impact on group, bycatch, protected species or the ecosystem.

In addition to the 'normal' environmental accreditation processes, the Convention for International Trade in Endangered Species (CITES), Threatened Species Scientific Committee (TSSC) has also conducted a Non-Detriment Findings assessment on Hammerhead species caught in Australian waters including the ONLF. In coming to an interim positive Non-Detriment Finding, the TSSC has noted the proposed changes to the ONLF management arrangements, as outlined in this framework, would be required to be implemented to retain a positive NDF. Failure of the ONLF to gain a positive non-detriment finding may lead to the WTO accreditation being withdrawn and the fishery having significant harvest restrictions

implemented. Further information, including a list of species for which non detriment findings have been issued and the fisheries from which they may be sourced, is available from <http://www.environment.gov.au/biodiversity/wildlife-trade/cites>.

In coming to an interim positive NDF for Hammerheads, the TSSC noted that fisheries interacting with Hammerhead species would need to have recognised measures in place to validate reporting, ensure accuracy of species identification and to quantify discards. Recent advice from the TSSC noted there is recognition that much has been done (and is planned) to sustainably manage shark, however, TSSC, based on provisional advice, is of the view that the current rules in place are not sufficient to support a conservation dependant listing. They also noted that a number of additional measures would be required before September 2017 to support the consideration of a conservation dependant listing (catch limits, verification of catch and discards, monitoring etc.), Australian, Queensland, Northern Territory governments and the Great Barrier Reef Marine Park Authority are working together to ensure a consistent approach across jurisdictions wherever possible.

Appropriate measures to accommodate the TSSC's directives were developed by ONLAG, along with measures to record Threatened, Endangered and Protected Species interactions are included into this framework.

It is proposed to introduce a harvest limit of 50t for each CITES listed Hammerhead species. At this limit, if fishers can't demonstrate a negligible catch of hammerheads (through observance) they will have to cease fishing. To ensure this limit is not exceeded, it is also proposed that appropriate measures would be implemented to control harvest when catches reach 75% (or 37.5 t) for any of the species if required. These measures include retention of heads and fins on body upon landing, unless the vessel has approved monitoring equipment operating on vessel and has an exemption to the FNA rule issued by the Director.

DoEE is aware of the ONLF developing a formal management framework with an accompanying Harvest Strategy s. In the event that this framework is adopted, Fisheries will need to seek re-accreditation under Part 13 and Part 13A of the *Environment Protection and Biodiversity Conservation Act 1999* for the new management plan as the current accreditation would be deemed invalid.

Terminology Definitions

s22

Combined Other Shark Group species when used in this division means all retained shark species other than s22

s22

A5/5xxx series licence means an Offshore Net & Line Fishery licence category. It is proposed all licence categories in the Offshore Net & Line Fishery (ONLF) be assigned to this licence category symbol.

A5/1xxx series licence means an existing Offshore Net & Line licence category which has not participated in a licence reduction scheme. It is proposed to abolish this licence category symbol and amalgamate the licence into the **A5/5xxx** category.

A **Fishery Unit**, when used in this division means a single share of the total shares available to the fishery (Initially, a total of 1 fishery unit for each kilogram of quota species TACC are to be issued for the whole fishery).

Entitlement (as fishery units) reflects the number of fishery units held by a licence at the commencement of the new Regulations. It is proposed each Offshore Net & Line licence will be granted similar amounts of fishery units (or shares) for each of the combined species groups in the fishery dependent upon current holdings and catch history. Permanent transfers of fishery units may occur. When fishery unit is permanently transferred it is referred to as a 'fishery unit' transfer.

Quota unit when used in this division means the fishery unit allocation. The issue of quota units, i.e. 1 kg of whole fish of a particular species group allocated (in 1 kg units) to a licensee, is based on the entitlement of the licence for that licensing year and the TACC. When a transfer of an entitlements allocation occurs it is referred to as a 'quota unit' transfer.

Individual Transferable Quota (as quota units), when used in this division means the same as a quota unit.

Minimum Holdings (of quota units) when used in this division means a set amount (in kilograms) of quota units for each quota species group a licensee must have attached to the licence prior to the vessel commencing fishing operations. To be reviewed annually and revised if necessary. The reviewed catch composition is applied to this figure and adjusted if necessary.

Precautionary Principle when used in this division means when an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

s22

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s22

s22

Final Draft

Final Draft

Final Draft

From: [Simpfendorfer, Colin](#)
To: s22; [Marsh, Helene](#)
Cc: s22
Subject: RE: DPIR response to TSSC committee_24 July 2017 [SEC=UNCLASSIFIED]
Date: Tuesday, 25 July 2017 10:48:54 AM

Thanks for the update. Will be interested to hear how the discussion with Qld goes.

Colin

Professor Colin Simpfendorfer
Director, Centre for Sustainable Tropical Fisheries and Aquaculture
College of Science and Engineering
Building 142
James Cook University
Queensland 4811
Australia

s47F

s47F

Web: jcu.me/colin.simpfendorfer
Twitter: @sharkcolin
Instagram: @sharkcolin

From: s22
Sent: Tuesday, 25 July 2017 10:18 AM
To: Simpfendorfer, Colin s47F >; Marsh, Helene
s47F
Cc: s22
s22
Subject: FW: DPIR response to TSSC committee_24 July 2017 [SEC=UNCLASSIFIED]

Helene, Colin,

NT response to yesterday's email below.

In relation to Queensland, s47F has asked to discuss with Geoff and myself – we have set up a phone call tomorrow afternoon.

Regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601

s22 | www.environment.gov.au

From: s47F
Sent: Tuesday, 25 July 2017 8:35 AM
To: s22
Cc: TSSC Secretariat <TSSCSecretariat@environment.gov.au>; s47F
Richardson, Geoff <s22>;
s47F s47F
Subject: RE: DPIR response to TSSC committee_24 July 2017

H s22
Thanks for the early advice, much appreciated. I have responded to your queries below for your consideration.

The Offshore Net and Line Fishery electronic logbooks (e-logs) program has been developed and is currently being trialled with selected (i.e. the most active) operators in the fishery. It is expected that most of the active operators in the fishery will have e-logs installed by the end of this year (2017), with all operators utilising the program by end June 2018.

As you are aware, specific conservative harvest limits of 50 t each for Scalloped s22 Hammerhead Sharks are proposed to be legislated. The Minister currently has the powers to set, and amend these limits if, and when required.

We look forward to receiving the Threatened Species Scientific Committee (TSSC) response to the NT's proposed management arrangements.

Thanks again for the advice.

Kind regards
s47F | s47F
Department of Primary Industry & Resources
Goff Letts Building, Berrimah Farm, Makagon Road, Berrimah
PO Box 3000, Darwin, NT 0801

s47F

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From: s22

Sent: Monday, 24 July 2017 5:05 PM

To: s47F

Cc: TSSC Secretariat <TSSCSecretariat@environment.gov.au>; s47F

; Richardson, Geoff s22

Subject: RE: DPIR response to TSSC committee_19 July 2017 [DLM=For-Official-Use-Only]

Dear s47F

The Department of the Environment and Energy (the Department) would like to thank you and acknowledge Northern Territory Fisheries' letter dated 19 July 2017. The letter has been passed on to the Threatened Species Scientific Committee (TSSC) for its consideration.

On 19 July, after receiving your letter, a subcommittee of the TSSC met with us to discuss the new information you and Queensland Fisheries have provided. The Chair of the TSSC, Prof Helene Marsh, intends to formally write to you but in the interim has requested I email you with a couple of further questions.

For consideration in its assessment, the TSSC would like to know when the use of e-logs (electronic reporting) is likely to be implemented across the Ocean Net and Line Fishery?

The TSSC notes that the non-detriment finding for hammerhead sharks is likely to be reviewed by the Department once appropriate information becomes available, so management arrangements should be introduced which allow flexibility to change the TACs if the non-detriment finding changes in future.

The TSSC also notes that the management arrangements for a Conservation Dependent species are reviewed annually by the TSSC and management arrangements should be able to be modified based on the outcomes of these reviews.

Please feel free to call myself or Geoff Richardson if you would like to discuss.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22

|GPO Box 787 CANBERRA ACT 2601

s22

|www.environment.gov.au

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-----Original Message-----

From s47F

Sent: Wednesday, 19 July 2017 11:34 AM

To: TSSC Secretariat <TSSCSecretariat@environment.gov.au>

Cc: s47F

Subject: DPIR response to TSSC committee_19 July 2017

Hello,

Please find attached the Department of Primary Industry and Resources response to your recent information request for your consideration.

Happy to discuss if required.

Kind Regards

s47F | s47F

Department of Primary Industry & Resources Goff Letts Building, Berrimah Farm, Makagon Road, Berrimah PO Box 3000, Darwin, NT 0801

S47F

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From: s47F
To: s47F; [Geoff Richardson](#)
Cc: s47F; s22; [Paul Murphy](#); s22; s47
Subject: RE: Hammerheads [SEC=UNCLASSIFIED]
Date: Tuesday, 1 August 2017 2:32:49 PM
Attachments: s22
[Additional information for the TSSC on hammerhead shark.docx](#)

Hi Geoff

Further to s47F email, please find attached a summary of the key points on product form and data validation. This includes many of the key points from s47F emails as well as a more detailed explanation of the finning regulations and compliance activities related to product form. Can you please ensure this information is provided to the TSSC.

I trust this assists.

Kind regards

s47F

s47F

s47F

Department of Agriculture and Fisheries

s47F

[W www.daf.qld.gov.au](http://www.daf.qld.gov.au)

Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000

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From: s47F

Sent: Friday, 28 July 2017 9:14 AM

To: Richardson, Geoff

Cc: s47F; s22

Murphy, Paul; s22

Subject: RE: Hammerheads [SEC=UNCLASSIFIED]

Thanks Geoff,

I acknowledge your comments but believe we are now in a position that we simply disagree on some key issues. I also appreciate this is difficult for both of our agencies.

The current inference that from the outset that there needed to be a change to the "form" of landed product to provide confidence in the TACC is not, and never has been, our

understanding. Queensland made it very clear from the outset that our regulatory flexibility was tempered by the distinct possibility of parliamentary disallowance of any new arrangement. This is the fundamental reason we have continuously engaged with industry in an attempt to gain support (or at least reduce opposition to) any new arrangements. It would be disingenuous of us to proceed with regulatory change, which the TSSC would then use to develop its recommendations, when we knew there was a very high possibility of those regulatory arrangements not surviving a parliamentary challenge. We simply do not do business that way.

It is important to acknowledge that we have quite different objectives – we are focused on fishery management objectives (as per our Act), while the TSSC is focused on conservation outcomes. This undoubtedly means that we will have slightly different positions. This may well be the crux of the issue.

We understand the s22 issue and are willing to look at incorporating this into the TACC at the next available opportunity. It should be noted that we have previously advised industry that the TACC would be focussed on the 3 key species so this may create some additional challenges.

On product form, the fact is the Commonwealth has been aware for a very long time that filleting is part of the broader shark fishery. As you say, the TSSC didn't want to be prescriptive and so we have focused on other ways of validating data rather than product form changes, including extra monitoring at sea, phone reporting, forensic auditing of logbooks with receipts / catch disposal records / VMS etc. We believe this is sufficient given the risk profile and still means businesses can be viable and importantly, discards are minimised. Requiring all shark to be kept whole is likely to lead to discards.

While we believe we know how industry would react, we are prepared to raise the matter with industry subject to your/TSSC's agreement. However I also need to reiterate that at this stage our government believes the changes we are making will significantly enhance protection for this species and are within the harvest boundaries established by the Commonwealth's non-detriment finding. Consequently it has been made very clear to us that at this time, our government is not prepared to go further than is currently proposed. Our regulatory changes are in the very advanced stages of the formal approval process. From a practical viewpoint, even if our government were to change its position, it is highly unlikely we could implement further measures in the necessary timeframes.

Fisheries Queensland is in the process of implementing the most far reaching reform agenda ever contemplated for fisheries management in Queensland. We, more than most, understand the need for change. Therefore notwithstanding the comments above, we remain committed to working with your Department on this issue and some of these broader issues (eg product form for all shark) can be considered as part of the reform process, especially as the east coast inshore fishery is one of the priority fisheries for reform and we will be starting this process shortly.

I would appreciate being advised as soon as possible of TSSC's position on us having further discussions with industry on the matters it has raised to determine whether there is any support for these or alternate proposals which may allow this matter to progress smoothly.

Please note that I will be absent from the office until 9 August but s47F will be available should further clarification be required.

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

From: Richardson, Geoff [s22]

Sent: Thursday, 27 July 2017 5:21 PM

To: s47F <s47F>

Cc: s47F

s22

; Murphy, Paul

s22

; s22

Subject: RE: Hammerheads [SEC=UNCLASSIFIED]

Dear s47F

Thank you for your email.

I am sorry but I do not agree with your recollection of our Brisbane 20 February 2017 meeting that issues around species-specific catch verification and data validation (including all four species of hammerhead shark found in Australian waters) were not made clear. On the contrary, I believe that the TSSC members made this issue very clear at that meeting.

As discussed yesterday, the TSSC primary concern that catches are validated has been expressed multiple times in correspondence and meetings with Fisheries Qld. The TSSC has tried not to "play fishery manager" and thus has been deliberately non-prescriptive in the specific method of catch validation, preferring to leave that to the fishery management agencies. However, the TSSC is asking for confidence that the catch validation is effective such that catch limits are adhered to. Given the clear potential for confusion in identification of hammerhead sharks (recognised at the outset with the concurrent "similar species" assessments for s22 s22 hammerhead sharks), having confidence that the carcasses that are landed by fishers can be discriminated by an objective observer at landing is fundamental in the absence of any form of on-sea validation of the species.

We all agree hammerhead species can most easily be discriminated from each other by the fins and heads. If the heads cannot be kept due to storage space limitation, then stipulating the product form being with fins naturally attached is a reasonable means by which to achieve some catch validation. That it is the focus of discussion now is not because it is a new idea, but because it has become the focus by a process of elimination. The TSSC has noted that the Northern Territory has implemented such measures and I am informed our Sustainable Fisheries team have been discussing this as part of the WTO process with Fisheries Qld for many years. Landing fins naturally attached is also a recommendation of the current NDF.

As I mentioned yesterday, the Committee also remains uncertain as to what the requirements are for regulating finning practices in Qld managed fisheries; your letter of 30 June in response to the Committee's Qu. 6 advises the landed form requirements for fisheries include "Shark finning (ie. keeping the fins but throwing away the body of the shark) is prohibited." However, it is unclear what this means in practice, as further on in that answer you state that on the East coast "'S' (shark) symbol holders may fillet shark, but the fins and tail must be kept on board to meet the general 'no finning' provision" and fishers who do not hold an 'S' symbol "cannot fillet at sea but may remove the heads, tails and fins, provided the tails and fins are secured to the body." And in the Gulf of Carpentaria "shark may be filleted at sea.... but the fins and tail must be kept on board to meet the general 'no finning' provision." In short, it is unclear to the Committee how the 'no finning' provision is given effect, and how these provisions would allow landed hammerhead catch to be confidently deducted from the TAC, and not misreported. As I mentioned yesterday, clarity on these points would assist the Committee greatly, and may allay much of their concerns.

On a related point, the need to address potential confusion between winghead and hammerhead product also arises directly from the inability of measures suggested to date to verify that scalloped hammerhead landed catch is reported accurately. Again, it is now the focus because alternative measures of catch validation have been ruled out. It is a little disingenuous to say that it has not been raised until this week – I'm told it was raised in a slide presentation **s47F** in the meeting organised by Fisheries Qld in December 2016 in Townsville and I recall it being raised at our February 20 meeting by Prof Simpfendorfer. That the issue is significant is demonstrated by your 30 June response to the TSSC's letter (Qu. 8) which notes that high reported GOC catch in 2013-14 being likely due to reporting of winghead as "hammerhead - other". It is entirely reasonable for the Committee to seek clarity about measures you propose to stop fishers, as the TAC trigger is approached, from misreporting hammerhead as winghead when head, fins and tail are removed. While I understand that the likelihood of reaching the trigger point for the TAC, and thus the incentive for misreporting, may be low it is preferable to address the concern pro-actively rather than retrospectively. I also note your 30 June response indicated that the trigger limit has been exceeded twice in 5 years and the TAC exceeded once.

That said, I thank you for the clarifications you have made in this email correspondence and I will forward to the TSSC for their further consideration. I will also discuss with the Chair your request to share with industry the progress we have made.

Regards Geoff
Geoff Richardson
AS - Protected Species and Communities Branch
Department of the Environment and Energy

s22

From: s47F s47F
Sent: Wednesday, 26 July 2017 4:40 PM
To: Richardson, Geoff s22 >; s22
s22
Cc: s47F
Subject: Hammerheads

Dear Geoff

Thank you for passing on the feedback from the subgroup of the TSSC. I acknowledge this is a challenging situation we are all in trying to balance competing priorities and trying to get an overall positive outcome both for hammerhead and industry. I am happy for you to provide this email to the relevant TSSC members to try and work through the remaining questions and issues.

As discussed, I am a little concerned that some of these issues weren't raised earlier, as we are in a difficult position timing wise to finalise the regulatory amendments before September. This is particularly in relation to product form issues, which is a major sticking point for industry and one that we haven't discussed with them to date. The original outcome from our meeting in April with TSSC was that "a number of additional measures would be required before September to support the consideration a conservation dependent listing (catch limits, verification of catch and discards, monitoring)". Product form was not specified as part of this. While they may have had this in mind, we certainly didn't go away with that clear impression. We also sent through Queensland's proposed changes to you in mid-May at which point there was an opportunity to provide feedback before the regulatory amendments were made. These specific issues weren't raised. We also sent a reply to TSSC directly on 30 June answering a number of their questions and providing further details of the changes. Specific issues around s22 and product form haven't been raised until this week.

Attached is some information that was provided to GBRMPA recently following some questions raised by its Board. I am happy for you to share this with the TSSC.

Below are responses and further information on the TSSC's specific questions that you raised on their behalf in your email:

Response to TSSC queries

Basis of the TACC and reliance on the NDF:

- The TACC is based on the NDF which is the best available evidence
- The non-detriment finding is also supported by a shark stock assessment undertaken by Queensland Government and finalised in May 2016 (a copy of the stock assessment is available on our website at: <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/stock-assessment-reports/stock-assessment-of-whaler-and-hammerhead-sharks-carcharhinidae-and-sphyrnidae-in-queensland>). The stock assessment found that the current levels of shark catch are

sustainable and below MSY limits, but there is some uncertainty around the exact MSY figures because of some of the uncertainty in data (particularly the confidence around species composition). The MSY for scalloped s22 ranged from 133 tonnes to 531 tonnes. This confirms that the proposed TACC of 150 tonnes is on the conservative end of the spectrum and is considered a 'sustainable limit'. The stock assessment noted that reducing uncertainties in data would improve the MSY estimates.

- As better information is collected, a more confident MSY estimate can be determined for the different species of shark (including hammerhead), which will allow Fisheries Queensland to potentially amend the TACC to reflect this information. At this stage, there is no other evidence on which to set a more specific hammerhead TACC.
- Changes to the TACCs can be made through a relatively straight forward regulatory amendment process when required (e.g. if the NDF is updated when new information is available)

Value of fins:

- The price of fins is typically less than \$20 per kg (pers. comm. Major shark fisher 23 June 2017)
- Scalloped hammerhead fin weight is approximately 3% of landed weight (Pleizer et al. 2015)
- Maximum fin weight is 2700kg, based on current (upper) average catch of 90 t landed weight
- GVP if all landed hammerhead sharks are finned and those fins are sold is \$54,000
- At most the total GVP for meat and fins is therefore approximately \$250,000, still a very low value fishery

Product form:

- Finning is prohibited across Queensland – i.e. taking fins and discarding trunk. Sharks can only be portioned in a way that allows an inspector to reasonably count them.
- Some processing is permitted for net fishers in the Gulf and for S symbol holders on the east coast – they can fillet but must keep the fins and tail on board.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% trigger point is reached.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, but all shark product.

Incorporation of winghead in TACC:

- The NDF related to the *Sphyrna* species s22 . If the TSSC is concerned about deliberate misreporting to get around the TAC Fisheries Qld will consider progressing a regulatory amendment at the next opportunity to incorporate it into the TACC, however, this cannot be delivered in time before Septebmer as the regulatory amendments have been finalised. s22 s22 , s22 , s22 .

Incorporation of Shark Control Program (SCP) catch into the TACC:

- The SCP takes about 40 hammerhead sharks per year

- This is 6 t, based on 150 kg per shark
- Given the TACC is not likely to be reached this is not an important issue, but will be monitored.
- In addition, shark nets have recently been removed from the GBR, with only drum lines now used.

Validating catch and discards:

- Multiple lines of evidence will be used to ensure a robust TAC and reporting of catch:
 - Education – species id information will be provided to fishers to support the new logbooks
 - Quota reporting –AIVR All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.
 - Logbook improvements - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the *Sphyrna* species of hammerhead shark. Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
 - Logbook validation activities – Fisheries Queensland currently conducts forensic auditing of commercial catch data. The process uses commercial logbooks, AIVR, boat location monitoring, Catch Disposal Records and other receipts. There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
 - At sea monitoring:
 - The size of the boats in these fisheries is a key constraint to an effective on board monitoring program – there are a number of workplace health and safety and practical issues to overcome. The East Coast boats landing hammerhead vary in length from 4.2 to 17.5 m, the average boat length being 7.5 m.
 - For these reasons, the Sustainable Fisheries Strategy proposes approaches different from the use of on board observers. While specific technologies need to be developed, actions in the Sustainable Fisheries Strategy commit to trialling novel technologies to help better validate data on catch and interactions. This work will be very relevant to improving the management of hammerhead shark in the longer term. An Advance Queensland SBIR innovation challenge was just released today seeking innovative solutions to automate fisheries information from commercial fishers on net, crab and trawl boats. See:

<http://advance.qld.gov.au/small-business/sbir.aspx> and
<http://advance.qld.gov.au/small-business/sbir/challenges/commercial-fishing-challenge.aspx>

- o Enforcement – QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.
- o Monitoring – As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition s22 hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.

As discussed, Queensland is not in a position to make any further regulatory changes at this point and believes that the measures put in place are sufficient for protection of the species, while still maintaining a viable industry. However we also are constrained by needing to respect the TSCC's request for confidentiality. While we do not necessarily want to release any written communications we do need to engage with industry to ensure our assessment of their views on the matters raised are accurate. I appreciate your offer to discuss this with the TSCC Chair. I look forward to early advice.

I appreciate your ongoing openness to discussing these matters.

Regards

s47F

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

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Additional information for the TSSC on hammerhead shark – Queensland

Finning regulations and compliance processes

Regulations:

- The Queensland *Fishery Regulation 2008* governs the form requirements for hammerhead shark (and all shark).
- A summary of the current hammerhead shark form requirements for different regions and fishery symbol is attached (Appendix 1).
- The detail of how the regulations currently apply to hammerhead shark is set out in Appendix 2.

Enforcement:

- When Queensland Boating and Fishery Patrol (QBFP) Officers undertake an inspection they take a top down approach to shark inspection:
 - What fisheries symbols does the fisher hold and therefore what form are they allowed to keep the shark in? (refer to Appendix 1 and 2)
 - Does the form observed to the boat match what they are permitted to do under their fishery symbols?
 - Are fins and tails secured to the bodies where required?
 - Are there any fillets on the boat?
 - Do the fins and tails appear to match the bodies / fillets?
 - If officers are concerned they will conduct a detailed exercise where the fisher is required to match all fins with all bodies / fillets
- The value of fins for hammerhead (around \$50,000/year worth of fins vs \$200,000 year for the fillets) is not considered that high to provide fishers with an incentive to specifically target the species for its fins and discard the body.
- QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% regional trigger point is reached. This will ensure as fishers near the TACC, greater enforcement is possible.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, but all shark product.

Potential changes to form requirements:

- Fisheries Queensland has focused on other ways of validating data rather than product form changes, including extra monitoring at sea, phone reporting, forensic auditing of logbooks with receipts / catch disposal records / VMS etc. Further details are provided below. This is considered sufficient given the risk profile and still means businesses can be viable and importantly, discards are minimised. Requiring all shark to be kept whole is likely to lead to discards.
- Some of these broader issues (e.g. product form for all shark) can be considered as part of the fisheries reform process. The east coast inshore fishery is one of the priority fisheries for reform and Queensland Government will be commencing this process shortly.

Data validation activities

A data validation program is in place to provide confidence in the data that is provided by fishers on catch and effort. This includes:

Existing:

- Fisheries Queensland currently conducts auditing of commercial catch data. The process uses commercial logbooks, AIVR, vessel tracking information, Catch Disposal Records and receipts.
- Where there are outliers or significant catches that are out of the ordinary, Fisheries Queensland follows up fishers to seek evidence of the catch (e.g. receipts etc). Where this is not provided, the data is not included.

New:

- Logbook improvements:
 - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the **s22** *Sphyrna* species of hammerhead shark **s22**. Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
- Education
 - Species identification information will be provided to fishers to support the new logbooks
- Phone reporting through AIVR for all shark:
 - All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.
- Crosschecking of data sources:
 - Phone reporting (AIVR) , logbooks, VMS, catch disposal records and receipts from buyers
- Forensic auditing of logbooks:
 - There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
- Vessel tracking to validate effort and location data:
 - Vessel tracking systems are being rolled out across all fisheries by 2020, with a requirement for all crab, net and line boats to have vessel tracking in place by the end of 2018. This will provide another useful dataset to crosscheck data against (particularly effort and location information).
- At sea monitoring:
 - As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes

monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition s22 [redacted] hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.

o

s22

Appendix 1: Summary of current rules applying to hammerhead shark form under Schedule 2, part 2 of the Queensland *Fishery Regulation 2008*

	East Coast				Gulf of Carpentaria	
Form	Net – no S symbol	Line – no S symbol	Net + S symbol	Line + S symbol	Net	Line
A hammerhead shark can divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	No	No	No	No	No	No
The fin or tail can be separated from the body of the hammerhead shark	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail	The body must be on the boat with the fins and tail
Fins and tails must be secured to the body	Yes – but not necessarily naturally attached	Yes – but not necessarily naturally attached	No	Yes – but not necessarily naturally attached	No	No
Filleting hammerhead shark at sea	Not allowed	Not allowed	Allowed	Not allowed	Allowed	Allowed – subject to 100 kg trip limit

Appendix 2: Current rules applying to hammerhead shark form under Schedule 2, part 2 of the Queensland Fishery Regulation 2008

Note: the shaded form provisions apply to all fishers in Queensland (including recreational fishers)

East Coast

East coast - net symbol holders without an S symbol

What is prohibited?	Who and how does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks. These fishers have a trip limit of 10 sharks so the task is relatively easy.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails on a boat must also possess the body. These fishers have a trip limit of 10 sharks so the task is relatively easy.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders without an S symbol must have the hammerhead shark fins and tail secured to the body. Fins and tails can be naturally attached or fishers can remove the fins and place them in a bag attached to the body in some way. These fishers have a trip limit of 10 sharks so the task is relatively easy to enforce.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders without an S symbol cannot fillet hammerhead shark on a boat. These fishers have a trip limit of 10 sharks so the task is relatively easy to enforce.

East coast - line symbol holders without an S symbol

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast line symbol holders have to secure the retained fins and tail to the hammerhead shark body. Fins and tails can be naturally attached or fishers can remove the fins and place them in a bag attached to the body in some way.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast line symbol holders cannot fillet hammerhead shark on a boat. These fishers have a trip limit of 4 sharks so the task is relatively easy to enforce.

East coast - net symbol holders with an S symbol

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders with an S symbol using nets do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast net symbol holders with an S symbol can fillet hammerhead shark on a boat.

East coast - line symbol holders with an S symbol (note that there are currently only 7 licences in this category)

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast S symbol holders who are line fishing must secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	East coast S symbol holders who are line fishing cannot fillet hammerhead shark on a boat.

Gulf of Carpentaria

GoC - net symbol holders

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC net symbol holders do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC net fishers can fillet hammerhead shark on a boat.

GoC - line symbol holders

What is prohibited?	Who does this apply to?	What it means
the fish divided into portions in a way that does not allow an inspector to count the number of the fish reasonably easily	a person possessing the fish on a boat	A QBFP officer must be able to get on any boat and count the number of sharks.
the fin or tail separated from the body of the fish	a person possessing the fin or tail on a boat unless the person also possesses, on the boat, the body of the fish from which the fin or tail was taken	Anyone possessing hammerhead shark fins or tails must also possess the body.
the fish, or its tail or fins unless its tail and all of its fins are secured to the body	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC line symbol holders do not have to secure the retained fins and tail to the hammerhead shark body.
filleted	a person possessing the fish on a boat that is taken in waters east of longitude 142°31'49" east unless the person is acting under a commercial fishing boat licence on which is written the fishery symbols— (a) 'N1', 'N2', 'N4', 'N10', 'N11', 'K1', 'K2', 'K3', 'K4', 'K5', 'K6', 'K7' or 'K8'; and (b) 'S'	GoC line fishers can fillet hammerhead shark on a boat, subject to the 100 kg limit (see below).
more than 100kg of the fish in filleted form	a person taking the fish in the Gulf of Carpentaria waters or possessing the fish taken in the waters while acting under a commercial fishing boat licence or developmental fishing permit authorising the taking of fish for trade or commerce using a fishing line	A GoC line fisher can fillet but the maximum amount of shark fillet that can be held on board is 100 kg.

From: s22
To: "Marsh, Helene"; "Simpfendorfer, Colin"
Cc: s22; Geoff Richardson
Subject: FW: Hammerheads [SEC=UNCLASSIFIED]
Date: Friday, 28 July 2017 4:37:48 PM
Attachments: DoEE and Qld Fisheries Phone call 26 July 2017.docx

Helene, Colin

Following the email we sent Fisheries Queensland on 24 July (which I forwarded to you on 24 July), s47F requested a phone discussion with us and this took place Wednesday afternoon 26 July – brief outline of that conversation is attached.

Following that phone discussion the below email chain has occurred. You should start reading at the bottom of this email as there are three emails that have been exchanged with Queensland, all below.

We will include the relevant parts of this new information in the TSSC package for the September meeting but once Helene has returned from holidays and you have both had a chance to review the new information provide below and attached please let us know if you would like a further discussion.

A key item we need to discuss with you as soon as you are able is Fisheries Queensland's further request to share with their fishers the content of these discussions.

Please also note that I am now on leave until 23 August, but s22 and s22 will be available, as of course will Geoff.

Kind regards

s22

s22

Director | Marine and Freshwater Species Conservation | Wildlife, Heritage and Marine Division.
Department of the Environment and Energy

s22 | GPO Box 787 CANBERRA ACT 2601
s22 | www.environment.gov.au

 Save paper. Do you really need to print this email?

From: s47F; s47F
Sent: Friday, 28 July 2017 9:14 AM
To: Richardson, Geoff; s22 >
Cc: s47F
s22
s22
Murphy, Paul
s22; s22
s22
Subject: RE: Hammerheads [SEC=UNCLASSIFIED]

Thanks Geoff,

I acknowledge your comments but believe we are now in a position that we simply disagree on some key issues. I also appreciate this is difficult for both of our agencies.

The current inference that from the outset that there needed to be a change to the “form” of landed product to provide confidence in the TACC is not, and never has been, our understanding. Queensland made it very clear from the outset that our regulatory flexibility was tempered by the distinct possibility of parliamentary disallowance of any new arrangement. This is the fundamental reason we have continuously engaged with industry in an attempt to gain support (or at least reduce opposition to) any new arrangements. It would be disingenuous of us to proceed with regulatory change, which the TSSC would then use to develop its recommendations, when we knew there was a very high possibility of those regulatory arrangements not surviving a parliamentary challenge. We simply do not do business that way.

It is important to acknowledge that we have quite different objectives – we are focused on fishery management objectives (as per our Act), while the TSSC is focused on conservation outcomes. This undoubtedly means that we will have slightly different positions. This may well be the crux of the issue.

We understand the s22 issue and are willing to look at incorporating this into the TACC at the next available opportunity. It should be noted that we have previously advised industry that the TACC would be focussed on the 3 key species so this may create some additional challenges.

On product form, the fact is the Commonwealth has been aware for a very long time that filleting is part of the broader shark fishery. As you say, the TSSC didn't want to be prescriptive and so we have focused on other ways of validating data rather than product form changes, including extra monitoring at sea, phone reporting, forensic auditing of logbooks with receipts / catch disposal records / VMS etc. We believe this is sufficient given the risk profile and still means businesses can be viable and importantly, discards are minimised. Requiring all shark to be kept whole is likely to lead to discards.

While we believe we know how industry would react, we are prepared to raise the matter with industry subject to your/TSSC's agreement. However I also need to reiterate that at this stage our government believes the changes we are making will significantly enhance protection for this species and are within the harvest boundaries established by the Commonwealth's non-detriment finding. Consequently it has been made very clear to us that at this time, our government is not prepared to go further than is currently proposed. Our regulatory changes are in the very advanced stages of the formal approval process. From a practical viewpoint, even if our government were to change its position, it is highly unlikely we could implement further measures in the necessary timeframes.

Fisheries Queensland is in the process of implementing the most far reaching reform agenda ever contemplated for fisheries management in Queensland. We, more than most, understand the need for change. Therefore notwithstanding the comments above, we remain committed to working with your Department on this issue and some of these broader issues (eg product form for all shark) can be considered as part of the reform process, especially as the east coast inshore fishery is one of the priority fisheries for reform and we will be starting this process shortly.

I would appreciate being advised as soon as possible of TSCC's position on us having further discussions with industry on the matters it has raised to determine whether there is any support for these or alternate proposals which may allow this matter to progress smoothly.

Please note that I will be absent from the office until 9 August but s47F will be available should further clarification be required.

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

From: Richardson, Geoff [s22]

Sent: Thursday, 27 July 2017 5:21 PM

To: s47F s47F >

Cc: s47F

s22

; Murphy, Paul

s22 ; s22

Subject: RE: Hammerheads [SEC=UNCLASSIFIED]

Dear s47F

Thank you for your email.

I am sorry but I do not agree with your recollection of our Brisbane 20 February 2017 meeting that issues around species-specific catch verification and data validation (including all four species of hammerhead shark found in Australian waters) were not made clear. On the contrary, I believe that the TSSC members made this issue very clear at that meeting.

As discussed yesterday, the TSSC primary concern that catches are validated has been expressed

multiple times in correspondence and meetings with Fisheries Qld. The TSSC has tried not to “play fishery manager” and thus has been deliberately non-prescriptive in the specific method of catch validation, preferring to leave that to the fishery management agencies. However, the TSSC is asking for confidence that the catch validation is effective such that catch limits are adhered to. Given the clear potential for confusion in identification of hammerhead sharks (recognised at the outset with the concurrent “similar species” assessments for s22 hammerhead sharks), having confidence that the carcasses that are landed by fishers can be discriminated by an objective observer at landing is fundamental in the absence of any form of on-sea validation of the species.

We all agree hammerhead species can most easily be discriminated from each other by the fins and heads. If the heads cannot be kept due to storage space limitation, then stipulating the product form being with fins naturally attached is a reasonable means by which to achieve some catch validation. That it is the focus of discussion now is not because it is a new idea, but because it has become the focus by a process of elimination. The TSSC has noted that the Northern Territory has implemented such measures and I am informed our Sustainable Fisheries team have been discussing this as part of the WTO process with Fisheries Qld for many years. Landing fins naturally attached is also a recommendation of the current NDF.

As I mentioned yesterday, the Committee also remains uncertain as to what the requirements are for regulating finning practices in Qld managed fisheries; your letter of 30 June in response to the Committee’s Qu. 6 advises the landed form requirements for fisheries include “Shark finning (ie. keeping the fins but throwing away the body of the shark) is prohibited.” However, it is unclear what this means in practice, as further on in that answer you state that on the East coast “‘S’ (shark) symbol holders may fillet shark, but the fins and tail must be kept on board to meet the general ‘no finning’ provision” and fishers who do not hold an ‘S’ symbol “cannot fillet at sea but may remove the heads, tails and fins, provided the tails and fins are secured to the body.” And in the Gulf of Carpentaria “shark may be filleted at sea.... but the fins and tail must be kept on board to meet the general ‘no finning’ provision.” In short, it is unclear to the Committee how the ‘no finning’ provision is given effect, and how these provisions would allow landed hammerhead catch to be confidently deducted from the TAC, and not misreported. As I mentioned yesterday, clarity on these points would assist the Committee greatly, and may allay much of their concerns.

On a related point, the need to address potential confusion between winghead and hammerhead product also arises directly from the inability of measures suggested to date to verify that scalloped hammerhead landed catch is reported accurately. Again, it is now the focus because alternative measures of catch validation have been ruled out. It is a little disingenuous to say that it has not been raised until this week – I’m told it was raised in a slide presentation s47F in the meeting organised by Fisheries Qld in December 2016 in Townsville and I recall it being raised at our February 20 meeting by Prof Simpfendorfer. That the issue is significant is demonstrated by your 30 June response to the TSSC’s letter (Qu. 8) which notes that high reported GOC catch in 2013-14 being likely due to reporting of winghead as “hammerhead - other”. It is entirely reasonable for the Committee to seek clarity about measures you propose to stop fishers, as the TAC trigger is approached, from misreporting hammerhead as winghead when head, fins and tail are removed. While I understand that the likelihood of reaching the trigger point for the TAC, and thus the incentive for misreporting, may be low it is preferable to address the concern pro-actively rather than retrospectively. I also note your 30 June response

indicated that the trigger limit has been exceeded twice in 5 years and the TAC exceeded once.

That said, I thank you for the clarifications you have made in this email correspondence and I will forward to the TSSC for their further consideration. I will also discuss with the Chair your request to share with industry the progress we have made.

Regards Geoff
Geoff Richardson
AS - Protected Species and Communities Branch
Department of the Environment and Energy

s22

From: s47F <s47F>
Sent: Wednesday, 26 July 2017 4:40 PM
To: Richardson, Geoff <s22>; s22
s22
Cc: s47F
s22
s22
Subject: Hammerheads

Dear Geoff

Thank you for passing on the feedback from the subgroup of the TSSC. I acknowledge this is a challenging situation we are all in trying to balance competing priorities and trying to get an overall positive outcome both for hammerhead and industry. I am happy for you to provide this email to the relevant TSSC members to try and work through the remaining questions and issues.

As discussed, I am a little concerned that some of these issues weren't raised earlier, as we are in a difficult position timing wise to finalise the regulatory amendments before September. This is particularly in relation to product form issues, which is a major sticking point for industry and one that we haven't discussed with them to date. The original outcome from our meeting in April with TSSC was that "a number of additional measures would be required before September to support the consideration a conservation dependent listing (catch limits, verification of catch and discards, monitoring)". Product form was not specified as part of this. While they may have had this in mind, we certainly didn't go away with that clear impression. We also sent through Queensland's proposed changes to you in mid-May at which point there was an opportunity to provide feedback before the regulatory amendments were made. These specific issues weren't raised. We also sent a reply to TSSC directly on 30 June answering a number of their questions and providing further details of the changes. Specific issues around s22 and product form haven't been raised until this week.

Attached is some information that was provided to GBRMPA recently following some questions raised by its Board. I am happy for you to share this with the TSSC.

Below are responses and further information on the TSSC's specific questions that you raised on their behalf in your email:

Response to TSSC queries

Basis of the TACC and reliance on the NDF:

- The TACC is based on the NDF which is the best available evidence
- The non-detriment finding is also supported by a shark stock assessment undertaken by Queensland Government and finalised in May 2016 (a copy of the stock assessment is available on our website at: <https://www.daf.qld.gov.au/fisheries/monitoring-our-fisheries/data-reports/sustainability-reporting/stock-assessment-reports/stock-assessment-of-whaler-and-hammerhead-sharks-carcharhinidae-and-sphyrnidae-in-queensland>). The stock assessment found that the current levels of shark catch are sustainable and below MSY limits, but there is some uncertainty around the exact MSY figures because of some of the uncertainty in data (particularly the confidence around species composition). The MSY for scalloped s22 s22 ranged from 133 tonnes to 531 tonnes. This confirms that the proposed TACC of 150 tonnes is on the conservative end of the spectrum and is considered a 'sustainable limit'. The stock assessment noted that reducing uncertainties in data would improve the MSY estimates.
- As better information is collected, a more confident MSY estimate can be determined for the different species of shark (including hammerhead), which will allow Fisheries Queensland to potentially amend the TACC to reflect this information. At this stage, there is no other evidence on which to set a more specific hammerhead TACC.
- Changes to the TACCs can be made through a relatively straight forward regulatory amendment process when required (e.g. if the NDF is updated when new information is available)

Value of fins:

- The price of fins is typically less than \$20 per kg (pers. comm. Major shark fisher 23 June 2017)
- Scalloped hammerhead fin weight is approximately 3% of landed weight (Pleizer et al. 2015)
- Maximum fin weight is 2700kg, based on current (upper) average catch of 90 t landed weight
- GVP if all landed hammerhead sharks are finned and those fins are sold is \$54,000
- At most the total GVP for meat and fins is therefore approximately \$250,000, still a very low value fishery

Product form:

- Finning is prohibited across Queensland – i.e. taking fins and discarding trunk. Sharks can only be portioned in a way that allows an inspector to reasonably count them.
- Some processing is permitted for net fishers in the Gulf and for S symbol holders on the east coast – they can fillet but must keep the fins and tail on board.
- Hammerhead shark will be required to be landed whole (head and fins on) if the 75% trigger point is reached.
- Moving to more restrictive product form requirements will likely make some parts of the industry unviable and requires much more comprehensive consideration, not just in relation to hammerhead, but all shark product.

Incorporation of winghead in TACC:

- The NDF related to the *Sphyrna* species s22

s22 . If the TSSC is concerned about deliberate misreporting to get around the TAC Fisheries Qld will consider progressing a regulatory amendment at the next opportunity to incorporate it into the TACC, however, this cannot be delivered in time before September as the regulatory amendments have been finalised. s22

Incorporation of Shark Control Program (SCP) catch into the TACC:

- The SCP takes about 40 hammerhead sharks per year
- This is 6 t, based on 150 kg per shark
- Given the TACC is not likely to be reached this is not an important issue, but will be monitored.
- In addition, shark nets have recently been removed from the GBR, with only drum lines now used.

Validating catch and discards:

- Multiple lines of evidence will be used to ensure a robust TAC and reporting of catch:
 - Education – species id information will be provided to fishers to support the new logbooks
 - Quota reporting –AIVR All fishers landing shark in Queensland will be required to report using the Automated Interactive Voice Reporting (AIVR) system from 1 January 2018. This will assist in closer to real time monitoring of the TACC. On the East Coast many boats do day trips so this catch would be reported daily. There are a number of East Coast multi-day freezer boats whose catch would be reported at longer intervals at the end of the trip (but this will still be closer to real time than logbooks). The AIVR system sends data to the Quota Reporting System so that progress against regional triggers and TACCs can be monitored close to real time and linked to Queensland Boating and Fisheries Patrol compliance activities.
 - Logbook improvements - Fisheries Queensland will require species level reporting of catch and discards in logbooks from 1 January 2018. This will include the s22 *Sphyrna* species of hammerhead shark s22 . Catch data will include numbers (also available from AIVR prior reporting for cross checking) and weight (also available from AIVR unload reporting for cross checking). Discard data will be numbers-only due to the difficulty in estimating weight of discards and the more important emphasis in quickly returning sharks to the water alive.
 - Logbook validation activities – Fisheries Queensland currently conducts forensic auditing of commercial catch data. The process uses commercial logbooks, AIVR, boat location monitoring, Catch Disposal Records and other receipts. There will be a boost to resources to further strengthen this auditing work as part of the Sustainable Fisheries Strategy. The new focus will include existing data sources such as AIVR and new work on boat location monitoring and at sea monitoring.
 - At sea monitoring:
 - The size of the boats in these fisheries is a key constraint to an effective on board monitoring program – there are a number of workplace health and safety and practical issues to overcome. The East Coast boats landing hammerhead vary in length from 4.2 to 17.5 m, the average boat

length being 7.5 m.

- For these reasons, the Sustainable Fisheries Strategy proposes approaches different from the use of on board observers. While specific technologies need to be developed, actions in the Sustainable Fisheries Strategy commit to trialling novel technologies to help better validate data on catch and interactions. This work will be very relevant to improving the management of hammerhead shark in the longer term. An Advance Queensland SBIR innovation challenge was just released today seeking innovative solutions to automate fisheries information from commercial fishers on net, crab and trawl boats. See:
<http://advance.qld.gov.au/small-business/sbir.aspx> and
<http://advance.qld.gov.au/small-business/sbir/challenges/commercial-fishing-challenge.aspx>
- Enforcement – QBFP takes an intelligence based approach to compliance – if someone is suspected of misreporting or avoiding the quota, targeted compliance activities can be undertaken. This can include at sea boarding (especially when they have VMS in place and prior reporting requirements) or at wharf inspections / DNA testing etc. where warranted.
- Monitoring – As part of the Sustainable Fisheries Strategy, additional funding is being allocated to biological monitoring. Initial investment priorities have been identified and this includes monitoring of shark catch and composition. While this is still being scoped and finalised, it will commence in 17/18 and focus on targeted at sea biological monitoring on commercial boats. Information will be collected on catch composition (s22 [redacted] hammerhead species), size, sex and potentially age information as well. This will provide valuable additional information to validate other sources of information and inform future stock assessments. The fishery monitoring team will be working with experts to design the program (including JCU) and will be in touch shortly.

As discussed, Queensland is not in a position to make any further regulatory changes at this point and believes that the measures put in place are sufficient for protection of the species, while still maintaining a viable industry. However we also are constrained by needing to respect the TSCC's request for confidentiality. While we do not necessarily want to release any written communications we do need to engage with industry to ensure our assessment of their views on the matters raised are accurate. I appreciate your offer to discuss this with the TSCC Chair. I look forward to early advice.

I appreciate your ongoing openness to discussing these matters.

Regards

s47F

s47F

Department of Agriculture and Fisheries

s47F

GPO Box 46 Brisbane Qld 4001

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From: s22
To: [Geoff Richardson](#) s22 t
Cc: s22 [Paul Murphy](#) s22
Subject: Proposed Hammerhead telecon - Tomorrow 3 Aug 8:30am [DLM=Sensitive]
Date: Wednesday, 2 August 2017 11:26:53 AM

Hi Geoff,

Helene is currently on route to s22 . She has read all the correspondence to date on hammerhead sharks and, overall, does not believe the correspondence changes the situation or the Committee's view (Helene has also discussed this with Colin).

Helene has asked whether a teleconference may be convened at 8:30am tomorrow with as many of the key officers as possible inc. Colin (noting the timing will impact attendance of some). Incidentally this would be 6:30am for Helene s22

s47C

s22

Threatened Species Scientific Committee Secretariat

s22

s22

[Redacted]

[Redacted]

Mailbox: TSSCSecretariat@environment.gov.au

From: [Marsh, Helene](#)
To: [Simpfendorfer, Colin](#); [Geoff Richardson](#)
Cc: s22; [Paul Murphy](#) s22
Subject: RE: draft TSSC hammerhead CD statement [SEC=UNCLASSIFIED]
Date: Sunday, 6 August 2017 9:33:16 PM
Attachments: [draft TSSC hammerhead CD statement cs+HM.docx](#)

Hi

Great work thanks

Some minor additional suggested changes. I assume you will send to Queensland for them to distribute to fishers.

Regards

Helene

From: Simpfordorfer, Colin
Sent: Sunday, 6 August 2017 8:13 AM
To: Richardson, Geoff s22; Marsh, Helene s47F
Cc: s22; [redacted]
[redacted]
[redacted]
[redacted]
Murphy, Paul <s22> >s22
[redacted]
[redacted]
[redacted]
Subject: RE: draft TSSC hammerhead CD statement [SEC=UNCLASSIFIED]

A few simple edits from me. s47C

Is the intention of this to send to Queensland for them to distribute to fishers? Or will the Department be releasing this?

Cheers

Colin

Professor Colin Simpfordorfer
Director, Centre for Sustainable Tropical Fisheries and Aquaculture
College of Science and Engineering
Building 142
James Cook University
Queensland 4811
Australia
E: s47F
s47F
[redacted]
Web: jcu.me/colin.simpfendorfer
Twitter: @sharkcolin

Instagram: @sharkcolin

From: Richardson, Geoff [s22]

Sent: Friday, 4 August 2017 4:17 PM

To: Marsh, Helene <s47F>; Simpfendorfer, Colin
s47F

Cc: s22

s22

Murphy, Paul s22, s22

Subject: draft TSSC hammerhead CD statement [SEC=UNCLASSIFIED]

Hi Helene and Colin

Following our conversation yesterday morning, a draft statement on the hammerhead listing assessment to provide Queensland and NT is attached for your comment.

Cheers Geoff

Geoff Richardson

Assistant Secretary | Protected Species and Communities Branch
Department of the Environment and Energy

s22

The Department acknowledges the traditional owners of country throughout Australia and their continuing connection to land, sea and community. We pay our respects to them and their cultures and to their elders both past and present.

From: s47F
To: [Geoff Richardson](#); s47F
Cc: s47F; [Paul Murphy](#); s22
Subject: RE: TSSC statement on Hammerhead assessment [SEC=UNCLASSIFIED]
Date: Monday, 14 August 2017 9:18:48 AM

Geoff,

After having the chance to read the statement from Professor Marsh more closely I must express disappointment regarding its content. The statement does little more than restate the statutory process that all stakeholders are well aware of. Contrast this with the detailed and specific issues raised in s22 email of 24 July (and our subsequent communications) and our dilemma becomes clear. Unfortunately there is nothing in the document that will in any way allow the State to engage meaningfully with industry about these specific issues. Nevertheless we will continue to liaise with all stakeholders about reform of the net fishery via the processes outlined in the Sustainable Fisheries Strategy and this will allow these matters to be canvassed.

Since we last spoke we have had the opportunity to discuss the situation with our Minister he is very firm in his position. As advised last week the Regulation providing for the hammerhead TACC and associated reporting is now in place and we now await the consideration of the Threatened Species Scientific Committee. Our Minister will write to Minister Frydenberg in the near future outlining the detail of these arrangements .

s47F
Department of Agriculture and Fisheries
s47F
GPO Box 46 Brisbane Qld 4001

From: Richardson, Geoff [mailto:s22]
Sent: Friday, 11 August 2017 5:35 PM
To: s47F; s47F; s47F
s47F
Cc: s47F; s22
Murphy, Paul; s22 >; s22
Subject: RE: TSSC statement on Hammerhead assessment [SEC=UNCLASSIFIED]

This time with attachment.

Apologies Geoff
[Geoff Richardson](#)

AS - Protected Species and Communities Branch
Department of the Environment and Energy

s22

From: Richardson, Geoff

Sent: Friday, 11 August 2017 5:28 PM

To: s47F <[redacted]>; s47F <[redacted]>

Cc: s47F <[redacted]>

s22 <[redacted]>

Murphy, Paul <[redacted]>; s22 <[redacted]>

Subject: TSSC statement on Hammerhead assessment [SEC=UNCLASSIFIED]

Hi s47F <[redacted]>

The Threatened Species Scientific Committee has authored the attached statement for you to use in support of any further discussions you may wish to have with industry.

Regards Geoff

Geoff Richardson

AS - Protected Species and Communities Branch

Department of the Environment and Energy

s22

Advice from the Threatened Species Scientific Committee regarding consideration of the status of scalloped, s22 hammerhead sharks

The Threatened Species Scientific Committee (TSSC) is currently considering three hammerhead shark species, scalloped, s22 for possible listing as threatened species under Part 13 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). As part of these assessments, the TSSC is considering whether fisheries management arrangements for the species would satisfy the requirements of the EPBC Act for listing them as Conservation Dependent.

TSSC assessments focus on the status of native species within the national extent (i.e. within the Australian Exclusive Economic Zone – 200 nautical miles from the Australian coastline).

As required by the EPBC Act, the TSSC undertook public and expert consultation on draft assessments for the hammerhead sharks in June/July 2014. It was noted in the draft assessments that the scalloped hammerhead is expected to be eligible for listing in the Endangered category s22 of the EPBC Act. However, it was also noted that that the TSSC would consider whether management arrangements in the relevant fisheries were sufficient to support a Conservation Dependent listing.

Under the EPBC Act, a native species is eligible for Conservation Dependent listing if, at that time:

- the species is a 'fish' (i.e. bony fish, sharks, rays, crustaceans, molluscs and other marine organisms, but not marine mammals or reptiles).
- the species is the focus of a plan of management that provides for management actions necessary to stop the decline, and support the recovery of the species so that its chances of long term survival in nature are maximised.
- the plan of management is in force under a law of the Commonwealth or of a State or Territory.
- cessation of the plan of management would adversely affect the conservation status of the species.

The TSSC is required under the EPBC Act to consider all the above in listing assessments for potential Conservation Dependent species. This includes a consideration of all fisheries management arrangements relevant to the species under assessment as to whether they collectively satisfy the above requirements.

While these species of hammerhead sharks are caught in several fisheries, the principal fisheries concerned are the East Coast Inshore Finfish Fishery and Gulf of Carpentaria Finfish Fishery in Queensland and the Offshore Net and Line Fishery in the Northern Territory.

The Committee has been in discussions with fishery managers to better understand the management arrangements in place in the relevant fisheries.

It is important to note that, while discussions are well advanced, the full Committee has not yet met to develop its final recommendation. That recommendation must be provided to the Minister by 30 September 2017. The Minister makes the final decision on whether to include the hammerhead shark species in the threatened species list, and if so, under which category.

Helene Marsh

Chair TSSC

From: [Richardson, Geoff](#)
To: [Paul Murphy](#); [s22](#); ["Simpfendorfer, Colin"](#); ["Marsh, Helene"](#)
Cc: [s22](#)
Subject: FW: New hammerhead Arrangements in Queensland [SEC=UNCLASSIFIED]
Date: Friday, 11 August 2017 5:11:29 PM
Importance: High

FYI – an update from Queensland.

Geoff
Geoff Richardson
AS - Protected Species and Communities Branch
Department of the Environment and Energy
[s22](#)

From: [s47F](#); [s47F](#)
Sent: Friday, 11 August 2017 11:39 AM
To: Richardson, Geoff <[s22](#)>; Elliott Bruce
[s47F](#); [s47F](#)
[s47F](#)
Cc: [s47F](#); [s47F](#)
Subject: New hammerhead Arrangements in Queensland
Importance: High

Gents,

Our Minister has announced new the hammerhead regulations in Queensland following formal approval by our Governor-in-Council yesterday. The Minister's release can be found at ;

<http://statements.qld.gov.au/Statement/2017/8/11/improved-protection-for-hammerhead-sharks>

[s47F](#)
[s47F](#)
[s47F](#)
Department of Agriculture and Fisheries
[s47F](#)
GPO Box 46 Brisbane Qld 4001

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From: s47F
To: [Geoff Richardson](#)
Cc: s47F; s47F; s22
Subject: Letter from Minister Byrne to Minister Frydenburg on hammerhead shark
Date: Wednesday, 30 August 2017 2:04:44 PM
Attachments: s22
[DMView_1504064678823_22210-17_1279480_CTS22210-17_MIN_SIGNED_LETTER.pdf](#)

Hi Geoff

Please see attached letter from Minister Byrne to Minister Frydenburg about hammerhead shark and the recent changes made by Queensland Government.

Regards

s47F

s47F

s47F

s47F

s47F

W www.daf.qld.gov.au

Primary Industry Building, Level 5, 80 Ann Street, Brisbane QLD 4000

GPO Box 46, Brisbane QLD 4001

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Hon Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development

Reference: CTS 22210/17

1 William Street Brisbane 4000
GPO Box 46 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7560
Email agriculture@ministerial.qld.gov.au

28 AUG 2017

The Honourable Josh Frydenberg MP
Minister for the Environment and Energy
PO Box 6022
House of Representatives
Parliament House
CANBERRA ACT 2600

Dear Minister

Further to my letter of 22 May 2017, I am pleased to advise that new regulations are now in place to help protect the sustainability of hammerhead sharks ahead of your decision on whether to list it as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*.

Following earlier advice, the Queensland Government has now finalised amendments to the *Fisheries Regulation 2008* to strengthen management of hammerhead sharks.

The amendments take effect from 1 January 2018 and will establish:

- a Total Allowable Commercial Catch (TACC) of 150 tonnes (split across the Gulf of Carpentaria (50 tonnes), Great Barrier Reef (78 tonnes) and Southern East Coast (22 tonnes)).
- a trigger point (once 75 per cent of regional TACC is reached) at which time:
 - a trip limit of 10 hammerhead sharks for net fishers and 4 for line fishers applies; and
 - all commercial fishers will be required to land their catch of hammerheads in whole form (i.e. gilled and gutted with head and fins naturally attached).

All the available data indicates that these catch levels are sustainable, including the Commonwealth's own scientific assessment done in 2014 and Queensland's shark stock assessment completed last year.

From 1 January 2018, improved reporting will also be required for commercial fishers, including:

- data validation measures such as prior and unload reporting through the Automated Integrated Voice Response (phone reporting) system
- reporting of discards and species-specific catch information in logbooks.

In addition, as part of our \$20 million commitment over three years to the Sustainable Fisheries Strategy, we will also be investing in additional biological monitoring of sharks. This will be undertaken by Queensland Government monitoring staff and will collect information on catch composition, size, sex and age. The fishery monitoring team is currently working with experts, including James Cook University, to design the monitoring program.

Taken together these measures will protect the sustainability of hammerhead sharks and greatly improve our understanding of the stock in Queensland waters.

Officials from the Department of Agriculture and Fisheries have been working in good faith with the Department of Environment and Energy officials and members of the Threatened Species Scientific Committee. The Palaszczuk Government has done exactly what the Threatened Species Scientific Committee has asked us to do – limit the catch and improve monitoring and reporting.

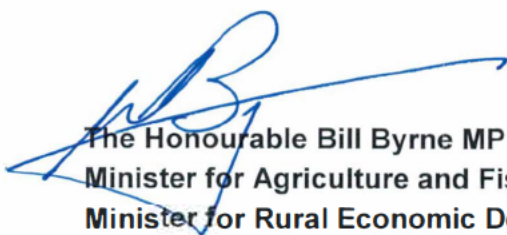
It is clear that some conservation groups will use this issue as a vehicle to advocate to get rid of all commercial net fishing in Queensland. We are committed to reforming our net fisheries, but not through a veiled approach like this, which could put hundreds of jobs in jeopardy. As a consultative government, we have committed to working with stakeholders on fisheries reforms and ensuring we take a science-based approach.

The Palaszczuk Government is confident the measures we have put in place will ensure the sustainability of hammerhead sharks in Queensland but ultimately it is a decision for you whether to list it as endangered or conservation dependent.

I would ask that you make a timely and sensible decision in relation to the listing that recognises the small scale of the catch in Australia and the steps taken to further protect hammerhead sharks by the relevant states. If the decision is made before the end of the year, then the new commercial fishing arrangements can start on 1 January next year providing some certainty for fishers.

If you require any further information regarding this matter, please contact my 47F [redacted], on telephones 47F [redacted].

Yours sincerely



The Honourable Bill Byrne MP
Minister for Agriculture and Fisheries and
Minister for Rural Economic Development
Member for Rockhampton

From: s22
To: [Marsh, Helene](#)
Cc: s22
Subject: FW: talking points [DLM=For-Official-Use-Only] [SEC=UNCLASSIFIED]
Date: Wednesday, 13 September 2017 8:06:20 AM
Attachments: [Talking points for the TSSC Chair discussion with Minister.docx](#)

Good morning Helene

Your list of points attached, for your meeting this morning with the Minister.

Please note, this is still in draft form but forwarding to you for your preparation for your meeting.

Please also note s22 comment below

Regards
s22

Sent with Good (www.good.com)

From: s22
Sent: Tuesday, 12 September 2017 4:47:28 PM
To: s22
Cc: s22
Subject: FW: talking points [DLM=For-Official-Use-Only]

For your clearance. I didn't make any changes from s22 drafting s47C
[Redacted]

s22
Assistant Director
Marine and Freshwater Species Conservation Section
Wildlife Heritage and Marine Division
Department of the Environment and Energy
s22

From: s22
Sent: Tuesday, 12 September 2017 4:38 PM
To: s22
Subject: talking points [DLM=For-Official-Use-Only]

Find attached.

Talking points for the TSSC Chair discussion with Minister

1. s47C [REDACTED]
2. The Queensland Operational Plan for a research project validating catch composition of shark species in net fisheries in the Gulf of Carpentaria and the east coast will be fundamental to providing confidence in future hammerhead catch figures. The Committee will be interested in the outcomes of this project.
3. The Committee expects that data validation of hammerhead catch figures in Queensland will be strengthened by the future transition to all hammerhead catches having the requirement to be landed with fins naturally attached to the trunk, as consistent with many other shark fisheries in Australia, where confidence in species-specific identification needs to be maximised. Progress towards the implementation of this management measure will be considered in the near future as more information on the hammerhead catches is collected under the new management arrangements implemented.
4. In future the Queensland total allowable commercial catch (TACC) limit will need to include estimated levels of discards and catch of the species by the Queensland Shark Control Program against the catch limit.
5. The Queensland Government have committed to undertaking a formal review of fisheries management arrangements as part of an assessment of the species stock status set for around June 2019. The Committee will be informed by this review then.
6. The Committee looks forward to an update from the Queensland Government once the vessel monitoring system (VMS) is implemented for all boats interacting with hammerhead in Queensland fisheries (i.e. in the Gulf of Carpentaria Inshore Fin Fish Fishery and the East Coast Inshore Fin Fish Fishery) and other examples of novel monitoring techniques (such as e-monitoring (use of cameras) of catch).

s47C [REDACTED]

8. Currently there is no substantial quantity of hammerhead are being harvested in waters from northern Western Australia. If moves were initiated to reopen the Western Australian Northern Shark Fishery with the intention to catch hammerhead sharks, the WA Government will likely have to put management arrangements in force under law consistent with paragraph 179(6) of the EPBC Act so that the Conservation Dependent listing is not jeopardised.
9. The Committee has flagged interest in potentially recommending that the s22 [REDACTED] be added to the priority assessment list under the EPBC Act in future.

s22

12. To enable the Environment Minister to list scalloped hammerhead in the Conservation Dependent category, the Northern Territory must give legislative effect to all management measures it has proposed for hammerhead sharks as stipulated in the Committee's final assessment/advice.
13. The Committee will examine catch data, and any other information relevant to the species, being recorded in northern Australian fisheries catching the shark (presently from Queensland and Northern Territory managed fisheries). The Committee will exercise its discretion as to whether data indicates the need to review the status of any of the hammerhead shark species at any future point.