



**Pre Assessment Report for  
Norpac Fisheries Export**

**Bigeye Tuna (*Thunnus obesus*) and Yellowfin Tuna (*Thunnus albacores*)  
Longline Fisheries in the  
Marshall Islands and Federated States of Micronesia.**

**DRAFT**

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**Pre-Assessment Report for Norpac Fisheries Export**

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## Glossary of Abbreviations and Acronyms

ALC	Automatic Location Communicators
$B_{\text{current}}$	Current level of biomass
$B_{\text{latest}}$	Latest level of biomass
$B_{\text{MSY}}$	The level of biomass at maximum sustainable yield
$B_t$	Total Biomass
CCAMLR	Conservation of Antarctic Marine Living Resources
CCM	Contracting and Cooperating Parties
CITES	Convention on International Trade of Endangered Species
CMM	Conservation Management Measures
COC	Chain of Custody (of MSC)
CRCP	Coral Reef Conservation Program
EEZ	Extended Economic Zone
EPO	Eastern Pacific Ocean
ETP	Endangered, Threatened, and Protected
$F_{\text{current}}$	The current level of fishing mortality
FL	Fork Length
FSM	Federated States of Micronesia
G&G	Gilled and Gutted
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
IPOA	International Plan of Action
IUU	Illegal, Unreported and Unregulated
MFA	Micronesian Fisheries Authority
MIMRA	Marshall Islands Marine Resources Authority
MMA	Micronesian Maritime Authority
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NFC	National Fisheries Corporation (of FSM)
NOAA	National Ocean and Atmospheric Administration
NORMA	National Oceanic Resources Management Authority (of FSM)
NTAD	Non-Target or Associated or Dependent (species)
P&C's	Principles and Criteria (of MSC)
PI	Performance Indicators (of MSC)
PNA	Parties to the Nauru Agreement
RMI	Republic of the Marshall Islands
ROP	Regional Observer Program
RP	Reference Point
SB	Spawning Biomass
SC	Scientific Committee
SPC OFP	Secretariat of the Pacific Community, Oceanic Fisheries Program
SRR	Stock Recruitment Relationship
TRP	Target Reference Point
UNFSA	United Nations Fish Stocks Agreement
UoC	Unit of Certification (of MSC)
VMS	Vessel Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western Central Pacific Ocean
WPRFMC	Western Pacific Regional Fisheries Management Council (of USA)

## 1. BACKGROUND

### 1.1 Introduction

The Marine Stewardship Council (MSC) is a non-profit organization whose mandate is the long-term protection of the world's marine fisheries and the associated ecological components. Through a process of consultation with various stakeholders over a two-year period commencing in 1996, the MSC established its standard for well-managed and sustainable fisheries called the "Principles and Criteria of Sustainable Fishing" (MSC P&C's).

The objective of the MSC is to promote fisheries certified as sustainable directly in the marketplace through the use of the MSC Tick-fish eco-label on certified fish products and through targeted marketing campaigns. Ultimately, through educating fish product consumers about the plight of fishing stocks in the world and the MSC Program, it is hoped they will reward sustainable fisheries by choosing those fish products originating from certified sustainable fisheries.



Figure 1: MSC Tick-fish Eco-logo

Interested fisheries can submit their candidature to an accredited certification body for comparison against the MSC P&Cs. The comparison is a three-part process inclusive of a pre-assessment (data gap analysis of the fishery), a full assessment (measurement of the fishery against the MSC P&Cs) and certification (5 year validity with annual surveillance requirements) for those fisheries that meet the standard. Successful fisheries can claim their fishery is well managed and sustainable through the use of the MSC Tick-fish eco-label on product and marketing materials.

The pre-assessment confirms that the fishery falls within the scope of the MSC Principles and Criteria. The fishery is not conducted under a controversial unilateral exemption to an international agreement; and the fishery does not use destructive fishing practices such as poisons or dynamite. Without passing this first test, the fishery could not proceed to assessment.

### 1.2 Unit of Certification

The MSC defines a unit of certification as follows:

*Unit of certification – the fishery or fish stock (the biologically distinct population unit) combined with the fishing method/gear, the client and practice (the vessels pursuing the fish of that stock) that is the subject of certification.*

Based on the definition of unit of certification defined by the MSC, Moody Marine suggests the fishery under consideration would consist of the following four units of certification (UoC) each with its own assessment report:

- NORPAC longline vessels targeting bigeye tuna (*Thunnus obesus*) in the Marshall Islands EEZ.
- NORPAC longline vessels targeting bigeye tuna (*Thunnus obesus*) in Federated States of Micronesia EEZ.
- NORPAC longline vessels targeting yellowfin tuna (*Thunnus albacores*) in the Marshall Islands EEZ
- NORPAC longline vessels targeting yellowfin tuna (*Thunnus albacores*) in the Federated States of Micronesia EEZ

We suggest the four UoC's in order to properly separate the issues and assess the impact of this multispecies fishery operating in multi-jurisdictions.

### 1.3 The Client

TAVEL Certification was contracted by Norpac Fisheries Export to conduct a pre-assessment of the commercial longline fishery targeting bigeye tuna (*Thunnus obesus*) and yellowfin tuna (*Thunnus albacores*) in the Marshall Islands and Federated States of Micronesia. Specifically, the

pre-assessment reviewed the following issues for yellowfin and bigeye tuna within those waters:

- General history of the fishery and its area of prosecution;
- An overview of the fishery including its management policy objectives, regulations and practices;
- A description of the fishery products, including domestic and export information;
- Other fishery activities conducted in the area of prosecution but not subject to certification;
- Government and political issues and stability;
- Regional stakeholders;
- An overview comparison of the fishery against the MSC Principles and Criteria;
- Statement of preparedness of the candidate fishery for assessment;
- A review of the chain of custody issues related to the fishery;
- Identification of key issues and factors which would jeopardize a successful full certification of the fishery; and
- A recommendation as to whether the fishery should proceed to a full assessment.

Tavel Certification has since merged with Moody Marine Ltd who have completed this pre-assessment using the original team plus two Moody team members to complete the report.

#### **1.4 MSC Principles**

This pre assessment is based on the Default Assessment Tree, Performance Indicators (PI's) and Scoring Guideposts – Version 2 in use for all MSC Assessments and Pre-Assessments since July 31<sup>st</sup>, 2009 (see Section 8 for more detail about the MSC Principles).

#### **1.5 Objective and Approach**

The objective of this pre-assessment is to advise the client of the possibilities for MSC certification by identifying the potential issues related to each PI that may prevent or complicate such certification.

This report outlines the key components of the fishery, notes potential stakeholders in the main assessment, clarifies the limit of the certification (i.e. the point at which certification ends and the chain of custody begins); reviews the UoC in relation to the three MSC principles; identifies any problems and obstacles to MSC certification; and makes conclusions and recommendations on whether or not the UoCs under pre-assessment should progress to main assessment.

The report provides a general description of the fishery and the current state of the biological science of the species and the ecosystem in which it lives. The fisheries management regime is also described giving the context in which the fishery takes place. The findings of the pre-assessment are presented in a table format in Appendix 2. The table includes a description of each MSC performance indicator with scoring guidepost and, where possible, a comment regarding the anticipated score of a full assessment.

It must be stressed that the purpose of this report is to provide guidance only. The outcome of any main assessment will be the subject of detailed analysis and in-depth deliberation by an assessment team that will not necessarily be influenced by this pre-assessment.

This pre-assessment was conducted without the benefit of a site visit, relying on contact with the client to provide information necessary to complete the report. The report evaluates the preparedness of the industry, scientific and management systems and information available for assessing and managing the bigeye (*T. obesus*) and yellowfin (*T. albacores*) tuna fisheries in the waters of the Marshall Islands and Federated States of Micronesia for a full MSC certification assessment.

In conducting the pre-assessment, the assessors considered the responses gained through interviews, direct and electronic discussions, and review of a number of fishery management and scientific documents.

#### **1.6 Information Sources Used**

This pre-assessment has been completed on the basis of the information made available by the client as supplemented where required by an internet search. We have not verified the information, nor made contact with stakeholders other than those that were met in the course of the pre-assessment site visit. This process is in contrast to a main assessment, which is open to public scrutiny and comment.

Several sources of information were accessed in this MSC pre-assessment of the harvest of bigeye and yellowfin tuna in the waters of the Marshall Islands and Federated States of Micronesia. The first step was the completion of literature searches using websites of the

Western and Central Pacific Fisheries Commission (WCPFC), and national websites of the nations under consideration, in addition to searches using internet search engines. Literature pertaining to the environment, ecosystem, impacts of fishing gear, and species biology were collected from numerous sources; see Annex 1 for a complete list of references.

To complement information found in the literature, a teleconference and additional phone calls were conducted with the client and individuals involved both in the science and management of the fishery to provide further insight on the fishery, its management, science activities, and issues and concerns. The initial client interview was conducted with Mr. Tom Kraft, Scott Fraser, and John Chiu on August 12, 2009. At that time the clients provided some insight and background on the fishery, its management, and science supporting management decisions.

## 2. NATURE, SCALE & INTENSITY OF THE FISHERY

### 2.1 Current Management Context

The Marshall Islands Marine Resources Authority (MIMRA) is responsible for the management and development of the tuna fishery in the Republic of the Marshall Islands (RMI). In addition to national management measures, the Marshall Island fishery is party to a number of regional and international management arrangements including the Parties to the Nauru Agreement (PNA) and the United Nations Fish Stocks Agreement (UNFSA). With the Western and Central Pacific Fisheries Commission (WCPFC) in place, the RMI is also obliged to comply with the management measures of the Commission (WCPFC, 2009a).

Within the Federated States of Micronesia (FSM), the Micronesian Maritime Authority was implemented in 1979. In 2000 the mandate was changed and renamed the Micronesian Fisheries Authority (MFA), responsible for the conservation, management and development of tuna resources within the FSM Extended Economic Zone (EEZ). In 2002, MFA officially became the National Oceanic Resource Management Authority (NORMA) with clear overarching mandates for sustainable management and use of the marine (living and non-living) resources to achieve economic, social, and environmental sustainability. Additionally, NORMA represents the National Government on fishing agreements with foreign nations ([www.norma.fm](http://www.norma.fm))

### 2.2 Fishing Grounds

The bigeye and yellowfin fisheries operate in the EEZ's of the RMI and the FSM (Figure 2).

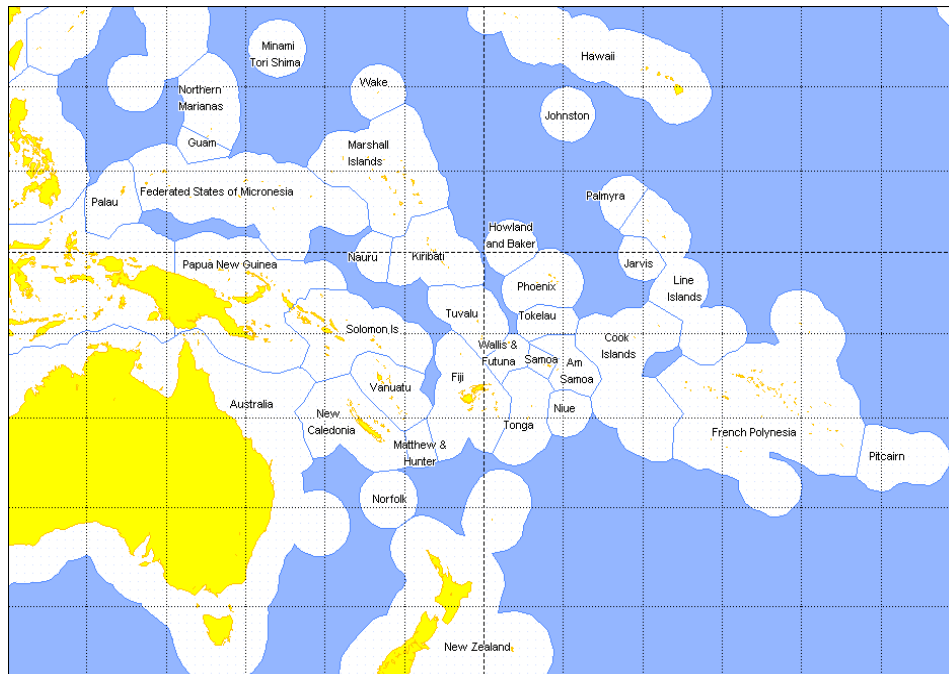


Figure 2: Pacific Islands Regional Map (Source: SPC, 2008).

## 2.3 Catch and Effort

### *Marshall Islands*

The following table shows the annual catch of the Marshall Island long-line fleet in the WCPFC convention area between 2004 and 2008.

**Table 1: Annual catch (mt) and effort (hooks) estimated for the Marshall Islands longline vessels, by primary species, for the WCPFC Convention Area, 2004-2008 (WCPFC, 2009a).**

Species	2004	2005	2006	2007	2008
<b>100s of Hooks</b>	383	0	0	177	18347
<b>Yellowfin</b>	3	0	0	2	91
<b>Bigeye</b>	1	0	0	3	375
<b>Blue Marlin</b>	0	0	0	1	63
<b>Black Marlin</b>	0	0	0	0	0
<b>Skipjack</b>	0	0	0	0	0
<b>Albacore</b>	0	0	0	0	15
<b>Pacific Bluefin</b>	0	0	0	0	0
<b>Striped Marlin</b>	0	0	0	0	1
<b>Swordfish</b>	0	0	0	0	7

Note: Catch estimates were determined from logsheet data adjusted with unloading data, and the coverage of both types of data is considered to be 100%.

The fishing fleet in the RMI is comprised of foreign flagged purse seine, pole-and-line and longline vessels as well as RMI flagged purse seine and longline vessels. The client's fleet in the RMI consists of thirty-one longline vessels including RMI flagged, foreign-flagged, vessels owned by LTFV, and vessels operating under an agency agreement with Norpac. All vessels range between 50 and 200 gross registered tons and are working in support of domestic development activities and are based locally (WCPFC, 2009a).

### *Federated States of Micronesia*

The following table shows the annual catch of the FSM long-line fleet in the WCPFC convention area between 2004 and 2008.

**Table 2: Annual catch and effort estimates for the FSM longline fleet, by species in the WCPFC Convention Area, 2004-2006 (WCPFC, 2009b).**

Year	Days	Vessels	CATCH (metric Tonnes)										TOTAL
			ALB	BET	SKJ	YFT	BLM	BUM	MLS	SFA	SWO	SHK	
2004	2,351	17	1	542	0.077	185	35	4	3	0	7	113	<b>890</b>
2005	381	10	0	182	0.086	99	2	1	1	0	1	11	<b>297</b>
2006	184	3	0	172	0.076	270	2	1	0	0	0	0	<b>445</b>
2007	337	13	0	548	0	1395	2	11	1	0	1	2	<b>1,960</b>
2008	2,482	15	19	701.3	0.3	207.2	8	155	1	0	12	39	<b>1,193</b>

Of the 26 vessels operating in the FSM in 2008, 21 were licensed longline vessels, of which 15 were active and fishing for Norpac. Skipjack, yellowfin and bigeye were the key target species, accounting for 98% of the catch.

## 2.4 The Fishing Gear

Longlining involves the use of a main fishing line with a series of shorter lines with baited hooks attached at intervals. A string of longline gear is deployed off the vessel as the vessel slow passes over the fishing grounds. Buoy lines are attached to both ends of the gear and fastened to floats and/or flags to mark the location of the gear at the surface (Figure 3).

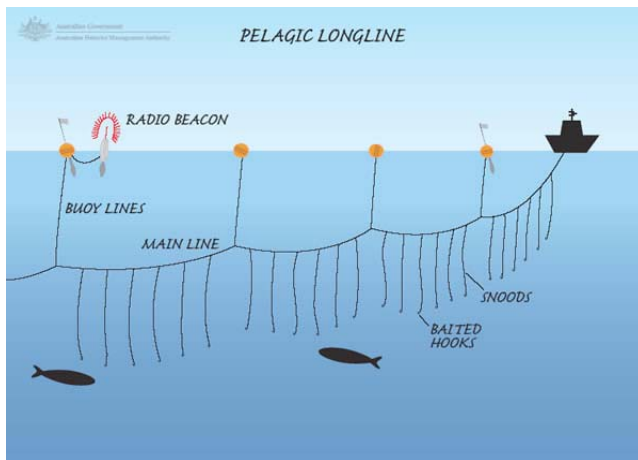


Figure 3: Pelagic longline fishing gear  
(<http://www.afma.gov.au/information/students/methods/pelagic.htm>)

In the RMI and FSM bigeye and yellowfin tuna fisheries lines are set at a depth between 100 and 300 meters. The lines are set at first light (early morning) and retrieved in the early evening. Mackerel (*Scomber japonicas*), squid (Argentine shortfin squid) or sardine (*Sardinops melanostictus*), originating from Taiwan or China are generally used as bait. Squid is used when targeting bigeye, and mackerel and sardine are used more when targeting yellowfin. On average 4-6 tons of bait is used per vessel per month (T. Kraft, Pers. Comm.).

Longline fishing gear consists of Super Spooler Longline reels fishing at a depth of greater than 100 meter, averaging 100-300 meters. The size of hook used is #3 or #4 with a 10 degree offset. All vessels use bird-scare lines to discourage seabirds from diving on the bait. All leaders are monofilament line with a main line of 540kg test strength. Circle hooks are used to reduce the incidental catch of turtles. (T. Kraft, Pers. Comm.)

## 2.5 Landing Ports

Principal ports in the Norpac Longline fishery are Majuro, Marshall Islands and on Pohnpei, FSM.

## 2.6 Markets

Bigeye and yellowfin tuna harvested by the client fishery are marketed as a wide variety of products. In the RMI, tuna is mainly exported as fresh chilled tuna species to markets in the US, China, and Canada. However, frozen fish (rejects and bycatch), designated as OTHER, are shipped to China via transport containers and/or are sold locally (WCPFC, 2009a).

In FSM, G&G, head and gut, fresh loins and frozen products are marketed either directly to the consumer or via marketing companies in the US, China, Japan, Europe and Hawaii (T. Kraft, Pers. Comm.).

## 2.7 Other Relevant Fisheries

There are several other commercial fisheries that operate within the EEZ's of RMI and FSM targeting bigeye, yellowfin and other tuna as well as swordfish. In the FSM, Japanese, US, Chinese Taipei and RMI fleets are licensed to fish. In the RMI Chinese, FSM, Japanese, Korean, Belize, and Chinese Taipei vessels are also licensed to fish. These fleets may use purse seine, pole and line as well as longline gear.

# 3. PRINCIPLE 1: THE TARGET SPECIES

## 3.1 Biology

### Bigeye Tuna

Bigeye tuna (*Thunnus obesus*) are relatively fast growing, however the growth rate of juveniles slows between about 40 and 70 cm of fork length (FL). Adults may reach a maximum fork length of about 200 cm (Langley, 2008). The maximum published weight is 210.kg, with the maximum reported age being 11 years old (Fishbase, 2009B). Bigeye may live longer than 10 years, making them a long-lived species in comparison to yellowfin tuna, however not as long lived as bluefin tuna (NOAA, 2009B). Tag recapture data indicate a significant number of bigeye reach at least 8 years of age (Langley et al., 2008). Langley et al., (2008), report that the natural mortality rate of bluefin tuna is likely to be variable with size, lower rates of around

0.5/year are estimated for bigeye larger than 40 cm fork length.

Bigeye tuna are serial spawners, capable of spawning almost daily with millions of eggs per spawning event. Eggs are epipelagic, buoyed at the surface by a single droplet of oil until they hatch (Langley et al., 2008). Bigeye tuna are opportunistic feeders, preying primarily on crustaceans, cephalopods, and fishes. Being one of the top predators in the marine food web, there are few predators of this species, however bigeye tuna may be preyed upon by large billfish and toothed whales (NOAA, 2009 B).

### **Yellowfin Tuna**

Yellowfin tuna (*Thunnus albacores*) are relatively fast growing individuals, however the growth of juveniles departs from von Betalanffy type of growth with growth rate slowing between about 40 and 70 cm FL. A maximum FL of 180 cm has been recorded for this species. There has been some indication that yellowfin growth rates from the western equatorial region were considerably lower than from the WCP (WCPFC, 2007). Size at maturity varies not only by region, but may also vary between individuals found near and offshore. However, all yellowfin are reproductively mature by a length of 120 cm FL, corresponding to an age of 2-3 years old. On occasion, individuals between 50 and 60 cm, between 12 and 15 months old, have been found to be mature. In juveniles and adults up to 140 cm, the sex ratio is approximately 1:1, however in larger size fish the proportion of females declines, the reasons for this are not clear (Gardieff, Date Unknown).

The natural mortality rate of yellowfin tuna is also strongly variable with size, with the lowest rate of around 0.6-0.8 yr<sup>-1</sup> being for pre-adult yellowfin between 50 and 80cm FL. Tag recapture results indicate that a significant number of yellowfin reach four years of age. The longest period at liberty for a recaptured yellowfin, tagged in the western Pacific at about 1 year of age, is currently 6 years (WCPFC, 2007).

Yellowfin reproduction occurs year round; however, peak spawning occurs in the summer months. Adults, larger than 100cm, spawn, probably opportunistically in waters in warmer than 26°C. Eggs and larvae are pelagic (Fishbase, 2009A). Juveniles are first encountered into the commercial fishery, mainly surface fisheries in Philippines and eastern Indonesia, at several months of age (WCPFC, 2007).

Yellowfin tuna tend to feed in the surface waters during daylight hours (WCPFMC, 2007), on fishes, crustaceans, and squids (Fishbase, 2009A). Yellowfin appear to forage food items, rather than indiscriminately take food. Fish species identified in stomach content research included dolphinfish, pilchard, anchovy, flyingfish, mackerel, lacefish, and other tunas. Cuttlefish, squid, octopus, shrimp, lobster and crabs were also identified in the stomach contents (Gardieff, Date Unknown). Sharks including bignose shark (*Carcharhinus altimus*), blacktip shark (*Carcharhinus limbatus*), and cookiecutter shark (*Isistius brasiliensis*), as well as large bony fishes have been identified as predators on yellowfin tuna (Gardieff, Date Unknown).

## **3.2 Distribution/Migrations**

### **Bigeye Tuna**

Bigeye tuna are distributed throughout the tropical and sub-tropical waters of the Pacific Ocean (Langley et al., 2008). They can be found ranging between northern Japan and the north island of New Zealand in the Pacific and from 40°N to 30°S in the eastern Pacific Ocean. Additionally bigeye tuna can be found in the Atlantic and Indian Oceans. Although this highly migratory species inhabits the tropical and subtropical waters of the Atlantic, Indian and Pacific Oceans, bigeye tuna are absent in the Mediterranean (NOAA, 2009B). Ranging between 0 and 250 meters in the water column, bigeye tuna inhabit waters ranging between 13 and 29 degrees Celsius, however optimal temperature is between 17 and 22 degrees (Fishbase, 2009 B). Capable of large-scale migrations that have been documented by tag and recapture programs, bigeye tuna migrate freely within broad ranges of favorable water temperatures and dissolved oxygen levels. Juveniles and small adults school at the surface, sometimes with yellowfin tuna and/or skipjack. Additionally, schools may be associated with floating objects (NOAA, 2009B).

Bigeye tuna exhibit vertical migration, remaining within surface layers, upper 50m, during night and diving up to depths of 500m at sunrise. Contributing to the ability to dive to such depths is the species ability to withstand lower concentrations of dissolved oxygen. This vertical migration appears to be positively correlated with moonlight intensity, the mean depth increasing as the intensity of lunar light increases (International Commission for the Conservation of Atlantic Tunas (ICCAT), 2006)

### **Yellowfin Tuna**

Yellowfin tuna are a highly migratory species, which are found worldwide in tropical and

subtropical seas, however the species is absent from the Mediterranean Sea. Generally yellowfin tuna range from 52° N – 45° S and from 180°W to 180°E. Yellowfin are a pelagic species inhabiting the open waters with temperatures ranging from 15°C to 31°C, but are rarely seen near reefs. They school primarily by size, either in monospecific or multi-species groups. Larger individuals are frequently seen schooling with porpoises, either associated with floating debris and other objects (Fishbase, 2009A)

Yellowfin are sensitive to low concentrations of oxygen and therefore they are not usually caught below depths of 250 meters in the tropics, and are usually found in waters between 1 and 100m. (Fishbase, 2009A).

### 3.3 Stock Structure

#### *Bigeye Tuna*

Within the Pacific Ocean, the stock structure of bigeye tuna is poorly understood, but a single Pacific wide population is assumed (WPRFMC, 2009). Despite this, there has been a significant amount of work conducted to analyze stock structure. Analysis of mitochondrial DNA and DNA microsatellites in the 1990s failed to reveal significant evidence of widespread populations subdivisions, which was consistent with the results of tagging experiments on bigeye tuna. While bigeye tuna tagged in locations throughout the western tropical Pacific have displayed movements of up to 4,000 nautical miles over periods of one to several years, the large majority of tag returns were recaptured much closer to their release points. Also, recent tagging experiments in the eastern Pacific Ocean using archival tags have so far not demonstrated long-distance migratory behavior over relatively short time scales. In view of these results, stock assessments of bigeye tuna are routinely undertaken for the Western Central Pacific Ocean (WCPO) and Eastern Pacific Ocean (EPO) separately (Langley et al., 2008).

#### *Yellowfin Tuna*

Within the Pacific Ocean there are two separate stocks of yellowfin tuna; the EPO stock and the WCPO stock (NOAA, 2009 a). However, there is some indication of restricted mixing between the western and eastern Pacific based on analysis of genetic samples and tagging data (WCPFC, 2007). These stocks are assessed and managed separately. Currently the yellowfin tuna biomass in the EPO is 96% of the biomass needed to support maximum sustainable yield (MSY) and it is considered that overfishing is occurring on this stock. However, the WCPO stock biomass ( $B_t$ ) is 10% above  $B_{MSY}$ , and overfishing is not occurring.

This assessment considers only the WCPO stock, as it is that stock which is targeted by the client fisheries.

### 3.4 Stock Assessment

#### *Bigeye Tuna*

The MSY estimates for all WCPO bigeye stock analyses range from about 55,000 mt to 75,000 mt per year (Table 10 in WCPFC, 2008). These estimates of equilibrium yield are substantially less than recent catches, which have been of the order of 100,000 - 125,000 mt annually. This apparent anomaly results because the equilibrium computations use equilibrium recruitment determined from the SRR fitted to all of the recruitment time series. This equilibrium recruitment is close to the average recruitment over the time series and is much lower than the estimated recruitment post-1990. When yield is computed using the average recruitment from the past 10 years (1997-2006) rather than the equilibrium recruitment, a clearer picture of MSY under recent recruitment conditions is obtained. Under recent recruitment conditions, maximum yields are estimated to be 100,000 - 130,000 mt annually. However, there is an indication that recruitment in the most recent years has returned to long-term average levels and, in that case, these higher recent yields would not be sustainable (WCPFC, 2008).

#### *Yellowfin Tuna*

Results of the stock projection in the recent yellowfin tuna assessment were expressed as the ratio of total biomass to  $B_{MSY}$  where the latter was calculated using the F-at-age for the final year of the projections (2011).  $B_{MSY}$  at the end of the projection period was estimated to be 1,582,000 mt, compared to the 1,631,000 mt at  $F_{current}$ . Projected biomass and  $B_t/B_{MSY}$  increases towards the end of the assessment time period due to high recruitments estimated in recent years (Langley et al., 2007).

Stock projections for 2007–2011 that attempt to simulate the conservation and management measures adopted indicate that the point estimate of  $B_t/B_{MSY}$  remains above 1.0 throughout the projection period. However, the increasing uncertainty in the future projections is likely to result in a greater probability of the biomass declining below  $B_{MSY}$  by the end of the projection period (Langley et al., 2007).

### 3.5 Reference Points

The WCPFC manages the yellowfin and bigeye tuna stocks to maintain biomass above the level associated with  $B_{MSY}$  and as such  $B_{MSY}$  may be considered the target reference point (TRP) within the fishery. There are a number of working papers in the 2009 assessment that refer to reference points (RPs). It is evident that the Commission is interested in these and perhaps in their modification.

In the assessment of both bigeye and yellowfin tuna, the WCPFC has defined  $B_{Fcurrent}/B_{MSY}$  and  $SB_{Fcurrent}/SB_{MSY}$  as the biomass reference points that predict the status of the stock under equilibrium conditions and  $F_{current}/F_{MSY}$  as a harvest rate reference point.  $B_{current}/B_{MSY}$  and the estimate of  $F_{current}/F_{MSY}$  are used to determine if stocks are overfished or if overfishing is occurring respectively (Langley et al., 2007 and Langley et al., 2008).

The 2009 bigeye draft assessment document provides biomass estimates of  $B_0$ ,  $B_{current}$  and  $B_{latest}$  for bigeye. The assessors suggest that  $B_{current}$  is close to 25 – 30% of  $B_0$  which could result in an overfished score as the MSC requires >70 % probability that the true status of the stock is higher than the point at which there is an appreciable risk of recruitment being impaired.

### 3.6 Evaluation of Stock Status

#### *Bigeye Tuna*

Unless otherwise noted, the following information has been extracted from the 2008 bigeye tuna stock assessment (Langley et al., 2008).

With respect to bigeye tuna  $B_{Fcurrent}/B_{MSY}$  and  $SB_{Fcurrent}/SB_{MSY}$  are the reference points used to predict the status of the stock under equilibrium conditions. Currently, based on the 2008 stock assessment, current biomass exceeds the biomass yielding MSY ( $B_{current}/B_{MSY} > 1$ ) with a high probability, as is illustrated in Figure 4. Therefore, the bigeye stock in the WCPO is not in an overfished state due to above average recruitment. However, with respect to the spawning stock biomass the situation is less optimistic, as  $SB_{Fcurrent}/SB_{MSY}$  is approach or below 1.0. It should also be noted that while the stock is not considered overfished, based on the estimates of  $F_{current}/F_{MSY}$  overfishing of the bigeye is occurring within the WCPO with high probability.

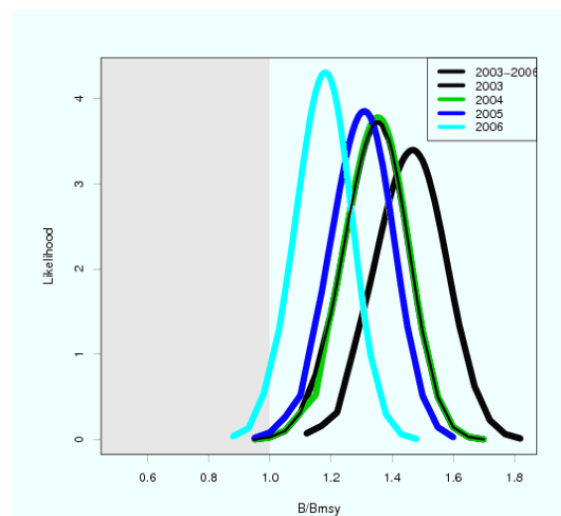


Figure 4: Probability distribution of  $B_{current}/B_{msy}$  and  $B_{year}/B_{msy}$  of bigeye tuna in the WCPO. Probability distribution of  $B_{current}/B_{msy}$  and  $B_{year}/B_{msy}$  for the individual constituent years (2003-2006) based on the likelihood profile method for the base case model. The probability of  $B_{current}/B_{msy} < 1$  is negligible (grey region) (Langley et al., 2008).

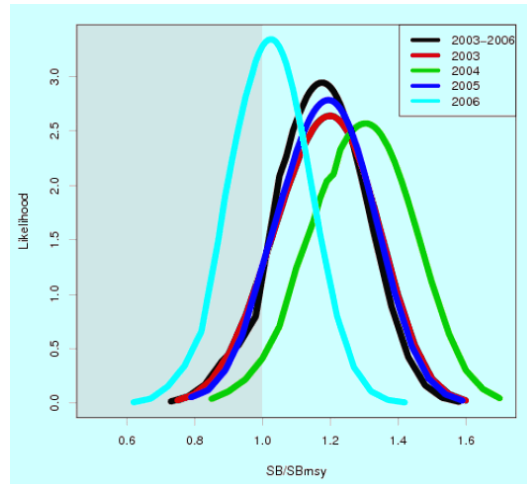


Figure 5: Probability distribution of  $SB_{current}/SB_{msy}$  and  $SB_{year}/SB_{msy}$  of bigeye tuna in the WCPO Probability distribution of  $SB_{current}/SB_{msy}$  and  $SB_{year}/SB_{msy}$  for the individual constituent years (2003-2006) based on the likelihood profile method for the base case model. The probability of  $SB_{current}/SB_{msy} < 1$  (grey region) is 10.3% and the probability of  $SB_{2006}/SB_{MSY} < 1$  is 42.8% (Langley et al., 2008).

There is a 2009 draft assessment document that gives a slightly different perspective. It suggests that the assessment of overfished state is somewhat dependent upon the reference years considered. If 2004-2007 is used, it is not overfished whereas if 2008 is used, only one of 6 runs suggests it is not overfished. What appears to be happening is that overfishing is occurring and the stock is approaching the overfished state. These definitions are conditioned on  $B_{msy}$  used as the limit reference point.

### Yellowfin Tuna

Similar to bigeye tuna, the reference points that predict the status of the stock of yellowfin tuna under equilibrium conditions are  $B_{Fcurrent}/B_{MSY}$  and  $SB_{Fcurrent}/SB_{MSY}$ . The 2007 indicate that the values for  $B_{Fcurrent}/B_{MSY}$  and  $SB_{Fcurrent}/SB_{MSY}$  are 1.10 and 1.12 respectively; indicating that the long-term average biomass would remain slightly above the level capable of producing MSY at the 2002-2005 average fishing mortality. Overall, the current biomass exceed the biomass yielding MSY ( $B_{current}/B_{MSY} > 1.0$ ), and as such the yellowfin stock in the WCPO is not in an overfished state (Langley, 2007).

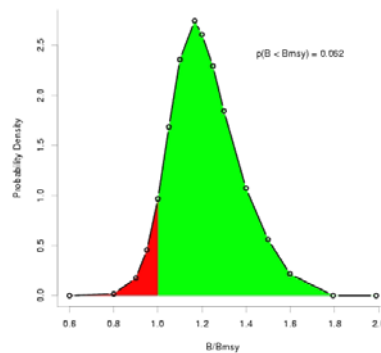


Figure 6: Likelihood profile for  $B_{current}/B_{MSY}$  from the base case model. The probability of  $B_{current}/B_{MSY} < 1$  (red region) is approximately 6.2% (Langley, 2007).

While the yellowfin stock is not considered overfished, it should be noted that with respect to fishing mortality, current exploitation rates are likely to be, at least, approaching the  $F_{MSY}$  level and any further increase in exploitation rates will not result in an increase in equilibrium yields from the stock under the current age specific pattern of exploitation. The 2007 assessment states that the WCPO yellowfin tuna fishery may be considered fully exploited, with a 47% probability that overfishing is occurring (Langley, 2007).

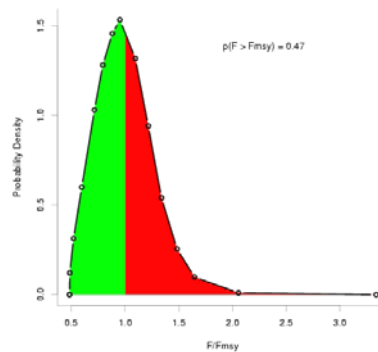


Figure 7: Likelihood profile for  $F_{\text{current}}/F_{\text{MSY}}$  from the base-case model. The probability of  $F_{\text{current}}/F_{\text{MSY}} > 1$  (red region) is approximately 47% (Langely, 2007).

The 2009 draft assessment pointed out that there is a slight improvement in stock status from 2007 to 2009. It appears that overfishing and the stock being overfished is not currently a problem. On the other hand, this applies to the entire stock area and depletion (to less than 30%  $B_{\text{virgin}}$ ) appears to be occurring in the western equatorial region. This is where 95% of the yellowfin catch comes from. The SC recommended no increase in  $F$  in this area.

### ***Bigeye Tuna Stock Assessment***

Bigeye tuna stock assessments are conducted on a biennial basis by the WCPFC, in collaboration with scientists from the Ocean Fisheries Programme, and the Pacific Islands Fishery Science Center. The recent 2008 assessment used the stock assessment model and computer software known as MULTIFAN-CL. The model is age (40 age classes) and spatially structured (6 regions) and the catch, effort, size composition and tagging data used in the model was classified by 25 fisheries and quarterly time periods from 1952 through 2007. Sensitivity analysis was conducted as a component of the assessment and uncertainties regarding bigeye age, growth, and maturity were considered (Langley et al., 2008).

### ***Yellowfin Tuna Stock Assessment***

Since 1999, a stock assessment has been conducted annually on yellowfin tuna in the western and central Pacific Ocean (west of 150°W). The 2007 assessment of the yellowfin tuna in the western and central Pacific Ocean, conducted by the WCPFC, used the stock assessment model and computer software known as MULTIFAN-CL. The yellowfin tuna model is age (28 age-class) and spatially structured (6 regions) and the catch, effort, size composition and tagging data used in the model are classified by 24 fisheries and quarterly time periods from 1952 and 2006.

The current assessment included a range of sensitivity analyses, mainly assessing the implications of the assumed level of catch from the Indonesian fishery, the potential for spatial heterogeneity in growth, and the effect of various changes in the model data structure. The sensitivity of the model to assumptions regarding the steepness parameter of the Stock Recruitment Relationship (SRR) were also investigated. In addition, a separate model was constructed based on a single region encompassing the western equatorial region – the core region of the fishery (Langley et al., 2007).

## **3.7 Stock Rebuilding**

In the context of MSC default performance indicators, the MSC has defined depleted as “a stock that is consistently below the target reference point, and which may be approaching the point at which recruitment is impaired” (MSC 2008). Based on the results from the 2008 stock assessments for both bigeye and yellowfin, which indicates in both cases that  $B_{\text{current}}/B_{\text{MSY}} > 1.0$ , and considering the MSC definition of depleted, neither stock is considered depleted, as such it is not expected that there is a rebuilding plan in place.

## **3.8 Harvest Strategies**

Highly migratory species of the western and central Pacific are managed by the WCPFC. Member nations are required to abide by and implement management and conservation measures implemented by the Commission.

Article 5 (Conservation and Management of Highly Migratory Fish Stocks) of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the WCPO outlines the principles and measures for conservation and management in the Convention Area. As defined by Article 5b of the Convention Text, the principle harvest strategy employed by the WCPFC, is to “ensure that measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified

by relevant environmental and economic factors, including the special requirements of developing States in the Convention Area”.

As such, this provides the basis of the management strategy, at the Commission level, for the candidate fisheries. Bigeye and yellowfin tuna are subject to a quota based management system, further described in the Harvest Control Rules and Tools section below. With respect to the bigeye and yellowfin quotas in the countries under consideration, catch is limited to 2,000 mt for bigeye and yellowfin catch is not to be increased above 2001-2004 levels.

### **3.9 Harvest Control Rules and Tools**

During the pre-assessment, it was noted that there are country-specific management measures in place, however, these measure basically follow those that are outlined by the Commission (T. Kraft, pers. comm.). Over the course of the pre-assessment, country-specific management measures were reviewed such as was available through the national fishery management plans.

Management measures outlined by the Commission with respect to the bigeye and yellowfin tuna are defined in the Conservation and Management Measures for bigeye and yellowfin tuna in the WCPO (Table 3). Measures required of the longline fleets under consideration by the Commission include:

- Catch reduction – the total catch of bigeye tuna by longline fishing gear will be subject to a phased reduction such that by January 1, 2012 the longline catch of bigeye tuna is 70% of the average annual catch in 2001 - 2004 or 2004. The catch of yellowfin tuna is not to be increased in the longline fishery from 2001 - 2004 levels. There are exemptions with respect to nations that caught less than 2,000 mt in 2004, which are outlined in (WCPFC, 2008).
- For those member nations that caught on average more than 2,000 mt of bigeye shall be subject to reductions of catch of 10%, 20% and 30% in 2009, 2010, and 2011 respectively.
- For member nations that caught less than 2,000 mt of bigeye in 2004 the phased reduction is not applicable, however, these nations must insure that their catch does not exceed 2,000 mt of bigeye in each of the next 3 years (2009, 2010, and 2011).
- Data provisions – catch and effort data and size composition data for all fleets are to be submitted to the Commission each year
- Port Control – landings, transshipment, and commercial transactions in tuna and tuna products that are positively identified as originating from fishing activities that contravene any element of the Commissions Conservation Management Measures (CMM's) are prohibited. Additionally, monitoring is to be conducted at landing and transshipping ports to assess the amount of catch by species, which is then reported annually to the Commission
- Reporting – all Contracting and Cooperating Parties (CCM's) report to the Technical and Compliance Committee on the implementation of measures for their fishing vessels operating on the high seas and/or in waters under national jurisdiction.
- Review of Measures – measures described in the Conservation and Management Measures for bigeye and yellowfin tuna in the WCPO will be reviewed annually in conjunction with the scientific advice to measure the impact and compliance with the measure.

In addition to measures outlined in the CMM (CMM – 2008-01) for bigeye and yellowfin tuna, there have been other resolutions and CMM's adopted by the Commission which are applicable to the candidate fishery. These include measures related to the conservation and management of non-target fish species, incidental catch, regional observer coverage, compliance monitoring (boardings' and inspections), vessel monitoring, minimizing impact on seabird populations, and the prohibition of large scale drift nets. CMM are posted on the Commission website, and those pertinent to monitoring and compliance and minimizing the impact on incidental catch are discussed in Principle 2.

Further information on CMM is available in the following WCPFC CMMs:

**Table 3: WCPFC Conservation and management measures**

CMM	Concerning
2004-01	Record of fishing vessels
2004-03	Vessel marking specifications
2004-04	Resolution on CMM's
2005-02	South Pacific albacore
2005-03	North Pacific albacore
2006-04	Striped marlin in south west pacific
2006-07	Regional observer programme
2006-08	WCPFC boarding and inspections
2007-01	Regional observer programme
2007-02	Vessel monitoring system
2007-03	Illegal, Unreported and Unlicensed (IUU) fishing
2007-04	Mitigation of the impact of fishing on seabirds
2008-03	Sea turtles
2008-04	Large scale driftnets
2008-05	Swordfish
2008-06	Sharks.

Over the course of the pre-assessment, there was incomplete information available with respect to how CMMs are implemented on a country-specific level. However, it was noted that within the client fisheries, there are no individual quotas allocated to the longline fleets, as catches in all countries have been below 2,000 mt. However, fishery operations are subject to 100% vessel monitoring systems (VMS), and restricted to harvest within the EEZ from 12 to 200 miles of each respective country. Additionally, daily catch logs are required by vessel operator, submitted to the fisheries authority after off-loading. There is no defined season within the client fisheries, the fisheries operate year round, however the peak is normally between April and October, and the slow period is generally from November to March (T. Kraft, pers. comm.).

During the full certification assessment, information on country-specific measures will be required, as these measures will be considered in scoring as well as those set forth by the Commission.

### 3.10 Information and Monitoring

There are several sources of fishery dependent information within the bigeye and yellowfin tuna fishery conducted in the RMI and the FSM, including observer coverage, logbook data and dockside monitoring. Further contributing to information of the fisheries and monitoring of the fleets is the requirement of VMS.

#### *Regional Observer Program*

At the Fourth Regular Session of WCPFC (2008), the Commission adopted measures to implement a Regional Observer Program (ROP) within the areas under jurisdiction of the Commission. The objective of the Commission ROP is to collect verified catch data, other scientific data, and additional information related to the fishery from the Convention Area and to monitor the implementation of the conservation and management measures adopted by the Commission. The ROP applies to all vessels fishing exclusively on the high seas in the Convention Area and vessels fishing on the high seas and in the waters under the jurisdiction of one or more coastal states and vessels fishing in the waters under the national jurisdiction of two or more coastal states. The 2007 CMM applicable to the ROP states that no later than 30 June 2010, CCMs shall achieve 5% observer coverage of the effort in each fishery under the jurisdiction of the Commission, however there are exceptions in place for vessels operating north of 20 degrees north, small vessels and troll and pole and line vessels fishing for skipjack tuna or albacore (WCPFC, 2007). Exceptions for those groups can be found in paragraph 9 and 10 of the WCPFC, 2007.

CCMs are encouraged to implement the ROP by using the sub-regional and national programmes already operational in the region (WCPFC, 2007). In the Marshall Islands, the Marshall Islands Marine Resources Authority (MIMRA), and with the assistance of the Secretariat of the Pacific Community, Oceanic Fisheries Program (SPC OFP), the MIMRA initiated the National Observer Program managed by a full time Observer Coordinator. The program is considered to still be in the early stages of development and requires further improvement. Currently, there are 19 active observers whom having completed their training, are being deployed on longliners and purse

seiners. MIMRA aims to place observers on all fleets operating in the RMI in an effort to increase coverage levels to improve catch estimates from all fishing fleets (MI MRA, 2009). Coverage of data collected from both the national purse seine and longline fleets in the Marshall Islands are deemed to satisfy the coverage levels recommended by the WCPFC. Additionally the coverage of unloading data from the domestic-based foreign longline fleet is close to 100%. In 2008 it is estimated that of the 94 trips conducted by Marshall Islands longline vessels active in the WCPFC Convention area, there was 88% port sampling coverage, 13% observer coverage, and 100% catch/effort data coverage (WCPFC, 2009a).

In the FSM, the observer program began in 1979 and is now operated by NORMA. The observer placement coverage on longline gear for 2008 indicates that there was 7.4% coverage. In addition to the at-sea monitoring, NORMA continues to coordinate a port sampling program to monitor the continuous unloading and trans-shipment activities within FSM ports. In 2008, 89% of longline offloads were observed (WCPFC, 2009b).

#### ***Dockside/Port Monitoring***

With respect to dockside or port monitoring, the CMM for bigeye and yellowfin tuna in the WCPO implemented by the Commission states that:

1. Each CCM shall prohibit landings, transshipment and commercial transactions in tuna and tuna products that are positively identified as originating from fishing activities that contravene any element of the Commissions CCMs;
2. Monitoring shall be conducted at landing and transshipping ports to assess the amount of catch by species. The outcomes shall be reported annually to the Commission.

While there is a requirement for monitoring landed catch, it was not clearly evident that there has been a target of the level of monitoring defined by the Commission. Despite this, based on the 2008 country reports to the Commission a significant portion of offloads are observed; 88% and 89% of longline landings were observed in 2008 in the Marshall Islands and the FSM.

#### ***Logbook***

Within the client fisheries, harvesters maintain logbooks reporting catch, effort, location, and information on fishing operations and gear.

#### ***Vessel Monitoring***

Effective 1<sup>st</sup> January 2008, all vessels targeting highly migratory fish stock on the high seas within the areas of the Convention Area south of 20° N, and east of 175° E in the area of the Convention Area north of 20° N, are required to utilize vessel monitoring systems. With respect to waters north of 20° N and west of 175° E, the system will be activated at a date to be determined by the Commission. Those vessels that move into the area north of 20° N and west of 175° E shall keep their Automatic Location Communicators (ALCs) activated and continue to report to the Commission in accordance with the implemented measure. This measure has effect for all vessels in excess of 24 m length on January 1, 2008, and applicable to vessels less than 24 m in length as of January 1, 2009. While required on the high seas, any CCM may require for the Commission's consideration and approval, that the waters under its national jurisdiction be included in the area covered by the Commission VMS (WCPFC, 2007). It was not clear that VMS was required in national waters during the pre-assessment.

## **4. PRINCIPLE 2: ECOSYSTEM INTERACTIONS**

Principle 2 considerations have been categorized into five components which are considered to cover the range of potential ecosystem elements that may be impacted by a fishery. These components include: retained, bycatch, and ETP species; habitats and ecosystems.

Both retained and bycatch species of the fishery may be classified as either "main" or "minor". In this context 'main' is intended to ensure consideration of volume, value or vulnerability of these species. Species that normally comprise greater than 20% of the total catch are considered 'main' species but in fact any species comprising greater 5% will be evaluated for their importance as either a retained or bycatch species. 'Minor' species are retained or bycatch species that comprise less than 5% of the *total* catch, unless considered of high value, particularly vulnerable, or if the total volume of the fishery is large, then even 5% is a considerable catch. In accordance with the MSC performance indicators and scoring guideposts (PISGs) only main species are scored with respect to retained species and bycatch (MSC 2008).

Based on information reviewed and attained in interviews over the course of the pre-assessment retained species within the candidate fisheries vary between nations.

## 4.1 Retained Species

During the pre-assessment, the classification of species caught incidental to the harvest of bigeye and yellowfin tuna was difficult, as there was no evidence to support anecdotal information that all species caught within these fisheries are retained, and all catch is kept. However, to provide a cursory overview of retained species within the candidate fisheries, data reported on catches was used to classify species, assuming that all reported catch was retained.

### *Marshall Islands*

Based on annual catch (mt) data reported in the 2009 annual report to the commission, (Table 1) blue marlin is the only species caught incidental to the harvest that consists of greater than 5% of the total catch, therefore considered 'main', is blue marlin. The 1999 stock assessment conducted by the Inter-American Tropical Tuna Commission (IATTC), states that based on the best available knowledge blue marlin constitutes a single world-wide species, and there is a single stock of blue marlin in the Pacific Ocean. Results of the assessment indicate that at that point in time, the blue marlin stock in the Pacific was considered to be in healthy condition, with biomass and fishing effort near the levels required to maintain the average MSY level (Hinton, 1999).

Also caught incidental to the harvest of bigeye and yellowfin tuna by Marshall Islands longline vessels, are albacore, striped marlin, swordfish, mahi mahi, opah, sailfish, sharks (unidentified), short billed spearfish, and wahoo (Tables 4). While these species comprise less than 5% of the total catch, these species may be considered to be main retained species, as they are considered to be of high values and/or vulnerable. Table 5 reports annual catch of non-target, associated and dependent species, by the Marshall Islands based longline vessels (China, FSM and RMI – flagged) in the WCPFC Convention Area. There are reported catches several species, including those listed in categories of sharks and rays and other finfish, which do not appear as in the annual catch tables for Marshall Islands longline vessels. Presumably, given that these vessels operate in the same area, Marshall Islands vessels would encounter these species as well. During a full certification assessment, an understanding of the quantities and whether they were retained or discarded and their fate would be required to fully address scoring requirements under retained species.

**Table 4: Total unloaded catch (mt) for domestically based longline vessels, 2008 (WCPFC, 2009a).**

SPECIES	EXP	OTH	TOTAL
ALBACORE	17	52	69
BIGEYE	2,706	107	2,813
YELLOWFIN	592	100	692
BLUE MARLIN	38	444	482
MAHI MAHI / DOLPHINFISH	13	37	50
OPAH / MOONFISH	12	44	56
SAILFISH (INDO-PACIFIC)	0	1	1
SHARKS (UNIDENTIFIED)	0	215	215
SHORT-BILLED SPEARFISH	0	0	0
SWORDFISH	19	28	47
WAHOO	20	97	117
	<b>3,378</b>	<b>1,000</b>	<b>4,378</b>

**Table 5: Annual estimated catches of non-target, associated and dependent species, including sharks, by the Marshall Islands-based longline vessels (China, FSM and RMI-flagged) in the WCPFC Convention Area, 2006-2008 to the extent available (WCPFC, 2009a).**

Category	Species	Catch estimates					
		2006		2007		2008	
		MT	%	MT	%	MT	%
Billfish	Blue marlin	235.9	3.822%	495.7	8.1907%	342.7	4.7505%
	Black marlin	44.1	0.7147%	34.5	0.6158%	14.9	0.2039%
	Striped marlin	85.2	1.3839%	135.0	2.2755%	151.4	1.9942%
	Swordfish	78.7	1.2761%	77.4	1.3947%	42.9	0.5821%
	Other Billfish	39.4	0.6304%	15.7	0.2844%	44.5	0.6089%
Sharks and Rays	Blue shark	534.3	8.6579%	701.1	11.8522%	379.4	5.1655%
	Mako shark	87.9	1.4284%	83.7	1.4923%	38.5	0.5244%
	Oceanic whitetip shark	90.0	1.4629%	177.9	3.0007%	151.4	2.0759%
	Silly shark	257.8	4.1845%	506.9	8.8444%	784.3	10.5929%
Other sharks and rays	254.6	4.1371%	119.2	2.0941%	1,327.6	17.8923%	
Other finfish	Bullet/Frigate tuna	1.0	0.0168%	0.6	0.0102%	4.5	0.0593%
	Kawakawa	0.0	0.0000%	0.0	0.0000%	0.0	0.0000%
	Rainbow Runner	0.2	0.0031%	0.4	0.0069%	0.5	0.0072%
	Wahoo	134.4	2.1468%	181.7	3.2877%	128.5	1.7432%
	Common dolphinfish	73.3	1.1905%	34.8	0.6207%	97.8	1.3364%
	Triggerfish	0.1	0.0022%	0.0	0.0000%	0.0	0.0000%
	Barracudas	12.3	0.1939%	3.0	0.0550%	7.4	0.0971%
	Esoclers	11.8	0.1824%	9.9	0.1699%	18.1	0.2421%
	Landfishes	12.9	0.2056%	8.9	0.1492%	7.4	0.0979%
	Ocean snappers	4.8	0.0739%	24.7	0.4489%	6.0	0.0809%
	Clippers	3.0	0.0492%	4.1	0.0695%	3.7	0.0495%
	Opah	49.4	0.7434%	30.5	0.5454%	41.7	0.5613%
	Pomfret	11.0	0.1709%	19.3	0.3479%	11.9	0.1629%
	Small barrfish	0.0	0.0000%	0.0	0.0000%	0.0	0.0000%
	Other fish	87.7	0.9377%	39.5	0.6976%	44.4	0.6013%
	Total Billfish	489.7	7.8517%	750.7	12.6534%	421.2	5.7208%
	Total sharks and rays	1,224	19.8927%	1,589	26.7915%	2,712	36.5255%
	Total finfish	347	5.9491%	320	5.3964%	383	5.0156%
	Total non-target	2,075	33.7145%	2,459	44.8247%	3,714	48.6623%

### Federated States of Micronesia

During the pre-assessment, the only catch data available with respect to retained species was that reported in the annual reports to the Commission from each area under consideration. Based on reported annual catch between 2004 and 2008 for the FSM longline fleet (Table 6) sharks are the only species that comprise greater than 5% of the total catch. However, since the catch of sharks is not reported as individual species, it is not possible to determine the outcome status of this PI. During a full certification assessment, an understanding of the species composition and quantity of each species retained would be required.

**Table 6: Annual catch and effort estimates for the FSM longline fleet, by species in the WCPFC Convention Area, 2004-2006 (WCPFC, 2009b).**

Year	Days	Vessels	CATCH (metric Tonnes)										TOTAL
			ALB	BET	SKJ	YFT	BLM	BUM	MLS	SFA	SWO	SHK	
2004	2,351	17	1	542	0.077	185	35	4	3	0	7	113	890
2005	381	10	0	182	0.086	99	2	1	1	0	1	11	297
2006	184	3	0	172	0.076	270	2	1	0	0	0	0	445
2007	337	13	0	548	0	1395	2	11	1	0	1	2	1,960
2008	2,482	15	19	701.3	0.3	207.2	8	155	1	0	12	39	1,193

Similar to the Marshall Islands, while the other retained species, including albacore tuna, skipjack tuna, blue marlin, black marlin, striped marlin, swordfish and sailfish, comprise less than 5% of the total catch of retained species, during a full certification assessment, these species may be considered 'main' retained species should they be considered valuable or vulnerable.

### Information/Monitoring

There are several sources of information and monitoring of catch within the bigeye and yellowfin tuna fisheries under consideration. Similar to the requirement associated with the candidate species, harvesters are required to maintain logbooks recording catch and effort, landings are subject to verification on the dock, and on board observers are required to collect catch information. In addition, there are several research activities conducted as components of the stock assessments of those species that are assessed, such as tagging work.

### Management Strategy

The WCPFC, following the advice of science based on stock assessment documents, has implemented several CMMs to address issues with respect to several of the species caught within the client fishery, in addition to yellowfin and bigeye tuna. CCM's have been implemented at a Commission level with respect to the management of sharks, swordfish, striped marlin, north Pacific and south Pacific albacore. Measures may vary depending on the species, but are aimed at managing effort, reporting, limiting catch, and/or the implementation of policies and plans of action to mitigate impacts of harvest on incidentally caught species. CMMs are briefly outlined here, with full text available on the WCPFC website.

WCPFC Conservation and Management Measure 2008-06 (Conservation and Management of Sharks):

- All commission members, cooperating non-members, and participating territories shall implemented, as appropriated, the FAO international plan of action for the conservation and management of sharks (IPOA Sharks)

- National plans of action or other relevant policies for sharks should include measures to minimize waste and discards from shark catches and encourage the live release of incidental catches of sharks
- Include the annual catch of key shark (key species defined as blue shark, oceanic whitetip shark, mako shark and thresher sharks) species in annual report to the Commission
- CCMS shall take measures to require that their fishers fully utilize any retained catches of sharks
- CCMs shall require their vessels to have on board fins that total no more than 5% of the weight of sharks on board up to the first point of landing. Alternatively CCMs may require that vessels land sharks with fins attached to the carcass or that fins not be landed without corresponding carcass
- In fisheries for tunas and tuna like species that are not directed at sharks, CCMs shall take measures to encourage the release of live sharks that are caught incidentally and are not used for food or other purposes

CMM 2008-05 (Conservation and Management of Swordfish):

- CCMs shall retain through limiting the number of their fishing vessels for swordfish in the Convention area south of 20°S to the number in any one year between the period 2000- 2005, this shall not result in fishing effort shifting to the area north of 20°N
- CCMs shall exercise restraint through limiting the amount of swordfish caught by fishing vessels flagged to the Convention area in any one year between 2000 and 2006.
- By 30 April 2009 CCMs shall nominate maximum total catch of swordfish, that is no more than maximum verified of the catch in 2000-2006, that can be permitted to fish in the areas south of 20S in 2009
- Reporting of number of vessels fishing swordfish and total catch is required to the Commission
- As an interim measure, until the commission adopts a scheme relating to compliance with CMMs which includes responses when a flag State exceeds any limits assigned to it, if the catch of vessels flying the flag of a CCM exceeds the total catch specified for them, that CCM will be subject to a reduction in their catch limit in the next year equal to the exceeded amount

CMM 2006-04 (Conservation and Management of Striped Marlin):

- As a precautionary measure, there be no increase in fishing mortality on this stock until estimates of stock status are more certain
- CCMs are to limit the number of fishing vessels fishing for striped marlin in the Convention Area south of 15 degrees to the number in any one year period between 2000-2004
- Cooperation on research to reduce uncertainty with regard to status of striped marlin stocks
- CCMs provide information to Commission on the number of vessels that have fished for striped marlin in the convention area south of 15 degrees S during the period 2000-2004, and nominate the maximum number of vessels that shall continue to be permitted to fish for striped marlin in that area. This is to be done by 1 July 2007
- These measures do not apply to the coastal states CCMs south of 15 degrees S in the Area who have already taken and continue to take significant steps to address concerns over the status of striped marlin in the SW Pacific region, through the establishment of a commercial moratorium on the landings of striped marlin caught in waters under their national jurisdiction

2005-03 (Conservation and Management of North Pacific Albacore):

- Total level of fishing effort for North Pacific albacore in the Convention area north of equator shall not be increased beyond current levels
- All CCMs are to report catches of North Pacific Albacore in WCPFC every six months, except for small coastal fisheries which shall be reported on an annual basis
- The Northern Committee shall, in coordination with international Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean and other scientific bodies conducting scientific reviews of this stock, including the WCPFC Science Committee monitor the status of north Pacific albacore and report to the Commission on the status of the stock at each annual meeting, and make recommendations to the Commission as may be necessary for their effective conservation
- WCPFC Executive Director will communicate resolutions to the IATTC and request that the 2 Commissions engage in consultation with a view to reaching agreement on a consistent set of conservation and management measures for north Pacific albacore, and specifically to propose that both Commissions adopt as soon as practicable uniform conservation and management measures and any reporting or other measures needed to ensure compliance with agreed measures

CMM 2005-02 (Conservation and Management of South Pacific Albacore):

- CCMs are not to increase the number of fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20° S above current (2005) levels or recent historical (2000-2004) levels
- CCMs that actively fish for south Pacific albacore in the Convention area must ensure long term sustainability and economic viability including cooperation and collaboration on research to reduce uncertainty with regard to the status of this stock
- This will be reviewed in 2006 on the basis of advice from the Scientific Committee on South Pacific albacore.

While these measures are in place at the Commission level, similar to CMMs in place for bigeye and yellowfin tuna, information on how these initiatives were being implemented at a local level was not available during the pre-assessment. The implementation of these measures in the fisheries under consideration would be necessary in a full certification assessment.

## 4.2 Non – Target Species

As defined in the MSC Fisheries Assessment Methodology and Guidance to Certification Bodies, bycatch are those organisms that have been caught incidentally and are not retained, usually because they have no commercial value.

Over the course of the pre-assessment, there was no indication of species that may be discarded within the candidate fisheries. During the information-gathering phase, it was noted by interviewed individuals that no species were discarded, and that all catch was retained. The only documented source of catch data was the annual reports of the FSM and Marshall Islands to the Commission, these reports contained catch and landings data but did not identify species that were caught and not retained.

Based on the available sources during the pre-assessment, there is not enough information to score the components of the bycatch performance indicator. Prior to proceeding to full certification assessment, it is necessary that there is a full understanding of bycatch composition, quantity and fate within the candidate fishery. If in fact, all species are retained, there must be evidence to support that there is no discarding (dead or alive) at sea and that the management strategy supports retention of all species.

Without the identification of potential main bycatch species, there was no information to assess the outcome status, information/monitoring, and management strategy components of the bycatch performance indicator.

## 4.3 Endangered, Threatened and Protected Species

Endangered, threatened, and protected (ETP) species are those which are recognized by national legislation and/or binding international agreements (such as Convention on International Trade of Endangered Species (CITES)) to which the jurisdictions controlling the fishery under assessment are party.

Neither the FSM nor the RMI are party to CITES. Additionally, information on nationally designated ETP species in each of these countries was not available. This would be required during a full certification assessment.

With the above in mind, the Marshall Islands annual report to the Commission did include catch estimates for species identified as “special interest” and included seabirds, turtles and marine mammals (See Table 7). During 2008, there was only one observed turtle interaction within the longline fleet. It should be noted, that observer data from the longline fleet includes trips covered on the other locally-based foreign longline fleets (those flagged in China, FMS and RMI), and that estimates for 2008 are considered provisional (WCPFC, 2009a). It is also important to note that an understanding of how many interactions were associated with each fleet will be important in a full certification assessment, rather than reporting interactions grouped with other countries.

**Table 7: Observed annual estimated catches of species of special interest (seabird, turtle and marine mammals) for the Marshall Islands-based longline vessels (China, FSM and RMI-flagged), in the WCPFC Convention Area, for 2006-2008 to the extent available (WCPFC, 2009a).**

Category	Species	2006		2007		2008	
		No.	Dead	No.	Dead	No.	Dead
Marine Turtles	Green Turtle	1	1	4	4	1	1
	Loggerhead Turtle	1	1	0	0	0	0
	Hawksbill Turtle	2	2	1	1		0
	Leatherback Turtle	2	0	9	9	0	0
	Olive Ridley Turtle	4	3	3	1	0	0
	Turtles (unidentified)	2	2	2	2	0	0
Marine Mammals	Dolphins and Porpoises	0	0	0	0	0	0
	Toothed Whales	1	0	3	1	0	0
	Non-Toothed Whales	0	0	0	0	0	0
	Marine Mammals (Unidentified)	1	0	0	0	0	0
Whale Shark	Whale Shark	0	0	0	0	0	0
Birds	Birds	0	0	0	0	0	0
	<b>Total Turtles</b>	<b>12</b>	<b>9</b>	<b>19</b>	<b>17</b>	<b>1</b>	<b>1</b>
	<b>Total Marine Mammals</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>

### Management

Under CMM 2008-03, the WCPFC has outlined measures to be adopted by member nations that will aid in minimizing the impact of harvest on sea turtles. Recognizing the ecological and cultural significance of all species of sea turtles in the WCPO and that 5 of these species are threatened or critically endangered, the WCPFC adopted the following measures:

- Commission members, cooperating non-members, and participating territories will implement as appropriate the FAO Guidelines to reduce sea turtle mortality in fishing operations and to ensure the safe handling of all capture sea turtles in order to improve their survival
- Beginning in 2009, CCMs shall report to the commission in their annual reports the progress of implementation of the FAO Guidelines including information collected on interactions with sea turtles in fisheries managed under the Convention
- All data collected by the ROP shall be reported to the Commission
- CCMs shall require fishermen on vessels targeting species covered by the Convention to bring aboard, if practicable, if captured, hard shell sea turtle that is comatose or inactive as soon as possible and foster its recovery including giving it resuscitation before returning it to the water. CCMs shall ensure that fishermen are aware of and use proper mitigation and handling techniques, as described in WCPFC guidelines to be developed and provided to all CCMs by the Secretariat.

In addition to the above measures, all longline vessel operators must carry and use line cutters and de-hookers, and where appropriate dip nets, to handle and promptly release sea turtles caught or entangled, and that they do so in accordance with WCPFC guidelines that are developed and provided by the Secretariat. CMM 2008-03 also states that starting January 1, 2010, shallow set longline vessels are required to employ or implement at least one of the following three methods to mitigate the capture of sea turtles:

- Use only large circle hooks, that have an offset that does not exceed 10 degrees
- Use only whole finfish bait
- Use any other measure, mitigation plan or activity that has been reviewed by the Scientific Committee and Technical and Compliance Committee

Longline fisheries that are not participating in the shallow set fishery are urged to undertake research trials of circle hooks and other mitigation methods in those longline fisheries, and to report results to the Scientific and Technical and Compliance Committees 60 days in advance of the annual meetings of the subsidiary bodies.

In addition to sea turtles, within the area of operation of the fishery some seabirds, notably albatrosses and petrels are threatened with global extinction. Advice from the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) states that together with illegal, unreported and unregulated (IUU) fishing, the greatest threat to Southern Ocean seabirds is mortality in longline fisheries in waters adjacent to the Convention Area. As such the Commission has implemented measures to protect these species in CMM 2007-04. Mitigation measures in place include:

- The requirement of all CMMs to the extent possible, to implement the International Plan of Action (IPOA) for Reducing Incidental Catches of Seabirds in Longline Fisheries, and to report on their implementation of the IPOA – Seabirds including, as appropriate the

status of their National Plans of Action for Reducing Incidental Catches of Seabirds in Longline fisheries

- CCMs are required to require their longline vessels to use at least two of the mitigation measures in Table 8, including at least one from Column A in areas south of 30 degrees South and north of 23 degrees North

**Table 8: Seabird Mitigation Measures**

<i>Column A</i>	<i>Column B</i>
<i>Side setting with a bird curtain and weighted branch lines<sup>2</sup></i>	<i>Tori line<sup>2</sup></i>
<i>Night setting with minimum deck lighting</i>	<i>Weighted branch lines</i>
<i>Tori line</i>	<i>Blue-dyed bait</i>
<i>Weighted branch lines</i>	<i>Deep setting line shooter</i>
	<i>Underwater setting chute</i>
	<i>Management of offal discharge</i>

- In other areas, where necessary, CCMs are encouraged to employ one or more of the seabird measures in Table 7.
- CCMs are to report annually information to the Commission regarding which mitigation measures they required, as well as the specifications of those measures. Changes with respect to what is required is also reported to the Commission

In addition to the above measures, CCMs are encouraged to undertake research to further refine and develop seabird mitigation measures, adopt measures aimed at ensuring seabirds that are captured alive are released alive and in as good as condition as possible, and to report on all available information on interactions with seabirds including bycatch, and details of species, to enable the Scientific Committee to estimate seabird mortality in all fisheries to which the Convention applies. The Scientific and Technical and Compliance Committees annually review any new information on new or existing mitigation measures or on seabird interactions from observer or other monitoring programs in order to update mitigation measures where appropriate.

As indicated above, it was not evident that there are national regulations in place in either the FSM or the Marshall Islands with respect to ETP species. However it was noted that circle hooks are specifically used to minimize the catch of sea turtles, and bird scare lines are deployed to minimize catch/entanglement of seabirds (T. Kraft, pers. comm.). A full certification assessment would require an understanding of how Commission CMMs applicable to sensitive species are implemented at a national level, and if there are additional national legislations in place with respect to the identification and protection of ETP species.

#### ***Information/Monitoring***

Harvesters within the area of operation of the fisheries are not currently required to record or report interactions with sensitive species, including sea turtles, marine mammals, or sea birds. However, in the near future, it is anticipated that such reporting will be required in their logbooks (T. Kraft, pers. comm.).

Interactions between the fleet and sensitive species are recorded by observers within the Marshall Islands territorial water. It was not possible during the pre-assessment to confirm whether this is the case for the territorial waters of the FSM.

#### **4.4 Habitat**

The habitat component of Principle 2 considers habitats impacted by the fishery under consideration.

The habitat component of the assessment is assessed in relation to the effects of the fishery on the structure and role of the habitats. Given the characteristics of the gear type and fishery practices within the candidate fishery it is anticipated that there is no interaction between the gear and physical habitats. Due to the lack of interaction with physical habitats, it is likely that the fishery does not pose a risk of serious or irreversible harm to habitat types.

#### ***Information/Monitoring***

Within the area of operation of the fisheries under consideration, it appears that there has been some habitat monitoring, however, there is not at this time a full understanding of the extent of this monitoring in each individual country.

Funding through NOAA's Coral Reef Conservation Program (CRCP) has provided funding and grant opportunities to scientists in the RMI to create baseline benthic maps (NOAA, 2009C). The work of the CRCP emphasis efforts to understand and address the top three recognized global threats to coral reef ecosystems: climate change, impacts, fishing impacts, and the impacts from land based sources of pollution (NOAA, 2009D).

Similarly, there has been work conducted by the Marine Resources Division and Environmental Protection Agency of the FSM with respect to the identification of threats to coral habitats and resource conditions.

Given the VMS program in place within the candidate fisheries, it is anticipated that there would be an understanding of the nature of impacts of the fisheries on habitat types, if known, through the information collected with respect to the spatial extent, timing and location of use of fishing gear. This information would need to be provided to address this PI during a full certification assessment.

While there was an indication of work to understand coral habitats in the FSM and Marshall Islands, it was not clear in the pre-assessment that there has been work conducted to identify other habitat types and distribution.

#### ***Management Strategy***

Over the course of the pre-assessment, it was not clear that there were directed efforts either by the Commission or nationally by the FSM or RMI to manage habitat impacts resulting from fishing activity. During a full certification assessment, either measures or strategies in place to protect habitats (i.e. closure of sensitive habitat areas), or evidence to support minimal impacts would be required.

### **4.5 Ecosystem**

The ecosystem component addresses ecosystem-wide issues that may be directly impacted by the fishery, including ecosystem structure, trophic relationships and biodiversity.

With respect to the ecosystem component, “serious or irreversible harm” refers to changes caused by the fishery that fundamentally alters the capacity of the ecosystem to maintain its function or to recover from the impact (MSC, 2008).

Serious impacts may include trophic cascade through lower trophic levels caused by depletion of key prey species, depletion of top predators, and severely truncated size composition of ecological community, gross changes in the species diversity or changes in the genetic diversity of the species caused by selective fishing.

With respect to the harvest of top level apex predators, such as the case in the client fishery, there is often concern regarding the impact of the removal of these individuals from the food chain. Within the Pacific Ocean pelagic ecosystem, fisheries have removed at least 50 million tons of tuna and other top-level predators since 1950, leading to concerns about catastrophic reductions in population biomass and the collapse of oceanic food chains (Sibert et al. 2006). To address such concerns, Sibert et al. (2006) analyzed all available data from the Pacific tuna fisheries from 1950 – 2004 to provide a comprehensive estimate of fishery impacts on population biomass and size structure. The findings indicated that while the trophic level of the catch has decreased slightly, there is not a detectable decrease in the trophic level of the population, indicating substantial, though not catastrophic, impacts of fisheries on these top-level predators and minor impacts on the ecosystem of the Pacific Ocean.

#### ***Management Strategy***

The RMI National Tuna Management Plan states that MIMRA is prepared to take an ecosystem approach to managing the tuna fishery in the RMI and will address the impacts of fishing tuna on other species and the environment in general. It shall strive to prevent these interactions from occurring by assessing their potential in making fisheries management decisions and strive to reduce their impact when they occur through monitoring, control, surveillance and prosecution.

There was no information available to assess the FSM components of the client fishery against this indicator.

#### ***Information/Monitoring***

Within the client fishery, it is evident that there is an understanding of the main functions of the components (i.e. target, bycatch, retained and ETP species and habitats. As seen in Figure 8, the role of pelagic within the food web are known, and research has been conducted (Sibert et al, 2006) to understand the impacts of the removal of these species.

Ongoing at sea observer observations and reporting, as well as accurate landings data provide data to determine the levels of removals, and may be used to detect any increase in risk level of these species. In addition to catch composition and quantity, data are collected on size of

individuals caught and retained through these programs.

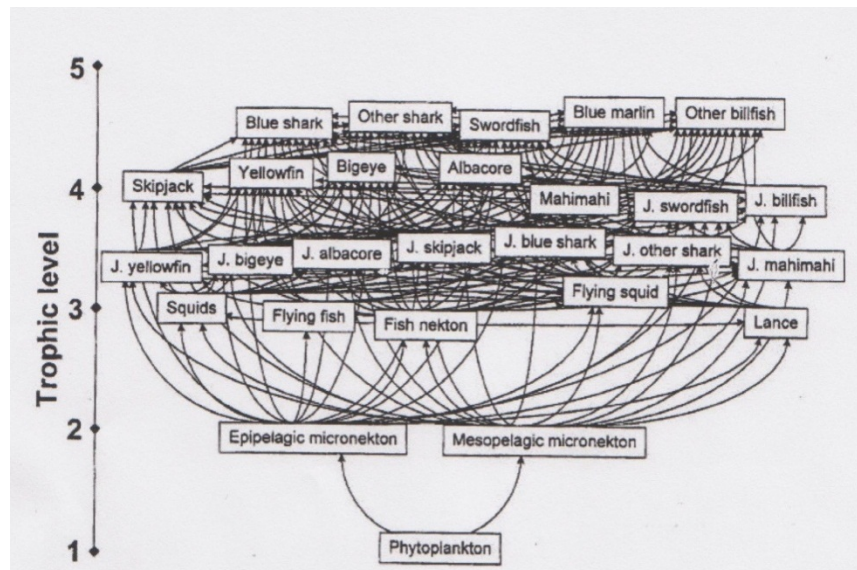


Figure 8: Central Pacific pelagic food web. (Source: WPRFMC, 2005)

## 5. PRINCIPLE 3: THE MANAGEMENT SYSTEM

MSC Principle 3 focuses on the management and operational framework that has been implemented to achieve the management goals in the candidate fishery. Some criteria and performance indicators under Principle 3 appear to overlap with indicators under Principles 1 and 2, however, Principles 1 and 2 are concerned with the outcomes of a management system respecting the fact that the resources are maintained at the desired levels of abundance and health, while Principle 3 is concerned with evaluating whether all of the processes for achieving management objectives are in place.

Similar to Principle 1, scoring of Principle 3 considers institutional and operational frameworks implemented in the candidate fisheries unit of certification.

### 5.1 Governance and Policy

#### 5.1.1 Legal and/or other customary framework

Given the highly migratory nature of the candidate target species, bigeye and yellowfin tuna, are managed on an international level by the WCPFC. The Commission was established by the Convention of the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC Convention), which entered into force in June of 2004. The Convention draws on provisions of the UN Fish Stocks Agreement while, at the same time, reflecting the political, socio-economic, geographical and environmental characteristic of the western and central Pacific Ocean. The Convention addresses problems in the management of high seas fisheries resulting from unregulated fishing, over-capitalization, excessive fleet capacity, vessel re-flagging to escape controls, insufficiently selective gear, unreliable databases and insufficient multilateral cooperation in respect to conservation and management of highly migratory fish stocks. Fishing entities in the commission are legally bound to the provisions of the convention (Western and Central Pacific Fisheries Commission (WCPFC), 2009).

The FSM and the RMI are members of the Commission and as such have a responsibility to respond to conservation and management requirements outline in the CMM defined by the Commission. The Commission management measures related to fisheries management and conservation are implemented within each country through fisheries management planning. The RMI Tuna Management Plan 2009-2011 provided for the implementation of these measures on fishing activities within their jurisdiction. The FSM tuna management plan was prepared in 2000 and may not be up to date on implementing management measures of the WCPFC.

The WCPFC has three subsidiary bodies (Department of Fisheries and Oceans (DFO), 2009):

- The Scientific Committee – provides advice regarding the status of tuna stocks and bycatch species
- The Technical and Compliance Committee – develops monitoring, control and surveillance (MCS) measures; and
- The Northern Committee – makes recommendations that will ensure the North Pacific stocks are sustainably managed.

While the Commission is responsible for defining conservation management measures within the convention area, implementation of these measures are the responsibility of participating members and territories. The Oceanic and Industrial Affairs Division of MIMRA and the Micronesian Fisheries Authority (MFA) are the responsible bodies for country specific management in the RMI and FSM respectively.

In the Marshall Islands, the Oceanic and Industrial Affairs Division is responsible for overlooking operations of the marine exclusive economic zone from the perceived coastal jurisdiction out to the outer limits of what is considered the 200 Exclusive Economic Zone (EEZ) of the RMI. However, certain activities conducted within the coastal jurisdiction also falls under the responsibilities of the Oceanic Division. Responsibilities related to activities include: administration and issuance of fishing licences to foreign and locally based foreign fishing vessels, as well as vessels entering the EEZ of the RMI to conduct scientific research; collection and provision of oceanic fisheries data with respect to the operations of licensed fleets; Conducting monitoring, control and surveillance activities at the national level, as well as participating in national, regional international monitoring, control and surveillance schemes; administration of the port sampling and observer programs, and promotion of the MIMRA Act, policy and regulations through Foreign Investment(s) and Access Agreement(s) in fisheries in the RMI (Marshall Islands Marine Resources Authority, 2009).

Within the FSM, institutions concerned with commercial fisheries include the MFA, the National Fisheries Corporation (NFC) and various state entities. The MMA was established in 1978 to regulate the conservation, management and exploitation of marine resources within the 200 mile EEZ, while the primary role of the NFC is “to promote the development of pelagic fisheries and related industries within the extended fishery zone for the benefit of the people of the Federated States of Micronesia” (Government of the Federated States of Micronesia, 2000). The MMA has since been replaced by the Fisheries Management Authority (FMA) in 2000 and again in 2002 by NORMA.

At present, although the FSM has full ownership of tuna stocks capable of a sustained yield of well over 100,000 tons each year, there is virtually no national participation in its exploitation. The commencement of national involvement, through state, NFC or other entities, will therefore, by necessity, involve major developmental activity and the investment of significant funds.

### **5.1.2 Long term objectives**

The objective of the WCPFC 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 in accordance with the 1982 United Nations Convention on the Law of the Sea and the 1995 UN Fish Stocks Agreement (WCPFC, 2009).

In order to achieve this objective, the Commission has set forth in the Convention principles and measures for conservation and management. These are defined in Part II (Article 5) of the convention, and summarized here include (Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, 2000):

- Adopt measures to ensure long term sustainability of highly migratory fish stocks in the Convention Area and promote the objective of their optimum utilization;
- Ensure that measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors including special requirements of developing States in the Convention Area, particularly small island developing States, and taking into account fishing patterns, the interdependence of stocks and any general recommended international minimum standards, whether sub regional, regional or global
- Apply the precautionary approach
- Assess the impacts of fishing, other human activities and environmental factors on target stocks, non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks
- Adopt measures to minimize waste, discards, catch by lost or abandoned gear, pollution originating from fishing vessels, catch of non-target species, both fish and non-fish species
- Protect the biodiversity of the marine environment
- Take measures to prevent or eliminate overfishing and excess fishing capacity and to ensure that levels of fishing effort do not exceed those commensurate with the sustainable use of fishery resources
- Take into account the interests of artisanal and subsistence fishers

- Collect and share in a timely manner, complete and accurate data concerning fishing activities on inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programs; and
- Implement and enforce conservation and management measures through effective monitoring, control and surveillance.

### 5.1.3 Incentives for Sustainable Fishing

Based on anecdotal information attained during interviews conducted during the pre-assessment, it was noted that all catch within the candidate fishery is retained for market. Such an action would contribute to incentives that are consistent with the outcomes expressed by MSC Principles 1 and 2. Provision and ability to supply markets for all caught species is an incentive to ensure that gear is set cautiously in order to target those species which are permitted and valuable.

While there are Commission-stated catch levels defined for participating countries, there was indication during the pre-assessment that at national levels these species are fished competitively. While recent catch has not exceeded that defined by the Commission, the competitive harvest of target stocks is in general not considered an incentive to fish sustainably, as there is more potential for harvesters to high-grade or exceed catch limits.

## 5.2 Fishery Specific Management System

### 5.2.1 Fishery specific objectives

The 2008 CMM for bigeye and yellowfin tuna (CMM 2008-01) has defined the following objectives for the bigeye and yellowfin longline tuna fisheries :

- Ensure through the implementation of compatible measures for the high seas and EEZs that bigeye and yellowfin tuna stocks are maintained at levels capable of producing their maximum sustainable yield; as qualified by relevant environmental and economic factors including the special requirements of developing States in the Convention Area as expressed by Article 5 of the Convention
- Achieve, through the implementation of a package of measures, over a three-year period commencing in 2009, a minimum of 30% reduction in the bigeye tuna fishing mortality from the annual average during the 2001-2004 or 2004
- Ensure that there is no increase in fishing mortality for yellowfin tuna beyond the annual average during the period 2000-2004 or 2004; and
- Adopt a package of measures that shall be reviewed annually and adjusted as necessary by the Commission taking account of the scientific advice available at the time as well as the implementation of the measures. In addition, this review shall include any adjustments required by Commission decisions regarding management objectives and reference points.

### 5.2.2 Decision making process

At the commission level, decisions are based on voting and require the consensus of voting members. Decisions with respect to conservation management measures are based on collective information provided by the various committees of the Commission including the scientific committee, technical and compliance committee, inter-sessional working groups, ad hoc task groups, and the northern committee. Conservation and Management Measures describe binding decisions relating to conservation and management measures. Resolutions describe non-binding statements and recommendations addressed to members of the Commission and Cooperating non-members.

In the RMI, the Oceanic Division of MIMRA prepares and administers the tuna management plan. The development of the plan involves consultation with stakeholders including commercial and recreational fishing interests, processing companies, NGO's and educational institutions. These groups are members of an advisory committee that meets in the development of, and review of a management plan.

In the FSM, a tuna management plan was prepared in 2000 and is administered by the Fisheries Management Authority. In pursuit of the overall objectives of tuna fisheries management outlined in the Plan, MFA has adopted six specific management goals formulated through national consultation. These goals provide MFA with practical, achievable management targets and represent how MFA may contribute, in whole or in part, to realizing national expectations of the benefits that FSM's tuna resources can provide. Specific goals include:

- Ensure that the tuna catch does not exceed sustainable levels
- Obtain national revenue from foreign fishing access agreements

- Support development of FSM-owned and/or foreign FSM-based fishing enterprises
- Encourage investment in enterprises related to tuna fisheries
- Promote employment opportunities
- Enhance international relationships beneficial to FSM

### **5.2.3 Compliance and enforcement**

With respect to compliance and enforcement of management measures in the area of operation of the fisheries, the Commission has no enforcement authority, each country is responsible for enforcement of management measures (T. Kraft, pers. comm.).

In 2002, the three Micronesian Governments signed the Nuie for Cooperation in Fisheries and Law Enforcement. According to the agreement, the intention of the governments involved, the FSM, the RMI and the Republic of Palau, is to enhance their ability to: effectively enforce fisheries, customs, and immigration laws; deter breaches of such laws' and, cooperate closely with each other in pursuing these important goals. Under the agreement the three nations may request each other's assistance in patrols and allow the nations to enter each other's waters when executing provisions of the agreement

This agreement has allowed the sharing of surveillance platforms and joint enforcement operations to be carried out through Operation Island Chief and Operation Bigeye.

### **5.2.4 Research Plan**

Article 11 of the WCPF Convention established a Scientific Committee, which is tasked with reviewing the results of research, analysis and status assessments of target stocks or non-target or associated or dependent species (NTADs) in the Convention Area and to assist development and assess information resulting from a regional observer program. The Scientific Committee is also required by the Convention to recommend a research plan to the Commission. In 2007, a 5-year strategic research plan was prepared in response to this requirement, which is complemented by rolling work plans, reviewed and amended annually as appropriate by the Scientific Committee. The research plan identifies four research and data collection priorities: collection and validation of data from the fishery, monitoring and assessment of stocks, monitoring and assessment of the ecosystem, and evaluation of management options. The plan also identifies what activities will be conducted to support the outlined research priorities.

The plan is periodically reviewed to ensure it remains responsive to the Commission's needs. Results and updates on research contributing to the management of species and issues within the jurisdiction of the Commission are posted on the Commission website with information related to annual sessions.

It was not clear during the pre-assessment whether there are national research plans in place within the FSM and RMI. This will need to be examined in a full certification assessment.

### **5.2.5 Management Performance Evaluation**

Following the adoption of the Final Report of Working Group II in December 2004, which outlined concerns with the science structure and functions of the Commission, a review of the Scientific Committee was supported by the Commission. Marine Resources Assessment Group (UK) were contracted to undertake the review. Results of the review were made available in 2008 and are available on the Commissions website.

At the Commission level annual reporting by countries, as required under CMM, are used to monitor implementation and success of Commission stated measures at the national level. This provides regular internal review of the management strategy.

The management of tuna in the RMI is established under the RMI Tuna Management Plan and is reviewed regularly. The current plan is effective for the period 2008-2011. The Tuna Management Plan for the FSM is dated 2000 and we are not aware of any review or updating having taken place since.

## **6. KEY STAKEHOLDERS**

### **6.1 Identified Stakeholders**

Stakeholder consultations are an integral part of any full MSC certification assessment. Education of stakeholders and early inclusion in the full assessment process are critical

steps to help ensure a smooth assessment process. Based on information reviewed during the pre-assessment, the key stakeholder groups who may be interested in participating in a full certification assessment of the commercial longline fisheries targeting bigeye and yellowfin tuna in the RMI and FSM:

#### Government Bodies

- Government of the Federated States of Micronesia through the Fisheries Management Authority
- Republic of the Marshall Islands Government through the Marshall Islands Marine Resources Authority

#### Regional Fishery Management Organizations

- Western and Central Pacific Fisheries Commission

#### Research and Academic Institutions

- Secretariat of the Pacific Community
- Pacific Islands Fisheries Science Center
- University of the South Pacific

#### Non-Governmental Organizations

- Greenpeace
- World Wildlife Fund
- Pacific Leatherback Turtle Conservation Fund

The above list is not intended to be inclusive, and may change over the course of a full certification assessment. Additional stakeholder groups are likely to be identified during the planning process for a full assessment, such as local environmental or conservation groups associated with a local issue.

## 6.2 Identified Stakeholder Concerns

Stakeholders were not interviewed as part of the pre-assessment, however, based on information reviewed the following points may be concerns voiced by stakeholders with respect to the candidate fishery during a full assessment:

- Interactions of the harvest with endangered, threatened, protected, or sensitive species;
- Current stock status of the target species and some species caught incidental to the harvest;
- Impact of harvesting apex predators on ecosystem components
- Impact of industrial fisheries on local villages
- Degree of monitoring within the fishery

Any full assessment for the bigeye and yellowfin tuna longline fishery in the RMI and FSM would have an active participation of environmental groups both from the local, national and international communities.

## 7. CHAIN OF CUSTODY

Labelling of fish harvested from a MSC certified sustainable fishery is predicated upon reliably tracing the fish and fish products from the point of harvest in the certified fishery to the point of final consumer packaging.

Should the longline fishery targeting bigeye and yellowfin tuna in the waters of the RMI and FSM become certified; harvesters, brokers, processors, value-added processors, retailers or other distribution chain members may wish to apply the MSC tick fish logo to their certified product. To do so, each company in the distribution chain beyond the point of landing that wishes to sell certified bigeye and yellowfin tuna product would need to have their operations certified through the MSC Chain of Custody (COC) certification. An individual company audit is required prior to any company licensing to use the MSC logo on either their own product or those products of subsequent distribution chain members. The MSC chain of custody certification costs on average between \$1-2000 (plus expenses) and verifies that the company can separate and prove that certified and non-certified fish product can be traced through the entire operation and that the risk of labelling non-certified product as sustainable is reliably controlled.

The certified bigeye and yellowfin tuna sold by harvesters would be required to be accompanied by a valid permit number and a fish purchase ticket, thus indicating the product originated from the certified fishery areas. Those companies with Chain of Custody certification for certified yellowfin and bigeye tuna products would need to prove that the raw product was indeed

purchased from a vessel permitted to sell the certified products from the certified longline fleet operating in the RMI and FSM.

In order to be able to use the MSC Logo on products from a certified fishery you must be licensed by the MSC. Further details can be found at <http://www.msc.org/get-certified/use-the-msc-ecolabel/use-the-msc-ecolabel>.

## **8. PRELIMINARY EVALUATION AGAINST MSC PRINCIPLES & CRITERIA**

### **8.1 Introduction**

The certification of a fishery depends upon its compliance with three MSC Principles. For each principle a number of Performance Indicators (PIs) are defined by which the suitability of a UoC may be assessed for certification and these are included in an assessment tree. Since July, 2009 all certifications use the MSC's default assessment tree, version 2.

### **8.2 Principle 1**

Principle 1 PIs focuses on two key aspects of a fishery's performance: the current status of the target stock resource; and a precautionary and effective harvest strategy. There is consideration of the tools, measures or strategies that are being used specifically to manage the impact of the fishery on the target species.

There are two primary PIs and one supplementary PI covering the current status of the target stock resource. These express the concept that (i) sustainability of target stocks comes from management behavior that increases the probability that exploited biomass fluctuates around the  $B_{MSY}$  target,<sup>1</sup> and (ii) decreases the probability that it will drop significantly towards the point where recruitment becomes impaired.

Four PIs assess the performance of the harvest strategy (HS). In addition to a performance indicator which considers the overall performance of the harvest strategy, three further performance indicators consider key elements of harvest strategies: the control rules and tools in place, the information base and monitoring and the assessment method.

### **8.3 Principle 2**

Principle 2 is divided into five Components so as to cover the range of potential ecosystem elements that may be impacted by a fishery: by-catch that is retained; by-catch that is discarded; ETP species; Habitats; and Ecosystem i.e. broader ecosystem elements such as trophic structure and function, community composition, and biodiversity.

The consideration of the impact of the fishery on all Components in Principle 2 may include unobserved mortality, in addition to observed mortality and impacts, where these are appreciable e.g. due to illegal fishing and/or unregulated catches; and ghost fishing.

Under each of these five components there are three PIs. An 'Outcome' PI considers the status of the impact or the risk that the fishery poses to that Component. A 'Management Strategy' PI considers the basis, reliability and implementation of the management strategy for the Component. "Information" PI considers the nature, extent, quality and reliability of the monitoring and information that is relevant to developing and implementing the management strategy and measuring the outcomes of the strategy.

### **8.4 Principle 3**

The intent of Principle 3 is to ensure that there is an institutional and operational framework, appropriate to the size and scale of the fishery, for implementing Principles 1 and 2.

There are two Components:

"Governance and Policy" considers (i) the legal and/or customary framework that overarches the fishery, and possibly other fisheries under the same management framework; (ii) the consultation processes and policies, as well as the articulation of the roles and responsibilities of people and organizations within the overarching management system and other overarching policies supporting fisheries management.

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<sup>1</sup> Or a higher target if this is warranted from a consideration of the trophic inter-dependencies of the target species.

“Fishery Specific Management System” focuses on the management system directly applied to the fishery undergoing assessment. Performance indicators under this Component consider (i) the fishery-specific management objectives; (ii) the decision-making processes in the relevant fishery; (iii) the fishery’s compliance and enforcement system and implementation; and (iv) research planning and monitoring and evaluation of the performance of the fishery management system.

## 8.5 Scoring

Compliance with the MSC Principles is determined by applying a scoring system to the Performance Indicators (PIs):

- Each of the three Principles (P1, P2 and P3) is evaluated on the basis of an average weighted score (out of 100) for all PIs that comprise the Principle.
- To be certified a UoC needs to score a weighted average of 80 or more for each of the three principles.
- A UoC cannot be certified when one or more Principles have an average weighted score of less than 80.
- For each PI, the minimum score is 60. If any PI scores less than 60 a UoC cannot be certified.
- If a PI score falls between 60 and 80 the assessment team set Conditions that will raise the score to at least an 80 when successfully applied. Conditions have to be met within a timeframe specified by the assessment team and within the “life time” of the certificate, i.e. 5 years.
- To date, most of the fisheries that have been certified have had Conditions.

## 8.6 Certification Period

As indicated above a MSC certification lasts for 5 years. Within those five years annual audits have to take place to ensure that the UoC continues to meet MSC standards and allow for monitoring of progress on meeting any Conditions.

## 8.7 The Pre- Assessment

The key output of a pre-assessment is the auditors’ advice to the client if, in their opinion, any PI is likely to score less than 80 and thus jeopardize the possibility of the UoC being certified.

Again it should be stressed, the auditors are undertaking the pre-assessment on the basis of a limited review of the fishery; a main certification process may identify other issues.

The position of the fishery in relation to the generic performance indicators is presented in the Annex 2. It also indicates, on the basis of available evidence, the extent to which the fishery meets these requirements. Where potential issues are identified, these are highlighted in bold italics.

## 8.8 Problems and Obstacles to MSC Certification

As noted elsewhere, it is suggested there are four units of certification:

- NORPAC longline vessels targeting bigeye tuna (*Thunnus obesus*) in the Marshall Islands EEZ.
- NORPAC longline vessels targeting bigeye tuna (*Thunnus obesus*) in Federated States of Micronesia EEZ.
- NORPAC longline vessels targeting yellowfin tuna (*Thunnus albacores*) in the Marshall Islands EEZ
- NORPAC longline vessels targeting yellowfin tuna (*Thunnus albacores*) in the Federated States of Micronesia EEZ

Annex 2 provides the evaluation components considered for scoring in a full certification assessment and pre-assessment comments on each criteria. Highlighted in the text are a number of issues that may result in Conditions of Certification or potentially compromise the chances of successfully passing a full assessment. These are summarized below under their respective MSC Principles:

**Principle 1: A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.**

Regarding targeting bigeye in RMI and in FSM:

Should the bigeye stock status remain unchanged from the 2009 stock assessment, it is anticipated that the fishery would score less than 80 and possibly less than 60 with respect to the stock status performance indicator (PI 1.1.1).

Regarding all four proposed units of certification:

Based on the available information it is anticipated that during a full certification assessment the client fisheries would score between 60 and 80 with respect to the harvest strategy performance indicator (PI 1.2.1) due to the lack of specific reference points.

Regarding all four proposed units of certification:

Without information on how harvest control rules defined by the Commission are implemented at a country specific level in FSM, the harvest control rule performance indicator cannot be scored (PI 1.2.2).

Regarding all four proposed units of certification:

Overall, the harvest strategy information would likely score toward the lower end of the 60 – 80 scale. Many of the monitoring programs have just started and the times series are short (PI 1.2.3).

**Principle 2: Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends.**

Regarding targeting yellowfin in RMI and in FSM:

The status of bigeye as a retained non-target species will be a factor in the assessment in a fishery targeting yellowfin. Should the bigeye stock status remain unchanged from the 2009 stock assessment, it is anticipated that the fishery would score less than 80. (PI 2.1.1)

Regarding all four proposed units of certification:

The Commission has defined conservation and management measures that are applicable to some the retained species, including sharks and south Pacific albacore. As such for these species it is anticipated that a score of between 60 and 80 could be attained in a full certification assessment. However, in order to attain a score of 80, evidence to indicate that these measures are being implemented successfully by cooperating members and territories would be necessary. In addition the SG80 requires that there is an objective basis for confidence that the partial strategy will work based on information directly about the fishery and/or species involved. (PI 2.1.2)

Regarding all four proposed units of certification:

Based on the information available in the pre-assessment, there is not adequate information to score either of the components of the discarded species performance indicator, (PI 2.2.2)

Regarding Targeting yellowfin and bigeye in FSM:

In order to assess the fishery in the FSM against the ETP outcome status indicator, it will be necessary to identify any species that would be considered ETP, as information was not available during the pre-assessment. It is currently unknown if all of the SG80 criteria would be met. (PI 2.3.1)

Regarding all four proposed units of certification:

Should there be ETP species identified in the RMI and FSM, these countries should attain the SG60 with respect to the Management component, provided it can be proven that these measures are implemented at a national level. It is uncertain whether all aspect of the SG80 criteria will be met. (PI 2.3.2)

Regarding all four proposed units of certification:

Based on the information reviewed during the pre-assessment, it is likely that the candidate fishery would score between 60 and 80 on the Ecosystem Outcome Status. (PI 2.5.1)

**Principle 3: The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.**

Regarding all four proposed units of certification:

The management system includes a consultation process that obtains relevant information from interested and effected parties, and therefore would meet the SG60 and may meet some aspects of SG80. This would need to be clarified at the national and regional level during full assessment. (PI 3.1.2)

Regarding all four proposed units of certification:

The Client fishery would likely meet the requirements of the SG60 of incentives for sustainable fishing. However, if the harvest is competitive in nature at a national level, the SG80 may not be attained as it requires that measures not only encourage sustainable harvest, but in fact the management system seeks to ensure that perverse incentives do not arise. (PI 3.1.4)

Regarding all four proposed units of certification:

Provided that it can be proven that WCPFC decisions are precautionary, take into account the wider implications of decisions and that explanations are provided for any actions or lack of action associated with findings and relevant recommendations, at the Commission level the fishery is expected to attain the SG80 for decision making process performance. (PI 3.2.2)

In conclusion:

While there was sufficient information to address a number of the PIs, within each Principle, there was a lack of information to address them all. Within Principle 1, it was not clear how Harvest Control Rules and Tools are implemented in each country regarding the management of the candidate fishery. While it is understood that each country is required to implement the Commission conservation measures, how these practices are implemented was not clear. This would be reviewed at a main assessment and, in order to achieve a score of 80, “Well defined harvest control rules would have to be in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached; the harvest control rules take into account the main uncertainties; and, available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules”.

There is some risk associated with attaining a passing score related to those PIs that deal with the status of the bigeye stock either as a target or retained species. However, the pre-assessment audit was encouraged by the more positive outlook of the 2009 stock assessment and the full assessment team would be looking for this trend to be confirmed.

With respect to Principle 2, the issues identified in the pre-assessment included the lack of information collected and available on species that are retained and discarded in the candidate fishery. During a full certification assessment, it is required that there is a clear understanding of all species which may be retained or are discarded, including not only catch composition and quantity but also what management measures control the retention or discard of these species. It is necessary to understand the impact the candidate fishery is having on all incidental catch. For those species, identified as main retained or bycatch species, an assessment of stock status is required.

Information gaps associated with Principle 3 are tied to the implementation of rules and regulations within each country participating in the candidate fishery. To assist a full assessment team it will be necessary for the client to provide more information concerning current fisheries management planning at the national level; how consultation is conducted within each country and between the country and Commission; the effectiveness of compliance monitoring and enforcement of fishery management measures in each nation.

## 9. RECOMMENDATION

This pre-assessment of the management of the Norpac longline fisheries targeting bigeye (*Thunnus obesus*) and yellowfin (*Thunnus albacores*) tuna in the waters of Marshall Islands and Federated States of Micronesia concludes that assuming the client is confident the above mentioned information gaps may be filled, Moody Marine recommends that the fishery is prepared to move forward to full assessment.

The pre-assessment also concludes that there would be four units of certification, which would evaluate the fisheries based on a geographic and management basis (i.e. each country) and each species.

<b>Species</b>	Bigeye ( <i>Thunnus obesus</i> )
<b>Geographical Area</b>	Marshall Islands EEZ
<b>Stock</b>	Western and Central Pacific Ocean
<b>Gear</b>	Longline
<b>Management System</b>	WCPFC and Marshall Islands
<b>Client Group</b>	Norpac Fisheries Export
<b>Species</b>	Bigeye ( <i>Thunnus obesus</i> )
<b>Geographical Area</b>	Federated States of Micronesia EEZ
<b>Stock</b>	Western and Central Pacific Ocean
<b>Gear</b>	Longline
<b>Management System</b>	WCPFC and Federated States of Micronesia
<b>Client Group</b>	Norpac Fisheries Export
<b>Species</b>	Yellowfin ( <i>Thunnus albacores</i> )
<b>Geographical Area</b>	Marshall Islands EEZ
<b>Stock</b>	Western and Central Pacific Ocean
<b>Gear</b>	Longline
<b>Management System</b>	WCPFC and Marshall Islands
<b>Client Group</b>	Norpac Fisheries Export
<b>Species</b>	Yellowfin ( <i>Thunnus albacores</i> )
<b>Geographical Area</b>	Federated States of Micronesia EEZ
<b>Stock</b>	Western and Central Pacific Ocean
<b>Gear</b>	Longline
<b>Management System</b>	WCPFC and Federated States of Micronesia
<b>Client Group</b>	Norpac Fisheries Export

Certification bodies have been advised by the MSC that assessment contracts contain reasonable arrangements to allow for other, either pre-existing fishers within the same 'scope of assessment' or new participants, to have access to the certification. Reasonable arrangements may include agreement to payment of a fair proportion of the assessment costs and a necessary commitment to addressing conditions and subsequent corrective actions.

To date, most fisheries that have successfully progressed to a MSC Main Assessment have been recommended for certification but with conditions set for continuing certification. These conditions may relate to operational and management functions. The client is then responsible for ensuring that these conditions are met within the required timescale. The client should therefore have authority, or have secured agreement with the relevant organizations, to enact potential conditions should certification be successful.

## ANNEX 1: - PRE-ASSESSMENT DOCUMENTS REVIEWED

### References

#### RMI National Legislation

- Marshall Islands Marine Resources Authority Act (1997);
- Marshall Islands Marine Resources Act (Regulations);
- Marshall Islands Environmental Protection Act (1984);
- The Marine Mammals Protection Act 1990; and
- The Marine Zones (Declaration) Act (1984).
- The Marshall Islands Tuna Management Plan (2004-2009)

#### FSM National Legislation

- Title 18 of the Code of the Federated States of Micronesia: (Territory, Economic Zones, and Ports of Entry)
- Title 23: Resource Conservation
- Title 24: Marine Resources
- Marine Resource Act 2001
- MFA Domestic Fishing and Local Fishing Vessel Licensing Regulations
- The FSM Tuna Management Plan (2000)

#### Other Documentation

- Western and Central Pacific Fisheries Commission documents including recent stock assessments for the candidate species
- Documents and information available on government websites of the Federated States of Micronesia and Republic of the Marshall Islands

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## ANNEX 2: ASSESSMENT IN RELATION TO THE PERFORMANCE INDICATORS

<b>Principle 1</b>	<b>A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.</b>			
<b>1.1</b>	<b>Management Outcomes:</b>			
<b>1.1.1</b>	<b>Stock Status:</b> The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing	It is likely that the stock is above the point where recruitment would be impaired.	It is highly likely that the stock is above the point where recruitment would be impaired.  The stock is at or fluctuating around its target reference point.	There is a high degree of certainty that the stock is above the point where recruitment would be impaired.  There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.

<b>Meaning</b>
This performance indicator measures the outcome required by Criterion 1 (C1) of Principle 1 of the MSC standard: the current status of the target species resource relative to the target and limit reference points.

<b>Pre Assessment Comment</b>
<p><b>Bigeye Tuna</b> Should stock status remain unchanged and should the fishery move to full certification assessment, it is anticipated that the fishery would score less than 80 and possibly less than 60 with respect to the stock status of bigeye under the Outcome Performance Indicator as indicated by the changes in the 2009 stock assessment.</p> <p><b>Yellowfin Tuna</b> Based on the most recent stock assessment of yellowfin tuna, it has been determined that while the stock is not overfished, and the stock is above <math>B_{MSY}</math>, current exploitation rates are likely to be at least approaching <math>F_{MSY}</math> level and that there is a substantial probability that overfishing is occurring. The SG 80 requires that candidate stocks are at or fluctuating around its target reference point. In the case of the status of yellowfin tuna, this is the case, and therefore the SG80 would be met with respect to this requirement.</p>

1.1.2	<b>Reference Points:</b> Limit and target reference points are appropriate for the stock.	Generic limit and target reference points are based on justifiable and reasonable practice appropriate for the species category.	Reference points are appropriate for the stock and can be estimated.  The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity.  The target reference point is such that the stock is maintained at a level consistent with $B_{MSY}$ or some measure or surrogate with similar intent or outcome.  For low trophic level species, the target reference point takes into account the ecological role of the stock.	Reference points are appropriate for the stock and can be estimated.  The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant precautionary issues.  The target reference point is such that the stock is maintained at a level consistent with $B_{MSY}$ or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.
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**Meaning**

This supplementary performance indicator measures the appropriateness of the target and limit reference points used to assess stock status.

**Pre Assessment Comments**

The Commission has defined MSY based target reference points for both yellowfin and bigeye tuna, however during the pre-assessment, it was not clear that limit reference points have been defined. It should be noted that in the MSC program, an absence of LRPs would require that proxies or the defined MSC defaults are used. As such, the requirements of the SG60 are met, however, without a definition of limit reference points, the SG80 cannot be attained.

**In addition to the definition of target reference points, the SG80 also requires that reference points are appropriate for the stock and can be estimated, as well that the target reference point is such that the stock is maintained at a level consistent with  $B_{MSY}$  or some measure or surrogate with similar intent. These additional requirements are considered to be met, and therefore in a full certification assessment of the candidate fishery, it is anticipated that the fishery would score between 60 and 80.**

The encouraging news is that the WCFPC began the process of providing further clarification on reference points, the need for a management strategy evaluation (MSE) in November 2008 and identified this as a priority for the near future with work starting in 2009.

<b>1.1.3</b>	<b>Stock Rebuilding:</b> Where the stock is depleted, there is evidence of stock rebuilding.	Where stocks are depleted rebuilding strategies which have a reasonable expectation of success are in place.  Monitoring is in place to determine whether they are effective in rebuilding the stock within a specified timeframe.	Where stocks are depleted rebuilding strategies are in place.  There is evidence that they are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within a specified timeframe.	Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the shortest practicable timeframe.
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<b>Meaning</b>
<p>A stock is depleted when it is consistently below the target reference point. This performance indicator measures the fishery's performance in relation to the recovery and rebuilding of stocks that are currently depleted. It would normally be assumed that a well constructed harvest strategy would include consideration of the situation where the stock becomes depleted, but that in this situation additional measures may also be required. This performance indicator is only scored when the Principle 1, Stock Status PI 1.1.1 reveals that a stock is depleted.</p> <p>The material concerns are that the recovery strategies are in place and, depending on the performance level (60, 80 or 100) are monitored and effective over varying specified timescales.</p>

<b>Pre Assessment Comments</b>
<p>In the context of the MSC definition of depleted, neither the bigeye nor the yellowfin tuna stock under consideration is depleted. As such scoring of this PI is not required. However, should the fishery move to full certification assessment, if stock status changes and either of the species is consider depleted, this PI would require scoring at that time.</p>

1.2 Harvest Strategy (management)	
1.2.1	<p>Harvest Strategy: There is a robust and precautionary harvest strategy in place</p> <p>The harvest strategy is expected to achieve stock management objectives reflected in the target and limit reference points.</p> <p>The harvest strategy is likely to work based on prior experience or plausible argument.</p> <p>Monitoring is in place that is expected to determine whether the harvest strategy is working.</p>
	<p>The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points.</p> <p>The harvest strategy may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.</p> <p>The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.</p> <p>The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.</p> <p>The harvest strategy is periodically reviewed and improved as necessary.</p>

Meaning
This performance indicator scores the overall performance of the harvest strategy (i.e. the combination of monitoring, stock assessment, harvest control rules and management actions) particularly the way that the different elements work together to keep the stock at levels consistent with reference points.

Pre Assessment Comments
<p>While it is not evident that the harvest strategy has been fully tested, there is evidence that monitoring is in place and given that stock status is maintained above <math>B_{MSY}</math> it is evident that the elements of the harvest strategy are working together to achieve objectives related to reference points. However, of concern in these fisheries is the fact that the strategy is designed to manage the stocks above limit reference points, and not necessarily above target reference points, as none are defined.</p> <p>In addition, the ability of the Commission to implement and enforce effort reductions in urgent situations in each nation is of concern and would be subject to significant scrutiny in a full certification assessment unless it is evident that nations are effective in implementing harvest controls in a timely manner. It appears that the elements of the management strategy appear to be in place but how it meshes together is still a work in progress.</p> <p><b>Based on the available information it is anticipated that during a full certification assessment the candidate fisheries would score between 60 and 80 with respect to the harvest strategy performance indicator.</b></p>

<p><b>1.2.2</b></p>	<p>Harvest control rules and tools: There are well defined and effective harvest control rules in place</p>	<p>Generally understood harvest control rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached.</p> <p>There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.</p>	<p>Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>The selection of the harvest control rules takes into account the main uncertainties.</p> <p>Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules</p>	<p>Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>The design of the harvest control rules take into account a wide range of uncertainties.</p> <p>Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.</p>
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<p><b>Meaning</b></p>
<p>This performance indicator assesses the existence and effectiveness of harvest control rules (a set of well-defined pre-agreed rules or actions used for determining a management action in response to changes in indicators of stock status with respect to reference points). Harvest control rule should act to cause stocks to rebuild to the target reference point when they are below it.</p>

<p><b>Pre Assessment Comments</b></p>
<p><b>Without information on how harvest control rules defined by the Commission are implemented at a country specific level in FSM, the harvest control rule performance indicator cannot be scored.</b></p>

<p><b>1.2.3</b></p>	<p><b>Information / monitoring:</b> Relevant information is collected to support the harvest strategy</p>	<p>Some relevant information related to stock structure, stock productivity and fleet composition is available to support the harvest strategy.</p> <p>Stock abundance and fishery removals are monitored and at least one indicator is available and monitored with sufficient frequency to support the harvest control rule.</p>	<p>Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data is available to support the harvest strategy.</p> <p>Stock abundance and fishery removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule, and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule.</p> <p>There is good information on all other fishery removals from the stock.</p>	<p>A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly relevant to the current harvest strategy, is available.</p> <p>All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.</p>
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<p><b>Meaning</b></p>
<p>This performance indicator addresses the information base for the management of the target stocks.</p>

<p><b>Pre Assessment Comments</b></p>
<p>With respect to information and monitoring, the SG80 required that there is sufficient relevant information related to stock structure, stock productivity, fleet composition and other data available to support the harvest strategy, that stock abundance and fishery removals are regularly monitored and one or more indicators are available and monitored with sufficient frequency to support the harvest control rule and that there is good information on all other fishery removals from the stock. A significant gap identified is the level of fishery independent data, such as tagging estimates of mortality, independent sampling data and the like. <b>Overall, the harvest strategy information PI would score on the lower end of the 60 – 80 scale. Many of the monitoring programs have just started and the times series are short.</b></p>

<b>1.2.4</b>	<b>Assessment of stock status:</b> There is an adequate assessment of the stock status	<p>The assessment estimates stock status relative to reference points.</p> <p>The major sources of uncertainty are identified.</p>	<p>The assessment is appropriate for the stock and for the harvest control rule, and is evaluating stock status relative to reference points.</p> <p>The assessment takes uncertainty into account.</p> <p>The stock assessment is subject to peer review.</p>	<p>The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.</p> <p>The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.</p> <p>The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.</p> <p>The assessment has been internally and externally peer reviewed.</p>
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**Meaning**

This performance indicator considers how the fishery assesses information to provide an understanding of stock status and the effectiveness of the harvest strategy.

**Pre Assessment Comments**

Both the assessments for bigeye and yellowfin tuna, evaluate the stock status of these species relative to reference points defined by the commission, MSY, and the assessments take into account uncertainties. Provided that the assessment is subject to peer review and considered appropriate for the stock and the harvest control rule, the fisheries under consideration would likely attain the SG80 with respect to this PI.

**Principle 2 Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends**

**2.1 Retained non-target species**

<p><b>2.1.1</b></p>	<p><i>Status:</i> The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recovery of depleted retained species.</p>	<p>Main retained species are likely to be within biologically based limits or if outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species. If the status is poorly known there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery.</p>	<p>Main retained species are highly likely to be within biologically based limits, or if outside the limits there is a partial strategy of demonstrably effective management measures in place such that the fishery does not hinder recovery and rebuilding.</p>	<p>There is a high degree of certainty that retained species are within biologically based limits.  Target reference points are defined and retained species are at or fluctuating around their target reference points.</p>
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**Meaning**  
Retained species in Principle 2 are those parts of the retained catch that are not covered under Principle 1 because they are not included in the Unit of Certification. However the retained catch can still be a valuable catch in the fishery, whether it is targeted or taken incidentally, and there is an economic incentive for capture. Main retained species are those species that account for more than 5 % of the total catch.

**Pre Assessment Comments**  
*Republic of Marshall Islands*  
Based on annual catch data reported in the 2009 annual report to the Commission, blue marlin is the only species that is retained in quantities greater than 5% of the total catch. As such, it would require scoring under the outcome component of the retained species performance indicator. As a minimum, the SG60 requires that the main retained species are likely to be within biologically based limits, or if outside the limits there are measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding of the depleted species, and; if the status is poorly know there are measures or practices in place that are expected to result in the fishery not causing the retained species to be outside biologically based limits or hindering recovery. It is anticipate that, provided there is evidence to indicate that stock status has not changed since the last assessment, the blue marlin could attain a minimum score of 60.  
*Federated States of Micronesia*  
Given the catch data that is available, the only identified species comprising greater than 5% of the total catch are sharks. However, the catch data does not identify sharks to a species level, as such it is not possible to determine the outcome status of this PI. In order to assess the shark species against the requirements it would be necessary to have an understanding of species composition and quantity of each shark species retained.  
**The status of bigeye as a retained non-target species will be a factor in the assessment of in a fishery targeting yellowfin resulting in a score of less than 80 for this PI.**

As was stated with respect to the outcome of the Republic of Marshall Islands, although there are other retained species including albacore tuna, skipjack tuna, blue, black and striped marlin, sword fish and sailfish which comprise less than 5% of the total catch, during a full certification assessment it will be important for the assessment team to determine if these species are considered 'valuable' or 'vulnerable', therefore requiring scoring under the outcome status component of retained species.

<p><b>2.1.2</b></p>	<p><b>Management strategy:</b> There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.</p>	<p>There are measures in place, if necessary, that are expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.</p> <p>The measures are considered likely to work, based on plausible argument (e.g., general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a partial strategy in place, if necessary that is expected to maintain the main retained species at levels which are highly likely to be within biologically based limits, or to ensure the fishery does not hinder their recovery and rebuilding.</p> <p>There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or species involved.</p> <p>There is some evidence that the partial strategy is being implemented successfully.</p>	<p>There is a strategy in place for managing retained species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports high confidence that the strategy will work.</p> <p>There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring.</p> <p>There is some evidence that the strategy is achieving its overall objective.</p>
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<p><b>Meaning</b></p>
<p>See 1.2.2 (above)</p>

<p><b>Pre Assessment Comments</b></p>
<p>The Commission has defined conservation and management measures which are applicable to some the retained species, including sharks and south Pacific albacore. As such for these species it is anticipated that a score of between SG60 and SG80 could be attained in a full certification assessment given that for south Pacific albacore and sharks there is a partial strategy in place and measures are considered likely to work based on plausible argument. <b>However, in order to attain the SG80 benchmark, evidence to indicate that these measures are being implemented successfully by cooperating members and territories would be necessary. In addition the SG80 requires that there is an objective basis for confidence that the partial strategy will work based on information directly about the fishery and/or species involved.</b></p> <p>However, this is just a component of scoring the management strategy in place for retained species, the strategy in place for managing the other retained species (blue marlin and wahoo) also must be considered. During the pre-assessment, it was not clear that there were management measures in place with respect to blue marlin or wahoo at either the Commission or local levels. As such, these species cannot be scored with respect to this performance indicator.</p>

<p><b>2.1.3</b></p>	<p><b>Information / monitoring:</b> Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.</p>	<p>Qualitative information is available on the amount of main retained species taken by the fishery.</p> <p>Information is adequate to qualitatively assess outcome status with respect to biologically based limits.</p> <p>Information is adequate to support measures to manage main retained species.</p>	<p>Qualitative information and some quantitative information are available on the amount of main retained species taken by the fishery.</p> <p>Information is sufficient to estimate outcome status with respect to biologically based limits.</p> <p>Information is adequate to support a partial strategy to manage main retained species.</p> <p>Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).</p>	<p>Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.</p> <p>Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.</p> <p>Information is adequate to support a comprehensive strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.</p> <p>Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.</p>
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<p><b>Meaning</b></p>
<p>See 1.2.3 (above)</p>

<p><b>Pre Assessment Comments</b></p>
<p>Within the fisheries under consideration, there are requirements of the Commission for cooperating members to collect information on catch and effort through maintenance of logbooks, data collected during offloads and through information collected by on-board observers. This provides qualitative and quantitative information on the composition and quantity of species retained during harvest, therefore meeting the first scoring issue under the SG80. In a full assessment, the team would need to determine if information is sufficient to support partial strategy and to estimate outcome status with respect to biologically based limits.</p>

<b>2.2 Discarded species (also known as “bycatch” or “discards”)</b>				
<b>2.2.1</b>	<i>Status</i> The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups.	Main bycatch species are likely to be within biologically based limits, or if outside such limits there are mitigation measures in place that are expected to ensure that the fishery does not hinder recovery and rebuilding.  If the status is poorly known there are measures or practices in place that are expected result in the fishery not causing the bycatch species to be biologically based limits or hindering recovery.	Main bycatch species are highly likely to be within biologically based limits or if outside such limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	There is a high degree of certainty that bycatch species are within biologically based limits.

<b>Meaning</b>
Bycatch species are species in the catch that are not retained and that are discarded, as well as those that die as a result of unobserved fishing mortality. There would appear to be a high degree of certainty that by catch species are within biologically based limits.

<b>Pre Assessment Comments</b>
Based on the information available during the pre-assessment, species caught incidentally to the harvest comprise less than 5% of the total catch and therefore would likely be considered “minor bycatch species”. Assuming this can be supported by evidence (i.e. quantity and species of bycatch over a period of greater than 5 years), and if it can be proven there are no “main bycatch” species, the fishery would score 100 under the outcome PI for bycatch species.  Over the course of the pre-assessment, there was no indication of what species may be considered bycatch within the candidate fisheries. As noted above, bycatch are those species that are caught incidental to the harvest of the P1 species, but are not retained either due to regulation or lack of commercial value. <b>Based on the information available in the pre-assessment, there is not adequate information to score either of the components of this performance indicator.</b> The ability to assess these components against the MSC standard would require and understanding of the composition, fate, and quantity of catch discarded, as well as an understanding how what measures are in place, if any to minimize the impact of the candidate fisheries on these species.

<b>2.2.2</b>	<b>Management strategy:</b>	There are measures in place, if necessary,	There is a partial strategy in place, if	There is a strategy in place for managing and
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	<p>There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations.</p>	<p>which are expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.</p> <p>The measures are considered likely to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/species).</p>	<p>necessary, for managing bycatch that is expected to maintain main bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery.</p> <p>There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or the species involved.</p> <p>There is some evidence that the partial strategy is being implemented successfully.</p>	<p>minimising bycatch.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and testing supports high confidence that the strategy will work.</p> <p>There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.</p>
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<p><b>Meaning</b></p>
<p>See 1.2.2 (above)</p>

<p><b>Pre Assessment Comments</b></p>
<p><i>See comments for 2.2.1</i></p>

2.2.3	<p><b>Information / monitoring</b> Information on the nature and amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch.</p>	<p>Qualitative information is available on the amount of main bycatch species affected by the fishery.</p> <p>Information is adequate to broadly understand outcome status with respect to biologically based limits.</p> <p>Information is adequate to support measures to manage bycatch.</p>	<p>Qualitative information and some quantitative information are available on the amount of main bycatch species affected by the fishery.</p> <p>Information is sufficient to estimate outcome status with respect to biologically based limits.</p> <p>Information is adequate to support a partial strategy to manage main bycatch species.</p> <p>Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).</p>	<p>Accurate and verifiable information is available on the amount of all bycatch and the consequences for the status of affected populations.</p> <p>Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.</p> <p>Information is adequate to support a comprehensive strategy to manage bycatch, and evaluate with a high degree of certainty whether a strategy is achieving its objective.</p> <p>Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.</p>
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<b>Meaning</b>
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See 1.2.3 (above)
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<b>Pre Assessment Comments</b>
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<i>See comments for 2.2.1</i>
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2.3 Endangered, Threatened and Protected (ETP) species				
2.3.1	<i>Status:</i> The fishery meets national and international requirements for protection of ETP species.	Known effects of the fishery are likely to be within limits of national and international requirements for protection of ETP species.	The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species.	There is a high degree of certainty that the effects of the fishery are within limits of national and international requirements for protection of ETP species.
	The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.	Known direct effects are unlikely to create unacceptable impacts to ETP species.	Direct effects are highly unlikely to create unacceptable impacts to ETP species.  Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	There is a high degree of confidence that there are no significant detrimental effects (direct and indirect) of the fishery on ETP species.

**Meaning**

ETP (endangered, threatened or protected) species are those that are recognized by national legislation and/or binding international agreements (e.g. CITES) to which the jurisdictions controlling the fishery under assessment are party. The SGs refer to ‘national and international requirements’ and ‘unacceptable impacts’. These terms relate to the requirements or impacts specified in relevant national legislation or binding international agreements.

**Pre Assessment Comments**

With respect to the Marshall Islands and Federated States of Micronesia, it was not clear that there was national legislation in place identifying ETP species and outlining measures to protect these species. However, the annual report to the Commission from the Marshall Islands identified sensitive species and reported the catch of these species (turtles and seabirds), during a full certification assessment it would have to be determined if these species were protected either under national or international legislation, therefore requiring scoring. Should it be found that these species are not subject to protection as ETP species, they would be considered in the scoring of bycatch species.

**Similarly, in order to assess the fishery in the Federated States of Micronesia against the ETP outcome status indicator, it will be necessary to identify any species that would be considered ETP, as information was not available during the pre-assessment.**

<p><b>2.3.2</b></p>	<p><b>Management strategy</b> The fishery has in place precautionary management strategies designed to:</p> <ul style="list-style-type: none"> <li>- meet national and international requirements;</li> <li>- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;</li> <li>- ensure the fishery does not hinder recovery of ETP species; and</li> <li>- minimize mortality of ETP species.</li> </ul>	<p>There are measures in place that minimize mortality, and are expected to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>The measures are considered likely to work, based on plausible argument (eg general experience, theory or comparison with similar fisheries/species).</p>	<p>There is a strategy in place for managing the fishery's impact on ETP species, including measures to minimize mortality, that is designed to be highly likely to achieve national and international requirements for the protection of ETP species.</p> <p>There is an objective basis for confidence that the strategy will work, based on some information directly about the fishery and/or the species involved.</p> <p>There is evidence that the strategy is being implemented successfully.</p>	<p>There is a comprehensive strategy in place for managing the fishery's impact on ETP species, including measures to minimize mortality, that is designed to achieve above national and international requirements for the protection of ETP species.</p> <p>The strategy is mainly based on information directly about the fishery and/or species involved, and a quantitative analysis supports high confidence that the strategy will work.</p> <p>There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is evidence that the strategy is achieving its objective.</p>
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<p><b>Meaning</b></p>
<p>See 1.2.2 (above)</p>

<p><b>Pre Assessment Comments</b></p>
<p>As recognition of the cultural and ecological role of sea turtles and seabirds, the Commission has implemented measures to aid in minimizing the impact of harvest on these species. Measures include increased reporting and monitoring, observer coverage and the use of gear and methods to minimize harm to individuals that are caught incidental to harvest. <b>Given these measures, it is anticipated that should there be ETP species identified in the Marshall Islands and Federated States of Micronesia, these countries should attain the SG60 with respect to the Management component of the ETP PI, provided it can be proven that these measures are implemented at a national level.</b></p>

2.3.3	<p><b>Information / monitoring</b> Relevant information is collected to support the management of fishery impacts on ETP species, including:</p> <ul style="list-style-type: none"> <li>- information for the development of the management strategy;</li> <li>- information to assess the effectiveness of the management strategy; and</li> <li>- information to determine the outcome status of ETP species.</li> </ul>	<p>Information is adequate to broadly understand the impact of the fishery on ETP species.</p> <p>Information is adequate to support measures to manage the impacts on ETP species</p> <p>Information is sufficient to qualitatively estimate the fishery related mortality of ETP species.</p>	<p>Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species, and if so, to measure trends and support a full strategy to manage impacts.</p> <p>Sufficient data are available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species.</p>	<p>Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.</p> <p>Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.</p> <p>Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species</p>
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#### Meaning

See 1.2.3 (above)

#### Pre Assessment Comments

Over the course of the pre-assessment, there was no indication of what the catch rates were for ETP species within the candidate fisheries. As noted above, ETP are those species that are endangered, protected or threatened and are protected by national or international binding legislation. Based on the information available in the pre-assessment, there is not adequate data available to score the information/ monitoring performance indicator for ETP species. The ability to assess these components against the MSC standard would require and understanding of the composition, fate, and quantity of ETP catch, as well as an understanding how what measures are in place, if any to minimize the impact of the candidate fisheries on these species.

In particular, as a minimum, the following information would be required to score this component of the ETP PI:

##### Information/Monitoring

- Is there qualitative information available on the amount of ETP species affected (caught, released live, released dead) by the fishery?
- Is information adequate to broadly understand the outcome status with respect to biologically based limits for ETP species?
- Is information adequate to support measures to manage ETP species interactions?



2.4		Habitat		
		60	80	100
2.4.1	Status: The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function.	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.

Meaning
The Habitat Component considers habitats impacted by the fishery. Usually it is seabed habitats rather than pelagic habitats that are relevant, but impacts on the biotic aspects of pelagic habitats could be considered. The Habitat Component is assessed in relation to the effects of the fishery on the structure and role of the habitats.

Pre Assessment Comments
Guidance provided with respect to the scoring of the outcome status of the habitat component states that if it can be shown that the fishery has no impact on habitats than it would meet the SG 100 for this performance indicator (MSC, 2008). Given that the MSC Certification process is an evidence based assessment, during a full certification assessment it would be necessary for the client to prove that there is no impact on habitats from gear types employed in the fishery. Providing evidence is available, through set depth in relation to bottom depth as well as information from bycatch data indicating there is not a high incidence of bottom dwelling species are caught, it is likely the fishery would score 100 with respect to the habitat outcome component in a full certification assessment.

<p><b>2.4.2</b></p>	<p><b>Management strategy</b> There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.</p>	<p>There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.</p> <p>The measures are considered likely to work, based on plausible argument (e.g general experience, theory or comparison with similar fisheries/habitats).</p>	<p>There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.</p> <p>There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or habitats involved.</p> <p>There is some evidence that the partial strategy is being implemented successfully.</p>	<p>There is a strategy in place for managing the impact of the fishery on habitat types.</p> <p>The strategy is mainly based on information directly about the fishery and/or habitats involved, and testing supports high confidence that the strategy will work.</p> <p>There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.</p>
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<p><b>Meaning</b></p>
<p>See 1.2.2 (above)</p>

<p><b>Pre Assessment Comments</b></p>
<p>With respect to the management strategy it is anticipated that the fisheries under consideration could possibly score between 80 and 100.</p>

<p><b>2.4.3</b></p>	<p><b>Information / monitoring</b> Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.</p>	<p>There is a basic understanding of the types and distribution of main habitats in the area of the fishery.</p> <p>Information is adequate to broadly understand the main impacts of gear use on the main habitats, including spatial extent of interaction.</p>	<p>The nature, distribution and vulnerability of all main habitat types in the fishery area are known at a level of detail relevant to the scale and intensity of the fishery.</p> <p>Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent, timing and location of use of the fishing gear.</p> <p>Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).</p>	<p>The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.</p> <p>Changes in habitat distributions over time are measured.</p> <p>The physical impacts of the gear on the habitat types have been quantified fully.</p>
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<p><b>Meaning</b></p>
<p>See 1.2.3 (above). For SG80 and SG100 “vulnerability” means the combination of the likelihood that the gear would encounter the habitat, and the likelihood that the habitat would be altered if an encounter between the gear and the habitat did occur.</p>

<p><b>Pre Assessment Comments</b></p>
<p>There is a known lack of interaction between the fishery and the physical habitats, as proven by the information identified elsewhere.</p>

<b>2.5 Ecosystem</b>				
<b>2.5.1</b>	<i>Status</i> The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.	The fishery is unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	The fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.	There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.

<b>Meaning</b>
The Ecosystem Component considers the broad ecological community and ecosystem in which the fishery operates; it addresses system-wide issues, primarily impacted indirectly by the fishery, including ecosystem structure, trophic relationships and biodiversity.

<b>Pre Assessment Comments</b>
<b>Based on the information reviewed during the pre-assessment, it is likely that the candidate fishery would score between 60 and 80 on the Ecosystem Outcome Status PI in a full certification assessment.</b> Recent analysis conducted by Sibert et al., indicates that the pelagic fishery in the Pacific Ocean is having minor impacts on the ecosystem of that region, which would address the requirements under the SG60.

<p><b>2.5.2</b></p>	<p><b>Management strategy</b> There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.</p>	<p>There are measures in place, if necessary, that take into account potential impacts of the fishery on key elements of the ecosystem.</p> <p>The measures are considered likely to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/ ecosystems).</p>	<p>There is a partial strategy in place, if necessary, that takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.</p> <p>The partial strategy is considered likely to work, based on plausible argument (eg, general experience, theory or comparison with similar fisheries/ ecosystems).</p> <p>There is some evidence that the measures comprising the partial strategy are being implemented successfully.</p>	<p>There is a strategy that consists of a plan, containing measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place. The plan and measures are based on well-understood functional relationships between the fishery and the Components and elements of the ecosystem.</p> <p>This plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.</p> <p>The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery/ecosystems involved.</p> <p>There is evidence that the measures are being implemented successfully.</p>
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**Meaning**

See 1.2.2 (above). In addition to the guidance on ‘measures’ provided in the General Guidance section, the measures required by SG60 under this PI may exist primarily to manage the impact on target species or other Components, but have the capacity to achieve Ecosystem Outcomes. For SG80 and SG100, partial strategies and strategies respectively may also contain measures designed and implemented to address impacts on Components that have been evaluated elsewhere in this framework. If such measures address specific ecosystem impacts effectively enough to meet the appropriate standard, then it is not necessary to have special “ecosystem measures” to address the same impacts. Equally, it may also not be necessary to have a specific “ecosystem strategy” other than that which comprises the individual strategies for the other Components under Principle 1 and Principle 2. However, if there are ecosystem impacts that may not be addressed effectively by existing measures, it may be necessary to add new measures or strengthen existing ones to address those impacts.

**Pre Assessment Comments**

At the time of the pre-assessment, there was no indication that there were ecosystem approaches to managing resources at either the Commission or at a national level within the Federated States of Micronesia and Marshall Islands, it is difficult to anticipate how those components of the candidate fishery may fare in a full certification assessment.

<p><b>2.5.3</b></p>	<p><b>Information / monitoring</b> There is adequate knowledge of the impacts of the fishery on the ecosystem.</p>	<p>Information is adequate to identify the key elements of the ecosystem (e.g. trophic structure and function, community composition, productivity pattern and biodiversity).</p> <p>Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but have not been investigated in detail.</p>	<p>Information is adequate to broadly understand the functions of the key elements of the ecosystem.</p> <p>Main impacts of the fishery on these key ecosystem elements can be inferred from existing information, but may not have been investigated in detail.</p> <p>The main functions of the Components (i.e. target, Bycatch, Retained and ETP species and Habitats) in the ecosystem are known.</p> <p>Sufficient information is available on the impacts of the fishery on these Components to allow some of the main consequences for the ecosystem to be inferred.</p> <p>Sufficient data continue to be collected to detect any increase in risk level (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).</p>	<p>Information is adequate to broadly understand the key elements of the ecosystem.</p> <p>Main interactions between the fishery and these ecosystem elements can be inferred from existing information, and have been investigated.</p> <p>The impacts of the fishery on target, Bycatch, Retained and ETP species and Habitats are identified and the main functions of these Components in the ecosystem are understood.</p> <p>Sufficient information is available on the impacts of the fishery on the Components and elements to allow the main consequences for the ecosystem to be inferred.</p> <p>Information is sufficient to support the development of strategies to manage ecosystem impacts.</p>
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<p><b>Meaning</b></p>
<p>Key ecosystem features may include trophic structure and function (in particular key prey, predators, and competitors), community composition, productivity pattern (e.g. upwelling or spring bloom, abyssal, etc), and characteristics of biodiversity.</p>

<p><b>Pre Assessment Comments</b></p>
<p>With respect to the information and monitoring component of the Ecosystem PI, it is likely based on recent work conducted by Sibert et al, and what is known about Pacific food webs, that the candidate fishery would attain a minimum of 80 in a full certification assessment. With respect to the candidate fishery it would be important to understand the composition of bycatch, and the identification of ETP species, as well as the quantity of catch and the impact of the fishery on these ecosystem components.</p>

<b>Principle 3</b>	<b>The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable</b>
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<b>3.1</b>	<b>Governance and Policy</b>
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<b>3.1.1</b>	<p><b>Legal and/or customary framework</b>                  The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:</p> <ul style="list-style-type: none"> <li>- Is capable of delivering sustainable fisheries in accordance with MSC Principles 1 and 2;</li> <li>- Observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and</li> <li>- Incorporates an appropriate dispute resolution framework.</li> </ul>	<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a mechanism for the resolution of legal disputes arising within the system.</p> <p>Although the management authority or fishery may be subject to continuing court challenges, it is not indicating a disrespect or defiance of the law by repeatedly violating the same law or regulation necessary for the sustainability for the fishery.</p> <p>The management system has a mechanism to generally respect the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes which is considered to be effective in dealing with most issues and that is appropriate to the context of the fishery.</p> <p>The management system or fishery is attempting to comply in a timely fashion with binding judicial decisions arising from any legal challenges.</p> <p>The management system has a mechanism to observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>	<p>The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.</p> <p>The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.</p> <p>The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges.</p> <p>The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom on people dependent on fishing for food and livelihood in a manner consistent with the objectives of MSC Principles 1 and 2.</p>
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**Meaning**

Key to determining whether fisheries management occurs within a framework that both respects relevant laws and is capable of delivering sustainable fisheries in accordance with MSC's Principles 1 and 2, is understanding what is meant by the legal and/or customary framework. A fishery management system's legal and/or customary framework is considered to be the underlying supporting structure, be it formal or informal, that incorporates all the formal and informal practices, procedures and instruments that control, or have an impact on, a fishery. This includes policies and practices of both government and private sectors. The management system is not limited to government legislation, nor to industry or customary practice, but is the interaction of all such elements, controls and practices that are used in a fishery and result in 'hard' (law) or 'soft' (accepted practice) controls over actual 'on-water' catching practices. The established management system is consistent with laws, there is a transparent mechanism for the resolution of disputes, it is responsive to judicial decisions and there is a formal commitment to fishery communities and fishery dependent populations.

**Pre Assessment Comments**

The pre-assessment team concludes that the WCPFMC provides the overall management framework, likely consistent with SG 80 but how each country responds to the management system requirements remains unclear and is possibly an issue for a full certification assessment. Like P2, it may be best to split up the certification into separate units of certification by species and country.

<p><b>3.1.2</b></p>	<p><b>Consultation, roles and responsibilities</b>                  The management system has effective consultation processes that are open to interested and affected parties.                   The roles and responsibilities of organizations and individuals who are involved in the management process are clear and understood by all relevant parties.</p>	<p>Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are generally understood.                   The management system includes consultation processes that obtain relevant information from the main affected parties, including local knowledge, to inform the management system.</p>	<p>Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction.                   The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information obtained.                   The consultation process provides opportunity for all interested and affected parties to be involved.</p>	<p>Organizations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.                   The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.                   The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.</p>
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<p><b>Meaning</b></p> <p>The focus for scoring should be the effectiveness of the consultation <i>processes</i> implemented by fisheries managers to obtain information from a wide range of sources, including local knowledge (defined below), for input into a broad range of decisions, policies and practices within the management system. Scoring under this performance indicator shall not focus on the type of information obtained, or on mandating for what or how it must be used. The material point of the consultation part of the performance indicator is that the management system is open to interested or affected parties and stakeholders and that any information that is viewed as important by those parties can be fed into and be considered by the process in a way that is transparent to the interested or affected parties and stakeholders.</p> <p>The SG80 and 100 guideposts under the consultation part of the performance indicator introduce the added elements of demonstrating that <i>whatever</i> information is gathered, it is considered and that there is transparency about its use or lack of use. The SG80 and 100 guideposts under the consultation part of the performance indicator introduce the added elements of demonstrating that <i>whatever</i> information is gathered, it is considered and that there is transparency about its use or lack of use.</p> <p>Effective consultation processes within the management system must be appropriate to the scale, intensity and cultural context of the fishery. This should include consideration of consultation processes at both the management system level and fishery-specific management systems that occur within it. For example, but importantly not confined to, consultation at the level of broad policy development and at the level of research planning.</p> <p>“Local knowledge” means: qualitative, and/or anecdotal, and/or quantitative information, and/or data that come from individuals or groups local to the fisheries managed under the fisheries</p>
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management system.

Consideration of the roles and responsibilities of the fishers in relation to their cooperation with the collection of relevant information and data, where relevant and/or necessary, may be considered under this performance indicator. In doing so, this will take account of MSC's Criterion P3,B17 which relates to fishing operations assisting and cooperating with management authorities in the collection of catch, discard, and other information of importance to the effective management of the resources and the fishery.

**Pre Assessment Comments**

During the pre-assessment it was evident that the organizations that are involved in the management process have been identified at international and national levels and that their roles are generally understood. Which would meet one of the requirements of the SG60. National consultation is included as part of the process in preparing tuna management plans in FSM and RMI. **The management system includes a consultation process that obtains relevant information from interested and effected parties, and therefore would meet the SG60 and may meet some aspects of SG80.**

<b>3.1.3</b>	<b>Long term objectives</b> The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.	Long-term objectives to guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are implicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within management policy.	Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.
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<b>Meaning</b>
<p>The emphasis of this performance indicator is about the presence or otherwise of long term objectives which guide decision-making that is consistent with MSC's Principles and Criteria and the precautionary approach: either long term objectives implied within management policy (SG60); clearly set out in management policy (SG80); or a requirement of management policy that decision-making pursues explicit long term objectives (SG100). Management policy, in the context of this performance indicator, means outside the specific fishery under assessment (i.e., at a higher level or within a broader context than the fishery-specific management system).</p> <p>This performance indicator deals <i>only</i> with the high or broad management policy context – perhaps within overarching legislation, perhaps policy or custom that applies to many or all fisheries within a broader management system – and with whether laws, policies, practices or customs at that high or broad level imply or specify and/or require long term objectives that are consistent with a precautionary approach as defined above, as well as with the pursuit and achievement of outcomes consistent with MSC's Principles 1 and 2.</p>

<b>Pre Assessment Comments</b>
<p>Clearly defined and explicitly stated long term objectives exist within the WCPFC Convention which are applicable to the bigeye and yellowfin tuna fisheries under consideration. The objectives defined in the Convention can be considered to be consistent with the MSC Principles and Criteria and the precautionary approach, as they address issues such as maintaining stock status, application of the precautionary approach, and promote and understanding of direct and indirect impacts of harvest on all species and biodiversity. As such, it is likely that in a full certification assessment, a score 80 would likely be attained for this performance indicator.</p>

<p><b>3.1.4</b></p>	<p><b>Incentives for sustainable fishing</b> The management system provides economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.</p>	<p>The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2.</p>	<p>The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and seeks to ensure that negative incentives do not arise.</p>	<p>The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices.</p>
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<p><b>Meaning</b></p>
<p>When considering whether the fishery management system <i>provides for incentives</i> that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2 (SG60 and SG80), the key issue in this part of the SG is to score the system with reference to whether it ‘opens the door’ for the possibility for positive incentives. Does the system have attributes, policies or principles that would tend to incentivize fishers to fish sustainably, that engender a sense of stewardship of the resources? For example, policies that attempt to provide stability and/or security for fishers amid the uncertainties that come with complex and dynamic systems. This may involve, but not be limited to, the system providing for reducing information gaps and uncertainties for fishers; providing for strategic or statutory management planning to give certainty about the rules and goals of management; providing for mechanisms and opportunities to gain support for the management system from fishers; or fishery management system features that encourage collective action while allowing individual choice such that individual decisions are steered towards public good. Similarly, perhaps the system provides for the clarification of roles, rights and responsibilities of the various stakeholders; engenders a sense of ownership (possibly, but not necessarily, through rights-based measures); or provides for a participatory approach to management, research and other relevant processes.</p> <p>This PI also takes into account the existence of perverse incentives, i.e. incentives for fishers to fish unsustainably, and that the system is <i>seeking to ensure</i> that negative incentives do not arise. For instance, management systems should not include subsidies that obviously contribute to unsustainable.</p>

<p><b>Pre Assessment Comments</b></p>
<p>The fact that there are catch limits in place at the international level and that discarding is discouraged through the encouragement of landing all fish, there are measure that contribute to sustainable harvest. <b>Based on this, the candidate fishery would likely meet the requirements of the SG60. However, if the harvest is competitive in nature at a national level, the SG80 would not be attained as it requires that measures not only encourage sustainable harvest, but in fact the management system seeks to ensure that perverse incentives do not arise.</b></p>

<b>3.2</b>		<b>Fishery- specific management system</b>		
<b>3.2.1</b>	<b>Fishery- specific objectives</b> The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.	Objectives, which are broadly consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are implicit within the fishery's management system.	Short and long term objectives, which are consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.	Well defined and measurable short and long term objectives, which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2, are explicit within the fishery's management system.

<b>Meaning</b>
It should be noted that the individual harvest or management strategies that are scored in performance indicators under Principles 1 and 2, would be expected to consistent with the fishery-specific objectives being scored here under Principle 3. In other words, the objectives shall be assessed here and the strategies that implement the objectives shall be assessed under Principles 1 and 2. "Measurable", in the context of SG100 for this performance indicator, means that in addition to setting fishery-specific objectives that make broad statements, such as "the impact on dependent species will be reduced", objectives are operationally defined in such a way that the performance against the objective can be measured.

<b>Pre Assessment Comments</b>
Within the Conservation and Management Measures defined by the Commission for bigeye and yellowfin tuna in the Convention area, there are well-defined objectives which are applicable to the bigeye and yellowfin tuna fisheries under consideration. The objectives, outlined in Section 4, are considered to address both short and long term management of the fishery and are consistent with achieving the outcomes expressed by MSC's Principle 1 within the fisheries management system. Objectives consistent with MSC Principle 2 are outlined in the Convention objectives.  Objectives outlined by the Commission meet in part the requirements of the SG80 and national plans may also contribute to this score.

<p><b>3.2.2</b></p>	<p><b>Decision-making processes</b> The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.</p>	<p>There are informal decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.</p> <p>Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.</p>	<p>There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.</p> <p>Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.</p> <p>Decision-making processes use the precautionary approach and are based on best available information.</p> <p>Explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</p>	<p>There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.</p> <p>Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.</p> <p>Decision-making processes use the precautionary approach and are based on best available information.</p> <p>Formal reporting to all interested stakeholders describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.</p>
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<p><b>Meaning</b></p>
<p>The main issue with respect to this performance indicator is whether the decision-making processes actually produces measures and strategies. This means the processes take account of, for example, the consequences of decisions on management objectives for target species, ecosystem, and the impacts on those who depend on the fishery for their livelihoods.</p>

<p><b>Pre Assessment Comments</b></p>
<p>At the Western and Central Pacific Fisheries Commission level, there is an established decision making process in place that is considered to be based upon the best available information. Decisions are considered to respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation. Provided that it can be proven that decisions are precautionary, take into account the wider implications of decisions and that explanations are provided for any actions or lack of action associated with findings and relevant recommendations, at the Commission level the fishery is expected to attain the SG80. <b>However, without this evidence, the fishery with respect to the decision making process of the Commission would likely score between 60 and 80.</b></p>

<p><b>3.2.3</b></p>	<p><b>Compliance and enforcement</b> Monitoring, control and surveillance mechanisms ensure the fishery's management measures are enforced and complied with.</p>	<p>Monitoring, control and surveillance mechanisms exist, are implemented in the fishery under assessment and there is a reasonable expectation that they are effective.</p> <p>Sanctions to deal with non-compliance exist and there is some evidence that they are applied.</p> <p>Fishers are generally thought to comply with the management system for the fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.</p>	<p>A monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated an ability to enforce relevant management measures, strategies and/or rules.</p> <p>Sanctions to deal with non-compliance exist, are consistently applied and thought to provide effective deterrence.</p> <p>Some evidence exists to demonstrate fishers comply with the management system under assessment, including, when required, providing information of importance to the effective management of the fishery.</p> <p>There is no evidence of systematic non-compliance.</p>	<p>A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.</p> <p>Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.</p> <p>There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.</p> <p>There is no evidence of systematic non-compliance.</p>
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<p><b>Meaning</b></p>
<p>In assessing the existence and implementation of monitoring, control and surveillance systems (at SG60, SG80 and SG100), efforts to inform fishers about their obligations under the fishery-specific management system may be considered, but should not be limited to this. To give effect to Criterion P3, B17, one of the elements that may influence scoring is the reference in the scoring guideposts to fishers cooperating, where necessary, with management authorities in the collection of catch, discard and other information that is of importance to the effective management of the resources and the fishery. At SG80 and SG100, in some fisheries management systems or for particular types of fisheries, it may be difficult to demonstrate an ability to enforce relevant management measures, strategies and/or rules if violations are rare. This could be taken, in an outcome sense, that monitoring, compliance and surveillance (MCS) is effective. However, paradoxically, an absence of violations (or absence of a record of sanctions and penalties for violations) does not necessarily indicate that compliance and enforcement are effective; it could mean that MCS is in fact ineffective and what is happening is an absence of detection. To the extent possible, independent and credible information from relevant compliance and enforcement agencies or individuals and/or stakeholders should inform the judgement of the assessment team on this indicator. At SG100, consideration of whether the monitoring, control and surveillance system is comprehensive should include: coverage; the independence of the system; and its internal checks and balances.</p>

<p><b>Pre Assessment Comments</b></p>
<p>Cooperative monitoring and enforcement of fishing activities by three Micronesia Governments, including the Federated States of Micronesia and the Republic of the Marshall Islands under the Nuie Agreement and through cooperative measures such as Operation Bigeye and Operation Island Chief suggest that the monitoring, control and surveillance mechanisms that are implemented are effective, that sanctions to deal with non-compliance exist and there is some evidence that they are applied, and fishers are generally thought to comply with the management system for the</p>

fishery under assessment, including, when required, providing information of importance to the effective management of the fishery.

<p><b>3.2.4</b></p>	<p><b>Research plan</b> The fishery has a research plan that addresses the information needs of management.</p>	<p>Research is undertaken, as required, to achieve the objectives consistent with MSC’s Principles 1 and 2.</p> <p>Research results are available to interested parties.</p>	<p>A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC’s Principles 1 and 2.</p> <p>Research results are disseminated to all interested parties in a timely fashion.</p>	<p>A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC’s Principles 1 and 2.</p> <p>Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.</p>
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**Meaning**

This performance indicator gives effect to Criterion P3,A8 which states that the management system shall incorporate a research plan, appropriate to the scale and intensity of the fishery, which addresses the information needs of management and provides for dissemination of research results to all interested parties in a timely fashion. This performance indicator should consider the achievement of a strategic approach (at SG80) and a coherent and strategic approach (at SG100) to research. A strategic approach is pro-active, anticipatory and identifies gaps in knowledge in advance driven by management needs. Coherent touches on all aspects of the system and how they are integrated together. Certification bodies shall make sure scoring is not duplicated with the Management Strategy and Information PIs in Principles 1 and 2. Low scores in Principle 1 and Principle 2 may be caused by lack of specific information or research programs to deliver them, whereas this performance indicator is concerned with the presence or otherwise of overall strategic research planning. Consideration of reliability, in the context of SG80 and 100 for this performance indicator, should include consideration of the level of effective coordination among research providers, the accessibility of research plans and results to the managing ‘entity’ (such as the managing agency or authority), and the quality of the research itself. A comprehensive research plan, in the context of SG100, refers to research that goes beyond the immediate short term needs of management to create a strategic body of research relevant to the long term management needs of the fishery.

**Pre Assessment Comments**

The Commission has implemented a defined research plan, that provides a strategic approach to research and data collection considered consistent with the MSC Principles 1 and 2. Results of research completed that are of interest of the Commission are posted on the Commission website, and available to interested parties. Provided that that in a full certification assessment there is an understanding of how the countries within the certification group are involved in or support the research plan, it is anticipated that this PI would attain the 80 Scoring Guidepost.

<b>3.2.5</b>	<b>Monitoring and management performance evaluation</b> There is a system for monitoring and evaluating the performance of the fishery-specific management system against its objectives.  There is effective and timely review of the fishery-specific management system.	The fishery has in place mechanisms to evaluate some parts of the management system and is subject to occasional internal review.	The fishery has in place mechanisms to evaluate key parts of the management system and is subject to regular internal and occasional external review.	The fishery has in place mechanisms to evaluate all parts of the management system and is subject to regular internal and external review.
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<b>Meaning</b>
<p>This performance indicator gives effect to the part of Criterion P3,A3 that relates to the management system having a process of monitoring and evaluating management performance, appropriate to the cultural context, scale and intensity of the fishery, and relevant to the whole system not just management outcomes. In the context of each scoring guidepost under this performance indicator, information includes data and “parts” can include MCS (i.e., Compliance and Enforcement PI), research plan, feedback and response, monitoring systems required by the Management Strategy and Information Performance Indicators in Principles 1 and 2. At SG80 and 100, “external review” means external to the fisheries management system, but not necessarily international. It could be by another department within an agency, or another agency or organization within the country, or through a government audit that is external to the fisheries management agency, or a peer organization nationally or internationally, or external expert reviewers, depending upon the scale and intensity of the fishery. Occasional and regular should also be interpreted in the context of the intensity of the fishery.</p>

<b>Pre Assessment Comments</b>
<p>Given that the Commission has been subject to an external review (MRAG, 2006) of the scientific committee, and that performance is effectively reviewed internally through the examination of annual reports for monitoring implementation of management measures, it is likely that the fishery will attain the SG80 for this performance indicator in a full certification assessment.</p>