



WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

P.O. Box 2356, Kolonia, Pohnpei 96941
Federated States of Micronesia

INFORMATION PACKAGE

Southern Hemisphere Porbeagle Shark Stock Status Assessment Terms of Reference to Call for Expressions of Interest

INTRODUCTION

The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (Convention) entered into force in June 2004 creating one of the first regional fisheries management organizations to be established since the 1995 adoption of the United Nations Fish Stocks Agreement. The objective of the Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Ocean (WCPO) in accordance with the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the Agreement. For this purpose, the Convention establishes a Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC). The Commission Secretariat is based at Kolonia, Pohnpei, Federated States of Micronesia.

The Convention applies to all species of highly migratory fish stocks (defined as all fish stocks of the species listed in Annex I of UNCLOS occurring in the Convention Area and such other species of fish as the Commission may determine) within the Convention Area, except saurians. Conservation and management measures under the Convention are to be applied throughout the range of the stocks, or to specific areas within the Convention Area, as determined by the Commission. The Commission currently has 25 Members, seven Cooperating Non-Members, and seven Participating Territories. Additional information concerning the Commission, including meeting documents, is available from www.wcpfc.int.

The WCPFC, along with the four other tuna Regional Fisheries Management Organizations (t-RFMOs), is a partner in the Areas Beyond National Jurisdiction (ABNJ) – often referred to as Common Oceans – Tuna Project (www.commonoceans.org). The objective of this project is to achieve efficient and sustainable management of fisheries resources and biodiversity conservation in marine areas that do not fall under the responsibility of any one country. One set of activities of the GEF-funded ABNJ Tuna Project aims at reducing the impact of tuna fisheries on biodiversity by improving data and assessment methods for sharks and thereby promoting their sustainable management. Within this set of activities WCPFC has committed to leading two new traditional stock assessments and two innovative approaches to assessing stock status of pan-Pacific shark stocks. An assessment of the southern hemisphere population of porbeagle sharks qualifies as one of these assessments because it is not only pan-Pacific but global. The objective of the assessment is to provide a basis for evaluating whether current management schemes are adequate for the southern hemisphere porbeagle stock and to support national Convention on International Trade in Endangered Species (CITES) processes such as Non-Detriment Findings.

BACKGROUND ON PORBEAGLE SHARK

Biology

Porbeagle sharks (*Lamna nasus*) live mainly in the latitudinal bands 30–50°S and 30–70°N. They occur in the North Atlantic Ocean, and in a circumglobal band in the Southern Hemisphere. Porbeagle sharks are absent from the North Pacific Ocean, where the closely related salmon shark, *Lamna ditropis*, fills their niche. In the South Pacific Ocean, porbeagles are caught north of 30°S in winter–spring only; in summer they are not found north of about 35°S. They appear to penetrate further south during summer and autumn, and are found near many of the sub-Antarctic islands in the Indian and South-west Pacific Oceans. Porbeagle sharks are not found in the equatorial tropics.

Porbeagles are live-bearers (aplacental viviparous), and the length at birth is 58–67 cm fork length (FL) in the South-West Pacific. Females mature at around 170–180 cm FL and males at about 140–150 cm FL. The gestation period is about 8–9 months. Litter size is usually four embryos, with a mean litter size in the South-West Pacific of 3.75. If the reproductive cycle lasts one year, annual fecundity would be about 3.7 pups per female. A study of the age and growth of New Zealand porbeagles produced growth curves and estimates of the natural mortality rate. However, the growth parameters derived are probably only accurate for ages up to about 20 years. Males mature at 6–8 years, and females mature at 13–16 years. Longevity is unknown but may be about 65 years.

In New Zealand, porbeagle sharks recruit to commercial fisheries during their first year at about 70 cm FL, and much of the commercial catch is immature. Most sharks caught by tuna longliners are 70–170 cm FL. The size and sex distribution of both sexes is similar up to about 150 cm, but larger individuals are predominantly male; few mature females are caught. Regional differences in length composition suggest segregation by size. The size and sex composition of sharks caught by trawlers are unknown. Porbeagles are active pelagic predators of fish and cephalopods. Pelagic fish dominate the diet but squid are also commonly eaten; especially by the small sharks.

Conservation and Management

The International Commission for the Conservation of Bluefin Tuna (ICCAT) assessed the status of the porbeagle shark in 2009 including populations in the southwest and southeast Atlantic. However, the assessment concluded that the data for the southern hemisphere stocks were too limited to provide a robust indication of the status of the stocks. For the southwest, limited data indicated a decline in CPUE in the Uruguayan fleet, with models suggesting a potential decline in porbeagle abundance to levels below maximum sustainable yield (MSY) and fishing mortality rates above those producing MSY. For the southeast, information and data were too limited to assess status. Available catch rate patterns suggest stability since the early 1990s, but were not informative on current levels relative to MSY biomass.

WCPFC designated the porbeagle shark as a key shark species in December 2010, in part due to the listing of this species on the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Appendix II in 2008. An indicators assessment of all WCPFC key shark species is being prepared by the Secretariat of the Pacific Community in its role as the Scientific Services Provider to the WCPFC. This indicators assessment will be presented to the WCPFC Scientific Committee in August 2015.

The Convention for the Conservation of Southern Bluefin Tuna (CCSBT) identified porbeagle shark as a species of interest in March 2012. In August 2013 New Zealand agreed to coordinate the compilation of data to support a regional assessment of the species. Subsequently, the CCSBT Ecologically-Related Species Working Group (ERSWG) in March 2015 agreed to request the ABNJ Tuna Project Technical Coordinator-Sharks and Bycatch to progress this work with the ERSWG and across the joint tuna RFMOs. The ERSWG made this request on the basis that it should allow access to a broader range of

data sets than would be available through the ERSWG members alone, and importantly cover the whole stock for assessment.

The porbeagle shark was listed by the Convention on International Trade in Endangered Species (CITES) Appendix II, effective as of September 2014.

TERMS OF REFERENCE

The Terms of Reference below have been prepared to solicit expressions of interest (EOIs) from suitably qualified and experienced individuals, institutions or firms to undertake the study. The selected consultant will be required to work in close cooperation with the ABNJ Tuna Project Technical Coordinator-Sharks and Bycatch to secure the participation of various countries holding relevant data on porbeagle sharks. Tenders must recognize that this study will be commissioned as a lump sum contract; therefore all tasks must be completed within the level of effort (consultant time x rate) authorized in the contract. The selected consultant must estimate and allocate this level of effort amongst the tasks to ensure a successful project outcome.

The major tasks, deliverables and timeframes are as follows.

1. *Develop a **Work Plan** to assist participating countries/organizations in preparing stock status indicators (Task 1, August-September 2015)*

In June 2015 (in parallel with the consultant selection process) the ABNJ Tuna Project Technical Coordinator-Sharks and Bycatch will develop a brief description of indicators to be produced by participating countries and organizations. These indicators are expected to encompass catch, distribution, species composition, catch rate, size, and sex ratio as well as effort history. Examples of this type of indicators analysis can be found in Clarke et al. (2011) and Francis et al. (2014). This description will be provided to participants and potential participants¹ in advance of the commencement of the consultant's contract so that the participants can begin compiling and preparing relevant data. Based on capacity and interest, some participants are expected to begin preparing their indicators immediately whereas other participants will not have made substantial progress when the consultant begins work in August 2015.

The first task for the consultant will therefore be to canvas each participant /potential participant to determine data availability and the amount of assistance each will require to produce indicators. The ABNJ Tuna Project Technical Coordinator-Sharks and Bycatch will provide assistance in liaison, data access and other coordination issues that may arise. With the goal of ensuring that a sufficiently representative and robust set of indicators are prepared across the range of the southern hemisphere porbeagle stock, the consultant will develop a **Work Plan** allocating their time, within the available level of effort available under this study, to assisting participants with their indicators. The accessibility of data is expected to vary between participants. In some cases, confidentiality restrictions may prevent the consultant from accessing the data directly whereas in other cases participants may transfer the data to the consultant for analysis.

It is acknowledged that it will not be possible to produce all indicators for all participants within the time available, therefore the consultant's **Work Plan** should justify the time allocation and show how it can achieve a reasonably robust set of indicators within that timeframe. A rationale should be provided if any of the indicators are proposed to be dropped. Similarly, participants should be classified into those which will produce indicators on their own, those with useful data who require assistance and the degree to

¹ The distribution list for the indicators description is intended to include, *inter alia*, Argentina, Australia, Chile, France, Indonesia, Japan, Korea, Namibia, New Zealand, South Africa, Chinese Taipei and Secretariats of CCAMLR, CCSBT, IATTC, ICCAT, IOTC and SPRFMO.

which those needs for assistance can be met, and those whose data will not be used in the stock status assessment (with a rationale provided). While scientifically robust indicators are critical, the consultant must also consider the need for capacity building in order to involve participants who might not otherwise be able to join the project. The Work Plan should also plan to progress in phases so that some initial indicator results are available by 31 December 2015. This will allow the consultant to begin planning how to integrate the indicators into an assessment (see Task 3 below). A final phase of work will involve reviewing and re-visiting national/regional indicators (see Task 4 below).

Deliverable: By 30 September 2015 deliver a **Work Plan** with time/effort allocation to preparing various national/regional indicators.

2. *Initiate work with participating countries and organizations to produce national/regional indicators (Task 2, October-December 2015)*

Working to the Task 1 Work Plan agreed with the ABNJ Tuna Project Technical Coordinator-Sharks and Bycatch, the consultant should track the progress of participants who are producing their own indicators and support those which require assistance. This may involve revising or elaborating on the indicator descriptions; providing participant-specific advice through correspondence, voice/video link or webinars; and/or analyzing data provided by participants. A hands-on approach is likely to be required to ensure consistency and compatibility amongst participants. It may also be useful to hold joint webinar sessions with multiple participants to begin to link and integrate their work as well as to inform them of project progress.

Travel funding for this project is extremely limited, and consultant travel to support the development of the indicators is not envisaged. However, in summarizing the indicators work through 31 December 2015 in a **Progress Report** the consultant should identify whether there is a critical need to travel in support of Tasks 3 or 4. The client will then consider whether funding can be made available to support this travel. Whether or not this travel funding is made available, the required level of effort for this study will not be altered.

Deliverable: By 31 December 2015 deliver a **Progress Report** describing how the consultant has supported the development of the national/regional indicators and any preliminary results of indicators developed by participants (with or without support from the consultant). Any problems encountered and recommendations for overcoming them should be included, for example, proposals for travel under Tasks 3 or 4. A short section on how the consultant envisages integrating the indicators under Task 3 should also be included.

3. *Collation and synthesis of national indicators (Task 3, January-April 2016)*

The consultant can continue to work with participants to develop indicators under Task 3, but the focus of the work should shift to integrating these indicators into a holistic assessment of stock status. It will be for the consultant to propose and justify a technical approach from options such as:

- Using a management strategy evaluation model to determine which indicators are most responsive to changes in stock status;
- Applying quantitative risk assessment techniques; or
- Conducting a simple stock assessment.

Using the chosen method the consultant should develop preliminary conclusions on stock status for further adjustment and testing in Task 4.

Deliverable: By 30 April 2016 deliver an **Outline Stock Status Assessment** describing the proposed approach to the stock status assessment, previewing the stock status conclusions and highlighting the outstanding indicators to be completed. This deliverable may take the form of an outline and should show key points and conclusions but need not be written in report style. An update should be provided on any travel conducted or proposed to support the indicators development.

4. Review and Re-visit National/Regional Indicators (Task 4, May-June 2016)

In this portion of the study, the consultant will finalize all of the national indicators. This may involve re-analysis of indicators as required to ensure a consistent and compatible approach across participants. Trialling the proposed synthesis approach in Task 3 may reveal issues that need to be addressed, and these issues should be resolved with participants in Task 4 so that the indicators can be finalized. As described under Task 2, the consultant should use a variety of techniques to communicate one-on-one with participants as well as pursue ways to communicate and link with the group as a whole (e.g. webinars).

Deliverable: By 30 June 2016 deliver a **Draft Stock Status Assessment Report** describing the results of the indicators work by each participant in a common format that facilitates the comparison of results. The synthesis approach developed under Task 3 should be adjusted as necessary and report text prepared describing in detail the approach, how the indicators were used, and the draft conclusions drawn. An update should be provided on any travel conducted or proposed to support the indicators development.

5. Finalize the stock status assessment through presentation and discussion with Participants (Task 5, July-August 2016 (indicative))

The ABNJ Tuna Project, Technical Coordinator-Sharks and Bycatch will circulate the Draft Stock Status Assessment Report to a review group for comment. Under this task the Consultant will be responsible for presenting at a meeting which is likely to be held in conjunction with another t-RFMO meeting (to be determined). The intended timeframe for this meeting is July-August 2016 but this is subject to t-RFMO scheduling processes. After the meeting the consultant will revise and finalize the report, taking all comments onboard, and including a section on any recommendations for further work such as data improvements. This report should address the overall study objective of advising on whether current management schemes are adequate for the southern hemisphere porbeagle stock and if not what types of measures should be adopted to strengthen them (e.g. reduce fishing mortality in certain areas or year classes).

Funding to support the consultant's (one person) travel and per diem expenses at the meeting (location and timing to be determined) will be provided separately by the client.

Deliverable: By 31 August 2016 (or later depending on scheduling of the meeting) deliver a **Stock Status Assessment Report** describing in detail the outputs of the study and addressing the objectives listed above.

EXPRESSIONS OF INTEREST (EOI)

The consultants wishing to be considered for a contract to undertake the work described in the Terms of Reference above should respond by the deadline shown on the front page of this circular. EOIs should include:

1. A **capability statement** detailing qualifications and relevant experience for individual team members and/or the organization bidding for the consultancy;

2. A **work plan** containing a description of the technical approach, a staffing plan showing personnel and their time inputs by task, a timetable for deliverables, and a **cost estimate** for the consultancy;
3. Contact details for three individuals who can serve as **references** for previous work by the bidder that is relevant to this consultancy.

EOIs will be reviewed by a selection panel formed through nominations by WCPFC, CCSBT and FAO, with consideration given to:

- the suitability of key staff proposed and the staffing plan;
- understanding of the objectives of the study;
- the methodology to be used for the indicator development and stock status assessment;
- relevant experience with similar projects; and
- cost-effectiveness and value-for-money.

EOIs should be no more than five single-spaced pages plus CVs for key staff. All EOIs must be submitted via email. The submission deadline is by the close of business on Thursday 18 June 2015 Pohnpei Standard Time. Consultants are expected to be contracted in July 2015 and to begin work in August 2015. The indicative budget for this study is a lump sum of \$110,000 US with separate funding to be provided by the client for one consultant to travel to the report finalization meeting.

Requests for additional information relating to this consultancy and submissions of bids should be directed to:

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REFERENCES

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Francis, M., S. Clarke, L. Griggs and S. Hoyle. 2014. Indicator based analysis of the status of New Zealand blue, mako and porbeagle sharks. New Zealand Fisheries Assessment Report 2014/69. 109 p.