

"Fiji Fisheries: 2015 Review"

A report on trends in coastal marine resources and fisheries management in Fiji

Prepared for The David and Lucile Packard Foundation



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Introduction from the Packard Foundation

Dear Colleagues,

The David and Lucile Packard Foundation is pleased to share with you a baseline report on fisheries management and coastal marine trends in Fiji. This report, "Fiji Fisheries: 2015 Review," identifies trends in key categories that are relevant for monitoring fisheries management and reform.

As part of our commitment to continuous learning, the Packard Foundation currently plans to issue this report on a regular basis to track changes in the status of marine resources and fisheries management in Fiji. The Foundation's strategy in Fiji is focused on protecting the health and productivity of the country's coastal marine environment, and as such, the Foundation depends on timely updates in order to make well-informed decisions. This report seeks to aggregate the best available data on fisheries statistics and trends in order to provide that evidence base.

We also expect that this report will be useful for our partners. Having access to consistent, valid information will support the field in drawing upon verified data sources to facilitate decision-making and streamlined collaboration.

Thank you for your interest. We welcome your feedback on this report as we seek to improve and enhance future editions.

John Claussen
Program Officer, Western Pacific
The David and Lucile Packard Foundation

About this report (1/2)

Environmental Associates (CEA).

Who is the audience for this report?
 The report was commissioned by the David and Lucile
 Packard Foundation and produced by California

The Packard Foundation will use the findings to inform its monitoring, evaluation, and learning (MEL) approach in Fiji. Through its MEL activities, the subprogram seeks to instill learning and continuous improvement in its grantmaking philosophy—and ultimately to refine its grantmaking.

As part of its commitment to share key learnings with the field, the Packard Foundation will also share the report with partners in the marine conservation and management community.

What is the timeline for the report?

This report is the 2015 baseline edition of what is intended to be a regular series for monitoring and tracking relevant changes in coastal marine resources and fisheries management in Fiji. Since the objective is to update the report on a regular basis, this baseline report tracks data for the most recent year available by each indicator.

In certain sections, such as political trends, the report includes highlights from the past few years in order to provide necessary context for the baseline edition.

What are the indicators tracked in this report?

This report monitors trends in six key categories that are important for fisheries reform: fisheries statistics, marine reserves, public funding flows for fisheries management, marine-focused philanthropic funding, public reform commitments in the fisheries sector, and political highlights in recent years in Fiji.¹ (See slide 6 for additional detail on individual indicators.)

These indicators were selected for the baseline report as they correlate with the MEL framework at the Packard Foundation and provide a proxy on the health of marine resources and the level of public and private funding to support fisheries management in Fiji. Future editions of this report may include supplemental information, such as grantee stories on work implemented in the field.

About this report (2/2)

- What are the objectives for this report?
 - A key impetus for this report was the recognition that decision-makers (whether in the public, private, or civic sector) require good information to make sound decisions. This report, which attempts to aggregate fisheries statistics and trends, will also help provide context for the Packard Foundation's overall strategy and funding plan in Fiji. It may also be useful for other partners.
- Are there data limitations for any of the indicators?
 This report attempts to amalgamate available information about the health of marine resources in Fiji. Although data can be limited and of variable quality, it attempts to identify large-scale trends that influence the context for grantmaking in Fiji.

Relying on regularly updated data sources such as the FAO as well as analysis from in-country experts, this report seeks to provide a fact-based overview of trends in the landscape (see section, "About the sources" for more details).

 Are the opportunities to provide feedback on the report?

The Packard Foundation sees this baseline report as a discussion piece. Through this, we are extending an open invitation to partners for feedback so we can collaboratively work to improve and enhance the report year after year.

Partners are also invited to provide direct feedback to the Packard Foundation through a survey that can be found at the following link: http://bit.ly/2cCfYPw.

Indicators tracked in this report

This report monitors the following indicators, which are elements currently included in the Monitoring, Evaluation, and Learning (MEL) Plan for the Fiji strategy at the Packard Foundation. This report intends to track the specified indicators on an annual basis, with the possibility of adding new indicators based on need. The Packard Foundation initially selected these indicators as proxies for assessing overall governance and fisheries health, given that this information provides important context for the Foundation's strategy in Fiji.

Title	Indicator description	Indicator questions
Political moments	Political moments/trends	What key political moments have occurred, including elections, appointments, policy decisions, public commitments, etc.?
Fishery statistics	Fishery sector statistics	What are the total fish landings, commercial value, stock status, fishing effort, fishing trade, etc., that make up annual or semi-annual national fisheries data?
National marine reserves count	Number of national marine reserves	How many marine reserves have been declared (in number and area)?
Public funding flows	Amount of public funds flowing to sector	How much public funding flows for major elements of marine fisheries management (including stock assessments, enforcement, management planning and implementation, staffing levels, etc.)?
Ocean funding	Philanthropic ocean funds	What are the annual ocean-focused funding commitments, in U.S. dollars, from philanthropic partners?
Private sector commitments	Private sector commitments	What are the public fish reform commitments of key private sector fishing, buyer, or retail actors?

Background on the Packard Foundation in Fiji

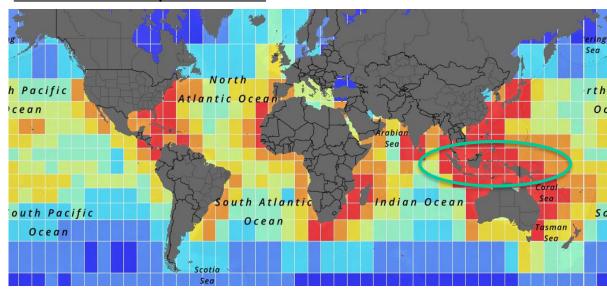
- Fiji is endowed with both high marine species diversity and high habitat diversity. This makes the region a priority for both conservation and sustainable development.
- Over the past several decades, significant investments have been made to improve coastal and marine resource management in the region. The David and Lucile Packard Foundation began making grants in the Western Pacific region in 1999.
- The stated goal of the current strategy is "to restore and ensure the health and productivity of coastal marine environments in the face of rapidly increasing fishing pressures."
- The following approaches direct its grantmaking:
 - Investing in reliable marine fisheries governance systems and initiatives to model improved management and regulation of important fisheries;
 - Conditioning the policy climate for effective fisheries management and marine conservation;
 - Building institutional capacity and leadership of public, civil society and private sector decision makers, institutions and systems.

- Its strategy also seeks to:
 - Integrate work across all of the Packard Foundation's programs and its overarching "Ocean Vision"
 - Support improved scientific and economic data collection and use through links with the Foundation's Science program; and,
 - Promote the use of market and supply chains incentives for improved marine resource management alongside the Foundation's Marine Fisheries program.

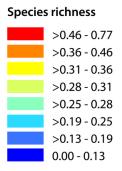
Fiji: a biodiversity hotspot at threat

Fiji contains some of the highest marine biodiversity on the planet, as shown in the map at right. It is part of the Coral Triangle, which covers only 2 percent of the global ocean but comprises 76 percent of all known coral species. Yet marine resources are threatened by overfishing and coastal development, limited spatial management of coastal ecosystems, and other pressures. Although the Packard Foundation does not explicitly track biodiversity (to date), the work of the Foundation and numerous partners seeks to protect the region's critical biological diversity and marinedependent livelihoods.

Patterns of marine species richness



The map shows the global patterns of marine biodiversity (species richness) across 13 major species groups, ranging from marine zooplankton to marine mammals.



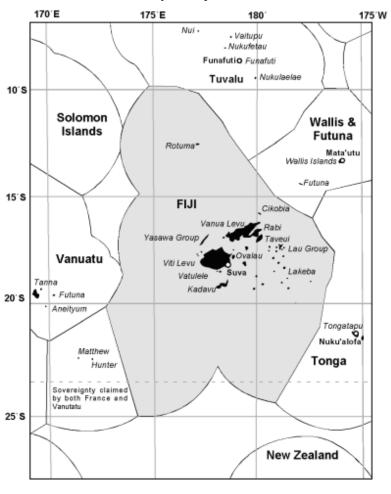
Source: Tittensor DP, Mora C, Jetz W, Lotze HK, Ricard D, Vanden Berghe E, Worm B (2010). Global patterns and predictors of marine biodiversity across taxa. Nature 466: 1098-1101. doi: 10.1038/nature09329.



Overview of key statistics

Title	Indicator description
Population	909,389
2030 Population, estimated	946,320
Annual population growth rate	0.67% (2015 estimated)
GDP	\$7.798 billion
EEZ area	1,290,000 sq. km²
Land area	462,840 sq. km ²
Membership of regional fisheries management arrangements	Forum Fisheries Agency (FFA); Secretariat to the Pacific Community (SPC); Western and Central Pacific Fisheries Commission (WCPFC); South Pacific Tuna and Billfish subcommittee; Melanesian Spearhead Group (MSG)

Map of Fiji's EEZ



Fiji, an important center of marine biodiversity, is extremely reliant on marine resources from an economic and food security perspective.

- In addition to a wide range of coastal resources that local people rely upon, tuna from Fiji waters are among the most significant and valuable exports for the country.
- Tuna catch in the Western Pacific generally has continued to increase, with skipjack tuna now by far the largest source of tuna catch (1.9 MT in Western/Central Pacific in 2014; much of this is used for canned tuna). In 2014, the overall tuna catch in Western and Central Pacific water was the highest on record: over 2.8 million MT, accounting for 60% of the global tuna catch. Yellowfin (612,000 MT), albacore (129,000 MT), and bigeye (160,000 MT) are also important. According to the Western Central Pacific Fisheries Commission, only bigeye tuna stocks are significantly overfished, but the catch of skipjack is not being managed for maximum economic yield. Yellowfin is also reaching a level of concern.
- Despite trends of increasing catch, the country's own tuna fleets have experienced setbacks in recent years, at least partly due to increased competition from foreign vessels and a lack of management that has led to overfishing.
 According to the Fiji Tuna Boat Owners Association, roughly

- 75% of the country's domestic tuna fleet has stopped operating in the last 5 years. Most fleets could catch less than 50% of the volume of fish needed for companies to break even. The longline fleet in particular was impacted over the past year.
- In November 2012, the EU applied a "yellow card" to Fiji which affected its fish exports to the top global market, the EU. The restriction was lifted in October 2014 after Fiji improved its legislation and efforts to combat IUU fishing, in addition to reducing and reviewing its licensing system licensing system in its water.
- The Packard Foundation has historically been a long-term philanthropic investor in Fiji, alongside the MacArthur Foundation. Increasingly, other funders (including the Flora Family Foundation more recently) are investing in the region, whether as part of larger Western Pacific efforts or country-focused investments.



Political moments in 2015

A profile of key political moments, including elections, appointments, policy decisions, and public commitments

Political moments (1/4)

The following highlights are the main political moments in relation to Fiji, resource use, and particularly fisheries over the last 5 years:

- April 2009: The Court of Appeal held that the interim Government came into power unlawfully. In response to this, the then President, Ratu Josefa Iloilo with the support of Frank Bainimarama as head of the Military abrogated the 1997 Constitution under which the democratic voting system mandated a mix of 46 communal and 25 open seats designed to lead to power sharing within government cabinets. The abrogation leads to a more repressive and controlled political regime with the removal of Constitutional appointments and postponement of democratic elections.
- May 2009: Fiji is suspended from the Pacific Island Forum for its failure to hold elections.

- July 2009: Rati Josefa Iloilo retires as President of Fiji and is succeeded by Ratu Epeli Nailatikau.
- September 2009: The Commonwealth fully suspends
 Fiji after the refusal of the military government to call
 elections by 2010. It is only the second full suspension
 in the organisation's history.
- January 2012: Fiji government commences a consultation process towards a new Fiji Constitution and appoints a constitution review commission, led by constitutional expert Yash Ghai. It emerges that the purpose of the new constitution is to change the electoral system from a race-based, single-member constituency electoral system to one based on one person, one vote, one value, and proportional representation. However, Fiji government rejects the "Ghai draft" and creates its own.

Political moments (2/4)

- July 2012: Australia and New Zealand agree to resume diplomatic ties with Fiji after commitment by the Fiji government to hold democratic elections in 2014. These diplomatic ties broke down in 2009 when Fiji ordered the Australian and New Zealand Commissioners' out of Suva for alleged interference in judicial matters.¹
- November 2012: Fiji is awarded a formal warning or "Yellow Card" from the European Union in respect to its fisheries industry.² This stemmed from a lack of measures to address IUU fishing and the lack of rules for inspection, control and monitoring of vessels.
- December 2012: The Offshore Fisheries Management Decree is enacted. A key reason for the development of this legislation was to comply with international and regional obligations for combating IUU fishing.³

- December 2012: Fiji's Albacore Tuna Longline Fishery is Fiji's first fishery to achieve Marine Stewardship Council (MSC) certification. The MSC awarded the certification conditionally to the Fiji Tuna Boat Owners Association (FTBOA) Albacore Tuna Longline Fishery, managed under regulations put in place by the Western and Central Pacific Fisheries Commission (WCPFC) and the Fijian government. This MSC certification is expected to increase the competitiveness of this fishery in the international market.
- August 2013: A new regional body, the Pacific Islands
 Development Forum (PIDF), was inaugurated at an
 international conference organized and hosted by the
 Fiji Government in August 2013. The PIDF creation was
 partially as a result of Fiji's suspension from the Pacific
 Island Forum but has since devolved into a regional
 body with a distinctively Pacific voice "by Pacific
 islanders, for Pacific islanders."⁵

Political moments (3/4)

- September 2013: New Constitution adopted (Fiji's 4th since independence) paving the way for elections and includes a new electoral system and the first that uses a common roll of electors with proportional representation. The Constitution creates a 50 member parliament, and includes a provision that 'a political party or an independent candidate shall not qualify for any seat in Parliament' unless they receive at least at least 5% of the votes (section 53(3)).
- February 2014: The Fiji Tuna Development and Management Plan 2014-2018 (TDMP) was officially adopted by the Fiji Government in 2014. It sets out a cap on the number of vessels operating in the Fiji longline fishery, a total allowable catch (TAC) across all target tuna species, and a TAC for South Pacific albacore. The Department of Fisheries confirms the licence cap within the EEZ as 60 vessels, reviewable after two years.

- March 2014: Frank Bainimarama resigns as leader of the RFMF to contest the 2014 national elections.
- September 2014: First democratic elections since 2006 and the first held under the 2013 Constitution. The Fiji First party led by Frank Bainimarama wins 32 seats. In the 2014 elections this system delivered a clear victory for Bainimarama (he personally polled 202,459 votes, far more than any other leader) and his Fiji First Party, which gained 59.2% of the vote, with SODELPA (Social Democratic Liberal Party) winning 28.2% and the NFP 5.5%. Osea Naiqamu is appointed as Minister of Fisheries and Forests.

Political moments (4/4)

- October 2014: The European Union officially lifts its
 "Yellow Card" on Fiji's fisheries sector and awards it a
 "Green Card." Fiji was successful in implementing
 measures to address illegal, unreported, and
 unregulated (IUU) fishing through legal reforms and
 new rules for inspection, control and monitoring of
 vessels. These included:
 - Fiji Offshore Fisheries Management Decree 2012
 - Fiji Offshore Fisheries Management Regulation
 - Revised Fiji Tuna Development and Management Plan 204-2018
 - Revised Fiji Plan of Action on IUU 2014
- October 2014: Fiji's suspension from the Pacific Island Forum is lifted.
- October 2015: A new president is elected. Jioji
 Konrote succeeds Ratu Epeli Nailatikau as President;
 this appointment marks the first time a non-iTaukei
 (Indigenous Fijian) has held this position.

- September 2015: Pacific Tuna Forum was held in Denarau, Fiji. The Pacific Tuna Forum is a biannual conference held for the various stakeholders of Pacific tuna fisheries and brings together representatives from various sectors including, industry, government, NGOs, and academia to discuss priority tuna topics in the region. The theme of the conference was "Achieving Optimal Economic Benefits Through Sustainable Tuna Management and Development."
- December 2015: Fiji chairs the meeting of the Small and Vulnerable Economies (SVE) Group in Nairobi, Kenya calling for sustainability in fisheries. Fiji's Permanent Secretary for Industry, Trade and Tourism, Mr. Shaheen Ali, called on all the members of the SVEs Group and the entire WTO membership to discipline fisheries subsidies to ensure the sustainability of this resource.
- December 2015: Fiji and Thailand sign an MOU to grow their agriculture and fisheries cooperation. A joint working group will be formed for the implementation of this MOU.

Source: Siwatibau and Sloan, 2015; 1) EU Union. 2015. Press Release: European Commission awards Fiji a Fisheries "Green Card"! Available online: http://eeas.europa.eu/delegations/new_zealand/documents/press_corner/news/20141028_fiji_fisheries.pdf; 2) PIFS. 2014. Press Release: Statement by Forum Chair on lifting the suspension of Fiji from the Pacific Islands Forum. Available online: http://www.forumsec.org/pages.cfm/newsroom/press-statements/2014-1/statement-by-forum-chair-on-lifting-suspension-of-fiji-from-pacific-islands-forum.html; 3) Fiji Government. 2016. Fiji chairs SVE and calls on sustainability in fisheries. Available online: http://www.fiji.gov.fj/media-center/press-releases/fiji-chairs-crucial-small-and-vulnerable-economies.aspx.

Fishery statistics

A profile of elements that make up annual national fishing profiles, including total fish landings, commercial value, stock status, fishing effort, and fishing trade

Overview of catch trends in Fiji

- Data on nearshore catch are relatively limited in Fiji.
 This report provides data on catch trends for these countries, to the extent possible, and also provides a supplement on key commodities such as tuna and sea cucumber.
- Data from the Secretariat of the Pacific Community (SPC) suggest that many reef fisheries that are based on finfish and invertebrates are exposed to unsustainable levels of fishing, and there is urgent need to bring catches to a sustainable level.¹ The SPC covers 22 Pacific Island countries and territories, including Fiji.
- Current levels of fishing in many areas are unsustainable for reef fisheries, which includes inshore fish and invertebrates and provides an important source of protein for local communities.
- Similarly, sea cucumber, one of the oldest commercial fisheries in the region, has also been experiencing high rates of overfishing.

- The status of several invertebrates, including lobsters, crabs, and octopuses, is not well understood. Despite contributing an important source of livelihoods and as a basis of food security, few catch statistics are available.
- The SPC also notes that there is an important need for biological studies to be understand the populations of deepwater demersal fish species, which are slowgrowing, late to mature, and thus vulnerable to overfishing.
- In 2014, the share of global tuna catch from the Western and Central Pacific Oceans was 60 percent. In Fiji, tuna play an important role in the country's fisheries, though it accounts for less than half of the country's catch.

Summary of fisheries and aquaculture harvests

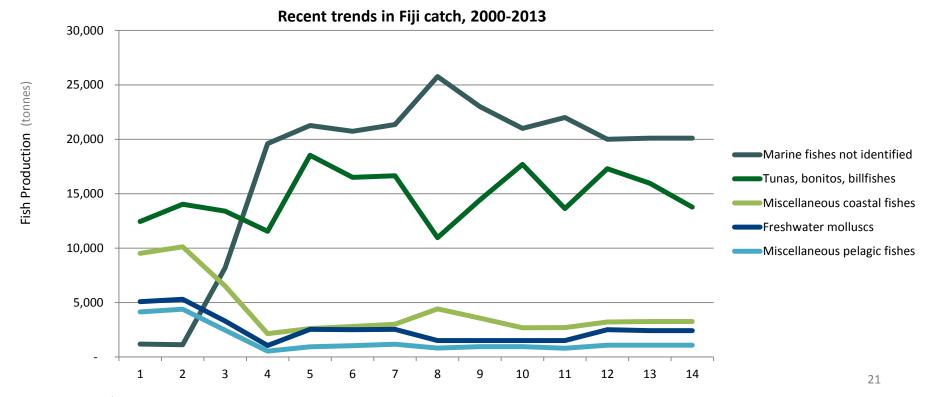
- In 2014, the combined fisheries and aquaculture harvests in Fiji totaled about F\$250 million (or USD\$122 million).
- It should be noted that these estimates rely on coastal and freshwater production data that are not regularly updated in all instances. For instance, the Fisheries Department historically estimated coastal subsistence fisheries production by adding 200 mt to the catch annually for three decades. Gillett (2016) has provided new production estimates based on the most recent literature available as well as demographic and conservation trends in Fiji.

Annual fisheries and aquaculture harvest in Fiji (2014)

	Volume (mt, and pcs where indicated)	Value (F\$)
Coastal commercial	11,000	75,000,000
Coastal subsistence	16,000	58,000,000
Offshore locally based	17,079	107,642,610
Offshore foreign-based	0	0
Freshwater	3,731	7,408,000
Aquaculture	204,682.2 mt and 85,236 pieces	2,875,567
Tota	252,456 mt and 85,236 pieces	F\$ 250,926,177

Recent trends in Fiji wild catch

- Total catch from Fijian waters has been relatively consistent since 2000, according to FAO data.
- Unidentified marine fishes and tuna comprise the bulk of Fijian catch. Catch of unidentified marine fishes skyrocketed in the early 2000s, but since then catch of both marine fishes and tuna has been flat.
- Other major species caught include coastal and pelagic fishes, freshwater molluscs, and sharks and rays.
- Aquaculture production in Fiji is small; over the past decade, total aquaculture production has varied year-by-year between 100-400 tonnes.

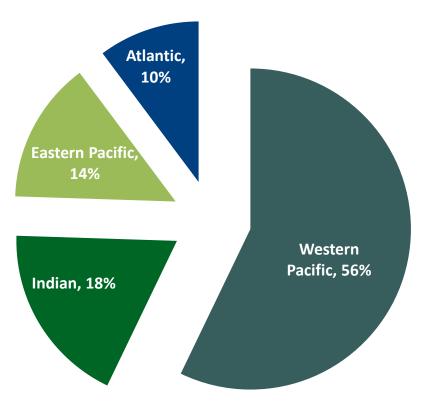


Source: FAO Fish Stat.

The Western and Central Pacific account for a large share of global tuna catch

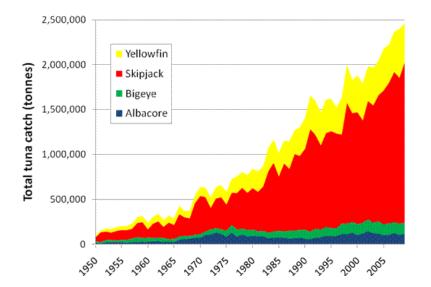
- The share of global tuna catch by the Western and Central Pacific Ocean (WCPO)—which includes Fiji—has steadily increased since 2005.¹
- In 2014, the WCPO share of global catch was 60% (with an average of 56% during 2012-2014).
- According to the Forum
 Fisheries Agency, the rise in
 the WCPO share is largely
 driven by increases in the
 purse seine catch.

Global tuna catch by ocean area (2012-2014 average)



Tuna stock health across the Western Central Pacific Ocean

- Data from the Western Central Pacific Fisheries Commission (WCPFC) provides indications on the health of tuna stocks across the WCPO.
- The health and pressure on stocks varies:
 - Skipjack tuna is the largest source of tuna catch, and catch continues to increase rapidly. Recent skipjack
 tuna catch marginally exceeds maximum sustainable yield (MSY); fishing mortality, while increasing, is likely
 to remain below the level of MSY.
 - Recent yellowfin tuna catch marginally exceed MSY; recent levels of fishing mortality are most likely below the level of MSY.
 - Albacore is probably not overfished (B/Bmsy=1.4-1.9), nor is overfishing occurring.
 - · Bigeye tuna catch exceeds maximum sustainable yield, and recent levels of fishing mortality exceed MSY.



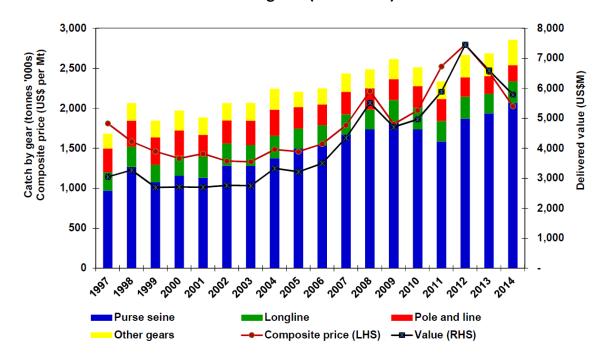
	S. Pacific albacore	Bigeye	Skipjack	Yellowfin
В0	1,131,000	2,228,600	6,281,000	4,319,000
B _{CURR}	1,028,983	742,967	3,615,213	1,994,655
MSY	99,085	108,520	1,532,000	586,400
F _{CURR} /F _{MSY}	0.21	1.57	0.62	0.72
SB _{CURR/} SB _{MSY}	2.56	0.94	1.94	1.47
$SB_{CURR}SB_{F=0}$	0.58	0.20	0.52	0.42

B0: the average estimated unfished biomass; Bcurr is the average biomass over the last 3-4; MSY is the maximum sustainable yield; Fcurr/Fmsy is the ration of fishing mortality to that which will support MSY; SB is spawning biomass.

Estimated tuna catch and values

- While global tuna catch in the WCPO has steadily increased by volume, the delivered value has declined in recent years.
- In 2014, the total tuna catch in the WCPFC-CA increased by 6%, setting a new record of nearly 2.9 million tons.¹
- However, the estimated delivered valued declined 12% to \$5.8 billion in 2014, following a similar decline of 11% the previous year. These reductions are driven in part by a downturn in the price per tonne of all tuna composite and lightmeat raw material prices.
- Although the tuna catches are delivering economic benefits to Pacific Island countries, some contend that tuna resources should also contribute more squarely to food security in the countries.²

WCP-CA catch and estimated delivered values across all gears (1997-2014)



Volume and value of Fiji tuna exports

- Though Fiji exports a large amount of tuna, its export trade statistics are unclear in the trade data due to a mixture of tuna and/or coastal fishery products that can be included in the Harmonized System (HS) Codes.
- Drawing on a variety of sources, an FAA report from McCoy et al. (2015) estimates the average annual tuna exports of Fiji (during the period 2008-2013) in the table below.

Average annual volumes and values of Fiji tuna exports (2008-2013)

Harvest sector	Product category	Volume (mt)	Value (US\$)	Destinations by value (%)
US market	Whole round	1,506	5,875,203	USA (100)
	Fresh and frozen, value added	430	2,420,383	USA (100)
Non-US Market	Fresh tuna	802	7,673,678	Japan (83), New Zealand (11), Australia (5), Others (1)
	Frozen tuna	6,430	19,503,833	Japan (59), Thailand (22), Korea (12), Others (7)

Data: McCoy et al. (2015)

Tuna-related employment in Fiji

- The Forum Fisheries Agency tracks data on tuna-related employment across the Pacific. In 2014, a total of 3,667 Fijians were employed in the tuna industry.
- Across the Pacific, there were 17,663 people employed as crew on tuna vessels or in tuna processing and ancillary work. Thus, tuna-related employment in Fiji represents 20.8% of the regional tuna-related employment.

Tuna-related employment in Fiji (number of people employed)

	2009	2010	2011	2012	2013	2014
Processing and ancillary	1,054	630	1,018	1,063	1,452	2,000
Local crew	1,290	228	353	531	1,227	1,667
Total	2,344	858	1,371	1,594	2,679	3,667

Data: FFA (2015)

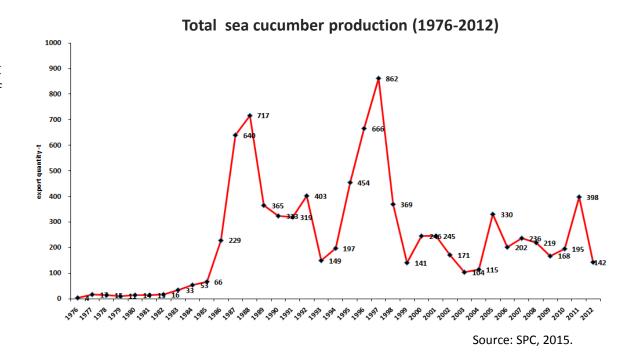
Overview of sea cucumber

- Fiji is a major producer of sea cucumber (bêche-demer) in the region. Sea cucumber serves as an important income source: it is the country's second most important commercial fishery, following tuna fisheries. A number of species are consumed locally as well.
- The Fiji Fisheries Department acknowledges that Fiji's sea cucumber fishery is facing rapid depletion of stocks as a result of heavy fishing pressure.
- China is the main market for sea cucumber, importing over 90% of Fiji exports via Hong Kong. Meanwhile, markets are also developing in the United States and Singapore.

- Since fisheries in a handful of other Pacific Island countries have been closed to commercial fishing to facilitate stock recovery, bêche-de-mer buyers have been turning to Fiji, which has placed additional pressure on the stocks in the country which are already on the decline.
- Conservation organizations and scientists are currently undertaking studies to better understand the current state of the fishery, which is not well mapped and presents challenges for local fisheries management. The Fiji Fisheries Department is currently developing a bêche de mer management plan, which will be the first of its kind for Fiji.

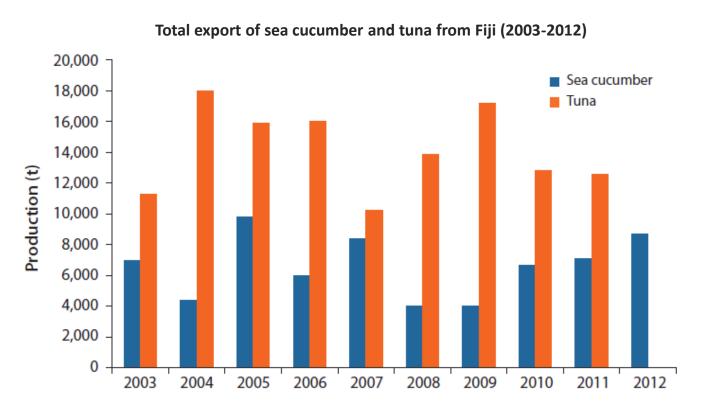
Sea cucumber has followed a boom-and-bust production cycle

- In recent decades, the annual volume and associated value of sea cucumber has ranged widely, as shown in the boomand-bust pattern in the chart at right.
- Across the Indo-Pacific region, it is estimated that more than half of the region's sea cucumber stocks are depleted or overharvested.
- Many scientists have recommended creating management plans, enforcing legal size limits, and tracking harvests more effectively to prevent the collapse of sea cucumber stocks.



Production volume of sea cucumber

Sea cucumber production has fluctuated widely, with an average production of 6,600 tonnes (in dry weight) during the period 2003-2012. Production of sea cucumber is nearly half that of fresh tuna production during 2003-2008, which shows its importance to Fiji's economy as a key fisheries product export. It also underscores the need for effective management to support more sustainable management of the fishery.



Contribution of fisheries to food security

- As with many Pacific Island countries, fish consumption is high in Fiji, particularly among rural communities that have a high dependence on subsistence fishing.
- According to a 2008 paper by Bell et al, Fiji has a national average per capita fish consumption of 20.7 kg, with higher consumption in rural areas (25.3 kg).
- As Fiji considers the volume of fish products intended for export markets, it will be important to weigh the level needed to meet domestic demand.
- Forecasts suggest that coastal fisheries will not have sufficient capacity to supply the fish needed to meet future food security needs in Fiji.

Annual per capita fish consumption (kg), determined from household income and expenditure surveys¹

	National	Urban	Rural
Fiji	20.7	15.0	25.3
Palau	33.4	27.8	43.3
PNG	13.0	28.1	10.2
FSM	69.3	67.3	76.8

Note: "Food security" means that all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life (World Food Summit 1996).

Rural communities in particular have high dependence on subsistence fishing to meet their animal protein needs

Percentage of annual per capita fish consumption derived from subsistence fishing and purchases of fish in urban and rural areas, determined by household income and expenditure surveys¹

	Nati	onal	Ur	ban	Rı	ural
	% Subsistence	% Purchased	% Subsistence	% Purchased	% Subsistence	% Purchased
Fiji	35	65	7	93	52	48
Palau	47	53	35	65	60	40
FSM	74	26	73	27	77	23

Contribution of fishing to GDP: official estimate

- The contribution of fishing and aquaculture to GDP in Fiji in recent years is provided in the following table. In 2014, the fisheries and aquaculture sectors contributed 1.83% to the country's GDP (provisional estimate).
- The subsistence and informal sectors are provided from the 2007 household income and expenditures survey, adjusted for population and the price of fish.
- The "non-general" government is based on gross value of production from the Fisheries Department.
- The "general government" category refers to wages of government employees that provide services closely related to fisheries production.

Contribution of fishing and aquaculture to GDP (F\$ millions)

	2011	2012	2013	2014 ^p
Fishing and aquaculture	118.7	122.6	124.9	130.2
Subsistence	37.0	38.7	41.5	45.3
Informal	6.3	6.7	7.1	7.8
General government	1.6	1.9	2.3	3.2
Non-general government	73.8	75.3	74.0	74.0
Fiji GDP	5,738.8	6,010.1	6,440.0	7,129.8
Fishing and aquaculture as % of GDP	2.07%	2.04%	1.94%	1.83%

p= provisional; the GDP is listed as current basis prices.

Contribution of fishing to GDP: alternative estimate

- To supplement the official estimate, Gillett (2016) provides an alternative estimate for the fishing contribution to GDP by using production values and a value-added ratio (VAR). The latter methodology is not intended to replace the official estimate; instead, it was conducted to serve as a basis of comparison with the official methodology.
- According to the alternative estimate, the total value added is F\$117.5 million, or about 10% less than the official value added of F\$130.2 million.

Contribution of fishing and aquaculture to GDP (F\$ millions)

Harvest sector	Gross value of production	Value-added ratio (VAR)	Value added (F\$)
Coastal commercial	75,000,000	0.55	41,250,000
Coastal subsistence	58,000,000	0.80	46,400,000
Offshore locally-based	107,642,610	0.20	21,528,522
Freshwater	7,408,000	0.90	6,667,200
Aquaculture			
Pearls and coral	1,728,000	0.45	777,600
Other aquaculture	1,147,567	0.73	837,724
Tota	250,926,177		117,461,046

The future of Fiji's coastal fisheries

- The future of coastal fisheries in Fiji will be influenced by the country's growing population and urbanization patterns, which will also impact food security trends in the country.
- A 2014 paper by Gillett et al. suggests that increases in both population and urbanization in Fiji will lead to higher demand for coastal fisheries production, which will likely contribute to over-exploitation and habitat destruction.¹ The increased demand for fish will lead to more expensive fish in Fiji and potentially unsustainable rates of exploitation, as a growing number of people seek to catch fish to support household food needs.
- According to a 2008 study by The Pacific Community (SPC), the production of Fiji's coastal fisheries will not have capacity to meet the country's future needs for fish. Experts suggest that this food gap can be alleviated through effective fisheries management (as opposed to increasing production of already overexploited fisheries).²

The Fisheries Department tends to allocate substantially more attention to offshore fisheries as compared to coastal fisheries management. (1/2)

The Fisheries Department's involvement in offshore versus coastal fisheries¹

Feature	Offshore	Coastal
Statistics	Well-trained staff; very organized collection, analysis, and reporting of information on catches. Very good idea of catch levels of target species and bycatch – and readily available on the internet. SPC provides excellent technical back-up. FFA has assisted with database development.	Statistical system has broken down. No enumerator in the Central Division for 3 years. Different systems for the 4 divisions. Estimates of catch levels by both subsistence and commercial fishing are largely guesswork.
Surveillance and enforcement	Enforcement section created and strongly supported. All vessels required to have electronic vessel monitoring system onboard and operational. Periodic sea patrols with Navy. Well trained and staffed on-board observer program. FFA provides technical back-up and observer training.	Lack of enforcement has a greater impact on benefits of coastal fisheries than offshore. HQ enforcement section disbanded in 2006. Scarce assets for patrolling. Fish warden system only loosely administered by Fisheries Department. There is no system for de-listing wardens, maintaining records of training received, or distributing to the wardens any changes in regulations.
Prosecution of offenses	Considerable skill exists. For example, four individuals (Fisheries Department and police) attended a 3-week workshop in 2014 on Fisheries Evidence and Investigation for offshore fisheries.	Both Fisheries Department staff and police are poorly trained in prosecution. Few successful prosecutions of coastal fisheries offences.

The Fisheries Department tends to allocate substantially more attention to offshore fisheries as compared to coastal fisheries management. (2/2)

The Fisheries Department's involvement in offshore versus coastal fisheries¹

Feature	Offshore	Coastal
Consultation with stakeholders	There was significant formal consultation with stakeholders in formulating the national tuna management plan. The National Fisheries Council meetings were strongly offshore oriented. Periodic meetings with offshore stakeholders are organized by Fisheries Dept. on important issues.	Coastal fisheries were dropped out of the agenda of the National Fisheries Council meetings a few years ago. Formal consultation with coastal fisheries stakeholders not perceived by Fisheries Department as a priority.
Publically available reports	At least one formally published paper per year. For example, OFC (2014). Information on Fisheries, Research and Statistics for 2013 in Fiji. Offshore Fisheries Division, Fisheries Department, WCPFC.	No readily available reports in public domain for several years.
Management plans and policy guidelines	Tuna management plans periodically formulated and regularly updated. National Plan of Action (sharks formulated and approved). Decree promulgated and adopted.	Currently no fisheries management plans in place. A beche de mer management plan by SPC for Fiji has been in formulation process for a very long time.
Strategy for management of fisheries resources	Well-organized strategy that is articulated in the national tuna management plan.	The strategy is not clear. A recent report stated: "There is no inshore fisheries policy or clear institutional strategy for inshore fisheries management support" (Govan et al, 2013).

National marine reserves

A profile of marine reserves that are explicitly and intentionally attached to the management of a fishery

Local leadership is central to the management of Fiji's marine reserves

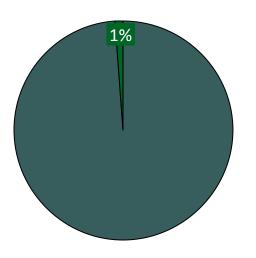
- The Fiji Government has set a target of effectively managing 30% of Fiji's seas by 2020, by strengthening inshore locally managed marine areas (LMMAs) and establishing offshore, multiple-use marine protected areas.
- The Fiji Locally Managed
 Marine Area (FLMMA)
 network includes
 representatives from villages,
 research institutes, and
 international NGOs, which
 work to protect Fiji's coastal
 and inshore habitat.
- At the end of 2015, there were 451 LMMAs and 466 tabu areas in Fiji.



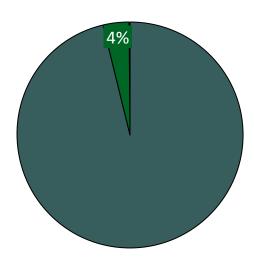
Overview of marine reserves in Fiji

Designation*	Count
Locally Managed Marine Area**	103
Marine Protected Area	9
Marine Project	1
Terrestrial Reserves	32
Total	145

Marine Area Protected



Terrestrial Area Protected



Km² Marine Area: 1,291,253

Km² Protected: 11,924

Percent EEZ protected: 1%

Km² Land Area: 19,152

Km² Protected: 848

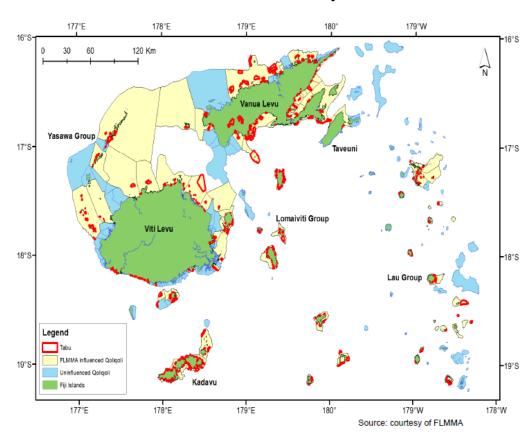
Percent land protected: 4%

Note: *Category designations as defined by the World Database on Protected Areas. **The LMMA figure in the Protected Planet database refers to sites as reported by the Fiji government, which does not capture the full extent of LMMA sites. According to FLMMA, there are 427 LMMA sites in Fiji, encompassing a known area of 889 km².

Fiji's Locally-Managed Marine Areas

- LMMA is defined as "an area of nearshore waters that are actively managed by local communities or resource-owning groups, or which are collaboratively managed by resident communities with local government and/or partner organizations."1
- The Fiji LMMA Network was established in 2001 after a successful pilot program in the late 1990s and continues to coordinate community support in partnership with private sector and Government entities.
- The network provides a forum for communities to share LMMA success stories with others interested in implementing their own marine reserves, and it also provides communities with tools for success including training workshops and data collection.

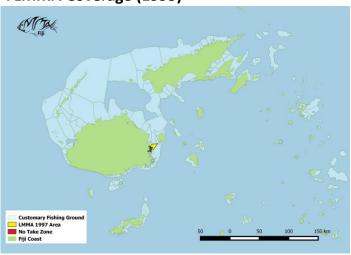
FLMMA sites across Fiji



Source: 1) Govan, H., Tawake, A. and Tabunakawai, K., 2006. Community-based marine resource management in the South Pacific. PARKS 16: 21–27; Gillett, R., Lewis A. and Cartwright I. 2014. "Coastal Fisheries in Fiji: Resources, Issues, and Enhancing the Role of the Fisheries Department.60 pages. The full report is available at www.gillettprestonassociates.com; IUCN and UNEP-WCMC (2015), The World Database on Protected Areas (WDPA) [On-line], [01/2016], Cambridge, UK: UNEP-WCMC. Available at: www.protectedplanet.net; FLMMA, personal communications, 2016.;

Growth of FLMMA coverage (1995-2015)

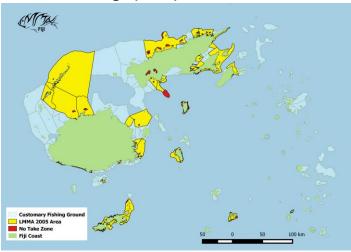
FLMMA Coverage (1995)



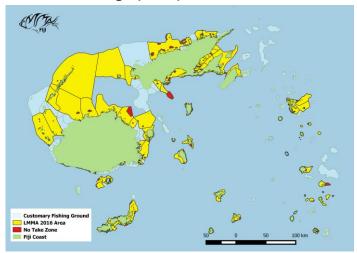
Summary:

- To date, roughly 79% of inshore fishing area is actively under local management in Fiji.
- Approximately 11% of inshore area is designated as permanent or periodically opened "no-take reserves."
- Over 70% of coastal villages are involved in the FLMMA process.

FLMMA Coverage (2005)



FLMMA Coverage (2015)



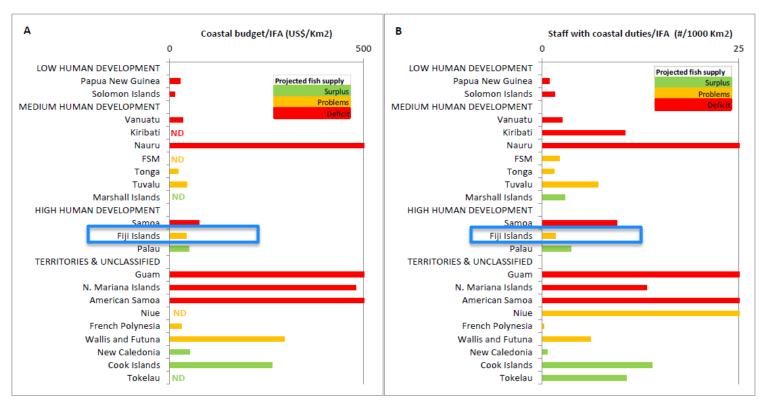
Source: FLMMA, 2016.

Public funding flows

A profile of public funding flows for fisheries management (including stock assessments, enforcement, management planning, implementation, and staffing levels)

Public funding for coastal fisheries management

• In Fiji, as with many other Pacific Island Countries and Territories (PICTs), there is considerable underinvestment in fisheries management. Compared to the global best practice of fisheries management accounting for roughly 6% of a country's fisheries value, the total fisheries budget in Fiji is only 3.1% of total fisheries value. The coastal fisheries budget in Fiji is 2.7% of coastal fisheries value.



This chart shows the operational budgets a) for coastal fisheries and staffing with coastal fisheries duties b) in comparison to the Inshore Fisheries Act (IFA). The ICTs are ranked by development status according to the Human Development Indicators of UNDP (2014). Color codes represent projected fish supply according to Bell et al. (2015).

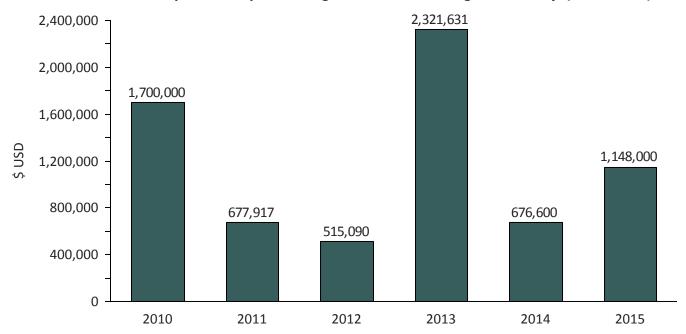
Ocean funding

A profile of annual ocean-focused funding commitments from philanthropic partners and the donor community

Fiji funding trend overview

- The Packard Foundation, to the best of our knowledge, is one of the primary private philanthropic donors focused on marine issues in Fiji. The MacArthur Foundation has also been an important private funder to fisheries management and other natural resource management issues in Fiji.
- Many grants are awarded as multi-year grants. The graph below captures when funding was committed, rather than when it was disbursed, which explains why 2010 and 2013 appear as outliers. For instance, in 2013, the MacArthur Foundation made a three-year grant of \$950,000 which supports a range of activities by a variety of organizations, including Wildlife Conservation Society, FLMMA, SeaWeb, and the University of the South Pacific.

Knowna philanthropic funding for fisheries management in Fiji (2010-2015)



Notes: a) This chart refers to philanthropic funding in Fiji detailing the amount committed, not the amount disbursed. The data are based on information provided by funders directly contacted by CEA in January 2016, including the Packard Foundation and MacArthur Foundation. To our knowledge, a comprehensive catalogue of foundation funding for fisheries issues in Fiji does not exist. We welcome feedback from stakeholders as we seek to refine this information in future editions of the report.

Private sector commitments

A profile of the financial position and public fish reform commitments of key private sector fishing, buyer, and retail actors

Major developments in the tuna industry (1/2)

Tuna is the primary regulated commercial fishery in Fiji. Apart from local tuna fishing fleets there is substantial infrastructure in terms of processing facilities and canning operations that support the industry. In recent years local Tuna fishing companies have suffered from increasing competition from subsidised Chinese vessels and this coupled with declining catches has led to shrinking local fleets with even long established Tuna operators exiting the Tuna industry.

The tuna industry has had a challenging few years, the below attempts to capture a summary of the major developments in the industry:

 November 2012 - Fiji is awarded a formal warning or "Yellow Card" from the European Union for its lack of measures to address IUU fishing.

- December 2012 The Offshore Fisheries Management
 Decree is enacted. This Decree and its subsequent
 regulations were focused on regulating the tuna and
 offshore fisheries industry. The development of this
 legislation was also intended to bring Fiji's fisheries
 law into compliance with international and regional
 obligations such as IUU.
- December 2012 Fiji's Albacore Tuna Longline Fishery is the first fishery to achieve Marine Stewardship Council (MSC) certification. The MSC awarded the certification conditionally to the Fiji Tuna Boat Owners Association (FTBOA) Albacore Tuna Longline Fishery, managed under regulations put in place by the Western and Central Pacific Fisheries Commission (WCPFC) and the Fijian government. This MSC certification increases the competitiveness of this fishery in the international market.

Sources: DeMers, A., & Kahui, V. 2012. An overview of Fiji's fisheries development. *Marine Policy*, 36(1), 174–179. http://doi.org/10.1016/j.marpol.2011.05.001
World Fishing & Aquaculture. 2015. News: *Fiji battling to saves it waters*. http://www.worldfishing.net/news101/regional-focus/fiji-battling-to-save-it-waters
EU Union. 2015. Press Release: *Fighting IUU fishing internationally*. http://europa.eu/rapid/press-release SPEECH-12-821 en.htm
Offshore Fisheries Management Decree 2012. http://www.fiji.gov.fj/getattachment/bd7a42ff-7988-4f66-adaf-b1f99d71a743/Decree-No-78---Offshore-Fisheries-Management-Decre.aspx

Major developments in the tuna industry (2/2)

- **January 2014** Reports of local Tuna fishing vessel fleets grounding due to low Tuna stocks surface.
- February 2014 The Fiji Tuna Development and Management Plan 2014-2018 (TDMP) was officially adopted by the Fiji Government in 2014. It sets a cap on the number of vessels operating in the Fiji longline fishery, and a total allowable catch (TAC) across all target tuna species, and a TAC for South Pacific albacore.
- October 2014 The European Union officially lifts its
 "Yellow Card" on Fiji's fisheries sector and awards it a
 "Green Card". Fiji was successful in implementing
 measures to address illegal, unreported, and
 unregulated (IUU) fishing through legal reforms and
 new rules for inspection, control and monitoring of
 vessels. These included: Fiji Offshore Fisheries
 Management Decree 2012, Fiji Offshore Fisheries
 Management Regulation, and the Revised Fiji Tuna
 Development and Management Plan 2014-2018.
- September 2015 The Pacific Tuna Forum was held in Denarau, Fiji. The Pacific Tuna Forum is a biannual conference held for the various stakeholders of Pacific tuna fisheries and brings together representatives from various sectors including, industry, government, NGOs, and academia to discuss priority tuna topics in the region. The theme of the conference was "Achieving Optimal Economic Benefits Through Sustainable Tuna Management and Development."
- January 2016 The US announces its intention to withdraw from the South Pacific Tuna Treaty (SPTT) of which Fiji is party to via the Pacific Island Parties (PIPs). This treaty allows the US access to tuna stocks in 16 Pacific Island nations namely, Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

Key players in Fiji's tuna industry (1/2)

The following list includes an overview of leading players in the tuna industry in Fiji:

- Pacific Fishing Company: PAFCO began operations in 1964 in Levuka (Fiji's former capital) primarily as a fish processing base before eventually adding canning operations in the 1970s. Currently PAFCO's core business is processing Tuna loins for Bumble Bee. The canning operations also still continue.
- Viti Foods Limited: A canning company that processes both Tuna and Mackerel for the local and export market. It recently underwent a USD \$2 million factory upgrade. The factory is HACCP certified.
- Fiji Tuna Boat Owners Association (FTBOA): The Fiji
 Tuna Boat Owners Association is the body of Tuna
 fishing companies in Fiji. Currently it is comprised of
 Solander, Sea Quest, Golden Ocean, and Hangton. In
 December of 2012 the FTBOA received MSC
 certification for Fiji Albacore Tuna Longline.

Sea Quest (Fiji) Limited: Established in 2006, Sea
 Quest exports sashimi grade Tuna and other products
 to primarily Japan and the US, with the EU, Australia
 and New Zealand being secondary markets. Sea Quest
 has 8 licensed fishing boats and over 200 employees.
 Sea Quest is also a member of the Fiji Tuna Boat
 Owners Association and is MSC certified for Fiji
 Albacore Tuna Longline.

Key players in Fiji's tuna industry (2/2)

- Solander (Pacific) Limited: Solander is a fishing company that has been operating in Fiji since 1987 and has a registered fleet of 13 vessels and employs approximately 400 employees. Solander vessels also have OPRT accreditation. Solander is a member of Fiji Tuna Boat Owners Association.
- Fiji Fish Marketing Group: Established in 1979 Fiji Fish
 has been one of the mainstays in the Tuna industry till
 recently when due to unfavourable market conditions
 it withdrew from Tuna fishing and now focuses on
 fishing red snapper and mahi-mahi for export to the
 US.
- Golden Ocean Fish Limited: Established in 1999, Golden Ocean has 6 vessels registered with Fiji Tuna Boat Owners Association and is also involved in both processing and exporting of Fish. Xu Jun Du is the managing director of Golden Ocean.

- The Western and Central Pacific Fisheries Commission: The WCPFC, to which Fiji is a member, was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. It is a treaty-based organization and commenced operations in 2005. The WCPFC has several functions, including maintaining a register of fishing vessels authorized by flag states to fish for tuna and other highly migratory fish stocks in the WCPFC Convention Area. Aisake Batibasaga, who serves as the Principal Research Officer at Fiji Fisheries Department, is also the co-chair of the Science Committee of WCPFC.
- Other influential stakeholders in the country's industry include the **Du Family**.



Overview of sources

- This report relied on a variety of resources, including consultations with country experts, government reports, public databases, and individual outreach to multilaterals and foundations.
- As described in the introduction, the intent of this report is to create a baseline of statistics for the year 2015, primarily referencing regularly-updated sources that can provide consistent benchmarks for future editions of this report.
- There are certain fields for which data availability is relatively limited. For instance, the levels of funding from bi/multilaterals for the fisheries sector is not well-catalogued. Although development aid funding databases exist, our experience shows that these organizations code grants and loans using different classifications, leading to somewhat inconsistent results across the databases. We are hopeful that initiatives such as the Maritime Donors Group—which includes development aid partners such as the World

- Bank, USAID, JICA, and others—will provide timely information on fisheries funding in the region over the coming years.
- The information presented here is based on the best available resources covering the region's fisheries sector. We welcome feedback from partners as we seek to improve upon the report for future editions.



We welcome your feedback on this report and encourage you to share any comments with the Packard Foundation through a survey found at the following link:

http://bit.ly/2cCfYPw.



"Fiji Fisheries: 2015 Review"
Prepared for The David and Lucile Packard Foundation

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