

Tuna Supply and Sustainability Report

SoITuna: Project No: 32053

Summary

Stock assessment

- The tuna stocks of the Western and Central Pacific Ocean (WCPO) are scientifically monitored by the Oceanic Fisheries Program of the Secretariat of the Pacific Community (SPC). SPC receives fisheries data from fishing nations to determine stock, catch and effort, and to recommend conservation and management measures for regional and national fisheries managers to sustain tuna stocks. SPC also conducts direct scientific assessment of stock through tagging and other measures.
- SPC's Oceanic Fisheries Program is widely recognized for the high quality of the assessment, monitoring and advice it provides regarding the management of the WCPO tuna stocks.
- The WCPO stocks of skipjack, yellowfin and albacore are assessed as being fished within sustainable limits, i.e. the stocks are neither overfished and overfishing is not occurring.
- Overfishing of bigeye is occurring and the scientific recommendation is that catch be reduced by 30%.
- The Solomon Islands' tuna catch represents ~7% of the WCPO harvest. The Solomon Island stock of skipjack, yellowfin and albacore have recently been assessed by SPC and the current levels of fishing effort for these species is considered to be sustainable for these stocks in the long term.
- SPC has recommended a 30% reduction in the mortality of bigeye from 2001-2004 levels across the WCPO.

Management of WCPO

- The Western and Central Pacific Fisheries Commission (WCPFC) sets overarching conservation and management arrangements for the tuna stocks within the WCPO. Competing interests, principally between Pacific island countries and distant water fishing nations, have prevented the WCPFC from implementing all of the scientific recommendations to conserve tuna stocks.
- Pacific island countries have recognized the importance of their tuna resource and are implementing measure to improve the management of tuna stocks that go beyond those set by the WCPFC. For example, The PNA group of nations, who control 55% of the tuna supply in the WCPO, have implemented a range of measures across the WCPO, including high seas areas, specifically to limit fishing effort as a measure to restrict catch to within sustainable limits.

Solomon Islands tuna fishery

- Annual catch fluctuates from year to year, however have increased considerably since 2000 to peak in 2010 at 186,260 MT.

- Solomon Islands is progressively moving to a licensing regime that is restricting access and effort (where this is required) and to provide preferential licensing to domestic fleets and those that land fish in country for local processing.
- The management measures recently implemented, along with those proposed in the Solomon Islands Tuna Management and Development Plan indicate that the Government is restricting effort and consequently that total catch is unlikely to increase and is more likely to be stable over the medium term. For example, the 2011 catch was ~10,000 MT below the 2010 peak.

Tuna Supply to SolTuna

- NFD supplies 100% of the tuna for SolTuna's operations. Tuna caught in excess of SolTuna's requirements are sold to other parties. SolTuna has indicated that much of the increase in processing volume will come from longline landings, predominantly albacore. NFD's existing fleet of five purse seine vessels and four pole and line vessels (two are about to be re-commissioned) will continue to supply SolTuna, however they are not expected to contribute substantially to the projected increase in processing volume for SolTuna to achieve its target of 150 MT/day.
- About 95% of NFD's catch from its own fleets is from within the waters of the Main Group Archipelago, where commercial tuna fishing is reserved for domestic vessels landing tuna for local processing.
- NFD's catch fluctuates from year to year, however ~28,000 MT per year from their fleet of purse seine and pole and line vessels is a volume that could reasonably be expected as a long term annual average catch of skipjack and yellowfin. NFD is considering an expansion in its pole and line fishing capacity. This would lead to an overall increase in catch volumes of approximately 1,000 MT per annum for each additional vessel.
- The tuna for SolTuna's increased throughput will comprise mostly albacore sourced from longline vessels. NFD has secured longline licenses for vessels that are landing albacore, and is attracting other longline vessels to land their albacore catch for processing by SolTuna. Between May and October 2012, 85 vessels landed albacore for processing at SolTuna. In prior years this albacore, although caught in Solomon Islands, was not landed in Solomon Islands.
- SolTuna's projected demand for albacore in 2013 is an achievable target and requires the number of longline landings to increase from 14 to 18 per month (assuming average metric tonnes/vessel landing stays the same).
- SolTuna's plans to increase throughput, from 90 MT/day to 150 MT/day by 2019 requires an increase in total annual supply from 23,400 MT to 36,450 MT (assuming 243 processing days per year).
- To put this increase volume into perspective, SolTuna's percentage of the total Solomon Islands catch will increase from 15.6% of the Solomon Islands 2011 tuna catch to 22% in 2019, assuming the total annual catch in the Solomon Islands remains around 178,000 MT. From a Solomon Islands' fisheries sustainability perspective, the increase in volume required by SolTuna will arise through SolTuna securing a greater percentage of the existing catch, rather than a significant increase in total catch. This is consistent with the Solomon Islands management plan of limiting effort and increasing local processing.

Environmental aspects of SolTuna's tuna supply

- A number of sustainability and environmental issues relating to tuna were identified during the appraisal. The key issues identified are:
 - The robustness of regional and national measures to conserve tuna stocks and the level of coordination between Pacific island countries to sustainably manage a highly migratory stock;
 - Bycatch of non-target species by the southern longline fishery, which targets albacore (some of the bycatch is retained) and to a lesser extent, bycatch of non-target species by the purse seine fleet;
 - Overfishing of bigeye and the challenge of a coordinated regional response to reduce bigeye mortality by 30%;
 - Purse seine fishing on fish aggregating devices (FADs) which is implicated in an increase in juvenile bigeye mortality; and
 - Management of bait fish stocks (essential for the pole and line fishing).
- These issues have been logged and actions identified to mitigate impacts are included in the Environmental and Social Action Plan.
- Some of the tuna fisheries in the WCPO are certified by the Marine Stewardship Council (MSC), but of the stocks supplying SolTuna, only the free school tuna caught in the Solomon Islands EEZ is MSC certified (it forms part of the PNA Free School Skipjack fishery). The Solomon Islands Main Group Archipelago waters, where most of the skipjack supplying SolTuna is caught, does not form part of this MSC fishery. However other tuna species and gear types in other fisheries that are equivalent to those supplying SolTuna have been MSC certified, providing precedent for MSC to apply to these fisheries in the Solomon Island waters.
- A range of NGO stakeholders were consulted during the appraisal and invited to provide feedback on the project. Key issues raised by stakeholders:
 - The imperative to restrict effort and overall catch with key management recommendations of the implementation of reference points and harvest control rules. Whilst most NGOs are of the view that skipjack, yellowfin and albacore stocks are healthy, their status could change if effort is not reduced;
 - Bycatch of non-target species, particularly by longline tuna vessels;
 - Concern of the overfishing of bigeye and greater effort directed to a coordinated approach to reducing bigeye mortality; and
 - The importance of Marine Protected Areas (MPAs) and that some areas should be off limits to fishing.

Tuna Sourcing and Sustainability Report

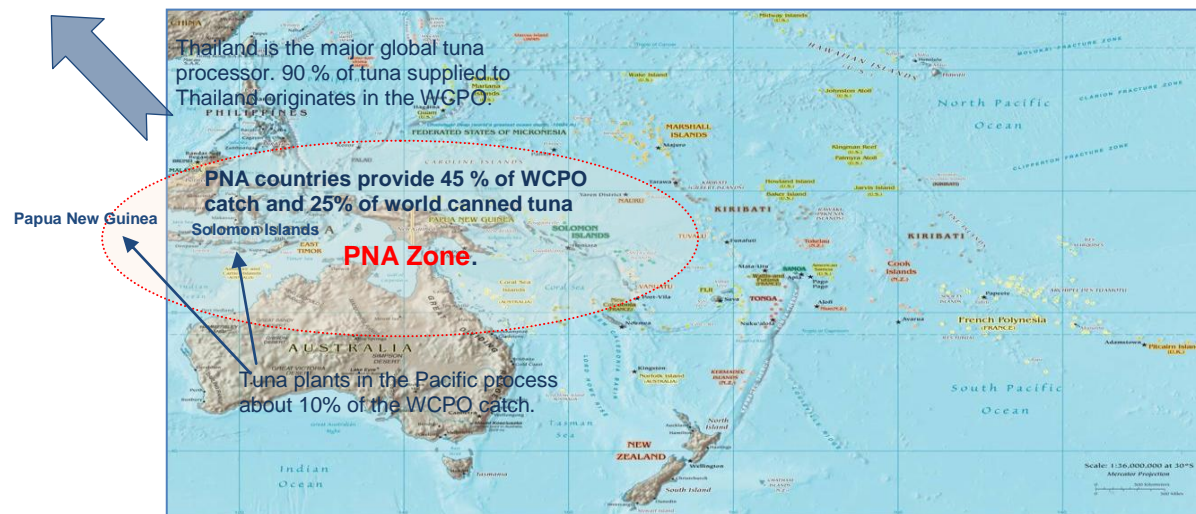
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Background

1. The Pacific Islands tuna fishery

1.1 The Pacific Islands tuna fishery is part of a connected set of resources and harvesting operations dispersed across the larger Western and Central Pacific Ocean (WCPO), a region defined by the biological range of the tuna populations within it. The WCPO tuna fishery is the world's largest and most valuable. It accounts for nearly 60% of global tuna production and has a value of around \$4.5 billion annually.

1.2 Tuna taken within Pacific Island country waters account for around 45% of the WCPO catch by volume and provide around 25% of the world's canned tuna supply. But only 20% of this catch is taken by Pacific Island fleets and only 10% is processed locally. The benefits that Pacific Island countries derive from tuna fisheries mostly comprise fishing access fees, but until recent times these fees have historically represented only about 6% of the first landed value of the catch.



1.3 Although access fees equate to only a fraction of the catch value, such revenues are of critical economic importance for many Pacific island economies in a region where the total land mass is only 550,000 km² spread across 180 million km² of ocean, or about 36% of the earth's surface and where the potential of marine resources typically outweighs other resources. This is particularly true for the smaller island and atolls states, most of which have few other opportunities for sustainable economic development. The following table highlights the importance of all fisheries for World Bank member countries.

Country	Estimate of fishing contribution to GDP (local currency ,000)	Estimate of fishing contribution to GDP (%)	Year
Fiji	27,761	1.7	2007
Kiribati	44,965	53.4	2007
Marshall Islands	41,763	26.7	2007
Palau	9,573	6.1	2006
Micronesia	23,750	10.0	2006
Papua New Guinea	153,910	3.1	2006
Samoa	85,043	6.1	2007
Solomon Islands	236,448	6.8	2007
Tonga	24,188	5.1	2006
Tuvalu	1,258,622	10.3	2002
Vanuatu	696,350	1.3	2007
Extracted from: <i>Fisheries in the Economies of Pacific Island Countries and Territories</i> (ADB, 2009)			

1.4 At the same time, Pacific fisheries face serious and complex challenges. Tuna resources are coming under pressure from overcapacity in fishing fleets, the impacts of onshore development and population growth, and changes in coastal and oceanic systems, including the effects of climate change. A 2009 study by the World Bank and FAO, *The Sunken Billions*, estimates that the 'lost wealth' of Pacific Islands' tuna fisheries through overcapacity and open access amounts to \$ 3.4 billion. There is real and growing need to improve governance, develop a globally competitive private sector, and to enhance Pacific islands' participation in the value chain.

1.5 These challenges are recognized in development of the World Bank Group's Global Partnership for Oceans, now in development, which aims to address the governance gap that has led to a 'tragedy of the commons' in the pursuit of the global public good that fisheries represent. The initiative will build on existing programs and new investments to create a new, interdisciplinary platform for sustainable oceans, drawing on coastal zone management, fisheries governance and international law. The initiative anticipates IFC engagement with the private sector to promote corporate social responsibility and sustainability standards.

1.6 There is emerging awareness too among Pacific island countries and some fishing industry operators that to realize the potential benefit of fisheries in the face of these challenges there is a need to add value to fisheries harvests rather than to increase volumes. This coincides with growing US and European market demand for sustainably produced tuna products.

1.7 There is also an emerging determination on the part of Pacific governments to exert their sovereignty over tuna resources to ensure their sustainability and to take a greater share in the benefits of the fishery. This was articulated in the landmark 2007 *Vava'u Declaration* by Pacific Islands Forum Leaders, which committed Forum member states to safeguarding tuna resources through better management so as to ensure enduring economic, social and cultural benefit.

1.8 Pacific island countries are thus increasingly limiting access to their tuna resource to those operators who are prepared to invest in the region and to align with sustainability standards. The response by private sector operators anxious to secure long term access to tuna is reflected in the more than \$300 m in planned, new investment in the Pacific tuna processing sector.

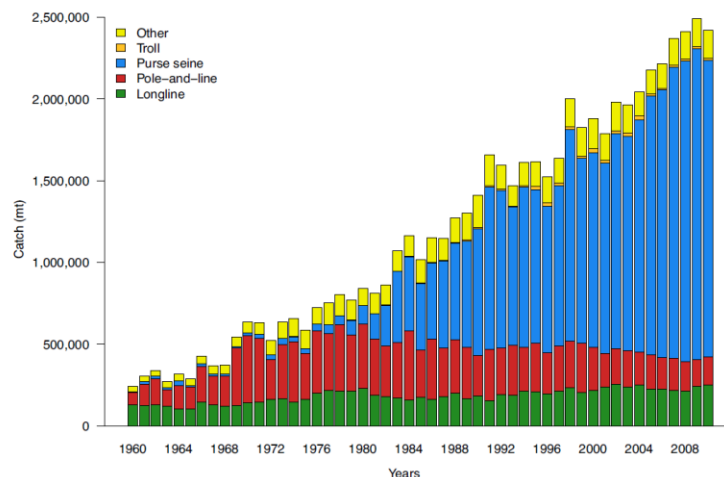
2. Status of Western and Central Pacific Ocean tuna stocks

2.1 Of the four tuna species in the Western and Central Pacific Ocean (WCPO), overfishing is occurring only with bigeye. Scientific advice from the Secretariat of the Pacific Community (SPC) to the UN-mandated Regional Fisheries Management Organization, the Western and Central Pacific Fisheries Commission (WCPFC) is that bigeye catch should be reduced by 30%. Yellowfin is neither overfished nor is overfishing occurring, however the WCPFC Scientific Committee has recommended no increase in fishing mortality in the Western Equatorial Pacific (waters around Indonesia and Philippines).

2.2 Skipjack and albacore stocks are viewed by SPC as being in a healthy state, though there has been a significant increase in the albacore catch in the southern fishery which includes Solomon Islands waters.

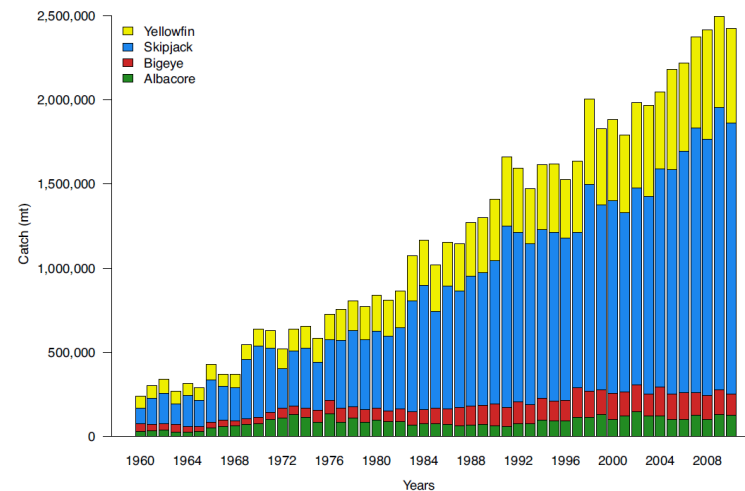
2.3 Rather than setting catch limits, tuna fisheries in the WCPFC region are managed by input controls that seek to manage catch, and if need be limit overall catch by restricting fishing effort. For this to be effective, the conservation and management measures set by the WCPFC, those agreed by regional bodies such as the PNA, and any additional national regulations, need to be comprehensive and complementary such that total catch is in line with scientific advice on level of harvest the resource can sustain.

2.4 The total average tuna catch (2008-2011 average) in the WCPFC was 2,207,710 t¹. The catch in the WCPFC has risen significantly since the 1980s, largely due to the growth of the purse seine skipjack fishery, as shown below.



¹ The abbreviation MT for metric tonnes is used throughout this report.

Catch (t) by gear type for the Western and Central Pacific region, 1960-2010.
(Source: SPC 2010 Overview and Status of Stocks)



Catch (t) by species for the Western and Central Pacific region, 1960-2010.
(Source: SPC 2010 Overview and Status of Stocks)

2.5 The interconnected and complex nature of tuna fisheries in SE Asia and the Pacific Islands is recognized through the Western Central Pacific Fisheries Convention, and the subsequent establishment in 2004 of the WCPFC Commission (WCPFC), which is a Regional Fisheries Management Organisation as defined by the United Nations Convention on the Law of the Sea.

2.6 Solomon Islands and all of World Bank's Pacific island member countries, as well as other PICs, are participants in WCPFC, as also are some 20 other nations having fishery-related interests in the region. WCPFC provides a mechanism for stakeholders in the region's tuna fishery to debate and eventually agree on fishery management measures which all members are then obligated to enforce through national legislation and action. As might be expected, the interests of PICs and foreign fishing nations can be at odds and agreement may be elusive or require considerable compromise.

2.7 The WCPO tuna fishery is now reaching the limits of sustainable exploitation, and this provides both threats and opportunities for PICs. The threat is that, if uncontrolled, the fishery will decline, reducing the actual and potential economic benefits that PICs derive. However the fact that the fishery is becoming limited by supply rather than by demand provides leverage for PICs in regard to conditions of fishery access by foreign fishing nations.

2.8 While the total catch has increased, skipjack, yellowfin and albacore are not overfished and overfishing is not occurring. Overfishing of bigeye is occurring however the stock is not overfished, as shown below.

Species	WCPO Stock Status	SPC's summary comments on stock status and recommendations for stock management
Skipjack	Not overfished and overfishing not occurring	Given species is short lived, improved monitoring of fishing effort and setting limits on fishing effort to limit declines in catch rate
Yellowfin	Not overfished and overfishing not occurring	Region 3 (around Indonesia) is fully exploited and no increase in catch should occur.
Bigeye	Not overfished, overfishing occurring	Reduce mortality by 30%
Albacore	Not overfished and overfishing not occurring	For South Pacific albacore stock, any increases in catch or effort are likely to result in catch rate declines

Summary of SPC's assessment of stock status of the WCPO tuna species. Source: Western and Central Pacific Tuna Fishery: 2010 Overview and status of stocks (SPC)

Management of WCPO tuna fisheries

3. Secretariat of the Pacific Community

3.1 The tuna resources of PICs are scientifically monitored by the Secretariat of the Pacific Community (SPC). SPC's Oceanic Fisheries Programme (OFP), a program within the division of Fisheries, Aquaculture and Marine Ecosystems (FAME), collects and collates catch and effort data, observer reports and other information on oceanic fisheries from SPC member countries and foreign fleets fishing under license, and provides analyses and stock assessments to them. The OFP is the science service provider to the WCPFC.

3.2 An Independent Expert Review (IER) was conducted by SPC in June 2012. The IER's made the following findings in relation to FAME: "This Division is well regarded across all stakeholders – its programs are given high priority in the region and it was the Division that was most often referred to and complimented in the client consultations. The oceanic program plays a key scientific role in leading stock assessments on tuna, the region's most valuable oceanic source. Reflecting the importance of its work, this unit attracts over 1 million CFP units (equivalent to approximately AU \$1 million) per year in cost recovery resources. While it works in a somewhat crowded institutional environment, the IER discerned that a coordination mechanism is in place across SPC and other fisheries institutions, and the other agencies do not have the capacities to do the key scientific work that FAME leads. In addition, FAME is the only regional organization working on coastal fisheries and, given the role coastal fisheries play in regional livelihoods, its work is key to the Pacific's development efforts. "

3.3 SPC provides the WCPFC , PNA, and state management bodies such as MFMR high quality scientific data and advice on stock status and trends. The Commission, PNA and PICs are in a position to implement conservation and management measures to conserve tuna stocks base on sound scientific advice. Any delay with implementing action is not due to paucity of data

4. Parties to the Nauru Agreement

4.1 Recent actions by sub-regional groups of resource-owning PICs with common interests demonstrate a clear intention to capitalize on these changes to the tuna fishery landscape. A group of eight PICs, including Solomon Islands, the Parties to the Nauru Agreement (PNA), control over 14 million square kilometers of the WCPO, territorial waters that supply 55% of the tuna caught in the region (30% of global supply), with an estimated value of \$ 5.5 billion.

4.2 The PNA is a driving force for improving the management of the region's tuna resource, and collectively have introduced measures to improve the management of the resource, increase member country's control of the resource, and improve economic returns from the fishery. The initial focus of the PNA has been purse seine fishing however it is likely they will also introduce greater controls for longlining. Some of these changes and initiatives introduced by the PNA for the purse seine fishery include:

- The development and implementation of the Vessel Day Scheme (VDS)
- Seasonal fish aggregating device (FAD) closures
- Closures of high seas areas to fishing
- 100% observer coverage on purse seine vessels
- Catch retention requirements
- A ban on setting on whale sharks
- Requirement that all fishing vessels have activated locator transponders while moving between high seas and Pacific EEZs

4.3 The rise of the PNA as an influential and effective body in the WCPO tuna sector that is seeking greater control of their tuna resources aligns well with IFC's agenda for Pacific tuna fisheries and provides considerable scope for collaboration.

4.4 PNA also initiated a successful effort to have part of the WCPO purse seine fishery for skipjack tuna certified to Marine Stewardship Council standards. The positive economic effects of the Vessel Days Scheme is beginning to emerge, with PNA now claiming that PIC licensing revenues have recently doubled to around 10% of the landed value of the catch.

4.5 Under the PNA Vessel Days Scheme for purse seine fishing, Solomon Islands is allocated 2,961 fishing days that it can sell to foreign fishing vessels to fish in its waters. In June 2011 that allocation was exhausted and on notification by the PNA the Solomon Government closed its tuna fishery. It subsequently negotiated with another PNA member, Marshall Islands, to purchase an unused portion of that country's allocation so that fishing could resume, in line with provisions of the scheme.

Solomon Islands tuna fisheries

5. Overview

5.1 Tuna taken in Solomon Islands accounts for around 7% of the total catch from the Western and Central Pacific Ocean, about equal to the catch from Federated States of Micronesia, but well below the most productive Pacific island zones of Kiribati at 14% and Papua New Guinea at 18%.

5.2 The Solomon Islands Exclusive Economic zone (EEZ), 1.34 million km² in extent, is about half the size of the adjacent PNG EEZ. The mean annual catch of tuna in Solomon Islands waters between 2008 and 2011 was 156,102 MT with an estimated value of \$180 million. The bulk of that catch was taken by foreign fishing vessels and taken elsewhere for processing.



5.3 Foreign purse seine vessels fishing in the Solomon Islands EEZ under access agreements took over 87,000 MT during 2009, with the Korean, Taiwanese, Japanese, Vanuatu and other fleets accounting for the majority of the catch. Foreign longliners (China, Japan and Taiwan) caught around 16,000 t, with a small catch (365 t) by Japan long-range pole and line vessels.

5.4 Solomon Islands presently derives direct benefit from the foreign fleet tuna fishery through access fees, but these benefits have represented only about 5% of the landed value of the catch.

5.5 A local fishing company, National Fisheries Developments Ltd., is the single industrial-scale fishing operator. It operates a fleet of five small purse-seine vessels and several pole and line vessels, which supply the single local tuna processor, SolTuna (see sections 4 and 5).

5.6 Solomon Islands is classified as a Least-Developed Country, so enjoys preferential market access to the EU under the 'Everything But Arms' (EBA) Initiative. However, strict rules of origin (RoO) apply where raw material must be sourced from Solomon Islands or EU-flagged

vessels to benefit from the 24% import duty exemption. In order to qualify for 'global sourcing' RoO Solomon Islands will need to sign onto the EU Interim Economic Partnership Agreement (IEPA).

5.7 The Solomon Islands Government (SIG) is still considering whether or not to sign an IEPA. In the absence of an IEPA locally-based tuna loining/canning plants need to source raw material from domestic (or EU-flagged) vessels in order to benefit from duty free access to the EU under the EBA concession.

5.8 SIG believes that better management of fishing capacity and access and increased onshore processing activities will generate employment opportunities, increase export income and create domestic industries servicing the fishing and processing sector.

5.9 To this end SIG has committed to a program to enhance tuna fishery development and management by improving the policy and investment environment, improving licensing arrangements, controlling illegal fishing and expanding domestic tuna fishing and processing capacity, including linking foreign fishing access to the establishment of shore based facilities in Solomon Islands.

5.10 In doing so it hopes to emulate the success of such policies in neighboring Papua New Guinea which, among other measures, linked fishing access to onshore investment in 1995. PNG now has five processing plants in operating, employing more than 7,000 people, most of whom are women. Newly committed onshore investments in PNG have a total capex of \$200 m and will employ a further 14,000.

6. Resource management

6.1 The interconnected and complex nature of tuna fisheries in SE Asia and the Pacific Islands is recognized through the Western Central Pacific Fisheries Convention, and the subsequent establishment in 2004 of the WCPFC Commission (WCPFC), which is a Regional Fisheries Management Organisation as defined by the United Nations Convention on the Law of the Sea.

6.2 Solomon Islands and all of World Bank's Pacific island member countries, as well as other PICs, are participants in WCPFC, as also are some 20 other nations having fishery-related interests in the region. WCPFC provides a mechanism for stakeholders in the region's tuna fishery to debate and eventually agree on fishery management measures which all members are then obligated to enforce through national legislation and action. As might be expected, the interests of PICs and foreign fishing nations can be at odds and agreement may be elusive or require considerable compromise.

6.3 In common with other PICs, the Government of Solomon Islands recognizes that fishing overcapacity and open access constrains better resource management and leaves the resource at risk. SIG recognizes too that sustainable future benefits will rely on increasing the value of existing (or possibly diminished) catches and the profitability of fishing and processing operations. SIG's recent implementation of a long-standing policy to issue longline fishing licenses only to operators that land their catch locally, and progress with developing a fully considered tuna management plan (see Appendix 2: SIG Tuna Management and Development Plan V6), and an investment strategy, indicate progress towards better management practices. Solomons' alignment with PNA and its tuna management measures are also indicative of a new determination by SIG to play a responsible part in regional tuna management.

6.4 As with other jurisdictions with the WCPFC region, the tuna fisheries in the Solomon Islands are managed by input controls that seek to limit catch levels by limiting fishing effort. As the fishery has approached its sustainable limits, the SIG has introduced measures (and has others planned) to manage effort. These include:

- Participation in the PNA Vessel Day Scheme (VDS) for the purse seine fleet operating in Solomons EEZ. The VDS limits the number of fishing days allowable, with vessels buying days in the scheme to enable them to fish
- A reduction in longline licenses from 242 in 2011 to 172 in 2012 in response to stock assessments that the southern albacore stock was at risk of overfishing.
- Consideration of a proposal to introduce a VDS for the longline fishery.

6.5 Solomons' Ministry of Fisheries and Marine Resources (MFMR) has responsibility for management and development of the nation's tuna resources, including management of varying fishing access regimes for different parts of its EEZ; the Main Group Archipelago, for instance, which comprises the waters enclosed by the six main islands, is by policy reserved for subsistence and domestic industrial fishing.

6.6 MFMR is challenged in this task by inadequate institutional capacity and limited human resources. In recognition of this, and the social and economic importance of tuna for Solomon Islands, various development partners have provided MFMR with *ad hoc* and long term technical assistance, including the attachment of technical advisers. The most significant recent assistance is being provided by New Zealand under the *Mekem Strong Solomon Island Fisheries* program.

6.7 MFMR has also received regular support from the Pacific Islands Forum Fisheries Agency (FFA), which is headquartered in the Solomon Islands. FFA supports PICs in their negotiations with foreign fishing interests, mediates the development of regional treaties and access arrangements, maintains a regional register of fishing vessels in good standing, and operates a regional vessel monitoring system. FFA also promotes domestic fishery development and investment, as well as supporting its member countries in developing fishery management initiatives and participating effectively in the WCPFC.

7. The tuna catch

7.1 There are three industrial scale tuna fisheries in the Solomon Islands; purse seine, longline and pole and line. Purse seine and pole and line fisheries target skipjack and yellowfin, while the longline fishery targets albacore with a secondary catch of yellowfin and bigeye.

7.2 The total catch of skipjack, yellowfin, bigeye and albacore in the Solomon Islands has increased significantly since 2004, reaching a peak of ~186,000 MT in 2011. Skipjack is the dominant species, representing 69% of the catch, followed by yellowfin (18%), albacore (9%) and bigeye (4%). In particular, albacore catch in the Solomon Islands has increased significantly over the last ten years, from 330 MT in 2001 to 16,132 MT in 2011. The SIG has responded to advice on the albacore stock and is limiting effort by reducing longline licenses so that the albacore catch should reduce from ~16,000 MT to the range 10,000-12,000 MT in 2012/2013.

7.3 Tuna taken in Solomon Islands accounts for around 7% of the total catch from the Western and Central Pacific Ocean, about equal to the catch from the Federated States of Micronesia, but well below the most productive PIC zones of Kiribati at 14% and Papua New Guinea at 18%.

7.4 The commercial tuna fishery has two zones, that part within the waters of the MGA and the remainder of the EEZ out to the 200 nm boundary. The MGA is reserved for the domestic fleet landing fish for on-shore processing and for domestic artisanal and subsistence fishing. The domestic fleet also fishes in the EEZ along with foreign fleets, principally from China and Taiwan (longline) and Korean, Taiwan, US and PNG (purse seine). The active domestic fleet comprises five purse seine and four pole and line vessels operated by National Fisheries Developments Ltd.

7.5 Fish Aggregating Devices (FADs) are an important tool for some purse seine fleets, including the Solomon Islands domestic fleet, which predominantly fishes on anchored FADs within Solomons' MGA. Tuna tend to gather near FADs, which are typically floating rafts anchored to the seabed in deep water, and thus are more easily found and taken by purse seine vessels, as opposed to the vessels having to search for free swimming schools of fish.

7.6 Two distinct but overlapping longline fisheries operate in Solomon Island waters, the tropical longline fishery, which essentially targets large yellowfin and bigeye tuna, and the southern longline fishery, which essentially targets albacore tuna. The catch of bigeye has increased substantially in Solomon Island waters over the last ten years due to increase effort in the longline fishery. The Solomon Island catch of bigeye increased from 620 MT in 2001 to 6,870 MT in 2011. In response to concerns regarding the stock of bigeye and advice from SPC that catch should be reduced by 30%, the Solomon Islands has implemented measures that will go some way to address overfishing of bigeye, including seasonal FAD closures in their EEZ in line with other PNA nations (to reduce catch of juvenile bigeye) and in 2012 by restricting longline effort by reducing the number of longline fishing licenses issued, which is expected to reduce the overall longline catch, including the catch of adult bigeye. The failure of recent WCPFC meetings to fully adopt the advice of the Commission's Scientific Advisory Committee on other measures to reduce bigeye mortality means that it is unlikely that these measures will be enough to reduce overall WCPO bigeye mortality to recommended levels. This is relevant to SolTuna as its increased landing of longline caught tuna will inevitably lead to increased landings of bigeye at Noro, even though the overall bigeye catch from Solomons' waters is likely to be reduced.

7.7 The total purse seine catch from Solomon Islands waters in 2011 was 152,891 MT comprising skipjack (79%), yellowfin (17%) and bigeye (4%) with about 20,000 t, or 13% caught within the MGA. The longline catch was 24,272 MT comprising 16,132 MT albacore (67%) with a secondary catch of yellowfin (28%) and bigeye (5%). Longlining is conducted within the EEZ, but is excluded from the MGA. Pole and line fishing, which NFD restarted in Solomons in 2011 in response to premium market demand for pole and line catch, is undertaken almost entirely within the MGA with a total catch of 871 MT (83% skipjack and 17% yellowfin). See Appendix 1 for WCPO and Solomon Islands catch data.

Year	Albacore	Bigeye	Skipjack	Yellowfin
2000	330	620	5690	2,490
2001	180	930	28,180	7,730
2002	1060	1200	17,870	4,780
2003	940	2740	51,070	14,490
2004	2250	3080	81,030	25,260
2005	3160	2200	76,530	18,760
2006	6970	3700	79,520	33,340
2006	5460	2930	76,190	29,820
2008	8250	2470	96,110	28,520
2009	12120	2570	77,310	27,060
2010	20,140	3000	133,900	29,220
2011	16,132	6,870	121,963	33,069

8. Tuna stock status

8.1 SPC's Oceanic Fisheries Program conducted a stock assessment of the four tuna species in the Solomon Islands in 2011. Its findings are that:

- The biomass of the four species has declined in recent years and are historic lows, however the biomass for skipjack, yellowfin and albacore are estimated to be at levels that will support maximum sustainable yield. Current levels of fishing effort for these species are considered to be sustainable for these stocks in the long term. The bigeye stock is estimated to have declined and current regional levels of fishing effort, including that in the Solomon Islands are not considered to be sustainable in the long term. SPC has recommended a minimum 32% reduction in fishing mortality of bigeye.²
- The tuna fishery in the MGA is not covered by the effort limits set for the EEZ. Given the stock move freely between these management zones, there is the risk that increased effort in the MGA could impact on the stock in the EEZ (and vice versa).
- There is potential for catches in the MGA to increase, however, MFMR should monitor the MGA fishery carefully through an adaptive management approach, which would involve allowing catches to increase within MGA waters while monitoring catch rates per unit of effort (CPUE). Future catches would then be adjusted up or down depending on observed CPUE.
- Any catch or effort limits within the MGA should consider purse seine and pole and together as these fleets exploit similar resources.

Tuna supply to SolTuna

9. National Fisheries Developments Ltd

9.1 All the tuna processed by SolTuna Ltd is supplied by Solomon Islands fishing company, National Fisheries Developments Ltd (NFD), which is owned and operated by Tri Marine, one of the three major global tuna trading companies. Tri Marine also recently became the majority shareholder of SolTuna.

Purse seine fishing

9.2 NFD operates five purse seine vessels and two pole and line vessels (with two others under refurbishment). It also handles tuna landed to its Noro base by foreign longline vessels, which are also provided to SolTuna.

² Solomon Islands, National Tuna Fisheries Status Report No. 26, September 2011, SPC and MFMR

9.3 NFD's purse seine vessels are relatively small by WCPO standards, with a carrying capacity of 350 MT. In contrast, large purse seine vessels typically have a carrying capacity of ~3,000 MT.

9.4 Most of the NFD purse seine catch is taken in Solomons Main Group Archipelago (MGA) where most sets are made on fish aggregation devices (FADs). Currently, NFD is the only major domestic fleet fishing within the MGA. Licenses have been issued for a Western Province and Filipino joint venture to also fish in the MGA.

9.5 Some NFD FADs are used by local fishing communities, usually in cooperation with NFD (i.e. local fishermen report damage to FAD so that NFD will repair it, and maintain its presence to local fishermen's benefit). However, NFD also reports some damage to FADs through community use.

	2011		2012 (to 30 Oct)	
	FAD (anchored and drifting)	Free school	FAD (anchored and drifting)	Free school
Skipjack	89.7%	10.3%	93.9	6.1%

FAD and Free School composition of NFD's purse seine catch, 2011 -2012

Source: data supplied to IFC by NFD

9.6 With ~5% of the purse seine catch free-school, it is reasonable to assume that setting on free schools is done opportunistically should these be sighted as vessels travel between FADs.

9.7 NFD flagged that juvenile bigeye are caught on FADs, however these are very difficult to distinguish from yellowfin and therefore recorded in the catch data as 'bigeye mix'. From examining one example of a Captain's trip report (*F/W Solomon Pearl* Trip No. 10-12SP) the volume of 'bigeye mix' is recorded and this data is also recorded on the SPC/FFA Regional Purse Seine logsheet. What is not known, due to the difficulty of distinguishing juvenile bigeye from yellowfin, except by a trained observer, is the volume of each species in this mix. For this trip, 0.12% of the total catch was 'bigeye mix', which assuming is an average bigeye bycatch from their purse seining on FADs, would equate to annual bigeye mix catch of 24 MT entering SolTuna's supply chain from purse seining. To put this in perspective, the 2011 overall bigeye catch in the Solomon Islands waters was 6,870 t.

9.8 NFD's General Manager reports that juvenile bigeye are more associated with floating FADs, rather than the anchored FADs that NFD uses. NFD is working with SPC to undertake a field sampling program to determine whether this is the case and is seeking MFMR endorsement of this (as such requests to SPC must come from member governments). Early results indicate that the bigeye catch on FAD-associated sets in the Solomon Islands averages 2.8%, whereas the average for FAD-associated sets in the remainder of the WCPO is 7.3%.

9.9 Setting on cetaceans and whale sharks is prohibited under Solomon Islands fisheries regulations and purse seine license conditions and this requirement is documented on MFMR's trip reports that the captain signs at the completion of each trip. NFD advised the IFC appraisal team that other bycatch such as turtles and sharks are removed from purse seine prior to brailing the fish onto the vessel, typically by letting

the side of the net down and guiding the turtle/ shark out from the enclosure when possible. The purse seine vessels have 10 wells allowing for physical segregation of fish by species or fishing method, e.g. separating free school from FAD-caught tuna.

9.10 Solomon Islands require that all purse seine vessels operating in its waters accommodate fisheries observers, when allocated. MFMR prioritizes observer allocation to foreign purse seine vessels fishing under license in Solomons EEZ, though NFD advises that the level of observer coverage on its fleet is 'quite high'.

9.11 NFD's purse seiners are manned by Solomon Islanders, with the exception of the fishing masters who are expatriates. NFD clearly prioritizes training and career advancement for its local employees. NFD is the only company operating in the Western Pacific that has one boat crew (including the fishing master) who are all Pacific Island nationals.

Pole and line fishing

9.12 The Solomon Islands previously had a sizeable pole and line fishery, reaching a peak in 1988 with 34 vessels catching a total of 37,688 MT. The fishery declined rapidly from this peak as effort shifted to purse seining.

9.13 NFD has the only pole and line vessels operating in the Solomon Islands, having recommenced pole and line fishing in 2011. NFD's pole and line vessels are crewed entirely by Solomon Islanders.

9.14 The pole and line vessels catch bait immediately prior to commencing a fishing trip. NFD has agreements with local communities to take bait in inshore bait grounds. Some of the bait grounds are within the Noviana and Vonavona lagoons that contain zones gazetted as Marine Protected Areas. Little is known about the stock status of the bait fish, or the level of fishing it can sustain. As bait fish is essential for pole and line fishing, a better understanding of the stock status is a priority as NFD increases its pole and line fishing operation.

Longline fishing

9.15 NFD also provides fleet management services for longline vessels now landing to the SolTuna plant at Noro under MFMR's newly-enforced policy of progressively restricting the issue of longline licenses to operators who will land and process catch onshore in Solomon Islands. NFD was allocated 50 albacore longline fishing licenses for 2012 and some of the vessels operating under these licenses landed to NFD during 2012. Other, unassociated longline vessels also landed their catch to NFD at Noro. Some of the unassociated vessels held albacore fishing licenses and others licenses to fish for yellowfin and bigeye.

9.16 Most of the longline vessels landing to NFD originate in Taiwan from a fishing port near to Kaohsiung, where Tri Marine maintains an office. The fleet owners and captains, sometimes owner-captains, are generally well known to Tri Marine's Kaohsiung office. The owners/captains thus contact Tri Marine's Kaohsiung office to negotiate a price for tuna that they might land to NFD at Noro and this information is passed to NFD. NFD at Noro will then communicate directly with the vessel to schedule landing and other services required by the vessel.

9.17 NFD is working to improve its fleet support services, including efficient ship repair and victualling, the provision of bait and, eventually, bulk fuel supply and the refrigeration required to handle high-grade fresh and frozen tuna destined for sashimi markets. In support of this NFD has established a longline fleet management office, which includes staff seconded from Tri Marine's Kaohsiung office, whose language ability enables them to deal more effectively with Taiwanese vessel captains. NFD may also negotiate directly with the captain for the purchase of any yellowfin and bigeye that the vessel may have caught. All these measures support the group strategy to source more needed tuna supply for

SolTuna from longline-caught tuna. If NFD was not prepared to take all the species caught by longliners the captains may be inclined to land their entire catch to neighboring Fiji, where they had typically landed prior to Solomon Islands imposing its domestic landing policy, despite the risk that they may not be licensed in the future for failing to comply with their license conditions. Fiji has the important added attraction of being able to provide bunker fuel to vessels at significantly lower cost than NFD can presently (\$ 1,100 MT vs \$ 1,600 t).

9.18 NFD began receiving longline catches at Noro in mid-May 2012, and between then and December, 58 longline vessels landed tuna there. The vessels include NFD licensed vessels as well as those operating under other licenses.

9.19 Much of tuna landed to NFD during 2012, was albacore and delivered to the SolTuna plant. A much smaller percentage was yellowfin and bigeye, with the majority of bigeye sold to other customers.

9.20 Longline landings to date represent about 6% of tuna delivered to SolTuna. This should be expected to significantly increase in 2013 as the new tier-based licensing regime becomes fully implemented, and under which Tier 1 licenses have a condition of landing tuna in country. It is reasonable to assume that vessels operating under an NFD license and other license holders will have considerable incentive to land their catch at Noro if they seek to continue to fish in Solomon Island waters

9.21 NFD does not place any fishing controls on the longline vessel fishing under its licenses, beyond what is required by MFMR, the vessel owners, and the vessels' home country fisheries authority, nor are the vessels bound to sell their fish to NFD. Under the current license arrangements, NFD's securing of longline licenses enables it to provide access to the albacore resource, and incidental catches of yellowfin and bigeye, for vessel operators, who may or may not choose to sell any of their catch to NFD.

9.22 At the same time vessel operators are aware that if they do not land at least their albacore catch to NFD they will be deemed to have not complied with the local landing policy under which the licenses were first allocated. In these circumstances vessels are typically landing their albacore catch to NFD, thus satisfying NFD and SolTuna's primary supply need, but are negotiating with NFD and others for the sale of yellowfin and bigeye.

9.23 Despite this, NFD is making good progress in attracting vessels to land at their facility, and as the domestic landing in return for access policy is fully implemented it may be expected that more longline vessels will land at Noro in 2013 and beyond.

9.24 To date, NFD has not purchased any non-tuna species caught by longline vessels incidentally, however on two occasions it trans-shipped such catch on behalf of the vessel owners. Both these vessels were fishing on NFD licenses.

Vessel:	Vessel 1	Vessel 2	Total by species	%
Species				
Shark	0.53	10.97	11.50	43
Oilfish	0.42	4.18	4.60	17

Wahoo	0.11	2.71	2.82	11
Swordfish	0.43	0.66	1.09	4
Mahimahi	0.12	0.35	0.47	2
Blue Marlin	2.05	2.83	4.88	17
Sailfish	0.14	0.58	0.72	3
White Marlin	0.74	0	0.74	3
Total			26.82	100

Total MT of longline caught non-tuna species landed at Noro (May-Oct 2012). Both vessels were licensed to NFD, and the fish trans-shipped. Source: NFD

9.25 NFD has scant data on bycatch (retained or discarded) for the longline vessels fishing under its licenses. The only longline bycatch data available to NFD is for retained catch where the vessel owner has negotiated to sell this catch to NFD, or where NFD has acted as an agent to sell it on the owner's behalf. Since longline landings commenced in May 2012, only the two vessels shown in the table above have landed non-tuna retained bycatch at Noro. One of these vessels landed nearly 11 MT of shark along with 68 MT of albacore. Such a high proportion of shark is probably inconsistent with the catch of a longline vessel targeting albacore and this vessel may have targeted shark. With only 5% observer coverage of longline vessels operating in Solomon Island waters it is possible that logsheet data provided to MFMR by longline vessels is inaccurate, particularly when fishing activities are not in compliance with license conditions.

9.26 Arguably the most significant environmental impact in SolTuna's supply chain is the bycatch levels of the longline vessels (NFD and other license holders) landing tuna at Noro. The low level of observer coverage, combined with a lack of conditions imposed by NFD/ SolTuna, beyond the conditions set out in the license permit, and the practical difficulty NFD would have in monitoring fishing practices at sea, means SolTuna and NFD are almost unsighted on the extent of non-retained and retained bycatch for these vessels. The little data available would suggest that the retained bycatch of sharks could be substantial and there is the possibility that some of the vessels may be targeting sharks and/ or finning and discarding sharks.

9.27 While the retained bycatch is not sought by SolTuna, it is being caught by vessels operating under an NFD license or by other vessels supplying NFD, and therefore forms part of NFD and SolTuna's 'fisheries footprint' and consequently should be viewed as part of their supply chain. As NFD ramps up its fresh/ frozen business and ancillary services to longline vessels, it is likely there will be a significant increase in the landing of non-tuna species at Noro that will either be purchased by NFD or handled by NFD as an agent on behalf of the vessel owner. This presents a reputational risk for Tri Marine, which publicly endorses a ban on shark finning at sea in light of concern about overfishing of some shark species, and for their subsidiaries, NFD and SolTuna. The fact that a third party is fishing on their behalf does little to mitigate the reputational risk.

9.28 The transition to a tier-based longline licensing system, commencing in 2013, where licenses will be preferentially allocated to those vessels demonstrating compliance with the domestic landing policy, will give NFD leverage in setting and imposing good practice fishing

conditions (bycatch mitigation [turtles and seabirds}, bycatch retention, shark finning, crew conditions etc.) on vessels it deals with in the event this is deemed necessary to address a material risk.



Longline fishing vessel unloading at SolTuna's Noro plant

9.29 Preliminary recent observation of NFD's handling of longline vessel crew impacts on the local community suggest that NFD is very well aware of potential negative impacts and is working to develop protocols to minimize them. This may be an area where IFC could assist by promoting firm/ community collaboration (HIV/ AIDS awareness etc).

9.30 NFD also plans to develop a small fleet of handline vessels, which would be manned by Solomon Islanders, and target large yellowfin and bigeye on FADs for the fresh sashimi market. As fresh tuna are routinely flown to market this would largely be dependent on completion of the upgrade to nearby Munda Airport to international standard, which is underway under NZ sponsorship, as is upgrading and sealing of the Munda-Noro road. SolTuna is also exploring the potential to produce frozen sashimi-grade tuna, but this requires sophisticated ultra- low temperature (ULT) freezing and holding capacity. SolTuna believes it can process prime sashimi grade tuna onshore and deliver them to market in ULT reefer containers by sea freight.

Sustainability of supply

10. Sustainability of SolTuna's projected increase in demand for tuna

10.1 SolTuna's plans to increase throughput, from 90 MT/day to 150 MT/day by 2019 represents a total annual catch increase from 21,870 MT to 36,450 MT (assuming 243 processing days per year, the plant's historic average). To put this increase volume into perspective, SolTuna's processing capacity as a percentage of the total Solomon Islands' catch will increase from 12.3% of the Solomon Islands 2011 tuna catch to 20% in 2019, assuming the total annual catch in the Solomon Islands remains around 178,000 MT. From a Solomon Islands' fisheries sustainability perspective, the increase in volume required by SolTuna is likely to be achieved by SolTuna securing a greater percentage of the total catch, rather than a significant increase in total catch, consistent with the Solomon Islands management plan of limiting effort and increasing local processing.

10.2 SolTuna has indicated that the growth in volume to get to 150MT/day will come predominantly from tuna landed by longline, principally albacore, with secondary landing of yellowfin and bigeye. In other words, NFD's existing fleet of purse seine vessels and pole and line vessels is not anticipated to supply tuna beyond the historic annual catch. The proposed re-commissioning of two pole and line vessels will increase NFD's overall effort, as will any further expansion of the pole and line fleet (which is under consideration). Any further expansion of NFD's fleet would increase capacity and effort, and annual catch would likely exceed the 27,000 to 30,000 MT projected for the existing fleet. However, further expansion of the pole and line fleet, were it to occur, is likely to be viewed by stakeholders as a positive development given the environmentally benign nature of this gear type, and particularly if it is a shift of capacity from other gear types.

10.3 SolTuna's projected increase in demand for albacore, from 1,178 MT processed in 2012 to 5,337 MT projected in 2019 will rely on NFD securing a greater proportion of the albacore caught in Solomon Island waters, fish that otherwise would have been landed elsewhere. Given the steps already been taken by the SIG to limit access and effort in the longline fishery, it is likely that total albacore catch over the coming years will not exceed the 2011 annual catch of 16,000 MT, and the annual catch is more likely to contract. Assuming albacore catch remains at 16,000 MT, SolTuna's share of this catch will increase from ~7% to ~33% in 2019. Should albacore catch contract to 12,000 MT in line with the 2012 reduction of longline licenses from 242 to 172, then SolTuna share of the annual catch will be 44% of the total Solomon Islands 2019 albacore catch.

10.4 SolTuna is projecting a sizeable increase in albacore in 2013 from that landed in 2012, from 1,178 MT to 4,041 MT. The 85 longline vessels that landed albacore in 2012 (May-Oct) had an average albacore catch of ~17 MT. To achieve the 2013 target, ~216 longline vessels need to land at Noro, a monthly increase in landings from 14/month in 2012 to 18/month in 2013. This seems an achievable increase in visitation by longline vessels.

10.5 The increase in longline landings, and the desire, and need, for SolTuna to secure all tuna on board will mean that SolTuna's landings of bigeye will increase substantially to a projected 700 MT by 2019 or ~10% of the Solomon Island's 2011 catch. There are significant implications for SolTuna as they are seeking to increase the volume of bigeye in their supply chain from ~110 MT (2012) to 700 MT (2019) at a time that scientific advice is that overall catch of bigeye should be reduced by 30%. As with albacore, this does not imply an increase in catch of bigeye in Solomon Island water but SolTuna securing a greater percentage of the annual catch. However, given SolTuna's prominent position in the fishing industry in the Solomon Islands and the global position of Tri Marine, it is a high priority for SolTuna to identify measures that its

primary supplier NFD can implement to ensure that longline operations targeting yellowfin and bigeye are well monitored and adhering to best practice in regard to bycatch mitigation and to minimize the catch of juvenile bigeye by NFD's purse seiners fishing on FADs.

11. Recognized standards for sustainable natural resource management

11.1 The viability and value of tuna production in Solomon Islands is necessarily subject to the dynamics of the global tuna supply chain. Concerns over the health of tuna populations and resource sustainability have become a part of mainstream debates in the tuna sector in recent years. Several sustainability certification schemes have been initiated (i.e. various dolphin-safe labels, Marine Stewardship Council and Friends of the Sea) providing an eco-label that identifies a consumer product as ecologically superior to commercially similar products. The goal of these efforts is to tap into market-based incentives to improve fisheries management systems and contribute to sustainability of fisheries resources.

11.2 Several fisheries interest groups have developed sustainability recommendations designed to influence consumer buying patterns towards more sustainable products. While these are not eco-labels, *per se*, they offer consumers easily digestible recommendations on seafood products in three categories: those that are the best sustainability choices, those that are good and those that consumers should avoid.

11.3 In recognition of such sentiment IFC's Performance Standard 6 (Sustainable Natural Resource Management) seeks to have clients attain recognized standards of natural resource management.

11.4 The Marine Stewardship Council (MSC) is the most widely accepted independent third party fisheries standard and it has been applied to a range of fisheries, species types and fishing methods. There are 15 tuna fisheries globally either in assessment or certified to the MSC standard including skipjack, yellowfin, albacore and bigeye fisheries. They may well also be other tuna fisheries that have undergone the confidential MSC pre-assessment.

11.5 A component of the one of the fisheries supplying SolTuna – the PNA free school skipjack fishery - is MSC certified, but only Solomon Islands' EEZ waters are covered by the MSC certification (not the MGA) and, as NFD's purse seining is predominantly within the MGA only a very small portion of their free school catch will be from the MSC certified fishery. There is, however, precedence for MSC certification of the species and fishing methods supplying tuna to SolTuna, as shown in the table below, so there is potential for MSC certification to apply to these fisheries.

Species	Fishing Method	Is the fishery certified to recognized standards?	Examples of similar fisheries certified to recognized standards
Skipjack	Purse Seine	In part – the free school within the EEZ is part of the PNA certified fishery	<ul style="list-style-type: none"> PNA Western and Central Pacific skipjack fishery
Skipjack	Pole and Line	No	<ul style="list-style-type: none"> Maldives pole & line skipjack fishery
Yellowfin	Purse Seine	No	
Yellowfin	Pole and Line	No	<ul style="list-style-type: none"> Mexican Baja California pole & line yellowfin and skipjack fishery

Albacore	Longline	No	<ul style="list-style-type: none"> • Fiji albacore tuna longline fishery • New Zealand albacore tuna longline fishery • American Albacore Fishing Association Pacific albacore fishery
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MSC certification of fisheries equivalent to those supplying SolTuna and precedent for certification for that species and gear type. Source: MSC website.

Stakeholder Consultation

12.1 Organisations with an interest in the sustainability of tuna stocks and marine conservation were consulted as part of the project appraisal. These organizations raised the following issues relating to sustainability of tuna stocks and impacts arising from tuna fishing:

- The robustness of regional and national measures to conserve tuna stocks and the level of coordination between Pacific Island countries to sustainably manage a highly migratory stock. A number of stakeholders raised the importance of restricting effort and overall catch, and as a priority, the implementation of reference points and harvest control rules;
- Different access and management arrangements within the Solomon Island waters, that add an additional level of complexity for management authorities to implement consistent and equitable stock management measures;
- Integrity of catch and bycatch data, particularly for the longline fishery where observer coverage is currently < 5 percent;
- Bycatch of non-target species by the longline fishery,(some of the bycatch is retained) and to a lesser extent, bycatch of non-target species by the purse seine fleet (i.e. sharks, rays, turtles);
- Overfishing of bigeye and the challenge of a coordinated regional response to reduce bigeye mortality by at least 30 percent;
- Purse seine fishing on fish aggregating devices (FADs) and the higher rate of juvenile bigeye and yellowfin mortality than for free school fishing;
- Management of bait fish stocks (essential for the pole and line fishing); and
- The importance of Marine Protected Areas (MPAs) and that some areas should be off limits to fishing.

12.2 The following organizations were consulted as part of the project appraisal:

- Secretariat of the Pacific Community, Oceanic Fisheries Programme
- Pacific Islands Forum Fisheries Agency
- Ministry of Fisheries and Marine Resources, Solomon Islands

- Worldfish
- WWF
- Greenpeace
- The Nature Conservancy
- International Sustainable Seafood Foundation
- Pew Environment Group
- The David & Lucile Packard Foundation
- Marine Stewardship Council

Appendix 1

Total annual (average 2008-2011) catch (metric tonnes) in Solomon Islands waters (EEZ and MGA) and Western Central Pacific Fisheries Commission (WCPFC) area for all fleets by gear type
Source: SPC

	Purse Seine						Long Line (LL)			Pole & Line		
	FAD			Free School								
	WCPFC	Solomon Islands		WCPFC	Solomon Islands		WCPFC	Solomon Islands		WCPFC	Solomon Islands	
		Tonnes	% WCPFC		Tonnes	% WCPFC		Tonnes	% WCPFC		Tonnes	% WCPFC
Skipjack	698,858	59,111	8.5%	588,826	40,767	6.9%	1,124	173	15.4%	211,532	885	0.4%
Yellowfin	167,779	17,297	10.3%	156,332	8,197	5.2%	90,815	9,204	10.1%	25,842	87	0.3%
Albacore	0	0		0	0		93,713	14,885	15.9%	24,602	0	0%
Bigeye	56,516	3,562	6.3%	5,284	388	7.4%	79,066	1,546	2.0%	7,421	0	0%
Total	923,153	79,970		750,442	49,352		264,718	25,808		269,397	972	

Total catch (metric tonnes) by species and gear type in Solomon Islands Main Group Archipelago (MGA) and Exclusive Economic Zone (EEZ), 2011
Source: data provided by SPC at IFC's request

	Purse Seine								Longline				Pole and Line				Total catch in MGA	Total catch in EEZ	Total catch in SI all gear types
	FADs			Free School			Total SI (EEZ & MGA) catch	% catch on FADS	MGA	EEZ (ex MGA)	Total	% SI catch	MGA	EEZ (ex MGA)	Total	% of SI catch			
	MGA	EZ (ex MGA)	Total FADS	MGA	EZ (ex MGA)	Total Free School													
Skipjack	7,684	69,020	76,704	4,436	39,852	44,288	120,992	63%	0	249	249	0%	690	32	722	0.6%	12,810	1109,153	121,963
Yellowfin	6,018	16,073	22,091	1,118	2,986	4,104	26,195	84%	1	6,724	6,725	20%	142	7	149	0.5%	7,279	25,790	33,069
Albacore	0	0	0	0	0	0	0	0%	16	16,116	16,132	100%	0	0	0	0.0%	16	16,116	16,132
Bigeye	313	5,067	5,380	19	305	324	5,704	94%	0	1,166	1,166	17%	0	0	0	0.0%	332	6,538	6,870
Total	14,015	90,160	104,175	5,573	43,143	48,716	152,891	68%	17	24,255	4,272	14%	832	39	871	0.5%	20,437	157,597	178,034

Appendix 2

DRAFT

**Solomon Islands
Tuna Management and Development
Plan**

DRAFT

Acronyms

ALB	– Albacore tuna
BET	– Bigeye tuna
CPUE	– Catch Per Unit Effort
DWFN	– Distant-Water Fishing Nations
EEZ	– Exclusive Economic Zone
EBA	– Everything But Arms Agreement
EU	– European Union
FAD	– Fish Aggregate Device
FAO	– United Nations Food and Agriculture Organisation
FFA	– Pacific Islands Forum Fisheries Agency
FSMA	– Federated States of Micronesia Agreement
IEPA	– Interim Economic Partnership Agreement
MGA	– Main Group Archipelago
MHWM	– Mean High Water Mark
MSC	– Marine Stewardship Council
MCSS	– Monitoring, Control and Surveillance Strategy
MSY	– Maximum Sustainable Yield
MEY	– Maximum Economic Yield
NM	– Nautical Mile
NPOA	– National Plan of Action
NGO	– Non Government Organisation
OPF	– SPC Oceanic Fisheries Programme
PNA	– Parties to the Nauru Agreement
RFMO	– Regional Fisheries Management Organization
ROP	– Regional Observer Programme
RoR	– Rules of Origin
SC-SPTBF	– FFC Subcommittee for South Pacific Tuna and Billfish Fisheries
SKJ	– Skipjack tuna
SLA	– Service Level Agreement
SPC	– Secretariat of the Pacific Community
TMDP	– Tuna Management and Development Plan
TAC	– Total allowable catch
UNCLOS	– United National Convention on Law of the Sea
UNFSA	– United Nations Fish Stock Agreement
VDS	– Vessel Day Scheme
VMS	– Vessel Monitoring System
WCPFC	– Western and Central Pacific Fisheries Commission
YFT	– Yellowfin tuna

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1.0 Introduction

Solomon Islands tuna fisheries are valuable natural resources and are an important source of current and future employment and government revenue. Recent changes in Solomon Islands' tuna management policies are expected to generate more revenue for the government and increased onshore processing of tuna. There are opportunities for Solomon Islands to build on these recent changes to obtain even more benefits from tuna fisheries.

This Tuna Management and Development Plan (TMDP) is designed to guide future management and development of tuna fisheries to achieve the overall goal of the Solomon Islands Government, *Tuna fisheries are managed to ensure Solomon Islands receives maximum economic and social benefits from the sustainable use of its tuna resources*. The TMDP sets out a series of goals, strategies and actions by which the overall goal will be achieved. Preparation of the TMDP is provided for under Section 7 of the Fisheries Act 1998.

The TMDP is consistent with the *Solomon Islands National Development Strategy 2011 – 2020*, including its overarching theme, *To Build Better Lives for All Solomon Islanders*, and objectives including, *Increase economic growth and equitably distribute employment and income benefits*, and, *Effectively respond to climate change and manage the environment and risks of natural disasters*. The TMDP is also consistent with the Ministry of Fisheries and Marine Resources Corporate Plan, and particularly the key outcomes: *The orderly development and quality management of Solomon islands fisheries and marine resources*; and, *Solomon Islands receives maximum economic and social benefits from the sustainable use of its fisheries and marine resources*.

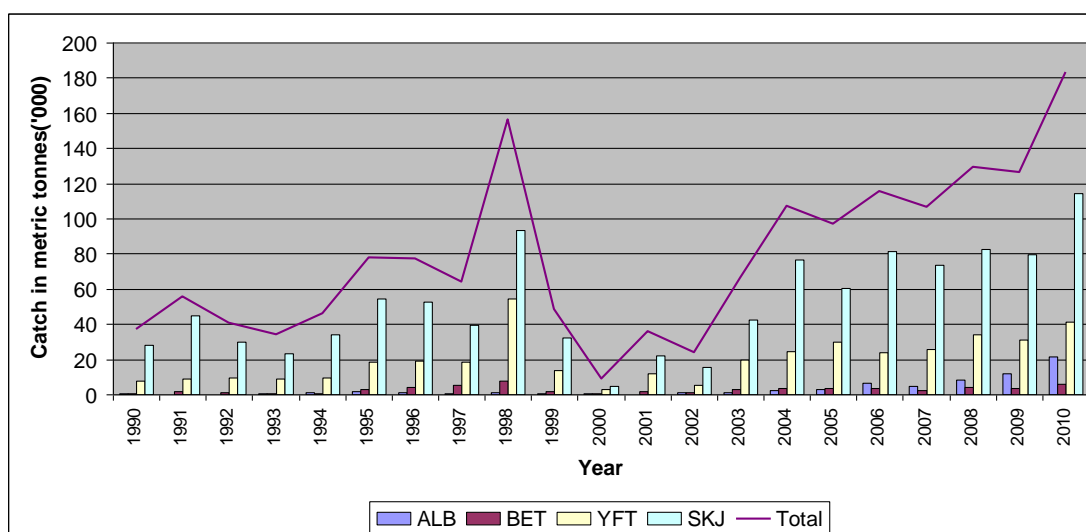
2.0 Solomon Islands Tuna Fisheries

2.1 Overview

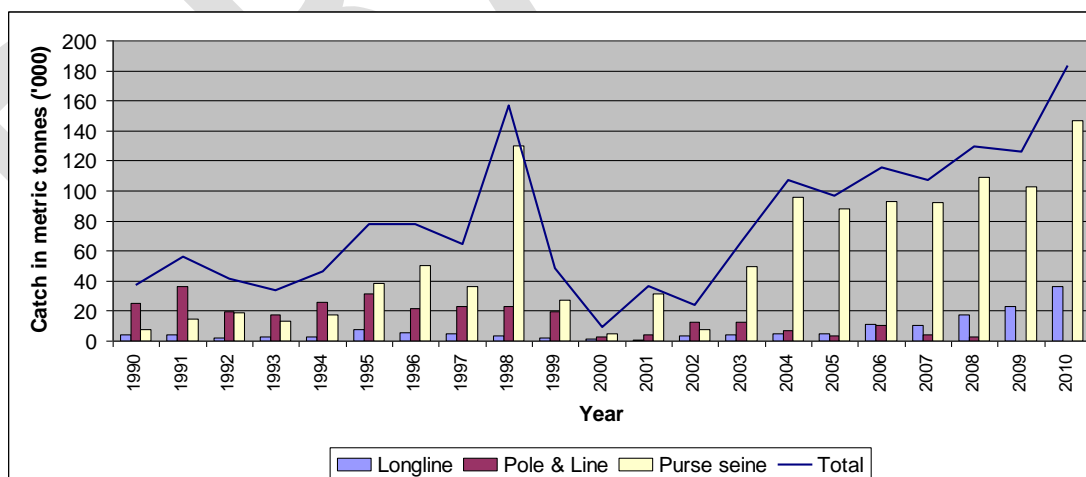
There are three, largely distinct, commercial tuna fisheries in the Solomon Islands, in addition to the small-scale net and line fisheries used to supply local markets. Figure 1 shows tuna catches in Solomon Islands, by species, since 1990. Figure 2, overleaf, shows tuna catches by method since 1990.

2.2 Purse Seine Fishery

The purse seine fishery catches predominantly skipjack tuna with significant bycatches of yellowfin and bigeye tuna. This fishery was developed by US Treaty vessels and Solomon Islands vessels in the 1980s, which were joined by vessels from other Distant Water Fishing Nations (DWFN) from the 1990s. Management was initially by way of licences but is now under the Parties to the Nauru Agreement (PNA) Vessel Day Scheme (VDS). Solomon Islands' Party Annual Entitlement (PAE) of 2,782 Fishing Days for 2012 is approximately 9% of the Total Allowable Effort (TAE). Fishing effort for tuna taken in archipelagic waters is not counted against the PAE.

Figure 1. Tuna catches in Solomon Islands EEZ by species since 1990

The purse seine fishery currently comprises: (i) a small domestic fleet of purse seiners owned by National Fisheries Developments (NFD), (ii) a larger fleet of foreign purse seiners operating under arrangements between the Solomon Islands Government (SIG) and the governments of bilateral partners or under charter arrangements with Solomon Islands companies, and (iii) vessels operating under the Federated States of Micronesia (FSM) Arrangement and the US Multilateral Treaty. New bilateral agreements based on the PNA agreed minimum fee of US\$5,000 per VDS Fishing Day should result in increased government revenues from foreign fishing vessel access fees from 2012.

Figure 2. Tuna catches in Solomon Islands EEZ by method since 1990

2.3 Longline Fishery

The longline fishery comprises two overlapping fisheries; a large-vessel fleet (from Japan and Korea) targeting yellowfin and bigeye tuna (with a bycatch of albacore) and a small-vessel fleet (mostly from Taiwan and China) targeting albacore tuna (with a bycatch of yellowfin and bigeye tuna). There are no locally registered longline vessels. From 1978 to 1995 the fishery comprised mostly Japanese vessels; Taiwanese vessels joined the fishery in the early 1980s and Korean vessels more recently. In recent years the number of licences for

smaller vessels targeting albacore tuna has increased rapidly and in 2011 the total number of licences (in both target fisheries) reached about 255. Total catches of albacore have also increased rapidly in recent years.

A 2011 review of the longline fishery resulted in significant changes from 2012:

- (i) the fishery is managed as two target fisheries with limits on the bycatch of other tuna species, as required;
- (ii) the number of licences in each target fishery is limited; and
- (iii) an increasing proportion of catches from foreign vessels chartered by locally-based companies must be landed for onshore processing.

From 2013 or 2014 the longline fishery is expected to be managed under a VDS. The Solomon Islands' indicative PAE is significantly less than current fishing effort, which will result in reduced fishing effort in the EEZ or Solomon Islands acquiring longline VDS Days to maintain current effort levels.

2.4 Pole and Line Fishery

From 1980 – 1999 Solomon Islands supported one of the largest pole and line fleets in the WCPO with the fleet dominated by local vessels. The fishery declined in the 2000s due to low fish prices and ethnic tensions and most effort was transferred to the purse seine fishery. NFD has re-established a small pole and line fleet and is working with FFA to investigate different methods for catching baitfish to support the fishery. Current market demand for pole and line-caught fish – based on reduced bycatch benefits – may help the expansion of the fleet. The number of foreign licence pole and line vessels has also increased.

2.5 Employment and Onshore Investment

Tuna fisheries are an important source of employment and export earnings for Solomon Islands. They also make a contribution to government revenue through access fees and other taxes and duties paid. Total employment in fisheries sector is estimated to be around 3,000. Plans are underway to increase employment on fishing vessels by offering Solomon Islanders training through established institutions such as Solomon Islands College of Higher Education (SICHE). Total fisheries export earnings (mostly tuna products) for 2011 was SB\$222 million, which is 7% of total export earnings for that year. Licence fees and associated charges from domestic and foreign vessels in 2011 provided about SB\$106 million in government revenue. NFD purse seiners land most of their catch into the country's only tuna cannery, operated by SolTuna at Noro, Western Province. Employment on NFD vessels and at the SolTuna Processing Plant exceeds 1,500 people.

All tuna landed by joint ventures and foreign licence purse seiners is transhipped for processing in other countries. SIG has made it a high priority to secure investment in onshore tuna processing facilities and has taken concrete steps towards this goal. The Tuna Investment Strategy has been completed and SIG is acquiring land for tuna processing facilities at Ndoma, Tenaru (both Guadalcanal) and Suafa Bay (Malaita). A consortium led by Korean company Dongwon has submitted a proposal to build a cannery at the Ndoma site.

In recent years all fish caught by longline vessels under bilateral agreements and

vessels chartered by locally based companies were processed outside the country. In the late 2000s one company air-freighted fresh-chilled tuna to overseas markets but this proved unprofitable. Recent policy changes requiring increased onshore processing have resulted in new developments. A new facility has been constructed to pack fresh-chilled sashimi grade bigeye and yellowfin to be air-freighted to markets and a second shift has been established at the SolTuna Processing Plant – employing more than 500 new staff – to process albacore tuna. At least three more tuna packing plants or loining factories are planned or under construction.

2.6 Regional Management Agencies

Solomon Islands tuna fisheries are based on stocks that range widely through the Western Central Pacific Ocean (WCPO). Therefore, Solomon Islands must cooperate with other Pacific Countries and countries fishing in the WCPO to manage tuna stocks effectively. The key management organisations are the Western Central Pacific Fishery Commission (WCPFC), the Parties to the Nauru Agreement (PNA), and the Forum Fisheries Agency (FFA).

The WCPFC is an intergovernmental body established under a Convention that drew on the United Nations Law of the Sea and the UN Fish Stocks Agreement (UNFSA). It was established in 2005 and is the central decision making body in the WCPO. It seeks to address problems in management of WCPO fisheries including:

- IUU, over-capitalization, excessive fleet capacity
- Vessel re-flagging to escape controls, unreliable data
- Insufficiently selective gear, overfishing of target species and
- Insufficient multilateral cooperation in respect to conservation and management of highly migratory fish stocks.

The Commission currently has 25 members, 7 participating territories and 9 cooperating non-members that range from developing coastal states to most developed and economically powerful nations in the world. Decision-making is by consensus so it can be difficult to reach decisions. The Commission uses Conservation and Management Measures (CMMs) to achieve its objectives; there are currently more than 40 CMMs. Implementation of the CMMs applicable to the Solomon Islands is an important strategy in the TMDP.

Established in 1982, the PNA brings together eight Pacific Island countries³ to manage tuna in the WCPO sustainably. A PNA Office was established in 2010 in Majuro and a CEO appointed. Collectively, the waters of PNA countries supply 25% of the world's tuna, an estimated \$2 billion worth of fish every year.

Historically PNA has focused on purse seine fishing in tropical western pacific but is now expanding its focus to include longline fishing. Regionally, changes are being introduced in the management and allocation of the tuna fishery, led by FFA and PNA members, that enhance PNA control of the fishery and increase returns to their members. Some of these changes and initiatives include:

- The development and implementation of the Vessel Day Scheme (VDS)
- Seasonal FAD closures

³ The PNA members are: Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

- Closures of high seas areas to fishing
- 100% observer coverage on purse seine vessels, and
- Catch retention requirements

PNA does not control the fishery entirely so needs ongoing cooperation from other FFA members and members of the Commission. Solomon Islands is a key member of PNA and implementation of endorsed PNA measures and regulations are critical to the success of the TMDP.

The Forum Fisheries Agency (FFA) was established to help its 17 Pacific Island member countries⁴ sustainably manage their fishery resources that fall within their 200 mile Exclusive Economic Zones (EEZs) and on the adjacent high seas. FFA is an advisory body providing expertise, technical assistance and other support to its members who make sovereign decisions about their tuna resources and participate in regional decision making on tuna management through agencies such as the Western and Central Pacific Fisheries Commission (WCPFC) and the Secretariat of the Pacific Community (SPC).

Since 1979, FFA has facilitated regional cooperation so that all Pacific countries benefit from the sustainable use of tuna – worth over \$3 billion a year and important for many people's livelihoods in the Pacific.

3.0 The Tuna Management and Development Plan

The purpose of the TMDP is to provide clear policy guidance and consistent direction at all levels of tuna fishery management and fishing, from strategic to operational, to help ensure coordination of different specific policies within overall SIG policy directions. It establishes direction on which licensing guidelines will be applied that will reduce scope for ad hoc decisions and reduce vulnerability to legal challenge. The TMDP also helps identify, evaluate and manage development opportunities and allow for regular ongoing engagement with stakeholders.

The TMDP applies to all Solomon Island registered tuna fishing vessels when operating in the SI EEZ or on the high seas. The TMDP applies to fishing companies whether foreign owned, foreign owned locally-based, chartered vessels, local fishing companies and those wishing to establish or set up tuna fishing in the Solomon Islands. It also applies to all Solomon Island nationals when fishing for tuna on these vessels or any other vessels fishing in the Solomon Islands EEZ. The new Fisheries Act will allow for control of Solomon Islands registered vessels operating outside the SI EEZ so these will also be covered by the TMDP.

The key species covered under this Plan include:

- | | |
|--------------------------|---------------------------|
| • South Pacific Albacore | <i>Thunnus alalunga</i> |
| • Yellowfin tuna | <i>Thunnus albacores</i> |
| • Bigeye tuna | <i>Thunnus obesus</i> |
| • Skipjack tuna | <i>Katsuwonus pelamis</i> |

⁴ FFA's 17 members are Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

Their biological characteristics and stock status are described in Attachment 1

Other species captured as an incidental catch of pelagic fishing operations that target tuna include mahi mahi, marlin, rainbow runner, sailfish, swordfish, wahoo and numerous shark species. These can be added to the list of key species if their catch rates increase significantly in the future.

The fishing methods addressed in the TMDP are:

- Purse seine
- Pole and line
- Pelagic longline
- Handlining⁵
- Trolling

The TMDP covers all waters from 3 nautical miles (NM) out to the 200NM Exclusive Economic Zone (EEZ) including archipelagic waters⁶. The TMDP does not apply directly to waters inside 3NM as these are managed by villages (through customary ownership rights) and Provincial Governments. The TMDP does, however, address the need to manage stocks outside 3NM to help ensure adequate catch rates within 3NM.

⁵ Currently MFMR does not issue licenses for handling and trolling. When MFMR does commence issuing these licenses or permits the first consideration will be for subsistence/traditional fishers.

⁶ Archipelagic waters are waters outside of 12NM but within UNCLOS-recognised archipelagos. Coastal states have stronger rights to determine management of fisheries within archipelagic waters than within the EEZ.

4.0 Challenges and Opportunities

Solomon Islands faces a number of challenges – both general and fisheries-specific. It also has significant opportunities. Addressing these challenges and making the most of the opportunities has guided the development of the strategies and objectives contained in this Plan.

Challenges:

- **High unemployment** – Solomon Islands as a developing country has limited employment opportunities with an estimated 80% of the population being technically unemployed or living a subsistence lifestyle with little or no paid work.
- **Limited exports; reliance on donor aid** – Economic growth has been solid in recent years, however, Solomon Islands has a limited export base and relies heavily on aid from donor partners with an estimated USD203 Million in 2011⁷ compared with GDP of USD870 Million in the same year.
- **Limited, expensive infrastructure** – Infrastructure such as ports, roads and transport services are limited and consumables such as electricity, water and fuel are expensive and supply is unreliable.
- **Poor communications** – Phone networks and internet service is poor by developed world standards. These are key tools in modern fishing and marketing operations, and are important for effective consultative management of fisheries.
- **Low volumes; high prices for fuel and other inputs** – Many industry inputs are imported, and in relatively low volumes. Therefore, current and would-be investors face relatively high prices for inputs compared with alternative host countries.
- **Dependent on shared stocks** – Tuna stocks in the SI EEZ are highly migratory and shared with other countries so cooperative management is required. Difficulties reaching consensus can arise when countries have differing objectives when utilising the same stocks
- **Climate impacts** – Fish catchability varies somewhat in El Niño/La Nina events. Climate change is expected to impact Solomon Islands fisheries, however, impacts are expected to be moderate compared with some other Pacific Island countries.
- **Perception of instability** – There are perceptions among potential investors of government instability and inconsistencies in the application of government policy.
- **Raising the profile of fisheries** – The importance of offshore fisheries is currently under rated by the general community. Its profile needs to be raised to ensure there is adequate funding and resources available to maximise opportunities.

Fisheries-specific opportunities:

- **International requirement for food security** – Increasing international desire for food security is resulting in high demand for fish such as tuna and for long-term

⁷ MDPAC, 2011, Paris Declaration Monitoring Survey

access to fisheries. Solomon Islands is well placed to take advantage of this increased demand.

- **Key fish stocks in good shape** – Scientific advice from SPC-OFP confirms that stocks of YFT, SKJ and ALB are all considered to be healthy and not overfished at current fishing levels. Although BET are considered overfished, actions are being taken to reduce mortalities and return the stock to a healthy state.
- **Significant catches available** – Solomon Islands has generally reliable, moderately large tuna fisheries with good catch rates. It is close to the main fishing grounds in the WCPO.
- **Onshore development opportunities** – Unlike some PNA members Solomon Islands has good potential ports and abundant land, water, and low wage labour available to support onshore developments such as fish processing.
- **Market access** – As a least-developed country (LDC) Solomon Islands is exempt from the 24% import duty to the EU under the 'Everything But Arms' (EBA) Initiative. However, strict rules of origin mean fish must be sourced from Solomon Islands or EU-flagged vessels and this only applies to specific processed products. To qualify for 'global sourcing' Solomon Islands needs to sign an Economic Partnership Agreement (EPA) or Interim EPA with the EU.

5.0 Overall Goal and Strategies

The TMDP is based on one Overall Goal and seven Strategies. These are set out below.

Overall Goal

“Tuna fisheries are managed to ensure Solomon Islands receives maximum economic and social benefits from the sustainable use of its tuna resources”

Strategies to support the Goal

MFMR, in consultation with stakeholders, has identified seven Strategies by which the overall Goal will be achieved. The Strategies are:

1. Ensure fish stocks are maintained at sustainable levels that support profitable fisheries.
2. Manage fisheries within recognised principles of ecosystem approach to management
3. Maximise employment opportunities for Solomon Islanders
4. Increase investment in fisheries and SIG income from the tuna fishery sector
5. Enhance food security and livelihoods, and minimise adverse social, cultural, and gender impacts.
6. Ensure good governance, management and compliance systems are in place
7. Enhance Solomon Islands influence at regional and international management organisations.

The Strategies are supported by a series of objectives and actions shown in the following section. The Strategies are also supported by other documents addressing specific management requirements. Some of these already exist; others will be prepared in 2012 or 2013. The supporting documents are:

- Solomon Islands Tuna Investment Strategy – Completed
- Guidelines and Principles for assessing Licensing Applications, including the assessment of new fishing methods – 2012
- Guidelines for monitoring of transshipments – 2012
- Ecological Based Fisheries Management for Solomon Islands Tuna fisheries – Completed
- 5 year Strategic Research Plan for Solomon Islands Tuna Fisheries – 2013
- PNA Strategic Plan and Implementing Arrangements
- WCPFC Conservation and Management Measures (CMMs)

6.0 Objectives and Actions to Support Overall Goal and Strategies

Note that some objectives contribute to achieving a number of strategies.

Strategy 1	Objectives	Actions
Ensure fish stocks are sustainable and at levels that support profitable fisheries	1.1 Establish catch or effort limits based on best scientific and economic assessment to ensure stocks remain within economically viable levels in the SI EEZ.	<ul style="list-style-type: none"> • Support Commission efforts to develop target and limit reference points for key target species that will ultimately feed into a harvest strategy aimed at ensuring sustainable and profitable fisheries.
	1.2 Develop management regimes that ensure target species are not overfished and minimise the risk of reducing industry profitability.	<ul style="list-style-type: none"> • Establish preliminary catch and effort limits for key target species by end – 2013 so they can be implemented in 2014. • Assess the application of spatial and or temporal closures as a management tool by mid-2013.
	1.3 Establish effective monitoring and surveillance capacity to regulate the fishery and control IUU fishing.	<ul style="list-style-type: none"> • Actions for Monitoring, Compliance and Surveillance are contained in Strategy 6.
	1.4 Maximise FFA and PNA control over fishing in high seas areas.	<ul style="list-style-type: none"> • Lead processes to have complementary arrangements on the high seas – ongoing.
	1.5 Implement regional arrangements.	<ul style="list-style-type: none"> • Implement applicable Commission CMMs in a timely manner. • Implement agreed PNA regulations once approved and review regularly. • Implement VDS for longline fishery in 2013 and 2014.
	1.6 Promote and support appropriate research on tuna fishery stock status and management arrangements in the WCPO.	<ul style="list-style-type: none"> • Support SPC research programs, wherever possible • Develop a 5-year strategic research plan for Solomon Islands tuna fisheries
	1.7 Ensure data is collected from industry and provided to relevant agencies in a thorough and timely manner; collect data from artisanal and local market fisheries.	<ul style="list-style-type: none"> • Review data management systems as per SLA with FFA • Annually review Observer resources to ensure appropriate observer coverage that at minimum is consistent with PNA and WCPFC requirements

Strategy 2	Objectives	Actions
Manage fisheries within recognised principles of ecosystem approach to management	2.1 Identify and address ecosystem impacts caused by tuna fisheries.	<ul style="list-style-type: none"> Annually review and update <i>EAFM for Solomon Islands Tuna Fisheries</i>.
	2.2 Develop management arrangements that minimise discarding and promote the use of by-product.	<ul style="list-style-type: none"> Develop and implement shark NPOA By end-2013 implement Commission CMMs on <ul style="list-style-type: none"> sharks seabirds turtles
	2.3 Manage baitfish resources to ensure their sustainability.	<ul style="list-style-type: none"> Undertake a baitfish risk assessment by mid-2013 Prepare and implement a baitfish management plan by 3rd Quarter 2013.
	2.4 Ensure use and impact of FADs is consistent with EAFM principles.	<ul style="list-style-type: none"> Develop and implement a FAD management plan by mid-2013. Monitor the use of FADs in cooperation with industry.

Strategy 3.	Objectives	Actions
Maximise employment opportunities for Solomon Islanders	3.1 Give priority fisheries access to fishing partners who agree to employ Solomon Islanders on their fishing vessels and land fish for processing in Solomon Islands.	<ul style="list-style-type: none"> Ensure licensing guidelines provide priority access to SI EEZ for employment maximisation (Refer table 1). Ensure licensing guidelines provide priority access to SI EEZ for payment and maximising flow of benefits (Refer table 2). Assessment of applications – consistent with key objectives of Solomon Islands Tuna Investment Strategy. Develop a formal process to assess new fishing methods mid-2013.
	3.2 Encourage development of support industries, including vessel maintenance and provisioning, net repair and manufacture facilities, supply of consumables for processing plants.	<ul style="list-style-type: none"> Convene a workshop with industry to identify opportunities for tuna fisheries related industries by end-2013.
	3.3 In conjunction with fishing partners, develop career paths, training facilities, and mentoring programs for onshore fishing related workers and	<ul style="list-style-type: none"> Encourage fishing partners to train Solomon Islanders as officers and crew on their vessels. This will increase employment opportunities and provide a pool of qualified

	vessel crew.	<p>officers and crew that can be recruited to operate Solomon Islands vessels.</p> <ul style="list-style-type: none"> • Apply a condition of access that vessels need a minimum % of Solomon Islands crew, from October 2013. • Establish training facilities and certified courses and work with fishing partners to train Solomon Islanders to become process workers or fishing vessel crews (through SICHE Marine School; and other appropriate institutes). • Increase the public image of the fishing sector and promote the tuna industry as a viable career option at school career days or similar events.
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Strategy 4.	Objectives	Actions
Increase investment in fisheries and SIG income from the tuna fishery sector	4.1 Maximise Solomon Islands allocation of fisheries access within regional agreements	<ul style="list-style-type: none"> • Continue to review PNA allocation of catching rights under purse seine and longline VDS; maximise Solomon Islands position. • Review costs and benefits of participating in FSM Arrangement; maximise Solomon Islands share of rights if FSMA pool shifted to PAEs • Periodically review costs and benefits of participating in US Treaty; maximise Solomon Islands share of rights if US Treaty pool shifted to PAEs.
	4.2 Review current access agreements and fees to ensure SIG access fees reflect fishery profitability, including implementing VDS standard fee as minimum charge for access.	<ul style="list-style-type: none"> • Undertake and periodically update economic analyses of tuna fisheries, including small-scale fishing operations, to ensure allocation decisions are based on best information. • Regulate for minimum PNA benchmark VDS Day fee (completed) and update as required (ongoing).
	4.3 Streamline administrative and management systems to remove blockages to investment, innovation, and profitability.	<ul style="list-style-type: none"> • Establish a Project Management Unit to facilitate implementation of domestic tuna industry projects, by early 2013. • Facilitate the development or improvement of basic infrastructure to support the tuna industry

Strategy 4.	Objectives	Actions
		<ul style="list-style-type: none"> • Implement the Tuna Investment Strategy once it has been approved by Cabinet. • Assist with the acquisition of appropriate land for onshore establishments.
	4.4 Implement the SIG Tuna Investment Strategy.	<ul style="list-style-type: none"> • Promote a system of stable and consistent SIG policies to help create an investment environment that attracts foreign investors.
	4.5 Ensure Competent Authorities and other regulatory bodies necessary to continue market access are maintained (includes food safety, IUU, ICCAT).	<ul style="list-style-type: none"> • Periodically review CA to identify any changes required to maintain CA status.
	4.6 Promote links to international markets for Solomon island tuna products.	<ul style="list-style-type: none"> • Support industry to improve value of tuna products, including through eco-certification and development of innovative products and marketing strategies. • Support development of EPA or IEPA to improve access to European markets.

Strategy 5.	Objectives	Actions
Enhance food security and livelihoods, and minimise adverse social, cultural, and gender impacts	5.1 Minimise impact of large scale commercial fishing on coastal communities and small scale fishers.	<ul style="list-style-type: none"> • Ensure licensing guidelines appropriately restrict areas that vessel types can fish (refer Table 1).
	5.2 Enhance Solomon Islands food security.	<ul style="list-style-type: none"> • Ensure coastal communities benefit from large scale commercial tuna fisheries by allowing by-product to be landed for local markets. • Encourage companies to support coastal communities through installation of FADs and supply of fish.
	5.3 Promote gender equity.	<ul style="list-style-type: none"> • Promote the employment of women in the tuna industry. • Take into account the needs of women and men in developing and implementing fisheries programmes. • Ensure the approach taken to training, mentoring, and improving stakeholders' skills and understanding is consistent

		with the Solomon Island's <i>Gender Equality and Women's Development</i> (GEWD) policy.
	5.4 Minimise negative impacts of fishing and onshore processing operations, including environmental impacts and social impacts of foreign workers on local people and customs.	<ul style="list-style-type: none"> • Ensure contingency plans in place for waste management or effluents from processing facilities are effective and monitored appropriately. • Consult regularly with social agencies and NGOs to help monitor social impacts of fishing operations.

Strategy 6.	Objectives	Actions
Ensure good governance, management and compliance systems are in place	6.1 Develop and periodically review a comprehensive Monitoring, Compliance and Surveillance Strategy (MCSS).	<ul style="list-style-type: none"> • Prepare a MCSS by mid-2013 with assistance of FFA. • Annually review and update MCSS as required. • Review Observer program and Port sampling. • Ensure mechanisms are in place to control Solomon Island registered vessels when operating outside of the Solomon Islands EEZ.
	6.2 Ensure organisational, administrative and information systems support effective management of tuna fisheries.	<ul style="list-style-type: none"> • Undertake an annual risk assessment of information and administration systems. • Provide career pathways and train MFMR staff so they can attain the level of expertise required to manage tuna fisheries. • Ensure adequate funding is provided for MFMR to undertake required fisheries management and monitoring and compliance.
	6.3 Ensure the SI Fisheries Law is capable of supporting compliance regulations and measures to control IUU fishing.	<ul style="list-style-type: none"> • Support passing of Fisheries Bill (ongoing) • Review fisheries regulations to ensure consistency with the Act. • Periodically review adequacy of penalties to deter IUU • Regularly review regulations to implement CMMs and PNA measures.
	6.4 Ensure decision-making processes throughout MFMR and associated agencies are transparent and accountable within the realms when dealing with "Commercial in Confidence" data and information.	<ul style="list-style-type: none"> • Ensure appeal and review processes are adequately resourced and undertaken. • Report annually relevant fisheries information to Parliament and the public, including information on stock status, catches, sector employment and government income.

Strategy 6.	Objectives	Actions
		<ul style="list-style-type: none"> • Implement appropriate reporting procedures to produce standard information reports for wider dissemination by mid-2013.
	6.5 Annually review implementation of the TMDP.	<ul style="list-style-type: none"> • Hold regular stakeholder consultation meetings on key decisions and welcome interactions with stakeholders. • Involve all relevant stakeholders and communities in the management process through consultation when developing arrangements.
	6.6 Re-establish and ensure ongoing support for Fisheries Advisory Council.	<ul style="list-style-type: none"> • Select a Fisheries Advisory Council by end 1st Quarter 2013; ensure the re-establishment and selection of the FAC is carried out in a transparent and equitable way. • Ensure the efficient and timely implementation of outcomes from Fisheries Advisory Council meetings.

Strategy 7.	Objectives	Actions
Enhance Solomon Islands influence at regional and international management organisations	7.1 Increase effectiveness of Solomon Islands representation at international and regional meetings.	<ul style="list-style-type: none"> • Undertake negotiation training and develop a mentoring program for current and future MFMR staff to facilitate ongoing meeting participation and performance improvements. • Implement agreed regional and international rules in a timely manner.
	7.2 Ensure Solomon Islands is seen as a leader amongst Regional peers so it achieves outcomes that are in the best interest of, or at least do not unfairly disadvantage, Solomon Islands fisheries.	<ul style="list-style-type: none"> • Develop well-supported Solomon Islands positions on key management issues at the regional and international level and promote this at relevant meetings. • Be prepared to take the lead on difficult issues and develop solutions to assist resolution of issues.

7.0 Summary of Access Arrangements by Area, Licence Type, and Method

Applies to all fishing methods

Refer Licensing Guidelines for details

Area	Permitted Methods and Licence Types	Approach to Management
MHWM – 3 NM	Artisanal fishers and small scale fishing operations supplying local markets	<ul style="list-style-type: none"> Management determined by villages and Provincial Government
3 NM – 12 NM	As above, PLUS: <ul style="list-style-type: none"> Small scale industrial fishing 	<ul style="list-style-type: none"> EAFM Adaptive management based on catch rates
Archipelagic Waters ⁸	As above, PLUS: <ul style="list-style-type: none"> Locally registered fishing vessels landing their catch for onshore processing and using the following methods: <ul style="list-style-type: none"> Purse seine Pole and line Troll Handline Longline 	<ul style="list-style-type: none"> Fishing effort limits set by adaptive management based on catch rates Access may be limited, if required, to maintain catch rates; time closures may be considered. Priority given to smaller vessels with limited ability to fish in EEZ VMS for purse seine and longline
12 – 30 NM	As above, PLUS: <ul style="list-style-type: none"> Foreign vessels chartered by local companies landing their catch for onshore processing and using the fishing methods listed above. 	<ul style="list-style-type: none"> Access agreements VDS for purse seine and longline VMS
30 – 60 NM	As above, PLUS: <ul style="list-style-type: none"> Foreign purse seine vessels operating under the FSM Arrangement and foreign vessels operating under bilateral agreements using the fishing methods described above. 	<ul style="list-style-type: none"> Access agreements FSM Arrangement VDS for purse seine and longline VMS
60 – 200 NM	As above, PLUS: <ul style="list-style-type: none"> Purse seine vessels operating under the US Treaty 	<ul style="list-style-type: none"> Access agreements FSM Arrangement US Treaty arrangement VDS VMS for purse seine and longline

⁸ Archipelagic waters are outside 12 NM but within UNCLOS recognised archipelagos. Coastal states have greater management authority over archipelagic waters than in the EEZ.

8.0 Summary of Access to VDS Fishing Days

Applies to Purse Seine Fishery and Longline Fishery

Refer Licensing Guidelines and Tuna Investment Strategy for details

Category of Commercial Fishing Operation	Priority	Cost of Access/VDS Fishing Days
Local vessel: <ul style="list-style-type: none"> Local company Locally registered fishing vessel Mostly local crew Catch processed onshore 	<ul style="list-style-type: none"> The only category permitted to fish in archipelagic waters First priority for VDS Days (for fishing in EEZ) Allocation according to long-term development agreement 	<ul style="list-style-type: none"> Initially, no VDS Day fee for fishing in archipelagic waters; longer term, fees to be determined. Price of VDS Days in EEZ to be determined
Foreign vessels chartered by local company: <ul style="list-style-type: none"> Meets minimum local crew requirements Fish processed in Solomon Islands 	<ul style="list-style-type: none"> Tier 1 allocation Opportunity to purchase, at market rates, VDS Days based on the volume of catch required for onshore processing plant. Order of priority for allocations to Tier 1 companies based on order of investment. Allocation according to long-term development agreement 	<ul style="list-style-type: none"> Market rates
Foreign vessels fishing under bilateral agreement: <ul style="list-style-type: none"> Fish processed in Solomon Islands Company (or associated company) invests in relevant onshore processing and local crewing 	<ul style="list-style-type: none"> Tier 1 allocation Opportunity to purchase, at market rates, VDS Days based on the volume of catch required for onshore processing plant. Order of priority for allocations to Tier 1 companies based on order of investment. Allocation according to long-term development agreement. 	<ul style="list-style-type: none"> Market rates
Foreign vessels fishing under bilateral agreement: <ul style="list-style-type: none"> Fish processed in another country 	<ul style="list-style-type: none"> Tier 2; only allocated where requirements for other categories met Allocation for one year only 	<ul style="list-style-type: none"> Price determined by competitive bidding process.

Attachment 1; Key Target Species

Skipjack tuna are a surface-schooling tuna which are easily distinguished from other species of tuna due to their small size, small dark pectoral fins and three to six distinct dark longitudinal lines (stripes). It is found year round concentrated in warmer tropical waters of the WCPO,



With that distribution expanding seasonally into subtropical waters to the north and south.

Skipjack are caught mainly on the surface by purse seine and pole and line gear and are used for producing canned tuna. The typical capture size for skipjack is between 40 and 70cm, corresponding to fish between one

and three years of age, with very few captured fish exceeding 80cm. Skipjack tuna is a fast growing species (reaching 42-45cm within its first year), are relatively short-lived (few live longer than 3 - 4 years) and mature early (~ 1 years of age). Skipjack are also highly fecund and can spawn year round over a wide area of the tropical and subtropical Pacific. Environmental conditions are believed to significantly influence seasonal migration and recruitment and can produce widely varying recruitment levels between years. Skipjack are currently not overfished or subject to overfishing although catches should be monitored to ensure high catch rates are maintained into the future.

Yellowfin tuna are a relatively large tuna, easily distinguished as adults by the colour of their large second dorsal and anal fins which, along with finlets, are typically bright yellow. Yellowfin tuna are distributed throughout the tropical and sub-equatorial waters of the WCPO, and typically spend most of their time in the warmer mixed surface waters (above the thermocline). Small yellowfin are caught on the surface by a range of gears including handline, ringnet, purse seine and pole/line gear and are used mainly for canning, while the majority of larger/older fish



are caught by both purse seine and longline fisheries, with the longline catch often shipped fresh to overseas markets. The typical capture size for yellowfin shows two distinct modes in the WCPO, being 20 to 70cm (ringnet, handline, purse seine, pole and line) which corresponds to fish between approximately 3 months and 1.5 years of age, and

between 90 and 160cm (purse seine, longline), corresponding to fish mostly between

1.5 and 6-7 years of age. Yellowfin tuna is a fast growing species (reaching > 45cm within its first year), have a life span of up to ~7 years of age and mature around 2-3 years of age. These biological characteristics promote moderate turnover in yellowfin populations. Yellowfin are highly fecund and can spawn year round over a wide area of the tropical and subtropical Pacific, provided environmental conditions (such as water temperature) are suitable. Yellowfin tuna are believed to constitute a single stock in the WCPO and are considered to be not overfished or subject to overfishing however region 3 that includes the SI EEZ is approaching levels of full exploitation.

Bigeye tuna are among the largest of tuna species and are distinguished as adults by their body depth, colouring (iridescent blue longitudinal band) and smaller anal and dorsal fins (relative to yellowfin). However, they are more difficult to distinguish from yellowfin tuna as juveniles (~50cm). In the WCPO, bigeye tuna have a relatively broad distribution, both geographically between 40°N and 40°S, and vertically between the surface and 500 m deep (occasionally to 1000 m) due to their tolerance of low oxygen levels and low temperatures.



In the tropical and subtropical waters of the WCPO, adult bigeye tends to migrate from cooler deeper waters (beneath the thermocline) where they live during the day to shallower warmer waters at night. Juvenile bigeye tend to inhabit shallower waters and can form mixed schools with skipjack and yellowfin,

which results in catches by the surface fishery, particularly in association with floating objects. In the WCPO, smaller bigeye are caught on the surface by a range of gears including handline, ringnet and purse seine and are used mainly for canning, while the majority of larger/older fish are caught by longline fisheries. While bigeye tuna account for a relatively small proportion of the total tuna catch in the region, adult bigeye tuna are extremely valuable (particularly as fresh fish in the Japanese sashimi market); their economic value probably exceeds US\$1 billion annually. The typical capture size for bigeye shows two distinct modes in the WCPO, being 20 to 75cm (ringnet, handline, purse seine) which corresponds to fish between 3 months and 1.7 years of age, and between 100 and 180cm (mostly caught by longline), corresponding to fish between 2 and 10 years of age. Bigeye tuna grow more slowly than either yellowfin or skipjack, reaching around 40cm after one year, have a longer lifespan (at least 12 years) and mature later (around 3-4 years of age). Natural mortality is estimated to be relatively low compared with other tropical species. These biological characteristics promote only moderate turnover in bigeye populations, and, in combination with their susceptibility to multiple gear types throughout their lifespan, make bigeye tuna less resilient to exploitation than more productive species like skipjack. Like yellowfin, bigeye tuna are highly fecund and can spawn year round over a wide area of the tropical and subtropical Pacific, provided environmental conditions are suitable. Bigeye are currently experiencing overfishing and a suite of management measures are in place for purse seine and longline fishing to reduce fishing mortality to acceptable levels

Adult albacore are distinguished by their very long pectoral fins. Mature albacore (age at first maturity is about 4 - 5 years) spawn in tropical and sub-tropical waters between 10-25°S from the equator, with individual fish becoming available to surface fishing about 40°S from the equator approximately one to two years later, at a size of 45-50 cm.



From this area, albacore appear to gradually disperse towards lower latitudes, but make seasonal migrations between tropical and sub-tropical waters. Small albacore are caught by trolling at the surface in cool water outside the tropics, while larger fish are caught in

deeper waters and mainly at lower latitudes (subtropical) using longline gear. Most of the catch is used for producing “white meat” canned tuna. Fish caught are typically from 1.5 to 10 years old. Albacore are relatively slow growing, and have a maximum fork length of about 130 cm. Natural mortality is low compared to tropical tunas, with significant numbers of fish reaching an age of 10 years or more. Albacore are not overfished and overfishing is not occurring however concerns are being expressed that localised depletion of larger fish is occurring in some waters.