

Date: 11.12.18

Reference: RFQ18-075

Request for Quotation

Consultancy work: Shark and ray identification guide

1. PURPOSE OF CONSULTANCY

The FAME OFP FEMA section provides technical support and training for observers and other field staff to collect operational data on vessels fishing in the tropical tuna fisheries. The fishery includes purse seine, longline, pole and line and troll fisheries.

Improve observer shark and ray species identification through revised guides and identification key.

The Western and Central Pacific Fisheries Commission (WCPFC) has identified 13 key shark species (CMM2010-07), including two raised to Species of Special Interest (SSI) status and three classified as (CITES Appendix II) protected species. Furthermore, the Pacific Islands Regional Plan of Action for Sharks suggests six additional 'high risk' species for consideration as key shark species. WCPFC-SC10-2014/ EB-IP-06 (SC6-EB-WP-01). More recently, the pelagic and Mobulid rays were also included among the key species.

Currently SPC produces and distributes two field guides used by fisheries observers and fisheries personnel to improve shark species identification: 'Marine Species Identification Manual for Horizontal Longline Fishermen' and the 'Shark Identification in Pacific Tropical Offshore Fisheries' (WCPFC-SC2-2006/FT IP-3). These two guides use essentially the same information and illustration, with the 'shark guide' a pocket sized generic guide for all pelagic fisheries. Some other coastal shark species are listed separately in the SPC 'Fisheries Species Identification Manual for Deep-bottom Snapper Fishermen'.

The SPC pelagic guides cover 28 species of sharks, the pelagic stingray, Manta ray and a generic mobulid or devil ray group. They cover all the WCPFC key and suggested 'high risk' key species with the exception of Porbeagle shark and the relevant species of *Mobula*.

However, the current SPC guides are based on simple illustrations that were mostly reproduced from a Hawaiian shark guide poster with some of the original FAO sketches as line drawings. In many cases the reproduced illustrations lack the original detail, are poor to differentiate among species and did not highlight their morphological differences. New or revised illustrations are needed for 20 species, and so a revision of the SPC field guides is warranted and timely. The recent FAO/IOTC shark guide for the Red Sea has developed a key to identify the same shark species. It also combined clear colour illustrations with appropriate line lateral and ventral profiles or other morphological features. This is seen as a model for a refinement of future SPC regional id guides and training.

The FAO were contacted about use of this material, which they were supportive of its use, however the illustrations are not owned by FAO and so cannot be shared. Therefore an appropriate regional shark species id guide requires new illustrations and development of an appropriate identification key.

2. PURPOSE

Purpose of the project is to produce improved material for the PIRFO shark identification to be used in the PIRFO species identification guides. The shark identification guide will focus on species impacted by the offshore tropical tuna fisheries of the Western and Central Pacific Ocean (WCPO).

This will be through:

1. Development of key to identification of the 13 family groups and 41 species of sharks in Table 1.
2. The creation of new, accurate illustrations for the 20 species of sharks requiring illustrations. The principal illustration will be composed of a lateral left side colour profile of a typical example of the species. In addition, a secondary line-drawing of the ventral profile of the species will be done. These should be morphologically accurate according to the type species and include the features in the identification key.
3. The shark guide will also have a section identifying best practice handling of sharks and rays or release.

The material developed will be used in the relevant PIRFO guides and to develop PIRFO training and assessment materials to support shark identification by observers and for species verification by debriefers.

The project will utilise expert consultant(s) to develop the materials and collate this information for publication by SPC Publications section. The consultant(s) may bid to do all, or a subset of 1. 2. or 3. above.

3. TERMS of REFERENCE:

Scope

The consultant(s) will provide illustrations to the OFP FEMA for use in the species ID guides. The preference is that the material shall become the property of SPC for use in the Shark Identification Guide to be published by SPC in a similar format to the existing SPC species identification guides. However bids may also include an alternative bid cost for unlimited non-proprietary use of the material for SPC guides and observer training.

The information provided will include the following:

1. An identification key using primary anatomical and colouration features to identify to species level for all key shark species in Table 1.
2. Colour illustrations of each shark species indicated with a '✓' in the final right hand column in Table 1. The illustration for each species will comprise a colour left lateral profile of each species and a ventral line drawing showing the anatomical features used for identification.
3. Guidelines for safe handling and release of sharks.

The shark species groups and key shark species will be the following:

Table 1. List of key shark species

Family	Common name	Scientific name	FAO	Illust?
Dogfishes	cookie cutter shark	<i>Isistius brasiliensis</i>	ISB	
Dogfishes	velvet dogfish	<i>Scymnodon squamulosus</i>	SSQ	
Dogfishes	kitefin shark (seal shark)	<i>Dalatias licha</i>	SCK	
Giant Lamniform	basking shark	<i>Cetorhinus maximus</i>	BSK	√
Giant Lamniform	megamouth shark	<i>Megachasma pelagios</i>	LMP	
Grey nurse	bigeye sand tiger shark	<i>Odontaspis noronhai</i>	ODH	√
Hammerhead	great hammerhead	<i>Sphyrna mokarran</i>	SPK	
Hammerhead	winghead shark	<i>Eusphyra blochii</i>	EUB	
Hammerhead	scalloped hammerhead	<i>Sphyrna lewini</i>	SPL	
Hammerhead	smooth hammerhead	<i>Sphyrna zygaena</i>	SPZ	
Mackerel	longfin mako	<i>Isurus paucus</i>	LMA	
Mackerel	shortfin mako	<i>Isurus oxyrinchus</i>	SMA	√
Mackerel	great white shark	<i>Carcharodon carcharias</i>	WSH	
Mackerel	porbeagle shark	<i>Lamna nasus</i>	POR	√
Sixgill	bluntnose sixgill shark	<i>Hexanchus griseus</i>	SBL	
Stingray	pelagic stingray	<i>Dasyatis [Pteroplatytrygon] violacea</i>	PLS	
Thresher	common thresher	<i>Alopias vulpinus</i>	ALV	√
Thresher	bigeye thresher	<i>Alopias superciliosus</i>	BTH	
Thresher	pelagic thresher	<i>Alopias pelagicus</i>	PTH	√
Whale	whale shark	<i>Rhincodon typus</i>	RHN	
Whaler	blue shark	<i>Prionace glauca</i>	BSH	
Whaler	sandbar shark	<i>Carcharhinus plumbeus</i>	CCP	√
Whaler	Galapagos shark copper shark (bronze whaler)	<i>Carcharhinus galapagensis</i>	CCG	√
Whaler	silky shark	<i>Carcharhinus falciformis</i>	BRO	
Whaler	oceanic whitetip	<i>Carcharhinus longimanus</i>	FAL	√
Whaler	silvertip shark	<i>Carcharhinus albimarginatus</i>	OCS	√
Whaler	whitetip reef shark	<i>Triaenodon obesus</i>	ALS	
Whaler	blacktip reef shark	<i>Carcharhinus melanopterus</i>	TRB	√
Whaler	grey reef shark	<i>Carcharhinus amblyrhynchos</i>	BLR	√
Whaler	blacktip shark	<i>Carcharhinus limbatus</i>	AML	√
Whaler	tiger shark	<i>Galeocerdo cuvier</i>	CCL	√
Whaler	bignose shark	<i>Carcharhinus altimus</i>	TIG	
Whaler	bull shark	<i>Carcharhinus leucas</i>	CCA	√
Whaler	dusky shark	<i>Carcharhinus obscurus</i>	CCE	√
Whaler	dusky shark	<i>Carcharhinus obscurus</i>	DUS	√
Crocodile	crocodile shark	<i>Pseudocarcharias kamoharai</i>	PSK	
Devilray	oceanic manta ray	<i>Mobula birostris</i>	RMB	
Devilray	devil fish	<i>Mobula mobular</i>	RMM	√
Devilray	Sicklefin Devilray	<i>Mobula tarapacana</i>	RMT	√
Devilray	Japanese devilray	<i>Mobula japonica</i>	RMJ	√
Cownose	Javanese cownose ray	<i>Rhinoptera javanica</i>	MRJ	

Institutional arrangement

The Consultant will report to the FAME Deputy Director and Chief Scientist, OFP.

The consultant will agree with OFP a work plan that will specify the activities to be undertaken and the timelines to be met.

Place of Assignment:

Home based.

Duration of assignment:

The Consultant will commence work around **21 January 2019** and complete work no later than **24 May 2019** and will be undertaking for a maxim of **30 paid working days** during the term of the contract.

4. QUALIFICATIONS OF THE SUCCESSFUL CONTRACTOR

The Consultant will have a graduate qualification in relevant field; and have demonstrated technical illustration skills.

5. EXPECTED OUTCOMES:

1. Identification key using discriminating anatomical features and colouration for species groups listed the Terms of Reference (Item 1).
2. Illustrations showing the key identification features as the Terms of Reference (Item 2) for each of the species listed in the right-hand column of Table 1.
3. Safe Shark handling guidelines as listed under listed in the Terms of Reference (Item 3).

The consultant will submit an invoice for payment and a brief (1-2 page) progress report on work completed in line with the agreed work plan during the assignment according to the schedule in Table 2.

Table 2. Schedule for completion of expected outcomes

<u>Outcome Item #</u>	<u>Milestones/outputs</u>	<u>Deadline (Date)</u>	<u>Percent Payment</u>
3.	Shark Handling Guidelines provided	08.02.2019	20%
1.	Identification Key submitted	08.03.2019	30%
2.	Submission and acceptance of all illustrations and deliverables	24.05.2019	50%

Professional remuneration

If you are interested in this assignment, please send in a proposal to procurement@spc.int with the heading RFQ 18-075 with copy to Timothy PARK (timothyp@spc.int) Observer Programme Adviser of FAME division as soon as possible but before 4.00 pm Noumea time on the **21.12.2018**. Include a daily rate for consultancy services. The rate will be commensurate with qualifications and experience required for the role and represent value for money.

NOTE: If required - Economy class travels via economic route and a daily per-diem will be covered under SPC travel rules, and arranged on your behalf.