KINGDOM OF TONGA NATIONAL PLAN OF ACTION (NPOA)
SHARK-PLAN (2014-2016)

Blue Shark (*Prionace glauca*)

Oceanic Whitetip shark
(*Carcharhinus longimanus*)

Silky Shark
(*Carcharhinus falciformis*)

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Prepared by

Tonga Fisheries Division & Pacific Islands Forum Fisheries Agency

FOREWARD

The Kingdom of Tonga National Plan of Action for Sharks (Shark Plan) is intended to provide a comprehensive set of policies aimed at guiding the efforts of the Division of Fisheries in the conservation and management of oceanic sharks in Tonga's fisheries waters. These efforts are consistent with directions of Forum Leaders to promote stock sustainability and ensure maximum economic benefit from marine resources. As the Kingdom of Tonga begins to witness the steady increase in the influx of foreign fishing vessels, particularly in the tuna longline fishery, since the lifting of the moratorium, data collected since then, point to a concomitant, if not, an overwhelming increase in the percentage of oceanic sharks that are caught as by-catch.

Without a national plan of action to guide and manage the activities of those engaged in the tuna longline fishery as to shark as a by-catch, catch of relevant oceanic shark species is, at current (accidental) catch levels, will continue to increase. Not only is such a scenario detrimental to the Kingdom's future plans to develop its domestic tuna fishery, but the Kingdom could be viewed as failing in its national and international obligations to conserve and manage the relevant species of oceanic sharks in its fisheries waters. The Kingdom's obligations in this respect are not only apparent under national law, but emanate from its participation in the Western and Ceniral Pacific Fisheries Convention, and in particular, the relevant sharks conservation and management measures. Therefore failing to implement the necessary policy framework, such as this plan, to minimize and reduce the accidental harvesting of the oceanic shark species not only encourages adverse international media coverage of the Kingdom's actions, but it is in itself a failure to uphold an international obligation.

To this end, I, as Minister responsible, and on behalf of the Cabinet, welcome this new development whole-heartedly. May I also take this opportunity to pledge the support of Cabinet in this endeavour, as we look ahead to the implementation of the plan, over the course of the next four years.

Hon. Sangster Saulala
Minister of Agriculture and Food, Forests and Fisheries
Kingdom of Tonga

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ACRONYMS

NPOA	National Plan of Action
IPOA	International Plan of Action
WCPO	Western and Central Pacific Ocean
FD	Fisheries Division
MCS	Monitoring, Control and Surveillance
EAFM	Ecosystem approach to fisheries management
TMDP	Tuna Management and Development Plan
OP	Operational Plan
WCPFC	Western and Central Pacific Fisheries Commission
CMM	Conservation and Management Measure
FFA	Secretariat of the Pacific Islands Forum Fisheries Agency
CITES	Convention on International Trade in Endangered Species
CMS	Convention on Migratory Species
FAO	Food and Agriculture Organisation
CCRF	FAO Code of Conduct for Responsible Fisheries
SB_{MSY}	Spawning biomass producing maximum sustainable yield
F_{MSY}	Level of fishing mortality that can be sustainably borne by the stock

1. PURPOSE

The Tonga NPOA (sharks) is a policy guideline that ensures conservation and management of oceanic sharks in the Kingdom's fisheries waters. It also promotes long-term sustainability and optimum use of sharks in Tonga's Tuna longline fishery in accordance to national development policy frameworks, and special needs and requirements to develop and commercialise its fisheries. In the medium-long term, the Plan serves to minimize any adverse environmental effects of fishing on oceanic shark species.

2. SCOPE

Tonga NPOA (sharks) applies to the Kingdom's fisheries waters of which sharks are caught as accidental and by-catches. The Plan is focused predominantly on longline gear, however it also extends to other gears that catch sharks as accidental and by-catches. This Plan applies to current and future fishing vessels categorised as domestic, licensed and flag to Tonga. As well, all fishing vessels under access and partnership arrangements which may be active in national fisheries waters and in the high seas are also included. Moreover, this Plan will apply to Tonga vessels which may conduct directed or experimental fishing for sharks or if vessels regularly catch sharks in non-directed/ experimental fisheries such as the longline fishery anywhere in the WCPO.

3. REVIEW

The period of this Plan is four years and will be reviewed annually plus a mid-term review at the end of the second year of implementation. FAO recommends review of the Plan at least every four years. The reviews should take into consideration latest stock assessments on key shark species including available shark data in TUFMAN; latest decisions of the WCPFC and other relevant international and regional shark instruments which Tonga is a Party or cooperating non-member. The review will identify gaps and highlight specific areas of improvement and cost-effective strategic interventions thereby increasing the Plan effectiveness.

4. PLANNING & REPORTING

Tonga's Fisheries Division (FD) will report on the implementation of this Plan as part of its Annual Report, and if relevant, other fisheries related forums and committees. Progress of implementation will also be reported in part through Tonga's WCPFC Part I & 2 reports and direct report to FAO relative to the implementation status of the IPOA and NPOA (sharks), consistent with reporting requirements against CMM2010-07 paras, 2 & 4, CMM2011-04 para.3, CMM2012-04 paras. 3 & 6. The FAO recommends production of sharks assessment reports that should contain threats, management and stock status of any elasmobranchs that occur in fisheries waters, whether target or non-target species.

5. LEGAL CONTEXT

The overarching legal basis of this Plan is enshrined in the Fisheries Management Act, 2002. The Act provides for the conservation, management and sustainable

utilization and development of the fisheries resources in the fisheries waters in the Kingdom. Section 7 allows the development, review and implementation of management and development plans. Other relevant sections of the Act for this Plan include sections 3 and 5 addressing the Minister's responsibility and principles to be accommodated in decision-making respectively.

The Plan also draws on relevant international and regional instruments such as the FAO-International Plan of Action for Sharks (FAO IPOA sharks), FAO Code of Practice for Responsible Fisheries, Regional Plan of Action (Sharks) and WCPFC conservation and management measures on sharks (CMM2010-07; CMM2011-04; CMM2012-04). More importantly the Plan needs to align and consistent with Tonga National Development Strategy, strategic policy directions under its Tuna Management and Development Plan and other relevant legislations and policies of the government.

6. GUIDING PRINCIPLES

Drawing from the FAO IPOA sharks (FAO, 1999) and relevant shark related instruments, the key guiding principles under this Shark Plan shall be:-

Participation	Effective participation in shark management and contribute towards minimizing fishing mortality on shark species or stocks.
Sustaining stocks	Management and conservation strategies should aim to keep total fishing mortality for each stock within sustainable levels by applying the precautionary approach.
Nutritional & socio-economic considerations	Management and conservation objectives and strategies should recognize that in some low-income food-deficit communities in the Kingdom, shark catches are a traditional and important source of food, employment and/or income. Such catches should be managed on a sustainable basis to provide a continued source of food, employment and income to local communities.
Cooperation & integration	Require for the fullest possible cooperation among government and non-government agencies and institutions, stakeholders of the fishing industry and local communities, and engagement pursuant to this Shark Plan, TMDP and broader regional and international technical guidelines and measures on sharks.
Scientific & political actions	Scientific and political actions, as appropriate, which are responsible for the management of migratory shark fisheries, and the need to strengthen and improve their role in taking measures to improve or restore a favourable conservation status of sharks listed in the WCPFC CMMs related to sharks.
Best available science on sharks	Sharks should manage to allow for sustainable harvest where appropriate, through conservation and management measures based on the best available science information.
Ecosystem &	Measures given in the Plan should apply widely both an ecosystem

precautionary principles	and precautionary principle. Lack of scientific certainty should not be used as a reason for postponing measures to enhance the conservation status of sharks in the Kingdom's fisheries waters.
Monitoring & compliance	Promotes effective monitoring of fishing activities and ensures compliance to shark measures in this Plan. All licensed fishing may establish by mutual consent verifiable reporting systems incl. logsheet and observer reports that include full reporting of shark related data and information pursuant to this Shark Plan, TMDP and broader regional and international guidelines and measures on sharks

7. PREPARATION & STRUCTURE

This Plan was prepared through effective participation and engagement of all stakeholders consistent with requirements of the FAO IPOA (sharks). The basis is clearly to raise level of awareness and promote ownership of the Plan by all relevant stakeholders.

Under this Plan the key components include a brief preamble section, key challenges, description of the current state of shark populations and a management framework covering key measures and actions. An implementation schedule provides a clear roadmap towards implementing specific measures/ actions over the 4-years timeframe. The effectiveness of management measures would be closely managed through the MCS framework, and, the mid-term review should provide for possible modifications, if necessary, of management measures.

8. OPERATIONAL OBJECTIVES

Further to the primary goal and purpose of the Plan outlined earlier, the following operational objectives are adapted from the FAO-IPOA sharks (FAO, 1999), Regional Shark Plan and also draws on the WCPFC CMM (sharks), and revised appropriately for implementation in Tonga fisheries waters. On this basis, the Tonga NPOA (sharks) should aim to:

(i) Ensure that shark catches from directed and non-directed fisheries are sustainable;
(ii) Assess threats to shark populations, determine and protect critical habitats and implement harvesting strategies consistent with the principles of biological sustainability and rational long-term economic use;
(iii) Identify and provide special attention, in particular to vulnerable or
(iv) threatened shark stocks;
(v) Improve and develop frameworks for establishing and coordinating effective consultation involving all stakeholders in research, management and educational initiatives;
(vi) Minimize unutilized incidental catches of sharks;
(vii) Contribute to the protection of biodiversity and ecosystem structure and function;

(viii) Minimize waste and discards from shark catches in accordance with Article 7.2.2.(g) of the Code of Conduct for Responsible Fisheries (for example, requiring the retention of sharks from which fins are removed);
(ix) Encourage full use of dead sharks;
(x) Facilitate improved species-specific catch and landings data and monitoring of shark catches;
(xi) Facilitate the identification and reporting of species-specific biological and trade data;
(xii) Implement all technical measures of the WCPFC CMM2010-07 (sharks);
(xiii) Improve understanding of migratory shark populations through research, monitoring and information exchange;
(xiv) Build research, data collection, monitoring, compliance and enforcement capacity;
(xv) Ensuring to the extent practicable the protection of critical habitats and migratory corridors and critical life stages of sharks; and
(xvi) Increasing public awareness of threats to sharks and their habitats, and enhance public participation in conservation activities.

9. KEY CHALLENGES

Tonga does not have a dedicated domestic shark fishery and does not intend to close its waters to tuna fishing in order to ensure that no sharks at all are taken as by-catch. Historically, a relatively small proportion of shark by-catch was taken by Tonga's domestic longline vessels compared to shark by-catches in adjacent EEZs and the high seas, taken by vessels of other flags[1].

However, these trends appear to have been reversed with very high catches of sharks in recent years. There is concern about these trends and about other issues related to the incidental catch of sharks in Tonga's EEZ and by Tonga vessels fishing beyond areas of national jurisdiction. The collection of shark data and the management of shark populations in the Kingdom's fisheries waters are essential for the broader conservation and management of key shark species in the WCPO. In particular the Plan recognises the overfished state of several key oceanic shark species reported by the WCPFC SC9 formal session in 2013.

In light of this new concern, Tonga recognizes the importance of improving current knowledge of sharks and the practices resulting in shark by-catches in its domestic longline fishery. The Fisheries Division identified the following challenges that this Plan aims to address:-

- Inadequate data available to fisheries on catches, effort and landings of sharks;
- Difficulties in identifying shark species after landing;
- Insufficient biological and environmental data on sharks;
- Lack of funds for research and management of sharks;

[1] For the purposes of this Plan, Tonga's domestic longline vessels consist of "local fishing vessels", and "locally based foreign fishing vessels " as defined in the Fisheries Management Act, and including fishing vessels under bareboat charter arrangements under the Shipping Act'.

- Limited coordination on the collection of information on trans-boundary, straddling, highly migratory and high seas stocks of sharks;
- Difficulty in achieving shark management goals in multispecies fisheries in which sharks are caught as incidental and by-catch;
- Diminishing catches and catch rates with increase in fishing efforts (e.g. hook and vessel numbers);
- Some vessels land their catches in Suva Port thereby making it difficult to report accurately on catch of tuna and sharks by flag and EEZ; and
- Lack of skills amongst fishing masters to avoid shark by-catch.

Toward the end of 2011, Tonga reopened its waters to foreign fishing vessels after a 6-years moratorium consistent with its development strategy to develop its domestic fisheries. However, the fishery continued to be affected by economic problems and related factors impacting operations of local fishing companies. In 2011, only 3 local fishing vessels and 1 locally-based foreign fishing vessel were licensed to fish in Tonga's EEZ, compared to 5 local vessels in 2010. The number of Tonga longline vessels increased to 9 in 2012, however excludes foreign longline vessels licensed under bilateral access arrangements.

The number of all licensed domestic and foreign longliners increased to 22 vessels by November 2013, though remain lower than the cap of 50 vessels. All licensed longline vessels mainly operate within the Tonga's EEZ largely to the south of its EEZ, and sometimes extends to the high seas in the southern part of Tonga (WCPFC SC8, Tonga Part 1 report, 2012 & 2013).

The Fisheries Division is aware of criticisms levelled at its development initiatives and new reforms linking it to possible increase in commercial shark by-catches by newly licensed foreign tuna longline boats. The Fisheries Division endeavours to address these issues appropriately through the implementation of this Plan and other related fisheries policy frameworks.

10. STATUS & DESCRIPTIONS of WCPO Sharks

Oceanic whitetip shark – spawning biomass, total biomass and recruitment have all exhibited a declining trend since 1995 (the first year of the assessment) across the Pacific region as a whole, and the current spawning biomass is estimated to be at 15% of SB_{MSY} and current fishing mortality is estimated to be more than six times greater than F_{MSY}. The key conclusions are that overfishing is occurring and the stock is in a heavily overfished state relative to MSY-based reference points.

Silky shark –.Silky sharks a low productivity species. The greatest impact on the stock is attributed to by-catch from the longline fishery in the tropical and subtropical areas. But there are also significant impacts from the purse seine fishery at lower latitudes which catches predominantly juvenile sharks. A recent assessment concluded that estimated fishing mortality has increased to levels far in excess of F_{MSY}. The continuation of current levels of fishing effort Pacific-wide would continue to deplete the stock below SB_{MSY}. The 9th meeting of the WCPFC Scientific Committee (SC9) concluded that overfishing is occurring and, it is highly likely that the stock is in an overfished state.

South Pacific Blue shark **–**Stock assessment on the South Pacific blue shark is expected to complete in 2014 if the critical data gaps are adequately addressed. Current amongst top four shark species caught in Tonga fisheries waters.

Mako shark **-** are among the least productive of all pelagic sharks, but are occasionally targeted for their food value; WCPFC scientists have suggested further research and/or data improvement to identify and clarify population status trends for these species.

Thresher shark **-** are also among the least productive of all pelagic sharks; again, WCPFC scientists have suggested further research and/or data improvement to identify and clarify population status trends for these species.

Whale shark **–** it is estimated that 75 whale sharks (*Rhincodon typus*) were killed in the Western and Central Pacific Ocean as a result of interactions with the region's purse seine fishery in just two years (2009 and 2010). A ban on whale shark setting by licenced purse-seine fishing vessels anywhere in the Pacific was adopted by the Pacific Island States that are parties to the Nauru Agreement in 2010, and this ban was later extended to the entire western and central Pacific Ocean purse-seine fleet by WCPFC.

Hammerhead shark – widely distributed in latitudinal range and appears to prefer tropical warm waters, and is largely concentrated along continental shelves and coastlines, but can be found in the deep ocean. Hammerhead sharks are at a high risk of extinction and are a delicacy in many countries. Little data exists on the by-catch of hammerheads in the WCPO and thus no formal assessment been done on the stock for consideration at the WCPFC Scientific Committee.

Domestic tuna fisheries (shark-associated)

Tonga domestic tuna longliners total catch in quantity and value for 2011 increased considerably as compared to the year 2010. This trend did not repeat in 2012 with catches remain relatively steady or slight decrease compared to 2011 levels. Catches of tunas and billfish remain steady or decrease slightly despite additional 170,000 hooks in the water and additional 7-new foreign locally-based longline vessels under bilateral access agreements in 2012.

In contrast, by-catch landings by Tongan longliners was more than double in 2012 than in 2011, a large portion of which is sharks – about nine folds increase (WCPFC SC9, Tonga Part 1 report, 2013). The high proportion of shark catches in the overall total catch in 2012 suggests several Tongan longline vessels are targeting sharks.

The increase in the tuna production and revenues are due to the reopening of the Tongan waters to foreign fishing vessels. While there was increase in catches in recent years, catch rates (CPUE) for the fishery kept dropping for domestic vessels.

In 2012, catch of Tonga longliners was dominated by yellowfin with 56 % followed by blue marlin (19%), swordfish (8%), albacore at 8 % and 4% for both bigeye and striped marlin (WCPFC SC9, Tonga Part 1 report, 2013). Catch composition indicated that most Tongan longline vessels and the structure of the fleet targeted bigeye and yellowfin tuna for fresh fish market. Observers have reported high

retention rates of target tunas, with most discards being due to fish being shark damaged.

In contrast, 2012 catches in Tonga EEZ by all licensed longline vessels drastically increased to 1700 tonnes largely dominated by albacore. Catch rates improved mainly in locally-based foreign and licensed foreign vessels – i.e. licensed Taiwanese flag vessels. 2012 data suggests that the Taiwanese vessels switched primarily to albacore from yellowfin and this would probably dominate the total catch. Even the previous years showed a majority of albacore. However the Tongan vessels have been mainly targeting yellowfin and bigeye tunas in recent years.

From observers' reports, Tonga tuna fishery has no impacts on species of special conservation interest (e.g. turtle, marine mammals and birds).Wahoo, dolphinfish, moonfish and billfishes also had high retention rates as these are also valuable components for the fishery. In contrast, lancetfish, escolar, oilfish and certain shark species are rarely retained, although almost all sharks (greater than 90%) are finned before being discarded. In 2011 one turtle (unidentified) was captured by the domestic longline fishery in the Tonga EEZ, and was released alive. No other interactions with species of special conservation interest (e.g. turtles, marine mammals, birds) were reported by observers since the program started in 1995 (WCPFC SC8, Tonga Part 1 report, 2012).

[2]Table 1. Annual estimated catches (mt) of non-target, associated and dependent species, including sharks, by the **Tongan Longliners**, in the WCPFC Convention areas for years 2007 to 2012 *(source: Tonga SC9 Part 1 report2013).*

Non-Target Species	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Wahoo	45.1	29.1	10	7	8.8	6.3
Short-Billed Spearfish	5.2	2.2	2	1.3	3.1	1.0
Sharks (Unidentified)	38.4	21.9	10	2.1	14.2	130
Sailfish (Indo-Pacific)	3.5	1.8	2	0.8	2.5	0.3
Pacific Blue tuna	0.15	0	0	0	0	0.0
Dolphin fish/ mahimahi	85	42.9	45	27.1	30.9	39.0
Opah/ Moonfish	18	16.4	13	11.8	3.4	0.5
Others		0.7	0.1	0.0	4.3	8.5

In 2012, an est. 130 mt sharks was landed in Tonga port, which fetched an export value of 2,101,976 Tonga Pa'anga (equiv. USD 1,187,616[3])[4]. Table 1 provides trends on landings of non-target species by Tongan longliners from 2007 to 2012. Key shark species historically caught by Tonga flagged longline vessels are blue sharks, silky sharks, mako sharks and oceanic whitetip sharks.

[2] Data from licensed foreign vessels under bilateral access are excluded in this table. An estimated total of 271 tonnes of sharks were caught in Tonga's EEZ from all longline vessels in 2012.
[3] 1 TOP = 0.565000 USD (Mid-market rates: 2013-05-26 23:09 UTC)

[4] Shark data submitted by Tonga Fisheries Dept., May 2013.

Shark related issues were extensively discussed by stakeholders during the preparation of Tonga EAFM report in 2008. The issue on shark in Tonga longline fishery was ranked low priority because the risk of not meeting the objective of stock sustainability and maximum benefits in the fishery is relatively low. This was largely due to minimal interactions and catches of sharks in the fishery, recognizing only few longline boats were active during that time. However the stakeholders found the shark issue to be of high priority in the WCPO because of the risk of not sustaining shark populations. The performance report on sharks in the longline fishery of Tonga outlines current and future management interventions to respond to the objectives.

ISSUE	Objective	C	L	Risk Score	Overall Risk (stakeholder)	Reasons/ Justifications
Sharks	Maximizing economic returns	1	2	2	Low	10 percent by-catch rule in place for tuna longline fleet, as part of FAO guidelines. Byproduct catch of shark is relatively small. Tonga has implemented this rule.
	Stock sustainability (Tonga)	3	1	3	Low	Overall low no of LL vessels fishing in Tongan EEZ and low catch of sharks results in overall low impact on shark stocks inside Tongan EEZ. Recent increase in shark landings in domestic fleets. There is a degree of uncertainty on which species are being retained but blue, white tip, black tip, mako and silky sharks are caught in varying numbers.
	Stock sustainability (Regional)	3	3	9	High	Refer to performance report; Some fleets take large catches of sharks and some fleets fin sharks. Overall at the regional level the impact on sharks is quite high. WCPFC shark resolution and need for NPOA

Table 9 Performance Report (Retained Species – Sharks)

Management Response	Sharks
1. Reason for inclusion	*Uncertainty over stock status and the current take by species in Tongan waters*
2. Operational Objective	*Deter targeting of sharks by modifying gear using nylon leader and banning wire leader, mitigate mortality of incidental catches by releasing all sharks alive; no finning*
3. Indicator	*No increase in shark catch levels and fishing practices*
4. Performance Measure/Limit	*No increase in the proportion sharks in the total catch*
5. Evaluation	*Long line logsheet data and analysis, size distribution, species composition provided by observers (observer data).*
6. Robustness	*Coverage is high but 100%; fluctuations or reporting may obscure trends; observer data is less than robust*
7. Fisheries Management Response	
- Current	*Finning ban/carcass retention; logsheet data is between 75 and 80% and observer coverage is even lower at between 0-10% and varied between years; 100% logsheet coverage and 20% observer is desirable*
- Future	*Prepare NPOA-sharks and apply shark specific measures including ban on targeting and finning; 100% logsheet coverage and 20% observer are desireable targets by 2010.*
- Actions if Performance Limit is exceed	*Review of fishing practice/Further controls*
- Review Cycle	*Two-yearly, proposed period of Management Plan review*
8. Other Issues	*Economic and oceanographic trends, and region-wide stock effects, technology, WCPFC concerns, public and tourist opinion about cruelty of shark finning (about 85% of sharks are finned)*

10. STRATEGIC INTERVENTIONS

The strategic management framework on sharks draws on the FAO Technical Guidelines on the Conservation and Management of Sharks (FAO, 1999), RPOA (sharks), and CMM2010-07. Under this Plan, the strategies for achieving the above objectives outline in earlier sections are, *inter alia*:

Technical Measures

(i) Ascertain control over access of fishing vessels targeting sharks;
(ii) Decrease fishing effort where shark catch is proven unsustainable;
(iii) Effective control and management of UNCLOS Annex 1 and WCPFC key shark species through close monitoring of catches and ensuring compliance with specific measures and limits in this Plan :

UNCLOS Annex 1 - bluntnose sixgill (*Hexanchus griseus), basking shark (Cetorhinus maximus*), thresers (Family Alopiidae, 3-species), whale shark (*Rhincodon typus*), requiem sharks (Family Carcharhinidae, 52 species), hammerheads (Family Sphynidae, 9 species) and lamnids (Family Isuridae, 5 species) – in total, 72 species);

WCPFC key shark species - porbeagle (*Lamna nasus*), winghead hammerhead (*Eusphyra blochii*), great hammerhead (*Sphyrna mokarran*), scalloped hammerhead (*S. lewini*) and smooth hammerhead (*S. zygaena*); blue, silky, oceanic whitetip, shortfin mako, longfin mako, bigeye thresher, common thresher and pelagic thresher, whale sharks

Operational Measures

(iv) Improve the utilization of sharks caught;
(v) Implement elements of the WCPFC CMM 2010-07: discourage waste and discards, encourage live release, controls finning (i.e. cutting of a shark's fins and discarding its carcass at sea);
(vi) Consider support for the creation of a new "International Commission for the Conservation & Management of Sharks";
(vii) Prepare and submit report on the progress of the assessment, development and implementation of Tonga *Shark-plan* as part of its FD Annual Report, WCPFC Scientific Committee Part 1 Annual Report, biennial reporting to FAO on the Code of Conduct for Responsible Fisheries;

MCS Framework & Enforcement

(viii) Improve MCS and enforcement activities for the collection, processing, storage and marketing of sharks and shark-related products in the catching and processing sub-sectors;
(ix) Dedicated fisheries officer (by-catch) responsible for all by-catch species incl. sharks;
(x) Promote practical and enforceable measures within Tonga longline fishery;

Data Collection & Analysis

(xi) Improve and strengthen data collection and monitoring of shark data including logsheets, port sampling, observer reports, etc.;
(xii) Facilitate collection and provision of shark landing data from all Tonga fishing vessels and licensed vessels active in its EEZ ;
(xiii) Create and maintain species-specific national records of shark catches, landings and discards;
(xiv) If applicable, obtain utilization and trade data on shark species;
(xv) Facilitate the timely access to and exchange of information necessary to coordinate conservation and management measures, and facilitate training in data quality;

Research

(xvi) Collaborate and assist in the implementation of the WCPFC Shark Research Plan;

(xvii) Facilitate and encourage research on little known shark species;

(xviii) Promote and coordinate stock assessments and research in collaboration with appropriate management and scientific bodies – to estimate potential for a shark fishery and options in setting future hard limits;

Capacity Building

(xix) Use shark identification guides and to train and raise awareness amongst stakeholders, particularly observers, crews, skippers and boat operators. Training fishing masters on ways that avoid targeting shark also important;

(xx) Regular awareness programmes incl. radio, newspaper, posters, seminars, school talks and seminars – targeting schools and communities, associations and general fisheries awareness outreach programs;

(xxi) Seek assistance through OFP-SPC, WCPFC Secretariat, FAO and others in the production of information and educational material in local language;

(xxii) Cooperate with relevant agencies and institutions to facilitate the work conducted in relation to this Plan – raise profile of implementation in fisheries forums and committee meetings;

(xxiii) Build/ strengthen overall capacity in research, data collection, monitoring, compliance and enforcement;

Management Measures

(xxiv) Regulate or manage the harvest of sharks in the Kingdom's fisheries waters using the following combination of measures:

- *Beginning January 2014, shark by-catch limits is set at 16% per fishing trip. This limit is to be revised downwards by 2% annually, per fishing trip, over the course of the remaining three years of the implementation of the plan. This will bring the limits down to the 10% target by 2017 (Art.7, 10(3),30, FAO, TMDP)*
- *Ban shark targeted fishing by longline vessels in all Tonga's fisheries waters*
- *Shark sanctuaries within territorial waters including prohibitions against commercial longline fishing*
- *Commercial longline fishing is prohibited in any area within 3 nautical miles from the centre of all underwater seamounts located in Tonga's fisheries waters. Where two or more seamounts are in close proximity, the distance of 3 nautical miles shall be measured from the centre of the nearest seamount.*
- *Finning control of 5% with fins naturally attached (CMM2010-07)*
- *Ban on the use wire leaders and sets on whale sharks (CMM2011-04)*
- *Prohibition of retention, transhipping, storing on a fishing vessel, or landing in whole or in part, of any oceanic whitetip shark (CMM2011-04)*
- *Promotion of live release and use of circle hooks (UN Res. 62/177*
- *Encourage deeper hook deployment*

(xxv) Encourage setting targets based on the best available science for fish quotas, fishing effort and other restrictions to help achieve sustainable use

(xxvi) Discourage development of national shark fishery

11. IMPLEMENTATION PLAN & SCHEDULE

This Plan does not have a dedicated budget for its implementation. The delivery of the actions identified in the plan depends on the resources available within the existing budgets of the Fisheries Division. Supplementary funds for implementation of certain activities may be obtained from other sources. It is unrealistic therefore to expect that all the issues identified in this Plan will be fully addressed by the Fisheries Division over the life of the Plan. The success implementation of this Plan will require strong cooperation among relevant stakeholders and groups incl. but not limited to fishermen, fisherman associations, boat operators, indigenous groups, conservation/ environmental bodies, recreational and game-fishing associations and research/ technical fisheries related institutions.

This section will describe specific timelines against the management actions, strategies and projects identify in this Plan 2014-2016.

	Current resources?	Current status?	Regulations/Notices/ Fines/Conditions	New activity	Additional Resources?	Training?	2014	2015	2016
DOMESTIC LONGLINE FISHERY									
Retained species	Policy Officer, MCS Officer, By-catch Officer								
-sharks: comply with finning ban/ carcass retention; prepare NPOA; review fishing practices/ further controls	FMP,MCS	No NPOA	Condition of longline licence	NPOA to be developed (currently underway and expected to come into effect 1 Jan 2014.	Financial assistance	Management Plan for shark; completed attachment at FFA May '13	√	√	√
Management Measures									
Regulate/ manage harvest of sharks in Tonga's EEZ:- (i) to (vii) below (note these measures are currently in the Plan:-	FMP, MCS, legal	No regulations	Limits/ offences can be regulated – develop a regulation on this or simply put in as conditions of longline licence	The division needs to decide if need to regulate – e.g. management limits/ measures below (i) to (vii)	In-house and, if appropriate, seek assistance from FFA legal team	NA	√		
(i) by-catch shark cap is 300mt or not more than 10% of total catch in any one boat fishing trip	As above	As above	As above	As above	As above	As above	√		
(ii) ban shark targeted fishing by LL vessels in all Tonga's fisheries waters	As above	As above	As above	As above	As above	As above	√		
(iii) shark sanctuaries within territorial waters against commercial LL fishing	As above	As above	As above	As above	As above	As above	√		
(iv) finning control 5% with fins naturally attached	As above	As above	As above	As above	As above	As above	√		
(iv) Ban on whale shark sets and wire leaders	As above	As above	As above	As above	As above	As above	√		
(v) No retention, transhipping, storing on vessel or landing, in whole or in part, of any oceanic whitetip shark	As above	As above	As above	As above	As above	As above	√		
(vi) Promote live release and use of circle hooks; encourage deeper hook deployment	As above	As above	As above	As above	As above	As above	√		
(vii) encourage setting targets based on available science and shark assessment in Tonga's fisheries waters – quotas, fishing effort & other restrictions	As above	As above	As above	As above	As above	As above	√		
Technical Measures	Observers, Port samplers								
Control vessels targeting sharks	MCS, FMP	22 licenses out of 50cap	Currently prohibited under the Plan; and it will become mandatory if pursue a regulation or adapt as condition of fishing license; e.g. revoke fishing license	Already covered under the NPOA (sharks); and possibility of a regulation or condition of fishing license is covered above FMP could review shark data and track of vessel during fishing to determine if vessel is targeting sharks	Encourage increase in observer coverage min. 5%, and reporting details on catches during port sampling or request such info from other ports if licensed vessels land their catches there	Refresh training on sharks identification	√	√	√
Decrease fishing effort where shark catch is proven sustainable - incremental cuts of license cap	MCS, FMP	22 licenses out of 50cap	NA	Assessment of sharks in Tonga's waters relative to shark population in WCPO	NA	Refresh training on sharks identification	√	√	√
Control and manage all shark species listed in UNCLOS Annex 1 & WCPFC key shark species	MCS, FMP	22 licenses out of 50cap	Include in a regulation or condition of license	Regular reports of catch data for these shark species	NA	Refresh training on sharks identification	√	√	√
Prohibition of targeted shark fishing in territorial waters by commercial longline boats	MCS, FMP	22 licenses out of 50cap	Currently prohibited under the Plan; and it will become mandatory if pursue a regulation or adapt as condition of fishing license;	Regular monitoring of shark catches and commercial fishing in territorial waters; apply penalties and sanctions appropriate if proven to revoke conditions of fishing licenses	NA	Refresh training on sharks identification	√	√	√

			e.g. revoke fishing license & apply fines						
Operational Measures									
Improve utilization of sharks caught	MCS, FMP	Shark trunks are and fins are landed and transhipped to Asian markets – monitored via port sampling	NA – covered in the Plan	Promote cooking recipe such as fish and chips, shark curry etc., to complement traditional and subsistence use of sharks meet – to discourage discarding carcass and land sharks with fins attached	Minimal	Training in variety of cooking shark meet – to encourage small scale business for locals incl. women groups, etc.	√		
Fully implement shark CMMs	MCS, FMP	Compliance reported through Part 1 & 2	Currently in the Plan – but have a choice of putting elements in a regulation or conditions of fishing license	Regular monitoring for compliance & reporting any implications or challenges	NA	Ad hock workshop on explaining the CMM and related matters	√	√	√
Discourage waste and discards, encourage live release, controls finning	FMP (observers)	Currently implemented	Terms and conditions of fishing license	Review licensing MTCs	NA	NA	√	√	√
Support creation of a new "International Commission for the Conservation & Management of Sharks"	Deputy CEO	NA	NA	Internal discussion on the merits of such an RFMO looking specifically at sharks – recognizing other instruments like CITES, RFMOs etc., which also cover sharks	NA	NA	√		
Prepare progress report of implementation as part of FD Annual Report, Part 1&2 reports, FAO reporting	FMP, Deputy CEO,	Currently pursued	NA	NA	NA	NA	√	√	√
Prepare an MOU with Fiji to allow collection and reporting of catches (incl. sharks) landed by licensed vessels in Tonga's EEZ, and the data send back to Tonga Fisheries Division	FMP, Deputy CEO,	Draft with Crown Law	NA	FFA Legal Advisor assisted in the drafting of the MOU	NA	Possible arrangements to allow transfer of data collected in Suva Port back to Tonga Fisheries Division	√		
MCS Framework & Enforcement	MCS, Sea Patrol								
Improve MCS and enforcement activities for the collection, processing, storage and marketing of sharks and related products	MCS, Sea Patrol	Currently pursued but can be improved	NA	Ensure consistency, regular and routine enforcement activities	Additional resources to support the activities	If required	√	√	√
Dedicated fisheries by-catch officer	Propose new position	Shark work in the division cuts across FMP, MCS and Science staffs	NA	Consider new position of By-catch Officer to deal with all aspects of by-catch in the domestic longline fishery; this position could be placed under and report to Senior Policy Officer	Yes	NA	√	√	√
Promote practical and enforceable measures in domestic fisheries	MCS, FMP	Regular review of policies, plans, licensing agreements, and license conditions to assess effectiveness	NA	Regular and routine review of all policies, legislations and licensing agreements to ensure compliance and the measures delivered desired outcomes	NA	NA, and if appropriate, can seek FFA assistance	√	√	√
Data Collection & Analysis									
Strengthen data collection/ monitoring of shark data through logsheets, port sampling, observer reports and other means	Port samplers, Observers, Science staffs	Ongoing data collection and routine monitoring of shark data	NA	Support ongoing shark data collection and monitoring through timely submission of logsheets , and reports from observers and port samplers	Resources is needed to ensure consistency in data collection	From time to time, training may be required which include sharks identification	√	√	√
Facilitate collection/ provision of shark landing data	As above	As above	As above	As above	As above	As above	√	√	√

Maintain species-specific national record of shark catches, landings, discards	As above	As above	As above	As above	As above	As above	√	√	√
Collect trade data on shark species	As above (customs)	As above	As above	As above	As above	As above	√	√	√
Facilitate timely access and exchange of shark related information; facilitate training in data quality assurance	As above	As above	As above	As above	As above; computerise data in Tufman dbase for storage and analyses when brief is required by the Minister	As above	√	√	√
Research									
Collaborate in the implementation of WCPFC shark research plan	Science staffs, Deputy Director	None except provision of shark data in the Part 1 report	NA	Initiate research/ trial towards an assessment of shark population in Tonga EEZ	Yes, seek support from Japan Fund, SIDS fund with the WCPFC, other research institutions incl. SPC and ISSF	Training of local scientists during trial/ experimental fishing, data analyses and reporting	√		
Facilitate/ encourage research on little known shark species	As above	As above	As above	As above	As above	As above	√		
Undertake stock assessments and research on sharks in Tonga's EEZ in collaboration with scientific bodies (e.g. SPC,, universities, etc)	As above	As above	As above	As above	As above	As above	√		
Capacity Building									
Use shark identification guides to train/ raise awareness;	MCS & science staffs	Not yet	NA	Include this during short training of fishermen, and relevant fisheries officials	Budgetary support from govt or elsewhere	Ad hoc training on the use of shark IDs	√	√	√
Train on shark ID and reporting, and for fishing masters how to avoid targeting sharks	MCS & science staffs	Not yet	NA	Include this during short training of fishermen, and relevant fisheries officials	Budgetary support from govt or elsewhere	Train on avoid targeting sharks	√	√	√
Carry out regular awareness programmes on radio, newspaper, posters, seminars, school talks and seminars	MCS, FMP, science staffs	Not yet	NA	Start rolling out these awareness raising activities	NA	NA	√	√	√
Seek assistance from WCPFC & SPC Secretariats and FAO in the production of info and education materials on shards translated into Tongan language	MCS, FMP, science staffs	As above	NA	Work on this activity commencing 2014	NA	NA	√		
Raise the profile of implementing this plan by cooperating with relevant agencies	MCS, FMP, science staffs	As above	NA	Regular updates on shark work in Tonga in various forums incl. advisory committees	NA	NA	√	√	√
Build/ strengthen capacity in shark research, data collection, monitoring, compliance and enforcement	MCS, FMP, science staffs	ongoing	NA	As above	Resources needed to continue this work	Yes	√	√	√