



Exploring the Possible Impacts of WTO Rules on Fisheries Subsidies:

The Case of the Southern Longline Tuna Fishery in the Western and Central Pacific

REPORT



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Exploring the Possible Impacts of WTO Rules on Fisheries Subsidies: The Case of the Southern Longline Tuna Fishery in the Western and Central Pacific

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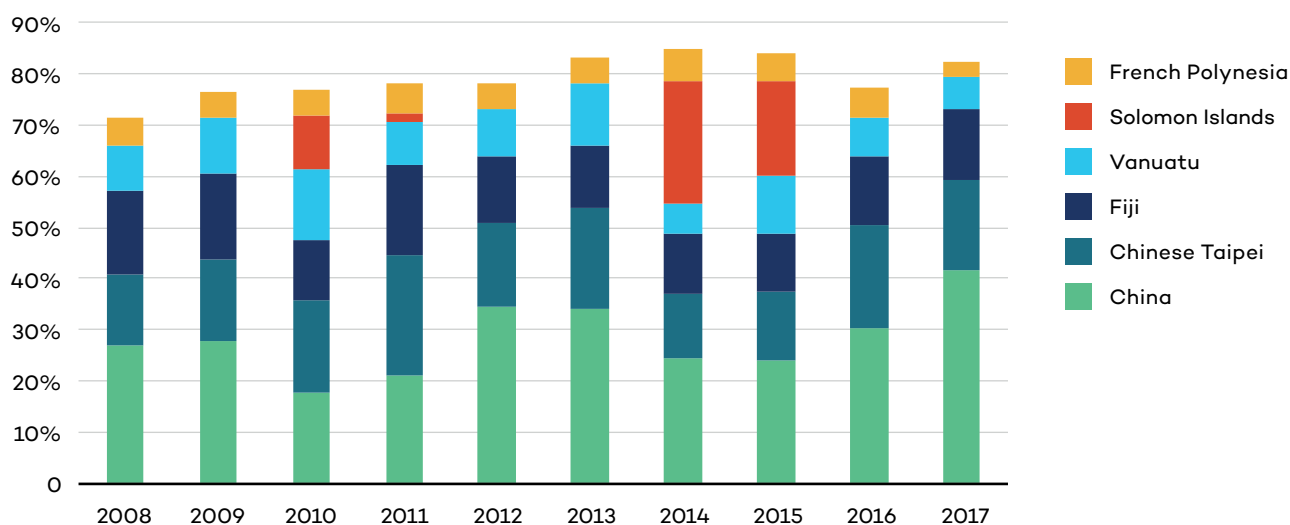
Executive Summary

The United Nations 2030 Agenda for Sustainable Development, adopted by heads of state in September 2015, includes a specific target of completing, by 2020, negotiations at the World Trade Organization (WTO) on new rules governing subsidies to the fishing industry. In the context of the WTO fisheries subsidy negotiations, new rules are currently being discussed in three specific areas: (1) subsidies that contribute to illegal, unreported and unregulated (IUU) fishing, (2) subsidies for the fishing of overfished stocks and (3) subsidies that contribute to overfishing and overcapacity more broadly. To help build an understanding of how possible subsidy rules might apply in practice, the International Institute for Sustainable Development commissioned three case studies to explore the possible impact of different options for WTO subsidy disciplines in three fisheries in distinct geographical areas. This case study explores the Western and Central Pacific Ocean (WCPO) southern longline (SLL) fishery managed by the Western and Central Pacific Fisheries Commission (WCPFC).

The SLL fishery is fished by several different fleets. South Pacific albacore is the main species targeted, but given the highly migratory nature of tunas and billfishes, vessels may also opportunistically target yellowfin tuna, bigeye tuna and swordfish. As albacore is the main species caught in the fishery, it is the focus of this case study. While target stocks (albacore, yellowfin tuna, bigeye tuna and swordfish) are currently healthy, one bycatch species—oceanic whitetip shark—is assessed as overfished. Other bycatch species, predominantly other shark species, are of unknown status.

In 2017, catches of South Pacific albacore were just under 93,000 tonnes, valued at around USD 268 million. This case study focuses on six fleets that together account for 80 per cent of South Pacific albacore catches in the area under the management of the WCPFC: those flagged to China, Chinese Taipei, Fiji, Vanuatu, Solomon Islands and French Polynesia (Figure S1). Twelve other fleets, which collectively account for the remaining 20 per cent of the catch and individually contribute less than 5 per cent to total catches, were not included.

Figure ES1. Contribution to South Pacific albacore catches by the fleets flagged to the six case study fleets.



Source: Brouwer, Pilling, Williams, et al., 2018.



The fishery covers both the high seas and exclusive economic zone (EEZ) waters, as fleets follow schools of tuna. Over the last few years, around 60 per cent of the albacore catch has been taken in the EEZs of Pacific Island countries (PICs), with the remaining 40 per cent caught in high seas areas. Chinese and Chinese Taipei-flagged vessels catch more in high seas areas. These two fleets also account for 50–60 per cent of the entire WCPFC southern albacore catch. PIC-flagged fleets fish in their own EEZs, neighbouring EEZs and high seas areas.

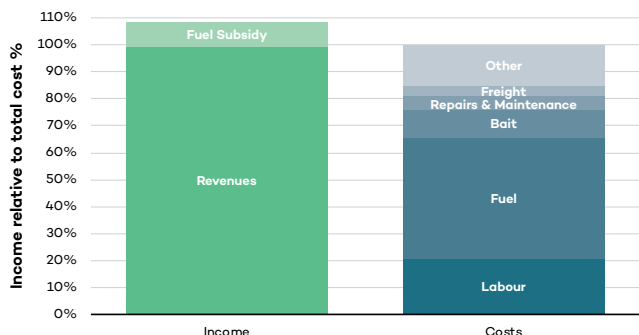
The estimated number of vessels in the SLL fishery is currently 290, defined as those vessels whose catch is comprised of more than 50 per cent South Pacific albacore tuna. Around half of these are flagged to China or Chinese Taipei. Vessels range in size from small vessels (less than 24 metres) undertaking fishing trips of 2–3 weeks to larger vessels with ultra-low temperature freezing facilities operationally able to be at sea for months at a time. These larger vessels are geographically and operationally versatile and move between the SLL fishery and the WCPO tropical longline fishery targeting the tropical bigeye and yellowfin tunas.

The fishery is managed at the regional level by the WCPFC through a combination of input controls, including an agreement to limit the total number of vessels in the SLL actively fishing for South Pacific albacore south of 20°S to 2005 or 2000–2004 levels. In PICs where the fishery operates, national fisheries management legislation also applies to vessels fishing within their EEZs. For example, Fiji has capped the number of longliners at 60. There are also two subregional initiatives under discussion aimed at establishing effort or catch caps, but these are yet to be implemented.

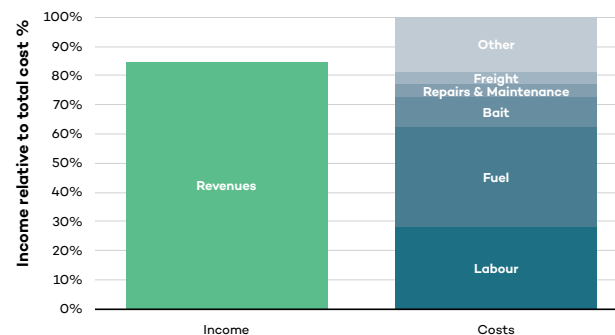
This case study examined available information on subsidy patterns for the six fleets included and, in some cases, with the use of proxy data, was able to estimate what income (including subsidy payments) relative to operating costs might look like for representative vessels from China, Chinese Taipei and Fiji (Figure ES2). Based on these estimates, catch revenues from vessels over 24 metres from China and Chinese Taipei appear not to cover operating costs. If these estimates are representative, these vessels would not appear to be able to continue fishing unless they were receiving financial assistance to do so. A subsidy prohibition could thus have an impact on some of these vessels' ability to operate. Estimates of income and operating costs of a Fijian longliner, however, indicate that the vessel revenues are just able to cover operating costs; tax concessions in the form of fuel and bait tax rebates make a negligible difference.



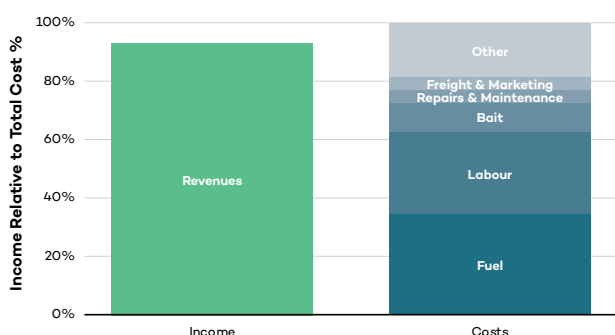
Chinese longliner (>24m) in 2014, when fuel price was above subsidy threshold



Chinese Longliner (>24m) in 2016, when fuel price was below subsidy threshold



Chinese Taipei longliner (>24m) in 2016



Fijian longliner, average 2012–2014

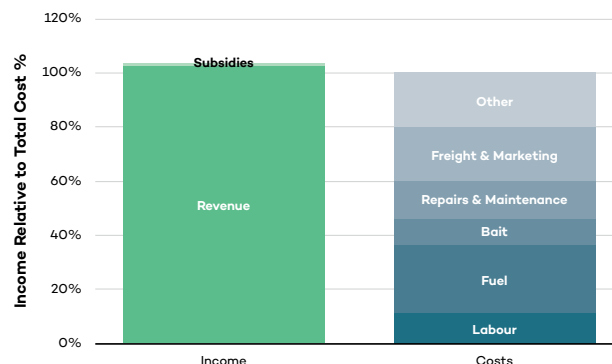


Figure ES2. Estimated cost and income structure of representative fishing vessels flagged to China, Chinese Taipei and Fiji in the SLL Fishery (methodology and data sources are presented in Section 4).

Issues in the fishery of relevance to the WTO subsidy negotiations concern IUU fishing, some overfished bycatch species and economic overfishing. The information available about the status of target and bycatch stocks in the fishery, the nature of IUU fishing and the economic status of the fishery suggests that the possible impact of different options for subsidy prohibitions will likely be different for different fleets in the fishery.

Illegal (unlicensed) fishing is negligible in the SLL fishery, but misreporting and illegal transshipment at sea are important: losses from these two aspects of IUU have been valued at around USD 150 million per year. The main causes are limited observer coverage (in some cases less than 5 per cent), paper-based catch reporting vulnerable to errors, verification issues and poor monitoring of transshipment events. The IUU subsidy discipline under discussion in the negotiations could be triggered by determinations made by regional fisheries management organizations, subsidizing members, flag or coastal states. There is currently a process for listing IUU vessels under the WCPFC, but only a handful of vessels usually end up being listed. The current list includes three vessels. A subsidy prohibition triggered by such listing would thus probably have a very limited impact. Determinations of IUU fishing made by subsidizing states, flag states and coastal states may be useful to increase the potential impact of a subsidy discipline and to serve as a stronger deterrent to IUU activity if fines under domestic fisheries legislation are low. However, such an impact would strongly depend on WTO members' willingness and ability to make such determinations, the severity of current sanctions and the importance of subsidies in fleets' profitability.

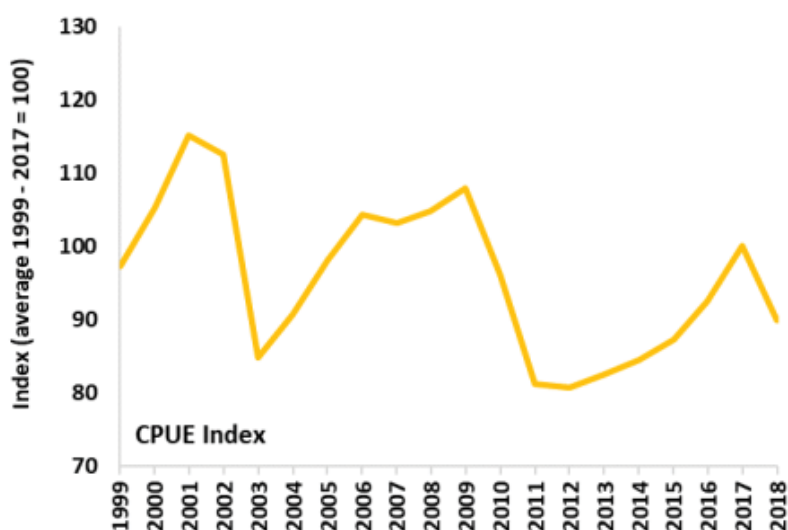


Target stocks in the SLL fishery are all healthy, having been recently assessed as both not overfished nor subject to overfishing. One bycatch species, oceanic whitetip shark, is assessed as overfished. Other bycatch species, predominantly other shark species, are of unknown status. A subsidy rule that prohibited subsidies only to the fishing of overfished target stocks would therefore probably not have an impact in this fishery, as long as the main target stocks remained healthy. The impact of rules on subsidies to the fishing of overfished stocks might instead depend on whether the subsidy prohibition covered bycatch and unassessed stocks. A prohibition of subsidies to the fishing of overfished or unassessed non-target stocks would apply to all tuna fisheries in the WCPO, as oceanic whitetips and some unassessed species are incidentally caught in all of them. If the prohibition is this widely cast, the addition of a “negative effect” test to the subsidy rule would probably not change its impact.

The data presented on the estimated cost and revenue structure of fleets suggests that vessels flagged to China, and potentially Chinese Taipei, may be relatively more affected by subsidy rules than domestically owned Fijian-flagged fleets, for example, as the latter appear to earn enough to cover their operational costs. These estimates should, however, be interpreted with considerable caution, as data on the operating costs and revenues of fleets in this case study was very limited and had to be inferred for China and Chinese Taipei. In the case of Chinese Taipei, no information was available on subsidies to their distant water fishing fleets specifically.

However, there was clearer evidence available about the economic state of the SLL fishery as a whole. Despite the healthy biological state of South Pacific albacore tuna, catch per unit effort (CPUE) (the number of albacore caught per hundred hooks) has been falling—so, for the same operational cost, fewer fish are being caught (Figure ES3). When this kind of economic overfishing has occurred in other fisheries, operators have exited the fishery because it was no longer profitable to fish. However, in the SLL fishery, vessels from some flag states appear to have been able to continue fishing, possibly due to subsidies for operating costs such as fuel. This has maintained an uneconomically high level of effort in the fishery, causing further decreases in CPUE. Those operations most affected by the decline are those that receive no financial assistance.

Figure ES3. Catch rate indices in the SLL fishery



Source: Williams & Reid, 2019.



Regarding rules on subsidies that contribute to overfishing and overcapacity, the two options that would have the most significant potential impact are a prohibition of subsidies to operating costs, including fuel, and a prohibition of subsidies for fishing in waters beyond a WTO member's national jurisdiction. Both options could reduce overall effort in the fishery if vessels became unprofitable, which may be more likely for fleets flagged to China and potentially Chinese Taipei. A prohibition of fuel subsidies could incentivize the move to more fuel-efficient engines (reducing greenhouse gas emissions), but could also shift efforts to areas where costs are lower (high seas, unregulated fisheries) and increase the cost disadvantage for PIC-based vessels, as fuel costs are higher in PICs.

Although its immediate impact would probably be negligible, a prohibition of subsidies to capital costs could contribute to limiting the level of effort in the fishery in the longer term. It could, however, have a relatively greater effect on aging vessels, such as those based in PICs that wish to modernize.

The exit of vessels affected by new WTO rules may have an impact on PIC domestic processing volumes and reduce access to fee revenues in the short term. Nonetheless, if sufficient effort were removed from the fishery, it is plausible that the profitability of remaining vessels would be improved through increased CPUE. This improved overall economic situation could, in turn, allow PICs to capture economic rent and increase access fees, and provide them with an opportunity for the development of their domestic tuna industry. Coastal states in the Pacific have long argued the case for greater participation in the SLL fishery in support of national aspirations. The realization of this objective would require financial support to PIC fishing companies (provided their operations are economically viable), capacity-building support in business skills and global market engagement. Until these PIC businesses are fully equipped to compete in the global marketplace, maintaining non-budgetary transfers (tax concessions) to address some of the comparative economic disadvantages due to their geographical isolation may be justified over a period of time.

Realizing the opportunity presented by new subsidy rules will require careful staging and involve striking a delicate balance between avoiding economic overfishing (through subsidy disciplines and fisheries management measures), minimizing economic impacts to PIC tuna industries, increasing rent capture from distant water fishing nation fleets, and allowing time for domestic fleets to innovate and improve efficiency to more effectively compete in the global tuna market.



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Acronyms and Abbreviations

CCM	Commission members, cooperating non-members and participating territories
CMM	Conservation and Management Measure
CMS	Compliance Monitoring Scheme
CPUE	catch per unit effort
DWF	distant water fishing
DWFN	distant water fishing nation
EEZ	exclusive economic zone
FFA	Pacific Islands Forum Fisheries Agency
GRT	gross registered tonnage
IUU	illegal, unreported, unregulated fishing
LDC	least-developed country
MDO	marine diesel oil
MSY	maximum sustainable yield
OECD	Organisation for Economic Co-operation and Development
PAE	party allowable effort
PICs	Pacific Island countries
PNA	Parties to the Nauru Agreement
RFMO	regional fisheries management organization
RFV	Record of Fishing Vessels (of the WCPFC)
SIDS	Small Island Developing States
SPC	Secretariat of the Pacific Community
SLL	southern longline (fishery)
TAC	total allowable catch
TAE	total allowable effort
TKA	Tokelau Arrangement
TLL	tropical longline (fishery)
TRP	target reference point
ULT	ultra-low temperature
LL VDS	Longline Vessel Day Scheme
WCPFC	Western and Central Pacific Fisheries Commission
WCPO	Western and Central Pacific Ocean
WCPF	Western and Central Pacific Fisheries
WTO	World Trade Organization

Exchange rates used for various data points throughout the study are indicated in footnotes.



1.0 Introduction

The United Nations 2030 Agenda for Sustainable Development, adopted by heads of state in September 2015, includes a specific target of completing, by 2020, negotiations at the World Trade Organization (WTO) on new rules governing subsidies to the fishing industry. In the context of the WTO fisheries subsidies negotiations, new rules are currently being discussed in three specific areas: (1) subsidies that contribute to illegal, unreported unregulated (IUU) fishing, (2) subsidies for the fishing of overfished stocks and (3) subsidies that contribute to overfishing and overcapacity more broadly. To help build an understanding of how subsidy rules might apply in practice, the International Institute for Sustainable Development commissioned three case studies to explore how different options for WTO subsidy disciplines might have an impact on three fisheries in distinct geographical areas. This case study is of the Western and Central Pacific Ocean (WCPO) southern longline (SLL) fishery managed by the Western and Central Pacific Fisheries Commission (WCPFC). It presents a detailed analysis of the potential impacts of possible new WTO rules on fisheries subsidies in this tuna fishery.

Section 2 provides an overview of the fishery, looking at its main characteristics and dynamics as well as its socioeconomic importance for Pacific Island countries (PICs). Section 3 focuses on its governance. In Section 4, the study examines subsidy patterns for fleets active in the fishery. Where possible, this section provides an overview of these fleets' estimated cost and revenue structure, including the possible contribution of subsidies to their profitability. This information is then used in Section 5 to qualitatively assess the potential impact of possible new WTO rules on fisheries subsidies, focusing specifically on the various options that had been proposed in WTO negotiations by the end of 2018. Finally, Section 6 briefly discusses pathways for the reform of fisheries subsidies in this fishery.



2.0 Overview of the Southern Longline Fishery

2.1 Western and Central Pacific Ocean Tuna Fisheries

The WCPO covers over 8 per cent of the global ocean and is home to the world's largest and most valuable tuna fisheries, generating a delivered value of catch of just over USD 6 billion and accounting for 55 per cent of global tuna catches in 2018 (Williams & Reid, 2019).

The region includes both the exclusive economic zones (EEZs) of several countries and areas beyond national jurisdiction that are more commonly referred to as the high seas. Most of the tuna stocks are found in the waters under PICs' jurisdiction. In particular, 11 PICs control over 55 per cent of the WCPO area, which represents close to 5 per cent of the world's oceans (World Bank & International Bank for Reconstruction and Development, 2016).

Four tuna species are commercially harvested in the WCPO using purse seine or longline fishing gear: South Pacific albacore, bigeye, skipjack and yellowfin. Purse seines target smaller, surface-swimming species (skipjack, small yellowfin and bigeye), while longlines focus on larger individuals in deeper waters, using hooks to target large yellowfin, bigeye and albacore tunas.

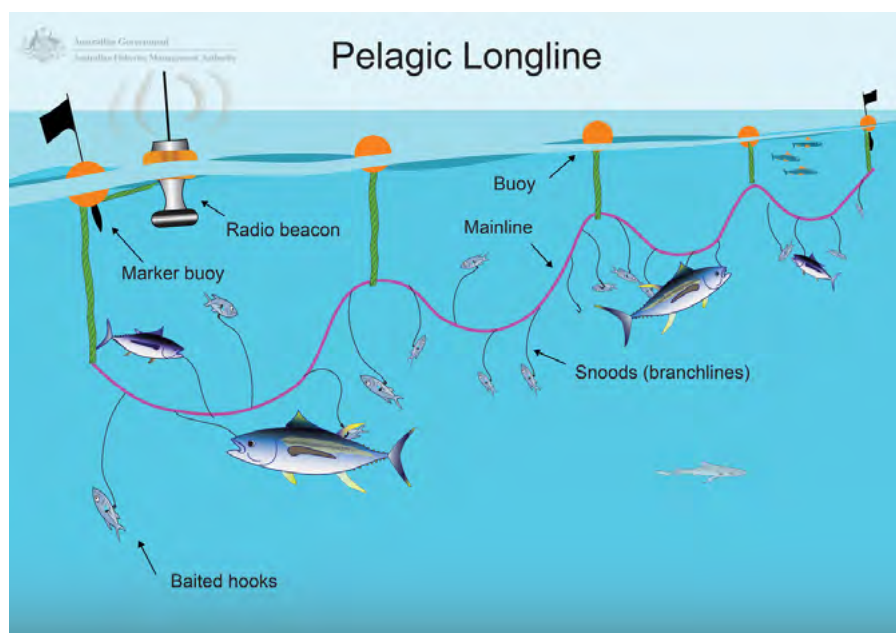
Tuna is highly migratory. The fleets that harvest them travel thousands of kilometres, following the tuna as they, in turn, follow prey species, moving in and out of EEZs and the high seas. Tuna fisheries in the WCPO and under the management of the WCPFC are defined by the fishing method they use and the latitudes where fishing occurs. There are four main fisheries: the purse seine fishery, the tropical longline fishery (TLL), the pole and line fishery and the southern longline (SLL) fishery. This case study covers only the SLL fishery.

2.2 The Southern Longline Fishery

The SLL fishery targets South Pacific albacore tuna in subtropical waters south of 10°S. Longlining is a fishing method using a mainline, often over 100 kilometres in length, to which baited hooks are attached on "branch" lines at regular intervals (see Figure 1.).



Figure 1. Pelagic longline



Source: Australian Fisheries Management Authority

Fishers target large adult South Pacific albacore tuna that are found in deeper waters as well as adult bigeye and yellowfin tunas. These species' biology (including their feeding habits, behaviour and mobility) strongly influences the distribution and type of fishing activities in the WCPO tuna fisheries. In addition, climatic and oceanographic effects of El Niño/La Niña also significantly affect where the fish are at any time of the year (Cartwright, 2017).

While the SLL fishery is often considered to be an “albacore fishery,” vessels also catch large yellowfin and bigeye. The catch and catch rate of these other species influences the profitability of vessels in the SLL fishery, as longline-caught yellowfin and bigeye are sold for sashimi and fetch higher prices. In recent years, there is less of a distinction between the SLL fishery and the TLL fishery, which targets bigeye and yellowfin, due to advancements in freezer technology, particularly on the smaller vessels. Some vessels are able to move between both fisheries opportunistically, switching targets depending on factors such as seasonality, fishing location, stock abundance, etc. (Campling, Lewis, & McCoy, 2017; Terawasi & Reid, 2018).

2.3 Current Stock Status





The potential subsidy prohibition for the fishing of overfished stocks under discussion at the WTO would depend on the current status of relevant stocks. It is thus important to look at the latest assessments for albacore and other target species, as well as for bycatch species, in the SLL fishery.

The Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC) conducts fisheries stock assessments and provides scientific advice to support the development of conservation and management measures (CMMs) by the members of the WCPFC. Stock assessments are based on sophisticated models using data from a variety of sources, including unloading, port samples, observer data and tagging data. According to the most recent assessments (Table 1), South Pacific albacore,



bigeye and yellowfin tunas and South Pacific swordfish—which is also caught in the SLL fishery—are not overfished nor subject to overfishing (Forum Fisheries Agency [FFA], 2018b; Takeuchi, Pilling, & Hampton, 2017).

Table 1. Current stock status of target species caught in the SLL fishery

Species	Year of stock assessment	Overfished	Overfishing
 Bigeye tuna	2017	No	No
 Yellowfin tuna	2017	No	No
 South Pacific albacore tuna	2018	No	No
 Swordfish	2016	No	No

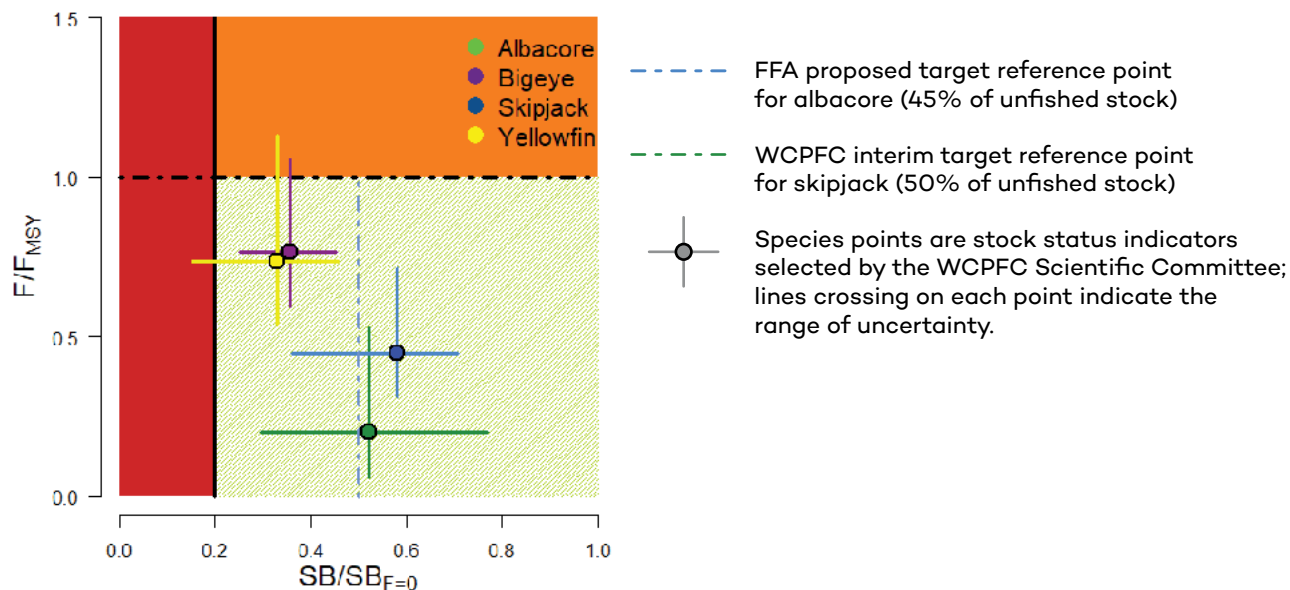
Source: WCPFC, 2019a.

For tuna, SPC models always show measures of uncertainty for each model parameter, which is presented on a Majuro plot. Figure 2 shows the most recent Majuro plot (a graphic used to show stock status) for the three main tuna species caught in the SLL fishery. The plot shows the relative status of each of the main stocks against biological reference points. The plot is divided into four panels: stocks in the yellow/green (lower right) are healthy; stocks in the red area are considered to be overfished (spawning biomass is too low); and stocks in the orange area are currently being overfished (fishing mortality is too high). The main “point” (plain circle) is the “reference case” used to provide management advice, and the lines radiating out from that point represent uncertainty (Allain et al., 2016).

As new information becomes available, model outputs and determinations can change. For example, the previous assessment of bigeye tuna conducted in 2014 had concluded that the stock was overfished and subject to overfishing (Cartwright, 2017). However, following the inclusion of new growth rate and spatial distribution data in the 2017 assessment, model outputs indicated that the stock was neither overfished nor experiencing overfishing (FFA, 2018b).



Figure 2. Majuro plot for the main tuna stocks in the WCPO



Source: FFA, 2018b.

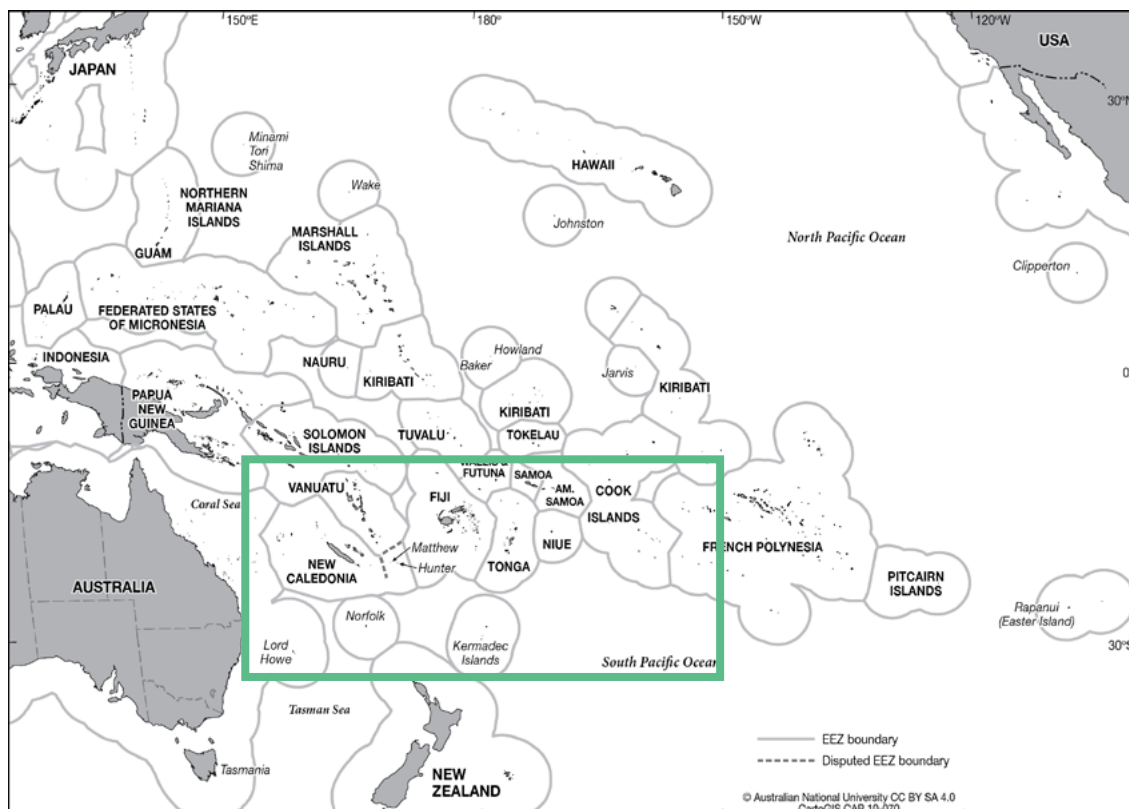
2.4 Catches

As the SLL fishery is considered an “albacore fishery,” this case study focuses on albacore catches. The area of the fishery is shown in Figure 3. Annual longline catch estimates for South Pacific albacore (south of the equator) in 2017 were 91,035 tonnes, 29 per cent higher than the 2016 catch, and valued at around USD 268 million at 2017 prices (Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018).¹

¹ Using 2017 Thailand frozen whole round albacore (cost and freight) USD 2,951/tonne (Terawasi & Reid, 2017).



Figure 3. Area of the SLL South Pacific albacore fishery



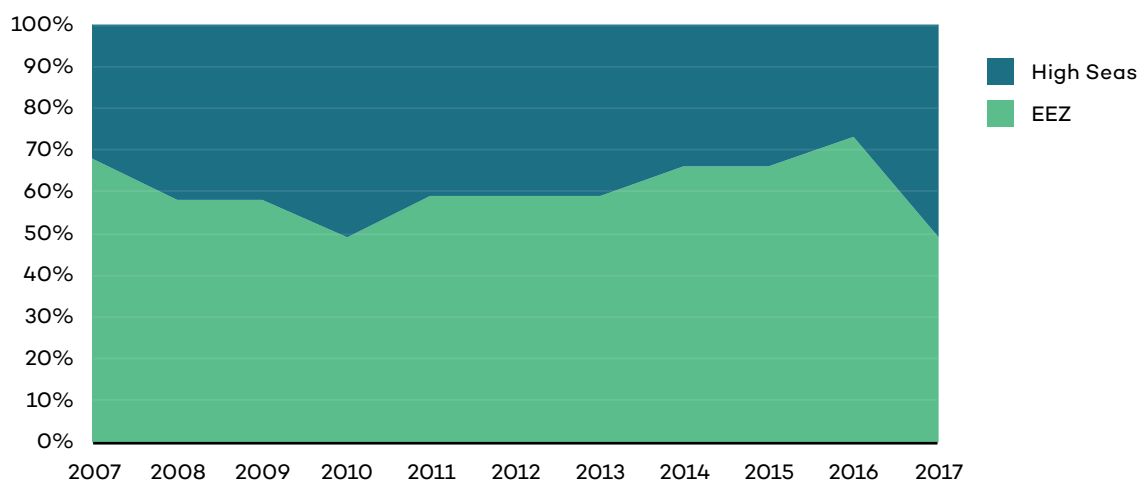
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Fleets follow South Pacific albacore as they move across both national boundaries and the high seas within the WCPO. Figure 4 shows the percentage of South Pacific albacore caught within EEZs and the high seas over the period 2007–2017. With the exception of 2017, on average, around 60 per cent of South Pacific albacore was caught within EEZs, and around 40 per cent was caught in the high seas, including the high seas pockets. Fleets flagged to China and Chinese Taipei (or attributed to them based on charter agreements) were estimated to have the highest catch of South Pacific albacore in 2017 (29,125 tonnes and 12,086 tonnes, respectively). Their combined share of total catches amounted to 59 per cent, of which 70 per cent was caught on the high seas (Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018).

Approximately 80 per cent of the region’s tuna catch is taken in the area between the equator and 20 degrees latitude south (20°S). In this area, albacore makes up about 30–55 per cent of the catch, with yellowfin (15–20 per cent) and bigeye (10–40 per cent) making up the bulk of the remaining catch and swordfish comprising less than 5 per cent (Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018). South of 20°S catches are dominated by South Pacific albacore, which makes up 50–80 per cent of the catch. Swordfish is the next most abundant species (between 20 and 30 per cent of the catch), and bigeye and yellowfin make up 5–10 per cent and 10–20 per cent, respectively (WCPFC, 2018c).



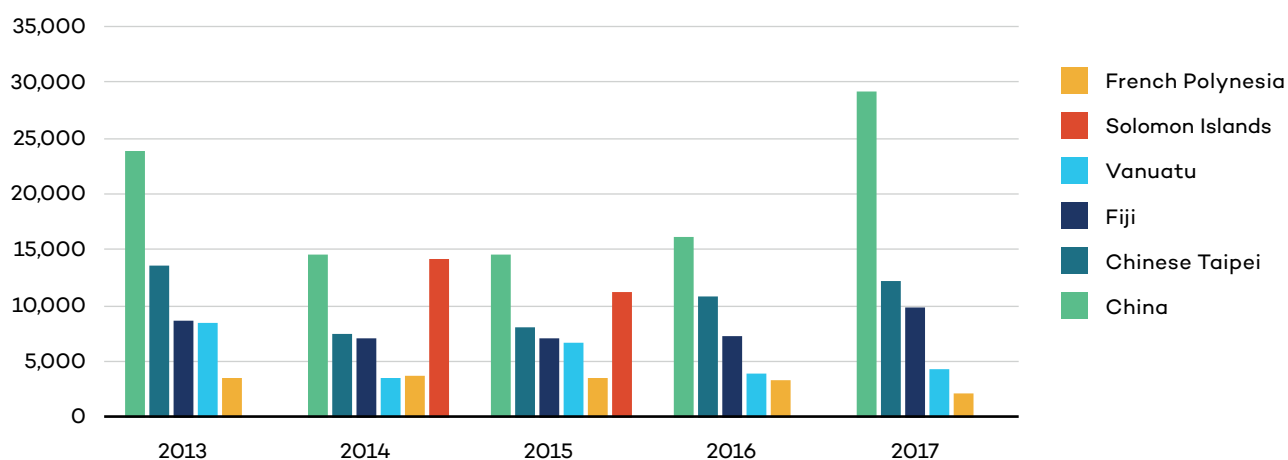
Figure 4. Percentage of South Pacific albacore caught in EEZs and the high seas (excluding archipelagic waters)



Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

This case study focuses on six fleets (flagged to China, Chinese Taipei, Fiji, Solomon Islands, Vanuatu and French Polynesia) that individually account for over 5 per cent and collectively over 80 per cent of the total South Pacific albacore catch (i.e., catch of albacore in the southern WCPFC area and excluding archipelagic waters) averaged over the period 2013 to 2017 (Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018). Their catches of South Pacific albacore are shown in Figure 5. Chinese-flagged vessels have the highest total catch, followed by Chinese Taipei-flagged and Fijian-flagged vessels. Figure 6 shows what percentage the six fleets contribute to total South Pacific albacore catches. Twelve other countries account for the remaining 20 per cent of southern albacore catches. They include both distant water fishing nations (DWFN) and PICs.² This study excludes from its analysis non-WTO members.

Figure 5. Estimates of South Pacific albacore catches (tonnes) by fleets flagged to six case study fleets

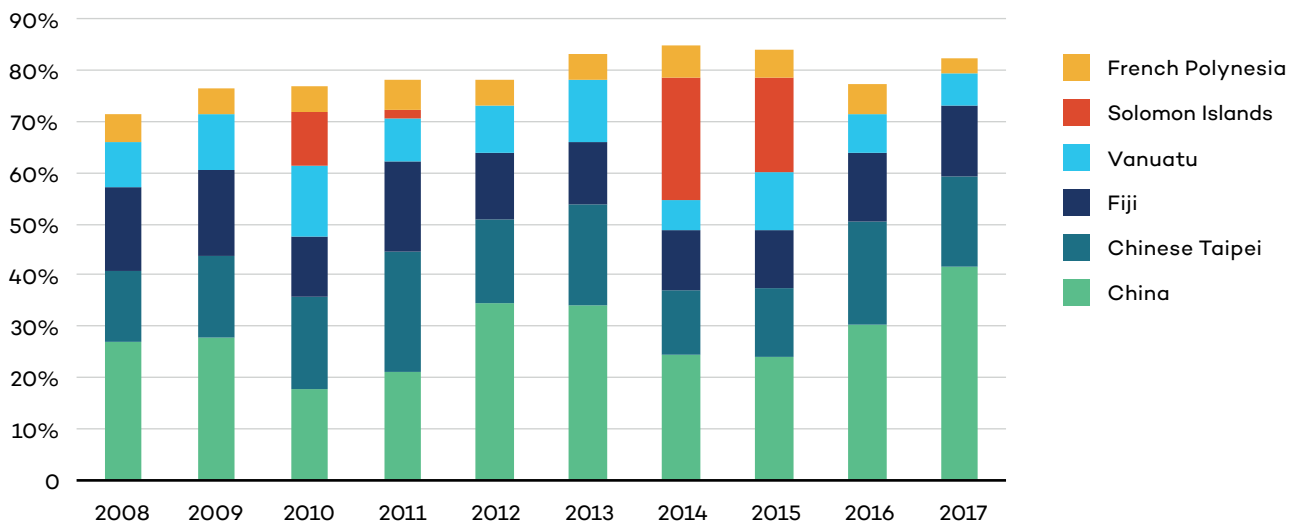


Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

² United States of America, New Caledonia, Samoa, Japan, Cook Islands, Republic of Korea, Australia, Federated States of Micronesia, Papua New Guinea, Kiribati, New Zealand and Tuvalu.



Figure 6. Contribution to South Pacific albacore catches by fleets flagged to six case study fleets

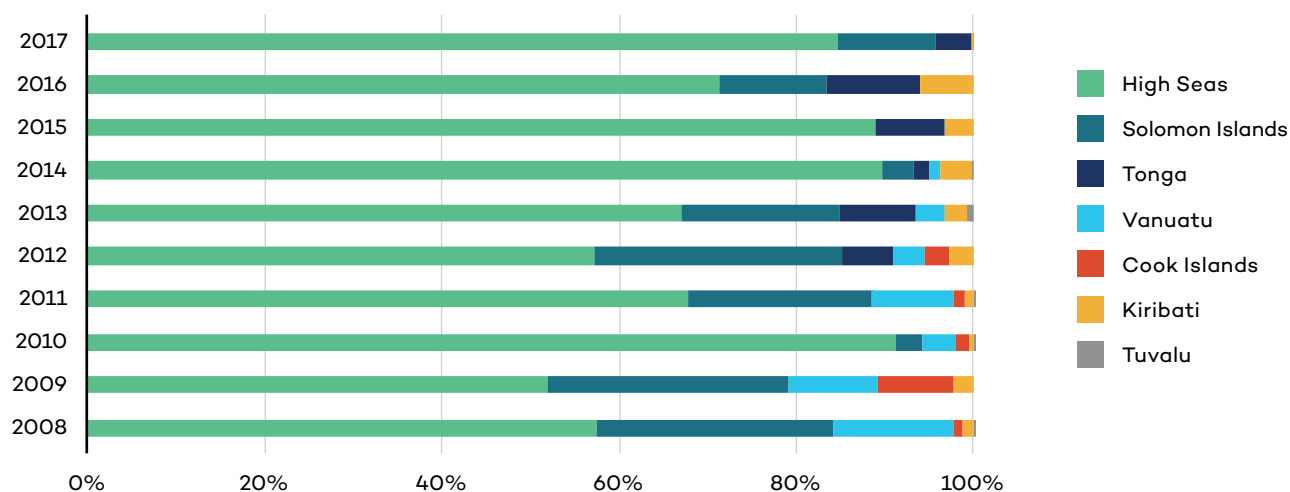


Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

Figures 7–11 show the breakdown of South Pacific albacore tuna catches by zone (high seas or EEZ) south of the equator for five of the six fleets included in this case study. French Polynesia is not shown, as their fleet only fishes in their own EEZ. Chinese Taipei-flagged vessels predominantly catch South Pacific albacore in the high seas and in the EEZs of Solomon Islands. Chinese-flagged vessels have a similar pattern, with their in-zone catches mainly coming from the EEZ of Vanuatu. In recent years, Fijian-flagged vessels have caught most of their catch in their EEZ, but they also take catches in the high seas as well as the EEZs of Vanuatu and Solomon Islands. Vanuatu-flagged vessels (all of which are Chinese and Chinese Taipei owned and operating under bilateral agreements) catch the greatest proportion of their catch in the high seas. There are no Solomon Islands-flagged vessels fishing at present. When vessels did operate (one vessel), most of the catch was in-zone. The cessation of chartering as a means of granting access by Solomon Islands in 2016 has resulted in no catches recorded from 2016 onwards for that country (Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018).

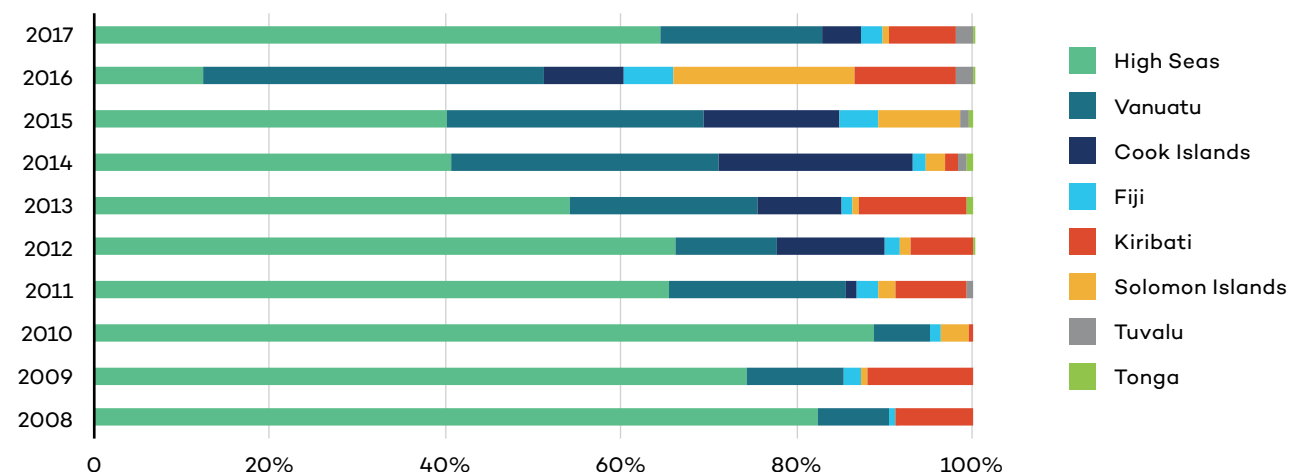


Figure 7. South Pacific albacore tuna catch by zone for Chinese Taipei-flagged vessels



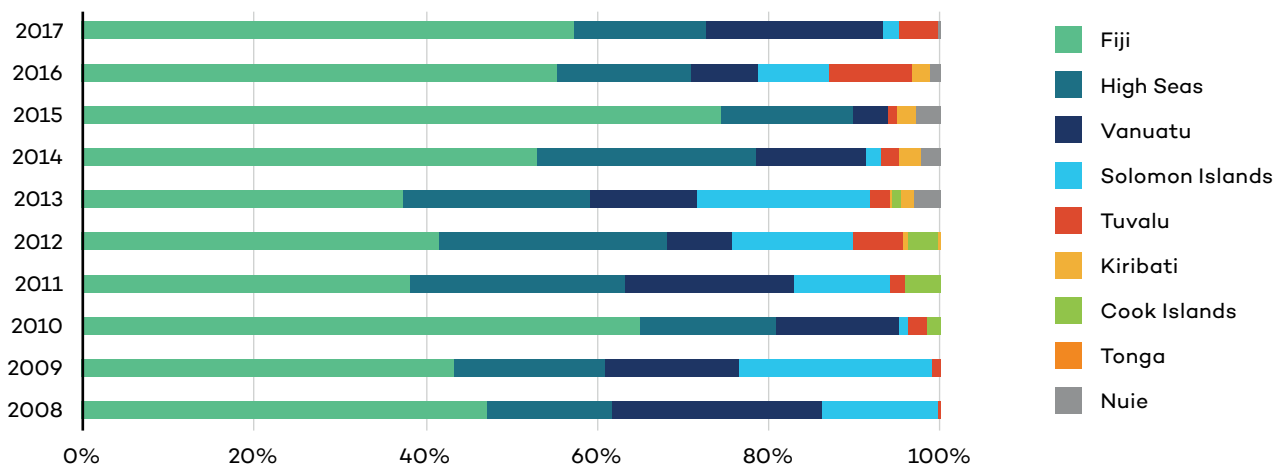
Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

Figure 8. South Pacific albacore tuna catch by zone for Chinese-flagged vessels



Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

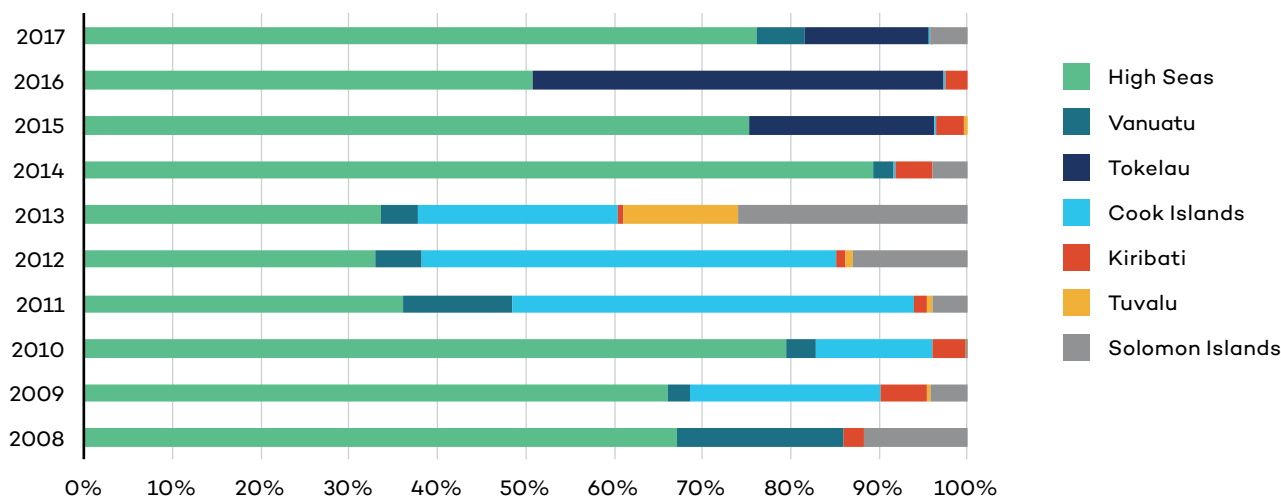
Figure 9. South Pacific albacore tuna catch by zone for Fiji-flagged vessels



Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

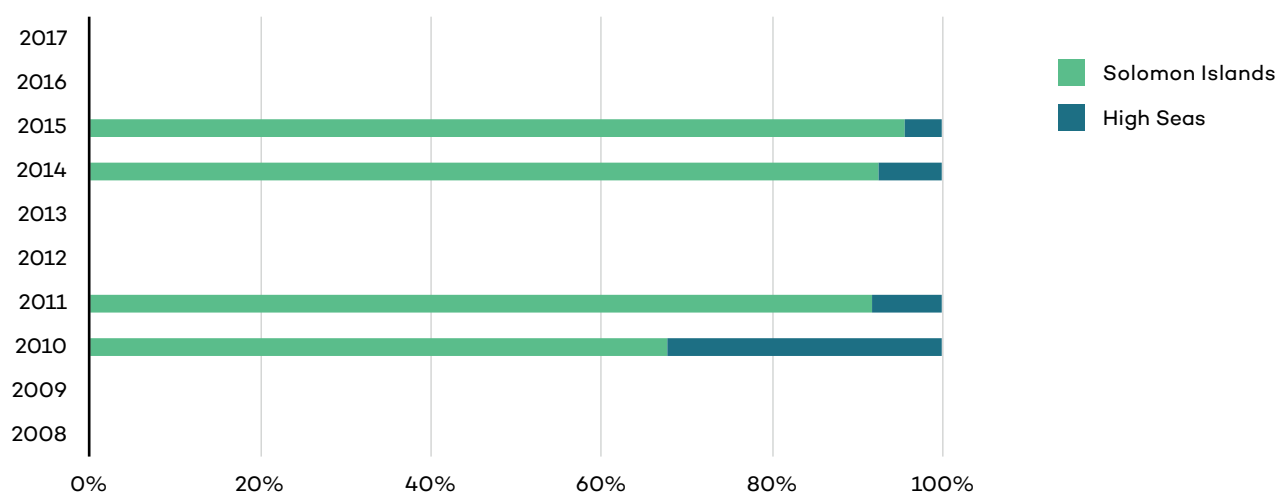


Figure 10. South Pacific albacore tuna catch by zone for Vanuatu-flagged vessels



Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

Figure 11. South Pacific albacore tuna catch by zone for Solomon Islands-flagged vessels



Source: Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018.

2.5 Bycatch

In the context of possible WTO rules on fisheries subsidies, some of the options that have been discussed would prohibit subsidies to all fishing of overfished stocks, regardless of whether a stock is targeted or not. Therefore, the status of bycatch species in the SLL is also relevant.

While other tunas caught in the SLL fishery are targeted, not bycatch, South Pacific swordfish is a bycatch species in the SLL fishery. As mentioned above, the most recent assessment concluded that the swordfish stock is neither overfished nor subject to overfishing (Takeuchi et al., 2017).

Longline tuna fisheries have high catch rates of sharks relative to purse seine fisheries, both incidental and, in some cases, targeted. A wide range of shark species are caught. While some of these species are considered relatively resilient to fishing (e.g., blue shark), others are considered more vulnerable to overfishing given their low reproductive rates—for example, porbeagle, silky and bigeye thresher



sharks (Clarke Langley, Lennert-Cody, Aires-da-Silva, & Maunder, 2018; Fu et al., 2018; Hoyle, Edwards, Roux, Clarke, & Francis, 2017)—or are overfished, such as oceanic whitetip (WCPFC, 2018a). Shark avoidance options are limited, as sharks will take baited hooks throughout the longline process, at the surface and at considerable depths. Depredation of catch can also result in accidental hooking of sharks.

Oceanic whitetip sharks are the only known shark species that are overfished and caught in the SLL fishery. As they show a clear preference for the open ocean water between 10°S and 10°N, they are most vulnerable to fishing in these areas. They are found in decreasing numbers out to latitudes of 30°N and 30°S. This species has low resilience to fishing due to its biology, particularly low fecundity. Data on catches of oceanic whitetip sharks is limited due to low levels of observer coverage in the Pacific tuna longline fisheries (Rice & Harley, 2012).

Several species of finfish are also caught by longliners, though most are not of concern because of their high productivity. However, some species, such as marlin, are considered to be vulnerable to fishing pressure and are thus subject to mitigation methods, including catch limits (Campling et al., 2017).

2.6 Vessels and Fleets

In March 2019, there were 2,583 longliners on the WCPFC Register of Fishing Vessels, 88 per cent of which were from DWFNs (WCPFC, 2019b). Most DWFN fleets operate in a wide area, fishing from the equator to the high latitudes, and show an increasing dependency on South Pacific albacore catches as they move south. However, DWFNs decrease their effort with increasing latitude: of vessels that fish in the tropics, the highest numbers rely on catches of mostly bigeye and yellowfin tuna. Most PICs expend the highest fishing effort in the latitudinal bands that correspond to their EEZ (Brouwer, Pilling, & Williams, 2018; Brouwer, Pilling, Williams, & WCPFC Secretariat, 2018).

Newer distant water longliners operating in the WCPO have been built with advanced features, in particular, improved refrigeration, navigation and communication systems, allowing for greater autonomy and range. A change from using ice to ultra-low temperature (ULT) freezers reduces the portion of the catch formerly held as fresh and contributes to diversifying markets for the frozen catch. Vessels that target albacore but have deep freezer refrigeration systems are also able to access the emerging Japanese market for low-temperature sashimi-grade albacore as well as sashimi-grade yellowfin and bigeye tunas (Campling et al., 2017).

In 2015, the WCPFC, the regional fisheries management organization (RFMO) responsible for managing tuna fisheries in the WCPO agreed to a management measure (CMM 2015-02) stipulating that commission members, cooperating non-members and participating territories (collectively known as CCMs) “shall not increase the number of their fishing vessels actively fishing for South Pacific albacore in the Convention Area south of 20°S above 2005 levels or recent historical (2000-2004) levels” (Western & Central Pacific Fisheries Commission, 2015, p.1). However, concerns remain as to the effectiveness of this measure for a variety of reasons, including its limited geographic scope (effort only restricted south of 20° south); poorly specified vessel-based limits because of the lack of clarity regarding what “vessels actively fishing for” South Pacific albacore precisely means; flag-based limits that do not recognize the zone-based rights of Small Island Developing States (SIDS) with respect to the South Pacific albacore stock in EEZ waters; and the reference period, which was observed to have little relation to the fishing activity that is taking place (WCPFC, 2018b).

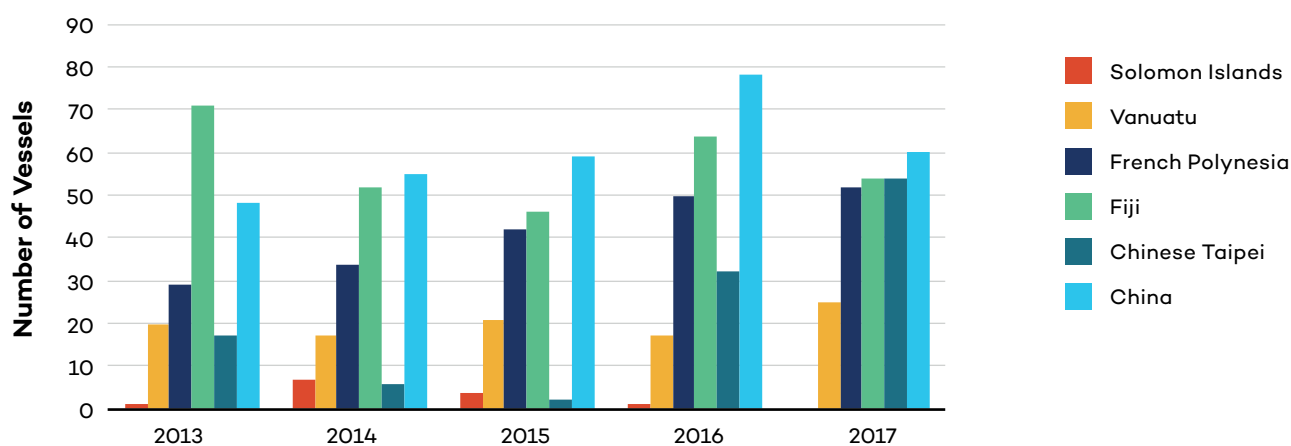


In line with this CMM, the SPC estimated the number of vessels actively fishing for South Pacific albacore between 20°S and 50°S, noting that “most fishing fleets in the equatorial zones (equator to 10°S) are not albacore-reliant and catch mostly bigeye and yellowfin tuna” (Brouwer, Pilling, & Williams, 2018, p. 3). The report defines a vessel that targets South Pacific albacore as one for which South Pacific albacore constitutes more than 50 per cent of total annual catch. To some extent, such a differentiation is arbitrary, because, as already mentioned, fishing vessels are opportunistic, catching the highest-value tunas they can based on their refrigeration/freezing capacities and location. As this is the only data publicly available on the number of vessels in the SLL fishery, this case study has relied on this information, even though it focuses on only part of the fishery (that which takes place south of 20°S).

The SPC estimated that, in 2017, there were 291 vessels targeting South Pacific albacore in the SLL fishery within the latitudes 20°S and 50°S (Brouwer, Pilling, & Williams, 2018). Vessels from the six case study fleets (Figure 12) accounted for 84 per cent of all vessels deemed to be targeting southern albacore in this latitudinal band in 2017 and comprise:

- Chinese- and Chinese Taipei-flagged longliners based in China or Chinese Taipei.
- Chinese- and Chinese Taipei-flagged vessels locally based in PICs operating under bilateral arrangements and joint venture agreements.
- Fiji-flagged longliners, some of which are in joint ventures with Chinese companies and based in Fiji.
- French Polynesian-flagged longliners based in French Polynesia.

Figure 12. Estimates of the number of vessels (by flag) in the SLL fishery targeting South Pacific albacore 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

2.6.1 China

China has two types of tuna longline vessels: ice-fresh (IFLL) and deep-frozen (DFLL) and ULT tuna longliners. The IFLLs mainly operate in the EEZs of PICs and on the high seas, targeting bigeye tuna and South Pacific albacore. Most of the DFLL target bigeye tuna on the high seas and in some of the EEZs of PICs. Of the 49,534 tonnes of fish caught by Chinese-flagged longliners in 2017 in the

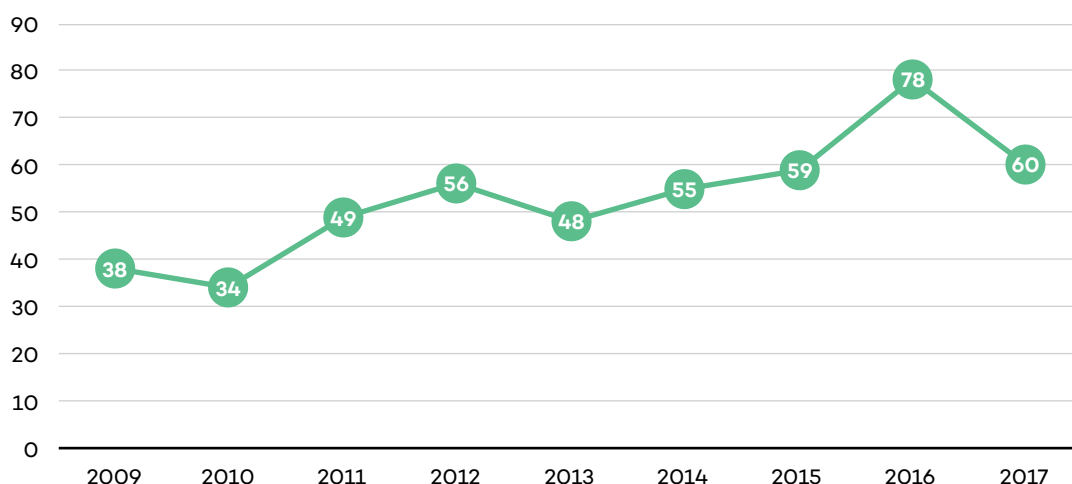


entire WCPFC area, South Pacific albacore, bigeye tuna, yellowfin tuna and swordfish made up 59 per cent, 14 per cent, 17 per cent and 3 per cent of the total catch, respectively (WCPFC, 2018c).

In 2017 there were 362 Chinese-flagged longliners operating in the WCPFC (Dai, Wu, & Wang, 2018), of which around 60 vessels were deemed to be targeting South Pacific albacore in the SLL fishery south of 20°S (Brouwer, Pilling, & Williams, 2018). Some of these vessels are locally based in Fiji and Solomon Islands and licenced under bilateral fishing agreements, while others are based in China. South Pacific albacore catch by Chinese IFLLs is sold to canneries in Thailand, South Korea, Fiji and American Samoa. Catches from the DFLLs and ULT tuna longliners are exported to Japan for sashimi (Campling et al., 2017).

The total number of Chinese longliners in the WCPFC area deemed to be targeting South Pacific albacore declined in 2017 compared to 2016, following a steady upward trend in the three previous years (Figure 13).

Figure 13. Number of Chinese-flagged vessels targeting albacore tuna in the SLL fishery, 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

2.6.2 Chinese Taipei

In 2017, Chinese Taipei's fishing fleet included 82 large-scale (>100 gross registered tonnage [GRT]) and 1,079 small-scale tuna longliners authorized to fish in the WCPFC area, which includes the Chinese Taipei EEZ. In that year, catches of tuna by Chinese Taipei-flagged longline vessels in the WCPO area (north and south and including Chinese Taipei EEZ) were around 62,000 tonnes, comprised of albacore (30 per cent), bigeye (16 per cent), yellowfin (35 per cent), swordfish (6 per cent) and others (13 per cent) (Fisheries Agency, Council of Agriculture & Overseas Fisheries Development Council, Republic of China, 2018). Overall, the number of Chinese Taipei longline vessels in the WCPO have been declining. They went from 1,378 in 2013 to 1,161 in 2017 (Fisheries Agency, Council of Agriculture & Overseas Fisheries Development Council, Republic of China, 2018).

Newer Chinese Taipei vessels are more versatile than older ones and can opportunistically fish in all WCPO longline fisheries. Their design maximizes fish hold capacity, often at the expense of

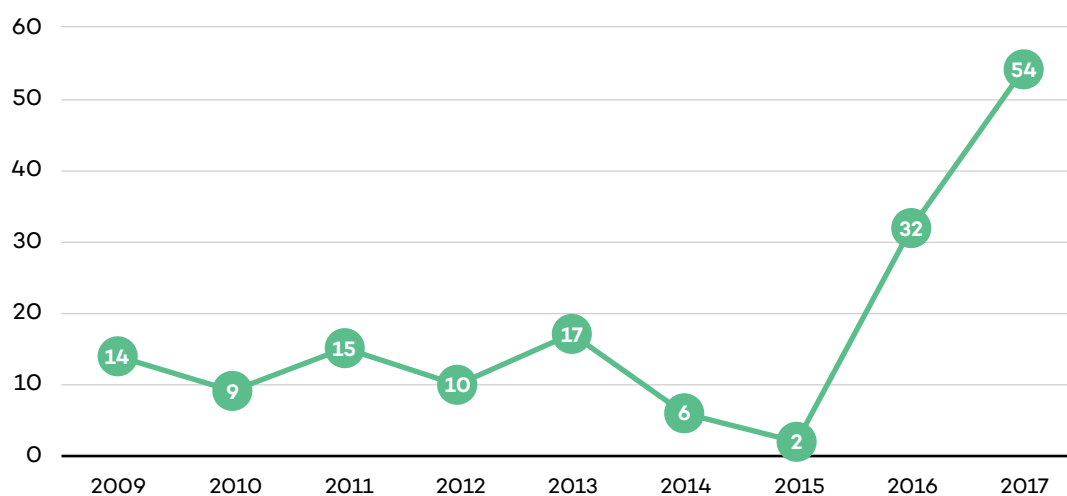


crew accommodations. Fuel is sometimes put in the fish hold as well as the ship's fuel tanks at the beginning of the trip to increase autonomy at sea (McCoy, Itano, & Pollard, 2015).

These longline vessels tend to operate in a nomadic manner, with all but the very largest operating from bases in the Pacific Islands such as Vanuatu. The motivation for being based in the Pacific has been attributed to the desire to gain concessional fishery access and partly provide support to PICs' domestic development aspirations (Campling et al., 2017). More importantly, in recent years, chartering or reflagging to PICs has enabled Chinese Taipei (and possibly other DWFN fleets) to obtain PIC bigeye catch quotas in the WCPO (Campling et al., 2017).³ Chinese Taipei vessels reflagged to PICs are not included in this section because they are not flagged to Chinese Taipei.

In 2017, 54 Chinese Taipei longliners were deemed to be targeting South Pacific albacore in the SLL fishery below 20°S (Brouwer, Pilling, & Williams, 2018). The fleet targeting South Pacific albacore usually enters fishing ports in the Pacific Ocean twice a year for landing catch, refuelling and re-supplying. Vessel numbers have fluctuated over time (Brouwer, Pilling, & Williams, 2018), most probably reflecting different targeting practices: when catches of South Pacific albacore fall below 50 per cent of the catch, they are excluded from the estimates (Figure 14). The increase in vessel numbers in Figure 14 therefore likely reflects changing catch patterns of the fleet and shows that, in recent years, an increasing number of vessels have begun to catch at least 50 per cent albacore.

Figure 14. Number of Chinese Taipei-flagged vessels deemed to be targeting South Pacific albacore in the SLL fishery, 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

2.6.3 Fiji

In 2017, the Fijian-flagged fleet of longliners operating in the WCPFC area consisted of 75 vessels (Offshore Fisheries Division, Ministry of Fisheries, 2018), of which 54 were deemed to be targeting South Pacific albacore between 20°S and 50°S (Brouwer, Pilling, & Williams, 2018). The numbers of Fiji-flagged vessels have been declining since 2011 (Figure 15), which has been attributed by industry representatives to falling profitability in the SLL fishery.

³ Under WCPFC requirements, SIDS are encouraged but not required to establish a bigeye catch quota in their zones. Meanwhile, DWFNs are subject to flag-based annual bigeye catch quotas.



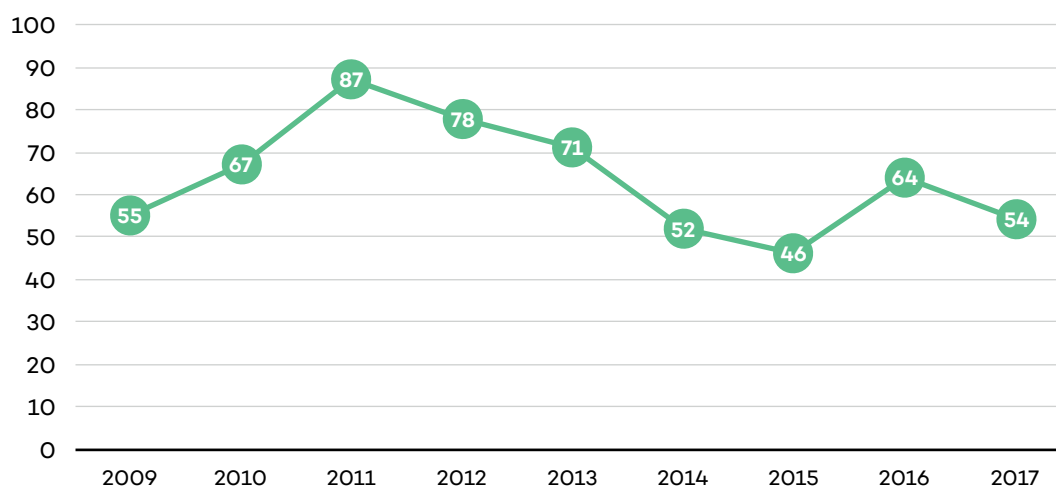
The Fijian-flagged longline fleet in the WCPFC area is broken down as follows (Offshore Fisheries Division, Ministry of Fisheries, 2018)⁴:

- Nine vessels less than 21 metres long, which mainly use ice for preserving their catch, which is targeted for the fresh sashimi export market. They predominantly fish within Fiji’s archipelagic waters and territorial seas, spending one to two weeks on each trip.
- 45 vessels between 21 and 30 metres long, which use ice slurry and freezers to preserve their catch. Vessels of this category mainly fish within Fiji’s EEZ and spend three weeks to two months per fishing trip. Fish caught toward the end of the fishing trip are usually refrigerated in slurry to maintain quality and increase value.
- 21 vessels over 30 metres long that use freezers to preserve their catch. Vessels in this category mainly fish outside Fiji’s EEZ, targeting South Pacific albacore. They spend more than three months on each trip.

There are also nine charter vessels based in Fiji but flagged to China whose catches are recorded under Chinese catches (Offshore Fisheries Division, Ministry of Fisheries, 2018). Also, some tuna fishing companies are “believed to have either direct or indirect connections to China” (Campling et al., 2017, p. 24).

In 2017, the catch of the major tuna species for the Fiji longline fleet in the WCPFC area was around 18,000 tonnes. The catch was dominated by South Pacific albacore (62 per cent), followed by bigeye (9 per cent) and yellowfin (28 per cent) (Offshore Fisheries Division, Ministry of Fisheries, 2018).

Figure 15. Number of Fijian-flagged vessels targeting albacore in the SLL fishery, 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

⁴ This list is from Offshore Fisheries Division, Ministry of Fisheries, 2018 (p. 7). The number of vessels in the third category has been adapted to account only for Fijian-flagged vessels.

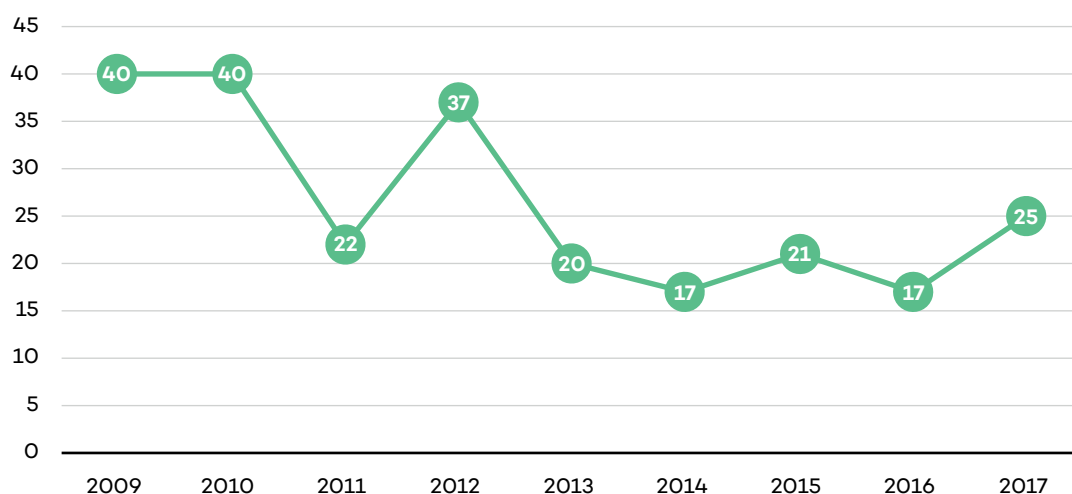


2.6.4 Vanuatu

In 2017, there were 88 Vanuatu-flagged longliners⁵ operating in the WCPFC (Fisheries Department, 2018), of which around 25 vessels (Figure 16) targeted South Pacific albacore in the SLL fishery below 20°S (Brouwer, Pilling, & Williams, 2018). All Vanuatu-flagged vessels are Chinese- or Chinese Taipei-owned vessels operating under bilateral agreements. Catches are recorded against Vanuatu.

In 2017, catches in the whole WCPO area by the Vanuatu-flagged longline fleet totalled 12,800 tonnes and were dominated by South Pacific albacore (47 per cent), followed by bigeye (30 per cent) and yellowfin (11 per cent) (Fisheries Department, Republic of Vanuatu, 2018). Yellowfin and bigeye tunas are supplied to the sashimi market in Japan and the United States. South Pacific albacore catch is mostly destined for canning and sent to two canneries located in Fiji and Solomon Islands. Other species making up the total catch include billfish (marlins and swordfish), sharks, wahoo, opahs and mahi-mahi (Vanuatu Department of Fisheries and Pacific Islands Forum Fisheries Agency, 2015).

Figure 16. Number of Vanuatu-flagged vessels targeting albacore in the SLL fishery, 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

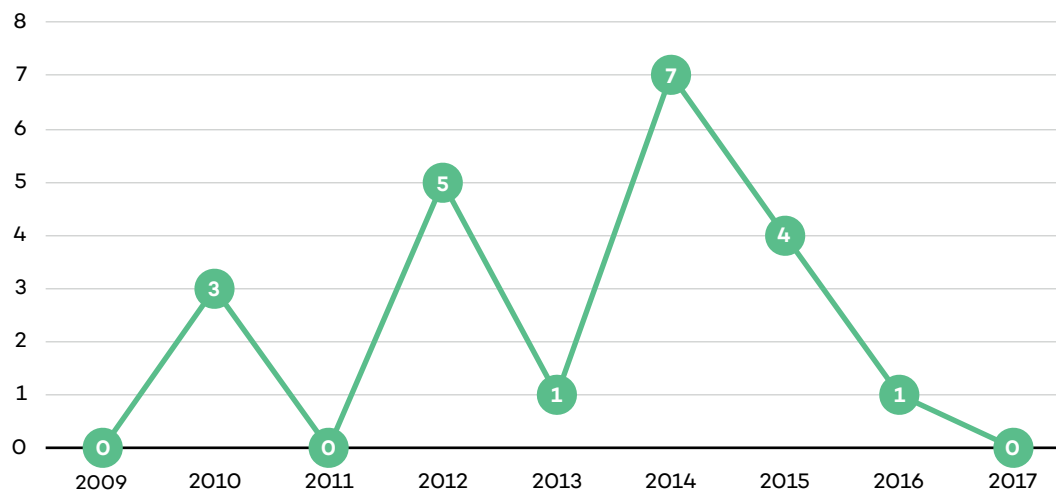
2.6.5 The Solomon Islands

The Solomon Islands currently do not have a locally flagged longline fleet. The number of Solomon Islands-flagged vessels deemed to be targeting South Pacific albacore in the SLL fishery south of 20°S in recent years is shown in Figure 17.

⁵ 39 vessels less than 200 GRT; 10 vessels between 200 and 500 GRT, and 19 vessels over 500 GRT (Fisheries Department, Ministry of Fisheries, 2018).



Figure 17. Number of Solomon Islands-flagged vessels targeting albacore in the SLL fishery, 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

There are, however, 63 foreign-flagged longline vessels actively fishing in Solomon Islands EEZ under bilateral agreements, which are registered to Chinese Taipei (30 vessels), China (30 vessels), Vanuatu (2 vessels) and Fiji (1 vessel) (WCPFC, n.d.). These vessels operate in Solomon Islands' EEZ under bilateral arrangements with locally based companies, with catches recorded against the flag state. Foreign vessels are allowed to “fish in waters that are further than 30 nautical miles from the baseline, excluding Solomon Islands' archipelagic waters” (Ministry of Fisheries and Marine Resources of Solomon Islands, 2018a, p. 12).

Catches by these longline vessels amounted to 11,000 tonnes in 2017, dominated by South Pacific albacore (42 per cent) and yellowfin (41 per cent), followed by bigeye tuna (7 per cent), and billfish and shark (9 per cent). In 2016, the Solomon Islands government imposed strict conditions on foreign-flagged vessels, requiring them to unload their catches locally. Vessels sell South Pacific albacore to the Sol Tuna cannery and loining processing facility in Solomon Islands, which also exports pre-cooked and frozen South Pacific albacore loins to the United States (Ministry of Fisheries and Marine Resources of Solomon Islands, 2018a).

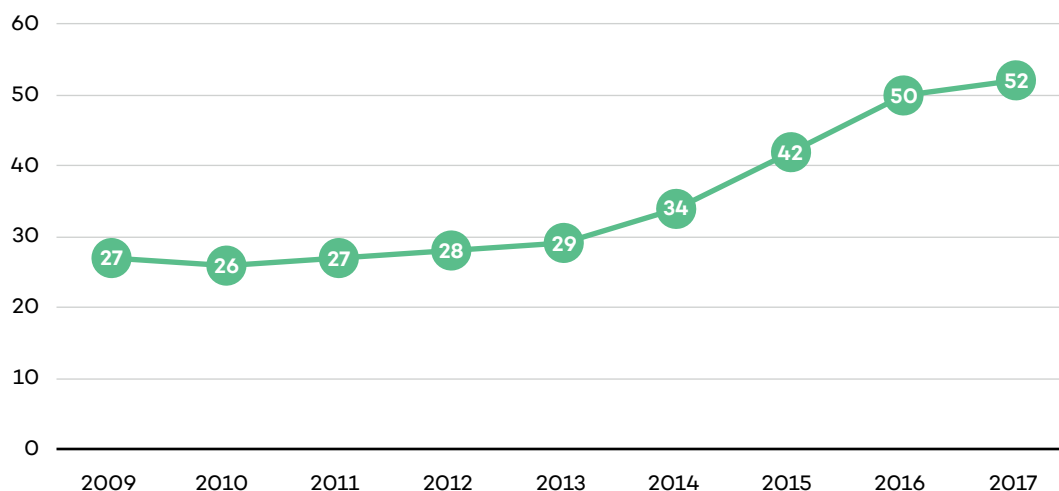
2.6.6 French Polynesia

In 2017, there were 61 tuna longliners flagged to French Polynesia (a French territory), ranging from 13 to 24 metres long. Of these, 56 vessels are fresh fish vessels and the remaining five have freezer capacity (Direction des Ressources Marines, 2018). Most but not all the vessel owners and managers are members of a legally registered *Coopérative Maritime des producteurs de pêche Hauturière de la Polynésie Française*. These vessels fish only within French Polynesia's EEZ. Over the period 2013–2017, the longline fleet's average catch of 5,208 tonnes was dominated by South Pacific albacore (58 per cent), followed by bigeye (18 per cent) and yellowfin (14 per cent) (Direction des Ressources Marines, 2018).

In 2017, 52 vessels were deemed to be targeting South Pacific albacore in the SLL fishery in 20°S–50°S, a number that has been steadily increasing since 2013 (Brouwer, Pilling, & Williams, 2018) (see Figure 18).



Figure 18. Number of French Polynesian-flagged vessels targeting South Pacific albacore in the SLL fishery, 20°S–50°S



Source: Brouwer, Pilling, & Williams, 2018.

2.7 Onshore Industries

Vessels in the SLL fishery either land catch directly into port or transship at sea. PICs have defined designated ports for tuna landings at Suva, Lautoka, and Levuka, Fiji; Noro, Honiara and Tulagi, Solomon Islands; and Port Villa, Vanuatu. Both Solomon Islands and Vanuatu have established conditions related to fishing licences that require catch to be landed in designated national ports (Poseidon Consultants, 2012).

South Pacific albacore is processed onshore in Fiji and Solomon Islands and is also sent to canneries in American Samoa and Southeast Asia (Poseidon Consultants, 2012). A Chinese-Vanuatu processing plant for the longline fleet was planned to open at the end of 2018/early 2019 in Port Vila, Vanuatu, but it is now scheduled to open at the end of 2019 (Vanuatu Daily Post, 2019).

Suva has developed into a regional hub, as it has direct air freight linkages to important market countries such as the United States, Japan, Australia and New Zealand. It is also a hub for container shipments, supported by inwards freight to Fiji and large consignments of fish exports. The port also provides onshore infrastructure in terms of slipways, engineering and shipwrights, and fuel and consumables at competitive prices compared to other PIC countries. A number of Chinese- and Chinese Taipei-flagged vessels have upgraded to ULT freezing, which could make them less dependent on landings directly into Fiji, allowing ULT containers to land catches in other country hubs, such as Vanuatu or the Solomon Islands, provided there is suitable infrastructure (Poseidon Consultants, 2012). While Vanuatu currently has three direct air freight links to Australia and one to New Zealand, Solomon Islands only has one connection to Australia.



2.8 Economic Benefits to PICs

The SLL fishery supports global supply chains, which are complex and multi-layered circuits of economic activity. Such value chains originate in PICs' waters and end with consumers in market destinations such as Europe, Japan or North America. In 2017, the value of South Pacific albacore was estimated to be around USD 300 million of delivered value (i.e., the value of the product when it enters the country where it is to be processed or consumed). Revenue from fishing licence and access fees for longlining to PICs has been estimated at USD 18.5 million (Terawasi & Reid, 2018).

To examine the economic benefits they provide to PICs, the WCPFC tuna fisheries, including the SLL fishery targeting South Pacific albacore, should be considered part of a dynamic system that includes every component of the supply chain, starting with the tuna resources and producing a flow of benefits to actors along the supply chain.

Data on economic benefits is insufficiently granular to attribute economic benefits to the SLL fishery alone, but it is available for the entire tuna industry in PICs. There is no known publicly available information on the economic benefits of the tuna industry for China and Chinese Taipei fleets, so these two countries are not included in this section. Table 2 shows the estimated contribution of the WCPFC tuna industry in its entirety to the economies of the four PICs included in the case study. On the basis of the data presented here, there is a difference in the value of the catch and the contribution of the tuna industry to the GDP of Fiji, Vanuatu and Solomon Islands, suggesting that there are opportunities for PICs to capture more value from the fishery.



Table 2. Economic benefits of the tuna industry in the four PICs of the case study

	Fiji	Solomon Islands	Vanuatu	French Polynesia
Population (rounded)^a (2017)	910,000	610,000	280,000	275,000
Tuna processing and ancillary jobs ^b	1,726	1,394		
Tuna vessel crew ^b	1,686	282	131	
Observers ^b	35	108	32	
Public sector ^b	211	572	65	
Total tuna employment (2015)	3,658^b	2,356^b	173^b	1,025^c
Value of catch in national waters 2016 (USD million)	46.2^d	325.6^d	30^d	26^e
Longline	44 ^d	73 ^d	30 ^d	26 ^e
Pole and line	0 ^d	0.6 ^d	0 ^d	0 ^e
Purse seine	2.2 ^d	252 ^d	0 ^d	0 ^e
Value of catch of national fleet 2016 (USD million)	73^d	112^d	61^d	26^e
Longline	73 ^d	45.2 ^d	49 ^d	26 ^e
Pole and line	0 ^d	0.6 ^d	0 ^d	0
Purse seine	0 ^d	66 ^d	12 ^d	0
GDP (USD million) 2016 ^a	4,671 ^a	1,233 ^a	788 ^a	5,368 ^f
Tuna industry contribution to GDP 2016 (USD m)/% of GDP^d	26 (0.6%)	62.4 (5%)	0	n.a.
Harvest sector contribution to GDP only (USD million) ^d	10.6	53	0	n.a.
Onshore processing contribution to GDP (USD million) ^d	14.5	9.4	0	n.a.
Licence and access fee revenue 2016 (USD million) ^d	1.4	41.6	2.7	n.a.
Onshore processing volumes (tonnes) 2016 ^d	34,852	24,239	n.a.	n.a.
Balance of payments (USD million) 2016 ^d	26.6	85.7	0	n.a.
Employment earnings (USD million) 2016 ^d	17.7	6.8	0	n.a.
Local purchases (USD million) 2016 ^d	24	18.5	0	n.a.

^a World Bank, n.d.

^b Terawasi & Reid, 2017.

^c Gillett, 2009 (data for 2009).

^d Terawasi & Reid, 2018.

^e Gillett, 2016 (XPF 2.829 billion converted at USD 0.96: XPF 1).

^f Government of Australia, 2019.



3.0 Governance of the Fishery

The impact of new rules on fisheries subsidies in the SLL fishery will depend on the governance framework and management systems in place for targeted tuna species, including albacore, both at the regional and national levels. Such frameworks and systems define the rules that apply to the fishery, including how IUU fishing can be identified and sanctioned, which is key to exploring the impact of a potential subsidy prohibition on this type of fishing. Other parts of possible WTO disciplines would aim to address subsidies to the fishing of overfished stocks, as well as subsidies that contribute to overfishing and overcapacity more generally. Although stocks in the SLL fishery are currently healthy, the ability to maintain this status will depend on the effectiveness of the fishery's management. To inform the analysis of new WTO rules' potential impacts in Section 5, this section examines how the SLL fishery is governed.

3.1 Western and Central Pacific Fisheries Commission

The WCPFC was established in 2004 by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention), which draws on various provisions contained in the UN Fish Stocks Agreement, but also reflects the WCPO region's particular political, socioeconomic, geographical and environmental characteristics. The WCPF Convention aims to “address problems in the management of high seas fisheries resulting from unregulated fishing, excessive fleet capacity, vessel reflagging to escape controls, insufficiently selective gear, unreliable databases and insufficient multilateral cooperation in respect to conservation and management of highly migratory fish stocks” (WCFPC, 2019c). It also establishes a framework for fishing entities to participate in the commission, by which participating entities agree to be bound by the convention's provisions. It also recognizes the “special requirements” of developing states, in particular SIDS, and the importance of cooperating with other RFMOs.

- Current members of the Commission are Australia, China, Canada, the Cook Islands, the European Union, Federated States of Micronesia, Fiji, France, Indonesia, Japan, Kiribati, Republic of Korea, Republic of the Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, the United States and Vanuatu.
- Cooperating non-member(s) of the WCPFC are Ecuador, El Salvador, Mexico, Panama, Liberia, Thailand and Vietnam.
- Participating territories at the commission are American Samoa, Commonwealth of the Northern Mariana Islands, French Polynesia, Guam, New Caledonia, Tokelau, Wallis and Futuna.

Collectively, these three groups are known as CCMs (commission members, cooperating non-members and participating territories). Since its establishment, the WCPFC has agreed to several binding and non-binding CMM resolutions, the latter being related to non-target species, SIDS' aspirations and the use of the best available science. It is necessary for members of the WCPFC to review their legislation to align their laws with the WCPF Convention and the decisions of the WCPFC, including CMMs.

Longline fisheries are largely managed indirectly through specific CMMs for different target groups such as albacore, tropical tunas, swordfish, striped marlin, sharks and other significant incidentally



caught bycatch species. Selected WCPFC CMMs with application to the SLL fishery are shown in Table 3.

Table 3. CMMs applicable to the SLL fishery, updated by the WCPFC Secretariat in 2019

Reference	Title of CMM	Key Elements
Management of Target Stocks		
CMM 2018-01	CMM for bigeye, yellowfin & skipjack tuna in the WCPO	<ul style="list-style-type: none"> Flag state bigeye catch limits (China, Indonesia, Japan, Korea, Chinese Taipei and the United States); monthly reports of bigeye catch to Secretariat. Other CCMs (New Zealand, Australia and EU) longline fleets catching < 2,000 tonnes bigeye in 2004 to not exceed this level for 2014-2017 (SIDS exemption). CCMs (except SIDS/Indonesia) to not increase the number of freezer/ice-chilled longliners targeting bigeye above current levels (2010-2012).
CMM 2015-02	CMM for South Pacific albacore	<ul style="list-style-type: none"> CMMs to limit the number of longliners actively fishing for South Pacific albacore south of 20°S to 2005 or 2000-2004 levels. CMMs to report annual longline catch levels of South Pacific albacore and number of active vessels targeting South Pacific albacore south of 20°S, initially for 2006-2014, then updated annually.
CMM 2014-06	CMM to develop and implement a harvest strategy approach for key fisheries and stocks in the WCPO	<ul style="list-style-type: none"> Work plan and indicative time frames to adopt or refine harvest strategies. Harvest strategies for key fisheries/stocks to include management objectives, target and limit reference points, acceptable levels of risk, monitoring strategy, harvest control rules and management strategy evaluation. Bigeye, yellowfin, skipjack tuna and South Pacific albacore limit reference point at 20 per cent of spawning biomass in the absence of fishing. South Pacific albacore target reference point (TRP) at 56 per cent of spawning biomass in the absence of fishing.
Bycatch Mitigation		
CMM 2018-03	CMM for mitigating impacts of fishing on seabirds	<ul style="list-style-type: none"> CCMs to implement the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries South of 30°S: longliners to use hook-shielding devices or at least two mitigation measures among the three following measures: weighted branch lines, night setting or tori lines. From January 1, 2020: 25°S-30°S: longliners to use one of the following mitigation measures: weighted branch lines, tori lines or hook-shielding devices.



Reference	Title of CMM	Key Elements
CMM 2014-05	CMM for sharks	<ul style="list-style-type: none"> Longline fisheries targeting tuna and billfish to not use/carry wire traces as branch lines or leader; and/or to not use shark lines.
CMM 2013-08	CMM for silky sharks	<ul style="list-style-type: none"> Prohibition of retention on board, transshipping, storing on the vessel or landing silky shark, in whole or in part. Release of any silky shark as soon as possible after it is brought alongside the vessel with minimal harm. CCMs to estimate the number of silky shark releases and status (alive/dead).
CMM 2011-04	CMM for oceanic whitetip sharks	<ul style="list-style-type: none"> Prohibition of retention on board, transshipping, storing on the vessel or landing oceanic whitetip shark, in whole or in part. Release of any oceanic whitetip shark as soon as possible after it is brought alongside the vessel with minimal harm.
CMM 2018-04	CMM for sea turtles	<ul style="list-style-type: none"> From January 1, 2020: CCMs with longline vessels that fish in a shallow-set manner shall ensure their vessels use at least one mitigation method: only large circle hooks, use only finfish for bait or another scientific committee-approved mitigation plan.

Source: *Campling et al., 2017.*

Despite the fact that South Pacific albacore is not considered biologically overfished, concerns about overcapacity in the fishery and declining catch per unit of effort (CPUE) have been growing. At the most recent WCPFC meeting in December 2018, an interim TRP for South Pacific albacore was adopted three years later than scheduled in the WCPFC's Harvest Strategy Workplan, developed in 2014.

The interim TRP's goal is to achieve an 8 per cent increase in CPUE from 2013 levels within 20 years. The interim TRP will be reviewed every three years and revised if future stock assessments indicate it will not achieve the desired increase in CPUE (Chair South Pacific Albacore SWG Working Group, 2018).

The WCPFC still needs to develop a CMM to implement harvest control rules. The commission agreed to work intersessionally to make recommendations, with a view to achieving both biological and economic stability in the fishery (FFA, 2018a).

In addition to the management of key tuna and bycatch stocks, the WCPFC operates a registration system designed to ensure vessels operate in the area legally. Its Record of Fishing Vessels (RFV) contains information about the fishing vessels that are allowed to fish in the WCPFC Convention Area beyond the national jurisdiction of the commission member whose flag they are flying (WCPFC, n.d.). An IUU Vessel List also identifies vessels presumed to have engaged in IUU fishing activities in the WCPO. The identification of vessels must be documented, based on reports from CCMs. This includes, therefore, the potential for identification by coastal, flag and subsidizing states.



Ahead of the Technical and Compliance Committee's yearly meeting, CCMs send their list of vessels presumed to have engaged in IUU fishing during the current or the previous year. The relevant flag state is also notified of a vessel's inclusion on this list. At each yearly meeting of the WCPFC, the commission then agrees (by consensus) which of those vessels have carried out IUU fishing activities. These vessels are then listed. Any vessels presumed to have engaged in IUU fishing are thus able to continue fishing until the commission meets and adds them to the list.⁶

Once the IUU Vessel List has been adopted by the commission, the flag state of a listed vessel is expected to take all required measures to stop its IUU fishing activities (including, for example, withdrawing the vessel's registration or fishing licence). Other CCMs also need to take appropriate measures in line with international law and their own laws, including not allowing IUU vessels to land or transship their catch, refuel or resupply in national ports and banning commercial transactions, imports, landings and transshipments from these vessels for relevant species (International Waters Learning Exchange and Resource Network, 2019). A listed vessel will remain on the IUU list until potential fines are paid and its owners can show that they are able to comply with CMMs.

The Pacific Islands FFA⁷ is also progressing work on a Persons of Interest Strategy as an additional tool to combat IUU fishing (FFA, 2018c). Ultimately, this will create a register of the people behind IUU fishing, including owners, captains and fish masters, with a view to providing greater information to the authorities in charge of issuing fishing licences and targeting monitoring, control and surveillance efforts (TUNApacific, 2018).

3.2 Subregional Governance: Tokelau Arrangement

In October 2014, 11 PICs⁸ decided to establish the Tokelau Arrangement (TKA), a voluntary arrangement to limit catches of South Pacific albacore (both as target or bycatch species) within their EEZ. The TKA allows for the setting of an overall Total Allowable Catch (TAC), which can then be allocated between the different parties, as well as a commitment to zone-based management through a Catch Management Scheme (CMS). Parties cannot exceed their individual catch limits, but they can decide how to do that. Implementation of the CMS would start with a five-year introductory period, allowing for supporting mechanisms, including electronic reporting and a catch documentation scheme, to be introduced (Campling et al., 2017; Cartwright, 2017).

The CMS is at the stage where members have to decide whether to bring it into force or not. In December 2017, Solomon Islands withdrew, reportedly because the catch limits were too restrictive and impeded economic development (Radio New Zealand, 2017). Thus the hope that the TKA, as an agreed in-zone arrangement to limit catch, would drive overall management of the albacore element of the longline fishery has not been realized at this point.

⁶ Although there is provision for the WCPFC to permit vessels to be removed from the IUU vessel list between annual meetings.

⁷ The FFA is "an intergovernmental agency established in 1979 to facilitate regional cooperation and coordination on fisheries policies between its member states in order to achieve conservation and optimum utilization of living marine resources, particularly highly migratory fish stocks, for the benefit of the peoples of the region, in particular the developing countries" (Kennelly, 2017, p. 14). For more information see www.ffa.int.

⁸ Tokelau, Vanuatu, Australia, the Cook Islands, New Zealand, Niue, Samoa, Tonga, Tuvalu, Fiji and Solomon Islands.



3.3 Longline Vessel Day Scheme

The Parties to the Nauru Agreement's (PNA⁹) Longline Vessel Day Scheme (LLVDS) came into effect in late 2014, with five parties becoming signatories: the Federated States of Micronesia, the Marshall Islands, Nauru, Solomon Islands and Palau (Campling et al., 2017). While this management scheme focuses on the TLL fishery, which targets bigeye and yellowfin tuna, it also covers some catches of South Pacific albacore in parties' EEZs. The LLVDS allocates a total allowable effort level (TAE) among the parties as party allowable effort (PAE). Currently, the TAE is not science-based but is rather the total of parties' PAEs, which reflect "their individual development and aspirations and willingness to limit effort to enhance conservation" (Campling et al., 2017, p. 47).

The objective of the LLVDS is to help participants to better control longlining activities in their waters through the establishment of tradeable rights, thus enabling the value of fisheries access to be maximized and promoting the sustainable management of tuna resources. Regarding fishing in the rest of the WCPFC area and in particular on the high seas, participants can also call on WCPFC to apply compatible management measures (Campling et al., 2017).

The LLVDS was formally implemented on January 1, 2017, following a three-year trial period. At that time, all PNA members except Kiribati had signed on as participants, plus Tokelau. As of April 2017, only a very small proportion of the total number of longline vessels authorized to fish within the WCPFC Convention Area (around 7 per cent) were registered with the PNA LLVDS register. Except for Kiribati and Solomon Islands, where effort exceeded their PAEs (noting that, to date, Kiribati has not signed onto the LLVDS), all other participants' PAEs were underutilized. This underutilization indicates potential issues with TAE being set too high, vessels opting to fish mostly or exclusively in high seas and not all parties' EEZs being covered under the scheme (i.e., Kiribati, which, together with Solomon Islands, is historically where the majority of in-zone longline fishing effort occurs among PNA members) (Campling et al., 2017).

The Tokelau Agreement and the PNA LLVDS are two overlapping longline management regimes that result in an inherent and yet unresolved issue: two different control measures (effort or catch) are being put forward for the same stocks.

3.4 Monitoring, Control and Compliance in the WCPFC Area

The WCPFC CMS determines a compliance status rating through set criteria, which includes "a standard for a score of 'non-compliant' and a higher standard for a score of 'priority non-compliant.' The CMS Compliance Status Table also outlines the response [Members of the Commission] must take once assessed as in that status" (Koehler, 2019).

Compared to other tuna RFMOs, accredited observers to the WCPFC and the public are not allowed to attend meetings. The final compliance and monitoring report includes the specific area of non-compliance by members, as well as whether the non-compliance has been noted for more than one year, but it does not include any recommendations for any corrective action needed. The WCPFC also has not yet developed a range of responses to non-compliance that would be applied through,

⁹ Members of the PNA: the Federated States of Micronesia, Kiribati, the Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.



and complement, the CMS, such as cooperative capacity-building initiatives, penalties and any other actions necessary to promote compliance (Koehler, 2019).

In 2007, the WCPFC (2007a) specified in a CMM (CMM 2007-03) the conditions that can lead to the listing (and banning) of fishing vessels on the WCPFC IUU Vessel List (Forum Fisheries Agency, 2008):

- Not being on the WCPFC Record of Fishing Vessels or not having a licence to fish in the area
- Fishing illegally in the waters of a commission member
- Not reporting catches accurately
- Not following the WCPFC rules of fishing (including closed areas or landing juvenile fish)
- Offloading catch onto an IUU vessel.

Although a chambered voting process¹⁰ can be used for decision making in the WCPFC, to date, all decisions, including listing, have been taken by consensus.

Within the WCPFC area, there is considerable interagency cooperation and collaboration for regulating a vast geographic area with many jurisdictions, activities and portfolios. This includes sharing and pooling information and assets, avoiding scenarios that unduly place the regulatory burden on SIDS, minimum standards for licensing foreign fishing vessels, and training officers and observers to perform their duties in a uniform and consistent manner (Koehler, 2019).

Gaps and weaknesses in the monitoring, control and surveillance framework have been identified for both the SLL and TLL fisheries (Koehler, 2019; McEachan, 2016). The key deficiency in the longline sector is the lack of effective and independent catch monitoring and verification, particularly on the high seas and with regards to bycatch. This leads to:

- Substantial uncertainty regarding the nature and extent of IUU activity connected to longline fleets (particularly the “unreported” element of IUU), noting that a recent attempt to estimate the extent of IUU fishing in the region has provided valuable insights into the extent of each part of the problem (MRAG Asia Pacific, 2016).
- Uncertainty in the data used for stock assessments, which is however not severe enough to prevent status decisions from being reached but that may result in management measures being less effective.
- Fewer inspections of longline vessels (particularly those operated by DWFNs and operating outside their flag or charter jurisdictions).
- Challenges for the implementation of the CMS or VDS schemes, which will require much more accurate monitoring as there is a greater incentive for misreporting.

3.5 National Management

Fiji, Vanuatu, Solomon Islands and French Polynesia have fisheries legislation, associated regulations and, except for French Polynesia, tuna management plans. Management measures are based

¹⁰ With one chamber comprising all FFA members and a second one comprising non-FFA members. Decisions can be made by a three-quarters majority in each chamber and proposals cannot be defeated by two or fewer votes.



on national laws, plans and international conventions and are implemented through the use of fishing licences and authorizations (Poseidon Consultants, 2012). Fisheries legislation specifies licence conditions and penalties for breaching these conditions. This subsection briefly describes management arrangements in the four PICs included in this case study.

3.5.1 Fiji

The Fiji Tuna Development and Management Plan 2014–2018 sets catch limits for all target tuna species. It also establishes a cap for the number of licences that can be issued each year and licence fees to support the management of the fishery (Accoura Marine Ltd, 2018). Offshore tuna fisheries are regulated under the 2012 Offshore Fisheries Management Decree and Offshore Fisheries Management Decree Regulations, 2014.¹¹

Three categories of criteria are used for allocating licences (mandatory criteria, corporate criteria and statutory criteria),¹² and licence fees for domestic vessels are half those of foreign vessels (e.g., charter vessels) (Poseidon Consultants, 2012). In addition, foreign-flagged Fiji-based vessels are not allowed to fish inside Fiji's EEZ and must pay both observer and management fees. Licenced foreign-flagged vessels can only fish in the EEZ (excluding archipelagic waters and territorial seas) and must be under bareboat charter by locals or under bilateral or multilateral arrangements. It is also possible to transfer fishing licences, provided certain conditions are met (WTO Secretariat, 2016a).

A condition of investment for foreign investors is that “at least 30 per cent equity must be held by Fiji Citizen(s) and the foreign investor must have at least \$500,000 in owner's contribution or paid-up capital for companies in the form of cash from the operational date, to be fully brought into Fiji within the implementation period” (Ministry of Fisheries of Fiji, 2017).

3.5.2 Vanuatu

The Tuna Management Plan provides for the setting of limits on commercial fishing licences, which are based on target TACs set for the tuna species caught in the country's EEZ (Vanuatu Department of Fisheries & Pacific Islands Forum Fisheries Agency, 2014). The total number of licences is capped at 70, and preference is given to domestic and locally based foreign fishing vessels. This means that any increase in the number of these vessels would result in a corresponding decline in the number of foreign licences available. Transshipping catch from or into a vessel while in Vanuatu waters is prohibited unless permission has been obtained from the Director of Fisheries. Locally based foreign vessels must land their catch in Vanuatu, and foreign fishing vessels are strongly encouraged to do so. Locally based foreign vessels are required to use domestic crews, which is also encouraged for all Vanuatu-flagged vessels (Poseidon Consultants, 2012).

3.5.3 Solomon Islands

Under the Solomon Islands Tuna Management and Development Plan and the strategy for Investing in Onshore Tuna Processing in Solomon Islands, locally based foreign-flagged vessels that land their fish in Solomon Islands are given preference over vessels that land fish elsewhere (Solomon Islands

¹¹ The legislation is available at <http://www.fisheries.gov.fj/index.php/leg-pol-fisheries>.

¹² Specific criteria can be found at <http://www.investmentfiji.org.fj/resources/uploads/embeds/file/Department%20of%20Fisheries.pdf>.



Government, n.d.; Solomon Islands Government & International Finance Corporation, n.d.). As part of licensing conditions, 10 per cent of the crew must be Solomon Islanders.

Foreign longline vessels chartered by local companies that land their catch in the country for onshore processing are permitted to fish outside the territorial sea and archipelagic waters. Between 30 and 200 nautical miles, foreign longliners, including those chartered by locally based foreign companies, are permitted to fish even if they are not landing catch in the country for onshore processing.

3.5.4 French Polynesia

Only French Polynesian vessels are permitted to fish in French Polynesia's EEZ (there is no licensing of foreign vessels). For the domestic offshore longline fishery, there is currently no cap on licences (Accoura Marine Ltd, 2016).

The EEZ of French Polynesia straddles the boundary between the two RFMOs in the Pacific, namely WCPFC and the Inter American Tropical Tuna Commission. Around 70 per cent of its EEZ borders are within international waters, with the remaining part of the boundary bordering three Pacific countries: Cook Islands, the Republic of Kiribati and Pitcairn Islands. French Polynesia is a participating territory to the WCPFC and is classified as a SIDS for the purposes of WCPFC CMMs. French Polynesia has no voting rights since it is not a country in its own right—these are retained by France. It does, however, sit at the table and can intervene during all meetings of plenary and commission subsidiary bodies. In addition, French Polynesia recently (September 2016) became a full member of the Pacific Island Forum. French Polynesia is not a direct member of the FFA,¹³ just an observer so far. WCPFC CMMs are not explicitly mentioned in the French Polynesian legislature at this time (ME Certification, 2018).

There is currently no Tuna Management Plan, although drafts have been prepared (ME Certification, 2018).

¹³ The FFA mission is to “enable Member Countries to manage, conserve and use the tuna resources in their Exclusive Economic Zones and beyond, through enhancing national capacity and strengthening regional solidarity” (FFA, n.d.). 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.



4.0 Subsidy Patterns

This section presents available data on subsidy patterns for the two distant water fleets (China and Chinese Taipei) and the four PIC fleets included in this case study (Fiji, Solomon Islands, Vanuatu and French Polynesia). Where possible, an overview of these fleets' estimated cost and revenue structure, including the contribution of subsidies to their profitability, is presented. These estimates are then used in Section 5 to qualitatively assess the potential impact of various options for new WTO subsidy rules.

The fleet flagged to the Republic of Korea is not included because it accounts for just less than 2 per cent of all South Pacific albacore catch (below the equator). However, it is the only DWFN fleet for which reliable operating costs are available for longline fishing operations similar to those of China and Chinese Taipei. For the purpose of analysis of subsidy patterns, the operating costs of the Korean fleet have therefore been used as a proxy for those of the Chinese and Chinese Taipei fleets. We acknowledge that it is quite possible that the operating costs of average Chinese- and Chinese Taipei-flagged vessels may be different than those of a Korean-flagged vessel. Illustrative vessel revenues are based on Chinese and Chinese Taipei proportions of catch in the fishery. Below, we review the estimates from official and academic sources of national-level fisheries subsidies available for China, Chinese Taipei and Fiji, those WTO members for whom some information was available.

For the purposes of the cost and revenue analysis for an illustrative Chinese vessel, we focus only on fuel subsidies, for which an official source was available and sufficiently detailed to allow us to estimate what a longline vessel might receive. No official subsidy information with sufficient detail was found for Chinese Taipei to allow us to calculate what a longline vessel might receive, but given the fleet's importance in this fishery, we include a figure illustrating what a vessel's costs and revenues might look like, without subsidies, for the purposes of comparison with illustrative Chinese and Fijian vessels. Our conclusions about the economic viability of Chinese and Chinese Taipei fleets must therefore be viewed with considerable caution. We are more confident of the estimates of costs and revenues for a Fijian fleet, as they are based on data collected for the fleet over a three-year period.

4.1 China

From the 1990s until 2015, state subsidies to China's distant water fishing (DWF) fleet have been an official priority and have included tax breaks, direct subsidies and soft loans aimed at expanding the fleet (Mallory, 2016; Organisation for Economic Co-operation and Development [OECD], 2019; WTO Delegation of the United States, 2016). The 2011–2015 12th Five-Year National Fisheries Development Plan aimed to raise the total catch of Chinese DWF vessels by 15 per cent to 1.3 million tonnes in 2015 and increase the number of DWF vessels to 2,300 in 2015 from 1,991 in 2010 (Mallory, 2016). For the duration of this plan, support programs at the central government and provincial levels have been identified in the following areas (WTO Delegation of the United States, 2016):

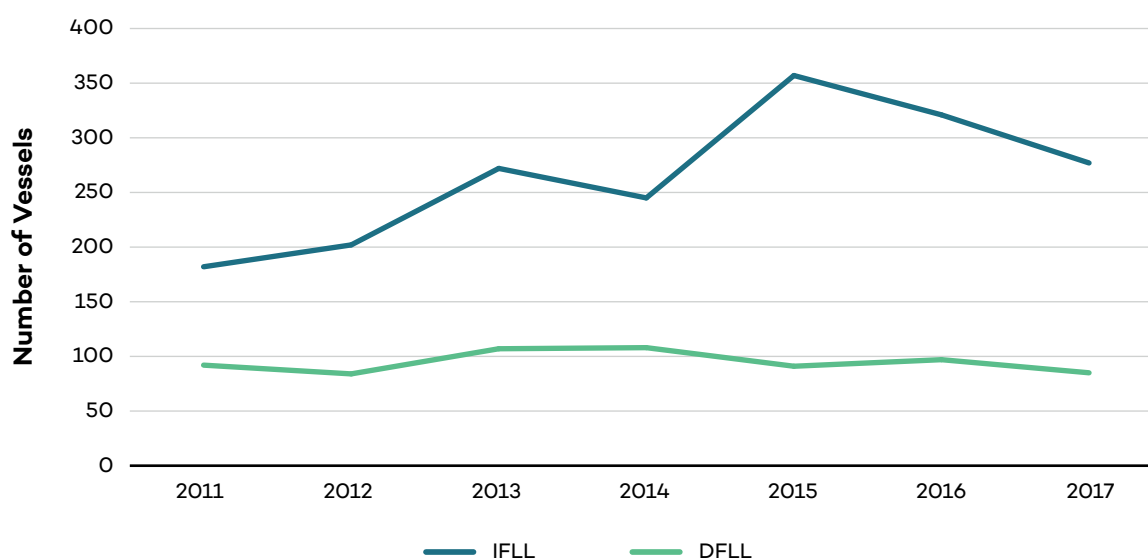
1. Policies to Develop Marine Fisheries
2. Support for Fishing Vessels
3. Support for Strategic Emerging Industries in the Marine Economy
4. Support for Technological Upgrades in the Fishery Industry



5. Vessel Reduction and Related Support
6. Fishers' Insurance Support
7. Agricultural and Fisheries Support
 - a) Tax
 - b) Support for "Leading Enterprises"
 - c) Cooperative Agreement between the Ministry of Agriculture and China Minsheng Bank
 - d) Support for Equipment
 - e) Agriculture Modernization Fund

Regarding vessel construction and upgrading, details on which vessels and fleets have benefited from subsidies are not available. However, an analysis of the Chinese longline tuna fleet in the WCPFC shows that, of the 503 China longline vessels that have a recorded date of construction on the WCPFC Registry of Fishing Vessels, 74 per cent were built in 2000 and onwards and 46 per cent were built in 2010 and onwards (Campling et al., 2017). This growth in the number of vessels in the longline fleet operating in the WCPFC up until 2016 (Figure 19) coincides with DWF expansion plans articulated in the 12th Five-Year National Fisheries Development Plan. The 13th Five-Year National Fisheries Development Plan (2016–2020) announced a cap on the number of DWF vessels to the 2016 level (Government of the People's Republic of China, 2017).

Figure 19. Number of Chinese longline vessels (IFLL and DFLL tuna) operating in the WCPFC



Source: Dai et al., 2018.

In its 2018 subsidies notification to the WTO, China has notified some fisheries subsidies programs (Government of the People's Republic of China, 2018). However, the information contained is quite limited and only mentions central-level subsidy programs relating to the scrapping and dismantling of vessels and "ship type standardization"; strengthening of fishery resources protection and utilization; fishers onshore resettlement; and potential tax preferences for certain companies. Not enough details are provided in this notification to allow attribution of subsidies to the distant water longline fleet in the WCPFC or the SLL fleet in particular.



With regard to subsidies for operating costs, to fuel in particular, China's national fuel subsidies for the domestic and DWF industry began in 2006 through the ministries of agriculture and finance. While Mallory (2016) estimated total fuel subsidies to all Chinese vessels to be worth around USD 6 billion in 2013, data from the OECD indicates that China's fuel subsidies have decreased from USD 6.2 billion in 2013 to around USD 2 billion in 2016 (OECD, 2019), probably at least partly due to a decrease in global oil prices. There is, however, no official data available on what proportion of those subsidies was for DWF vessels. One source has estimated that, between 2006 and 2014, the value of fuel subsidies to the global Chinese DWF fleet increased from around USD 41 million to USD 600 million (Zhang, 2018).

In 2009, several Chinese ministries and commissions announced plans to peg subsidy levels to fuel prices. A Chinese government publication (Zhengzhou Foreign Investment Service Center, 2016) identified two marine diesel oil (MDO) price subsidy thresholds for the Chinese DWF fleet: if MDO prices remained at CNY 3,870–5,070 per tonne (USD 600–786 per tonne), the Ministry of Finance would subsidize 50 per cent of costs above the CNY 3,870 (USD 600) threshold. If MDO prices exceeded CNY 5,070 per tonne (USD 786 per tonne¹⁴), the Ministry of Finance would refund 100 per cent of the additional costs beyond this threshold. This is reasonably consistent with a 2012 report, which found that Chinese-flagged vessels in the WCPFC, even under a charter arrangement, received a 100 per cent fuel subsidy if the marine diesel price exceeded USD 760 per tonne (Poseidon Consultants, 2012).

Based on these subsidy thresholds and average annual MDO prices (Terawasi & Reid, 2018), Figure 20 estimates the proportion of the MDO price subsidized by the Chinese government over the period 2011–2017. Compared with Singapore marine diesel prices over the period 2011–2017, the subsidy payment would have varied between around 5 and 27 per cent of the total MDO price/tonne up until 2014; after that date, MDO prices fell below reported subsidy thresholds.

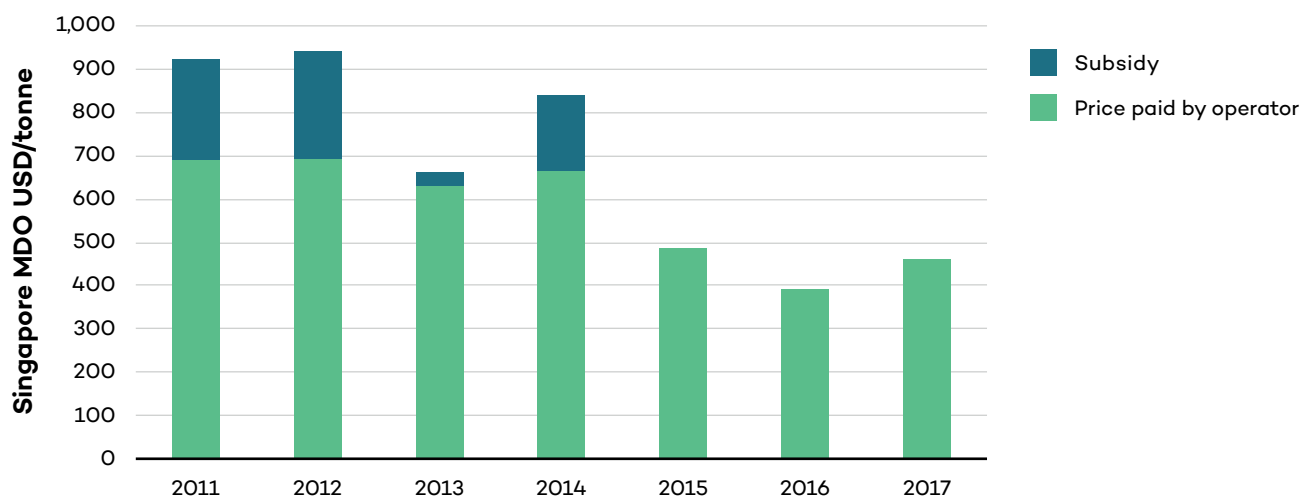
Unless subsidy thresholds have been lowered or the policy has changed (no information is available in this regard), the implication is that subsidies for fuel in the SLL fishery have not been paid since 2015, as MDO prices have been below the subsidy threshold.¹⁵ It is also plausible that subsidy payments have shifted from fuel to general transfer payments for operating costs payable by Chinese provincial governments, as has been implemented for the domestic fishing industry (Ministry of Finance, People's Republic of China, 2015). Furthermore, in 2017, the Chinese Ministry of Agriculture deducted the payment of the "annual oil supplement from 21 vessels conducting IUU fishing in the WCPFC" (Ministry of Agriculture and Rural Affairs, People's Republic of China, 2018), indicating that either fuel subsidies are still being paid (irrespective of MDO prices) or that the deduction was in name only.

¹⁴ RMB 6.45 = USD 1

¹⁵ It is also worth noting that DWF vessels that are refuelled at sea would also benefit from lower MDO compared to fuel purchases made in PIC countries where prices are higher.



Figure 20. Estimated diesel fuel subsidy for Chinese-flagged and Chinese charter vessels



Sources: Terawasi & Reid, 2018; Zhengzhou Foreign Investment Service Center, 2016.

There is no known source of information on subsidies for other non-fuel vessel operating costs for the Chinese-flagged vessels active in the SLL fishery.

Up until 2015, the Chinese government used several tax break policies to promote the development of its distant water fishing industry, including exempting fishing companies from income tax or value-added tax when importing fishing vessels and equipment. The Enterprise Taxation Law of the People’s Republic of China also provides that provincial-level governments and cities may exempt agricultural sectors (including fisheries) from income tax or allow them to benefit from reduced taxation. Chinese distant water fishing enterprises have also benefited from an exemption from the country’s Agriculture Special Tax. This has meant that the fish caught by Chinese vessels on the high seas or in the EEZs of other countries with whom China has signed a fishing agreement would be considered domestic products, and therefore not subject to this tax on imported agricultural products. Assuming an average tariff of 11 per cent, the total value of the tax exemption for all tuna catches from the Chinese longline fleet in the WCPFC was estimated to be USD 17 million in 2015 (Mallory, 2016).

According to the China Overseas Fisheries Association, an association to which all Chinese DWF companies must belong (Campling et al., 2017), in 2016 the Chinese government found that there was no longer a need to promote more expansion of DWF fleets, as there had been sufficient uptake in knowledge and development of skills for all DWF fleets. This change of direction was reflected in the 13th Five-Year Plan, which announced a cap of 3,000 fishing vessels by the year 2020 and a cap on the number of DWF enterprises to the 2016 level (Ministry of Agriculture of the People’s Republic of China, 2016; Government of the People’s Republic of China, 2017). In 2018 subsidies for decommissioning Chinese fishing vessels were around CNY 3.6 billion (about USD 520 million¹⁶), but how much was received by the SLL fleet is not specified (Ministry of Finance, People’s Republic of China, 2018).

Removal of subsidies to vessels found to be IUU fishing has also been implemented by the Chinese government, providing an indication of the average subsidy level per vessel. Since 2016, approximately USD 100 million (CNY 700 million) in subsidies for 264 fishing vessels (an average of USD 380,000

¹⁶ 6.90 RMB= 1 USD



per vessel) belonging to 78 Chinese DWF enterprises have been removed by the Chinese government for IUU fishing (Ministry of Agriculture and Rural Affairs, People's Republic of China, 2018). It is unknown whether any of these vessels were fishing in the SLL fishery.

Relationship Between Revenue, Costs and Subsidies

In the absence of reliable information on the operating costs of the Chinese fleet, data on the operating costs of a > 24-metre Korean longliner fishing in the WCPO (Campling et al., 2017) was used as a proxy. Total catch was assumed to be the same, but revenues were adjusted to reflect a different proportion of tuna species in the catch on the assumption that most Korean longliners fishing in the TLL target bigeye and yellowfin while Chinese longliners also target South Pacific albacore.

The fuel subsidy threshold policy described above suggests that the Chinese fleet, including the subsection of the fleet fishing in the SSL fishery, may have been the beneficiary of fuel subsidies, with the disbursement and quantum varying depending on the international price of marine diesel. To undertake an analysis of the impact of subsidies on the profitability of the Chinese longline fleet operating in the SLL fishery, two scenarios were explored:

1. Estimated costs and revenues for a Chinese longline vessel over 24 GRT in 2014, when the average Singapore MDO price was USD 838 and thus above the subsidy eligibility thresholds (Terawasi & Reid, 2018).
2. Estimated costs and revenues for a Chinese longline vessel over 24 GRT in 2016 when the average Singapore MDO price was USD 392 and thus below the subsidy eligibility thresholds (Terawasi & Reid, 2018).

Assumptions

To undertake the analysis, several assumptions were made:

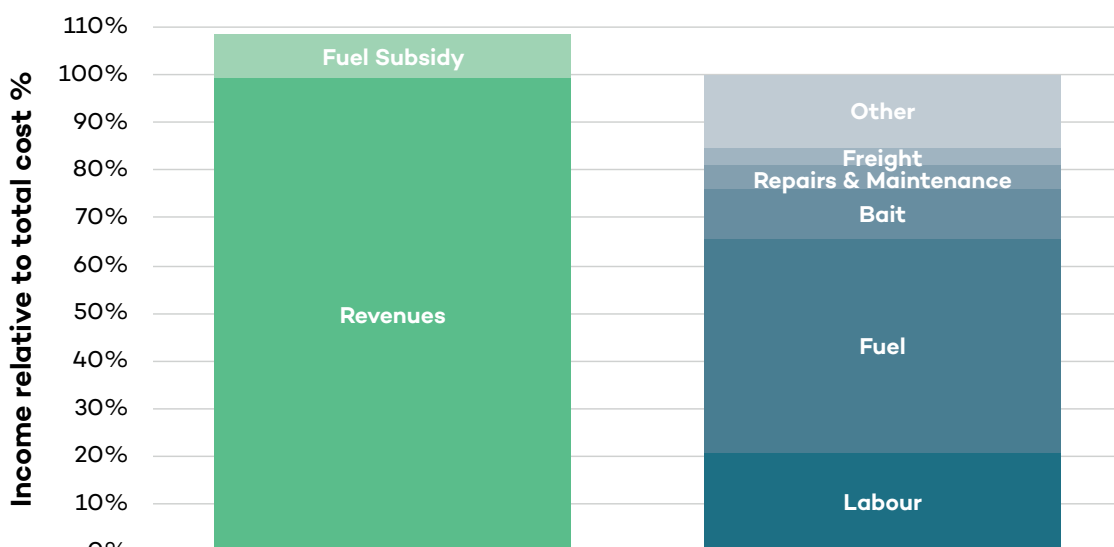
- In the absence of data on operating costs for a Chinese longliner, costs were used based on an “average” South Korean longliner over 24 metres fishing in the WCPO in 2014 and 2016 (Campling et al., 2017).
- An annual catch of 500 tonnes (average catch of a Korean longliner 2014–2016 of 470 tonnes from Campling et al., 2017, rounded to nearest 100).
- Catch proportions of South Pacific albacore, yellowfin, bigeye and swordfish for the Chinese longline fleet in 2014 and 2016 from Dai et al. (2018).
- Tuna and swordfish prices in 2014 and 2016 from FFA economic and development indicators in 2017 (Terawasi & Reid, 2017)¹⁷ for South Pacific albacore (Thailand frozen), bigeye (Japan frozen), yellowfin (Japan frozen) and swordfish (Japan frozen). Swordfish includes billfish and “others.”
- Singapore MDO prices from FFA economic and development indicators in 2017 (Terawasi & Reid, 2018).¹⁸
- Fuel subsidy of 100 per cent of the Singapore MDO price if the price is over USD 786/tonne and 50 per cent if the price is between USD 600/tonne and USD 786/tonne (Zhengzhou Foreign Investment Service Center, 2016).

¹⁷ Tables B1-B5 in Terawasi & Reid, 2018.

¹⁸ Table B6 in Terawasi & Reid, 2018.



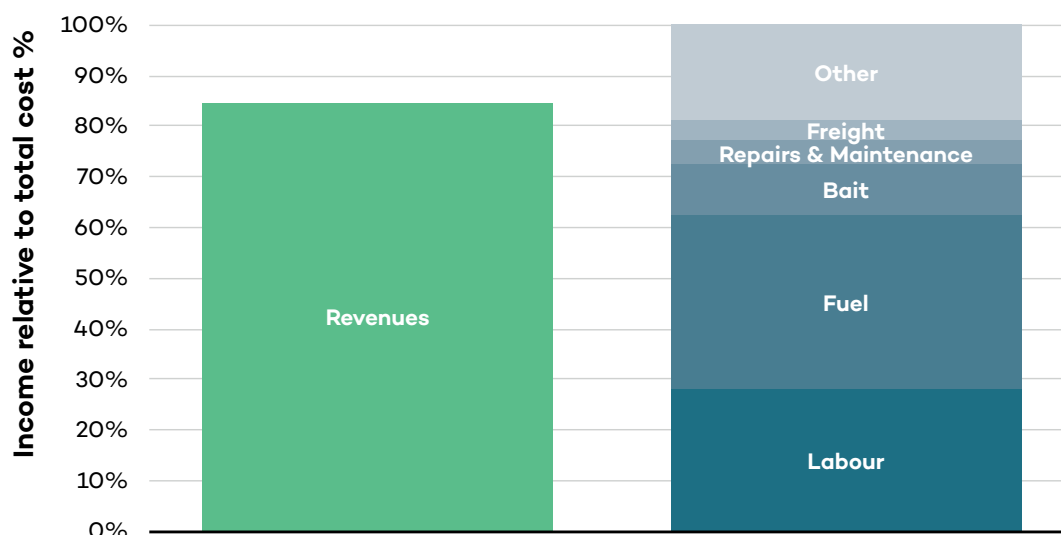
Figure 21. Estimated cost and income structure for an illustrative Chinese longliner (>24 m) in 2014, when the average fuel price was above the subsidy thresholds (USD 838/tonne)



Sources: *Campling et al., 2017; Dai et al., 2018; Terawasi & Reid, 2017, 2018; Zhengzhou Foreign Investment Service Center, 2016*

Figures 21 and Figure 22 show the estimated effect of subsidies in the scenarios where fuel prices are above or below the subsidy threshold. From this analysis, fishing does not appear to be profitable without subsidies, and it is difficult to understand how a vessel in this example could continue operations, especially in years when no fuel subsidy is paid. This suggests that a prohibition of subsidies, particularly of fuel subsidies, could make the operation of some Chinese vessels in the SLL fishery less economical, which could, in turn, decrease their fishing efforts.

Figure 22. Estimated cost and income structure for an illustrative Chinese longliner (>24 m) in 2016, when the average fuel price was below the subsidy thresholds (USD 392/tonne)



Sources: *Campling et al., 2017; Dai et al., 2018; Terawasi & Reid, 2017, 2018; Zhengzhou Foreign Investment Service Center, 2016.*



4.2 Chinese Taipei

Information is very limited on subsidies paid to the Chinese Taipei fishing industry. A 2016 study commissioned by the European Union estimates that Chinese Taipei subsidies to the catching sector were around USD 29 million in 2013 (AND International et al., 2016), and the OECD Fisheries Support database estimates that support to the sector amounted to just over USD 25 million in 2017 (OECD, 2019). The 2013 estimates by AND International found that the catching subsector accounted for 88 per cent of the total support. The most recent subsidies notification made by Chinese Taipei to the WTO includes the five following subsidy programs (Government of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu, 2019):

- a) The “fishing vessels buy-back programme,” which had a budget of USD 2.3 million¹⁹ (TWD 71 million) in 2018.
- b) The “reward for closing fishery season,” provided to all fishing vessels with valid fishing licences that comply with regulations related to fishery closures, except recreational fishing charter boats. It had a budget of USD 5.9 million²⁰ (TWD 183 million) in 2018.
- c) The “fishing vessel insurance reward,” which provides grants to cover a portion of the costs related to insuring vessels and had a budget of USD 1.6 million (TWD 50 million²¹) in 2018.
- d) The “subsidy programme for protection and indemnity insurance for fishing vessels operating in the maritime area subject to the fisheries agreement between the separate customs territory of Taiwan, Penghu, Kinmen and Matsu and Japan” (no budget indicated).
- e) The “policy-oriented special agricultural loan,” consisting of preferential interest rate loans available to all farmers and fishers. It had a budget of USD 38.3 million²² (TWD 1,201 million) for 2017.

However, the information provided is not specific enough to enable us to calculate how these programs may benefit the Chinese Taipei-flagged fleet operating in the SLL fishery. A study by the FFA (Skirtun, 2017) noted that Chinese Taipei-flagged small-scale longliners operating from Palau would be bought back at a price of USD 100,000, a factor that was accounted for in their overall cost of business operations.

Relationship Between Revenue, Costs and Subsidies

There is a lack of available information on the costs and revenues of the Chinese Taipei SLL fleet. Therefore, the analysis presented here is based on several assumptions to estimate the relationship between revenue, costs and subsidies for a typical Chinese Taipei longliner operating in the SLL fishery:

- In the absence of data on operating costs for a Chinese Taipei longliner, costs based on an “average” South Korean longliner over 24 metres fishing in the WCPO in 2016 were used (Campling et al., 2017).
- Average catch proportions (2016) of South Pacific albacore, yellowfin, bigeye and swordfish (including billfish and marlins) for the DFLL Chinese Taipei longline fleets from Fisheries Agency, Council of Agriculture & Overseas Fisheries Development Council, Republic of China (2018).

¹⁹ Exchange rate: NTD 31 = USD 1

²⁰ *ibid*

²¹ *ibid*

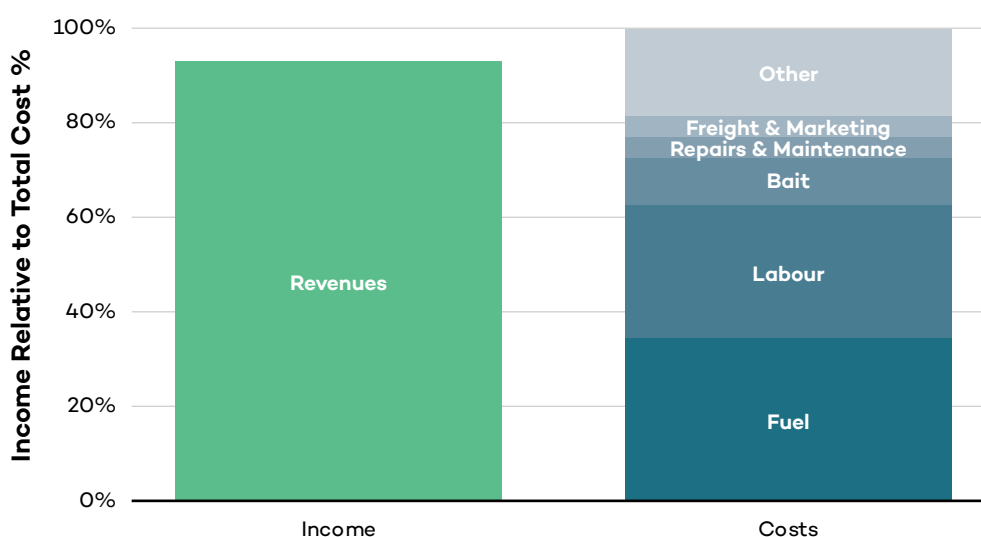
²² Exchange rate: TWD 31.35 = USD 1



- Tuna and swordfish prices for 2016 from FFA economic and development indicators in 2017 (Terawasi & Reid, 2017)²³ for South Pacific albacore (Thailand frozen), bigeye (Japan frozen), yellowfin (Japan frozen) and swordfish (Japan frozen). The swordfish price includes billfish and marlins.

Based on these assumptions, Figure 23 shows the estimated income relative to the costs of a Chinese Taipei longliner of over 24 metres. It shows that the revenues of an average vessel operation do not seem to cover operating costs, which would suggest that either that operating costs of a Chinese Taipei vessel are lower than a Korean longliner (it is plausible, for example, that the labour costs may be lower), that higher-value species (bigeye) make up a greater proportion of the catch or that operations are receiving financial assistance for operating costs from the Chinese Taipei government. If, in fact, Chinese Taipei vessels operating in the SLL benefit from one or more of the subsidies listed above, it is possible that their income relative to their costs would be higher, meaning that their operations might be affected by subsidy rules.

Figure 23. Estimated cost and income structure for an illustrative Chinese Taipei longliner (>24 m) in 2016



Sources: Campling et al., 2017; Fisheries Agency, Council of Agriculture & Overseas Fisheries Development Council, Republic of China, 2018; Terawasi & Reid, 2017.

4.3 Fiji

Subsidies to locally based vessels in Fiji (national and joint ventures) are in the form of tax rebates and exemptions to support the fishing sector. In particular, local fishing vessels are exempted from the import duty on marine diesel. These measures also include zero-rate import duty for all spare parts for fishing vessels, as well as duty-free importation of specialized machinery or equipment for the fishing industry, provided it has been approved by the Department of Fisheries (WTO Secretariat, 2016a).

²³ Tables B1-B5 in Terawasi & Reid, 2017.

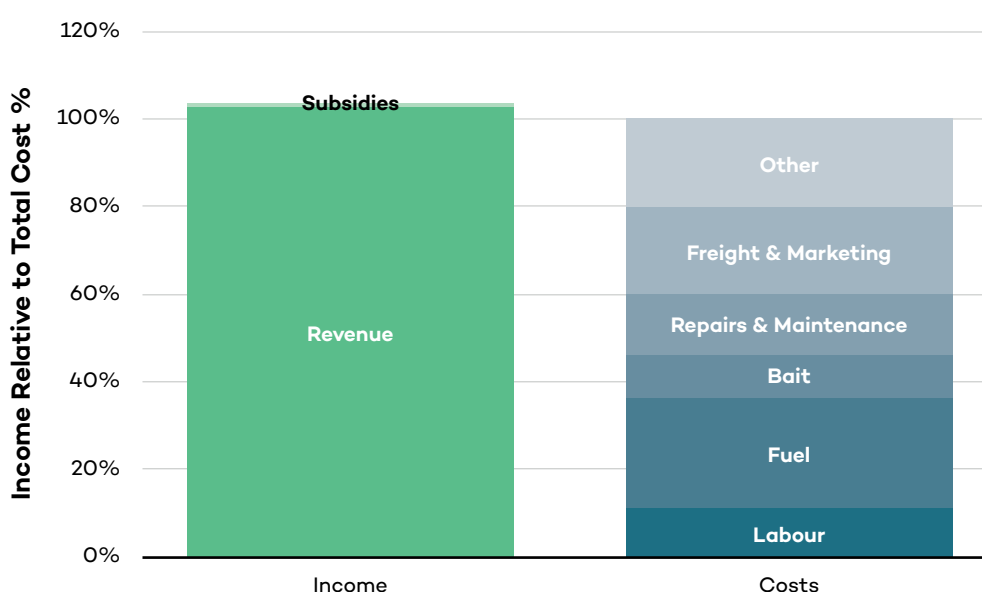


Relationship Between Revenue, Costs and Subsidies

To estimate the relationship between revenue, costs and subsidies in the form of tax concessions for a typical Fiji-flagged vessel in the SLL fishery, average (2012–2014) costs and revenues (from fishing and rebates described as non-fishing receipts) from a study undertaken by FFA were used (Skirtun, 2016).²⁴

Based on this data, Figure 24 shows the estimate of income relative to costs for a Fijian longliner, suggesting that the profitability of fishing operations is marginally positive, with or without the subsidies in the form of tax rebates.

Figure 24. Estimated cost and income structure for an illustrative national Fijian longliner (average for 2012–2014)



Source: adapted from Skirtun, 2016.

4.4 Solomon Islands

The government plans to set up special economic zones to promote foreign investment in selected sectors, including fisheries, tourism and agriculture. Such zones would allow companies to benefit from duty and tax exemptions. National authorities hope that the development of these sectors will help to counterbalance the expected decline of the logging sector and uncertain prospects for mining (WTO Secretariat, 2016b). These zones have yet to be established.

As there are no locally owned longline vessels currently operating in the SLL fishery, no analysis of income relative to costs has been undertaken. However, it should be noted that operating costs and revenues of Chinese- and Chinese Taipei-flagged vessels operating out of Solomon Islands under bilateral agreements would not only benefit from subsidies from their country of origin but also from tax concessions offered to foreign investors in Solomon Islands.

²⁴ We were able to clarify through personal communication with the author that “non-fishing receipts” referred to in the study consist of tax rebates (labelled “subsidies” in Figure 24).



4.5 Vanuatu

In Vanuatu, locally based vessels operating under bilateral or charter agreements are entitled to several exemptions:

- All vessels that are based locally and have a valid commercial fishing licence are eligible for duty exemption on fuel and fishing gear, including bait, fishing equipment and spare parts (WTO Secretariat 2018).
- Boats, boat-building materials, fishing equipment, marine motors and refrigeration equipment are exempt from import duties (Government of the Republic of Vanuatu, 2019).

However, as there are no locally owned longline vessels currently operating in the SLL fishery, no analysis of income relative to costs has been undertaken. Operating costs and revenues of Chinese- and Chinese Taipei-flagged vessels under a charter agreement would benefit from subsidies from their country of origin and from any tax concessions available in Vanuatu.

4.6 French Polynesia

Various types of subsidies are provided to the fisheries sector in French Polynesia. Four programs have been identified (ME Certification, 2018):

- FIM (Funds for Investment in maritime activities): “justifiable expenses for replacement of used equipment, such as marine engines, generators, hydraulic spools, security at sea apparatus, etc. [; subsidies] for air freight costs for fresh fish exports to Europe and the USA; and provides reduced prices for ice to professional fishers” (p. 222).
- DASP (Support and Assistance for Fisheries), Ministerial Decree N° 928/CM of 2 July 2007.
- Country Law no. 2013-2 of 14/01/2013, “which covers assistance in offsetting certain social/ and health insurance taxes imposed on fishers through their employers (vessel owners)” (p. 222).
- Subsidies for marine fuel (diesel and for smaller vessels using gasoline) costs.

Tax credits up to 60 per cent—or even 70 per cent for vessels built in French Polynesia—are available for investments in new offshore fishing vessels (Watkins et al., 2018).

Relationship Between Revenue, Costs and Subsidies

There is no data available on the operating costs of French Polynesian longliners or a suitable proxy, so an analysis has not been undertaken.



5.0 Possible Impacts of Subsidy Disciplines

In the context of the WTO negotiations on fisheries subsidies, new rules are envisaged in three key areas: (1) subsidies that contribute to IUU fishing; (2) subsidies for the fishing of stocks that are in an overfished condition; and (3) subsidies that contribute to overfishing and overcapacity more generally. This section provides a qualitative examination of the potential impact of these possible new disciplines on the economic position and profitability of the fleets in the SLL fishery. The analysis focuses on the main options proposed by WTO members and discussed up until the end of 2018.

This analysis assumes that some vessels will exit the fishery should they become unprofitable without subsidies, causing some reduction in fishing effort. However, it is not possible to quantify the amount of effort that will be affected nor predict the likelihood of alternative measures adopted by operators to maintain economic viability.

5.1 Overfished Stocks

5.1.1 State of Play

As discussed in Section 2.3, no target species is classified as overfished or subject to overfishing in the SLL fishery. Regarding bycatch (see Section 2.5), oceanic whitetip sharks are the only known species where overfishing is occurring and the stock is overfished. Compared with the TLL fishery, this species is less vulnerable to capture in the SLL fishery due to its range. As an incidental bycatch in the SLL fishery (as well as all other WCPO tuna fisheries), the WCPFC has recommended mitigation measures to reduce mortalities (WCPFC, 2018a).

5.1.2 Application of Possible Subsidy Rules

In the context of WTO discussions on a potential prohibition of subsidies for fishing overfished stocks, the key questions are whether such a prohibition should be limited to subsidies that “negatively affect” such stocks and whether it should cover bycatch and include unassessed stocks. Four options are therefore considered:

- Option 1: Prohibition applicable to subsidies for fishing of stocks assessed as being overfished.
- Option 1.a: Prohibition applicable to subsidies that have a negative effect on stocks assessed as being overfished.
- Option 1.b: Prohibition applicable to subsidies for fishing that targets stocks assessed as being overfished. This option would prohibit subsidies only in cases where fishing targets overfished stocks, as opposed to overfished stocks being incidentally captured as bycatch.
- Option 2: Prohibition applicable to subsidies for fishing of stocks assessed to be overfished, or not assessed. Like option 1, this option would include both targeted and non-targeted stocks assessed as overfished, but would also cover stocks that have no assessments of status.



Option 1: Prohibition applicable to subsidies for fishing of stocks assessed as being overfished

As mentioned, targeted stocks in the SLL fishery are not currently in an overfished condition. However, this option does not include a requirement that an overfished stock is targeted (assuming that “fishing” does not imply targeting), which means that it would apply in a situation where some bycatch species are overfished. In the SLL fishery, this prohibition would thus apply as a result of the overfished status of oceanic whitetip shark, a bycatch species.

A subsidy prohibition would increase operating costs of SLL vessels and may cause some vessels to become unprofitable and exit tuna fishing in the WCPO. The amount of effort reduced would depend on the importance of the subsidy to the overall profitability of the vessels affected. Estimates presented in Section 4 suggest that such an impact might be more significant for Chinese fleets and potentially Chinese Taipei fleets. This option may also act as an incentive to improve bycatch mitigation measures.

The effect of this prohibition on oceanic whitetip populations would ultimately depend upon on how much fishing effort was removed from the fishery and the impact of this reduced fishing effort on oceanic whitetip populations. It should also be noted that, as oceanic whitetips are caught in all WCPO tuna fisheries, all vessels/fleets targeting tuna in the WCPFC would potentially be affected by this subsidy prohibition.

Option 1.a: Prohibition applicable to subsidies that have a negative effect on stocks assessed as being overfished

This option introduces an additional condition: only prohibiting subsidies that have a negative effect on stocks assessed as overfished, irrespective of whether they are targeted. It also raises the possibility of continued subsidies to fishing operations that have no negative effects on the overfished stock. In the SLL fishery, this option would likely apply in the same way as option 1, as subsidies to operational costs are likely to increase levels of fishing effort, which results in increased incidental catches of an overfished species: oceanic whitetip sharks. The impact would therefore be similar to option 1.

Option 1.b: Prohibition applicable to subsidies for fishing that targets stocks assessed as being overfished

No target stocks are overfished in the SLL fishery, so this option would not have any impact on the fishery in its current state. However, any subsidies that increase effort and capacity (in the absence of effective management measures) could threaten this status.

Option 2: Prohibition applicable to subsidies for fishing of stocks assessed to be overfished, or not assessed

This option would prohibit subsidies to the fishing of both stocks assessed as overfished and unassessed stocks, regardless of whether they are targeted or not. As all target species are assessed and are not overfished, this option would apply if bycatch species are overfished or unassessed. The impacts would be the same as for option 1, with the prohibition applying to all fleets in the SLL fishery because oceanic whitetip sharks (a bycatch species) are overfished and other bycatch species are unassessed.



5.2 Subsidies to IUU Fishing

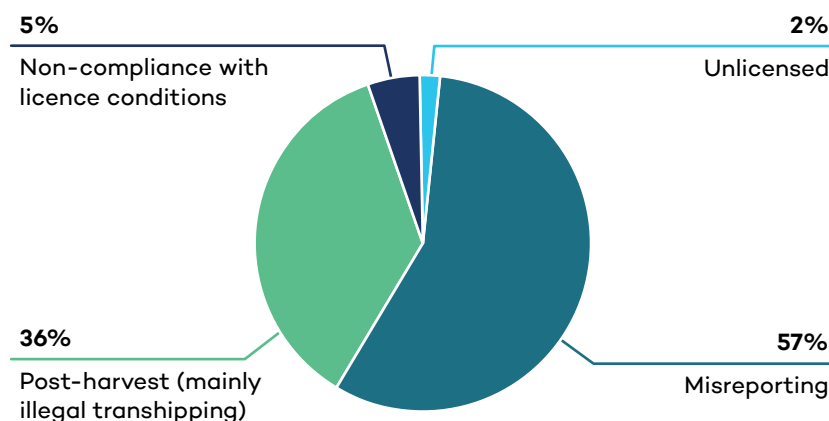
5.2.1 State of Play

A 2016 study of IUU fishing in the WCPFC (MRAG Asia Pacific, 2016) found that illegal fishing accounted for a minor component of IUU fishing in the SLL fishery. Misreporting was by far the greatest contributor to IUU fishing (57 per cent), followed by illegal transshipping (Figure 25). The same study estimated the volume of IUU products in the SLL fishery at 34,000 tonnes valued at an ex-vessel value of approximately USD 118 million.

In particular, misreporting was attributed to the following factors (MRAG Asia Pacific, 2016):

- Poor level of observer coverage across most longline fleets
- The fact that a large proportion of vessels transship at sea, so are not subject to regular dockside compliance inspections
- A paper-based logbook system that is more vulnerable to errors and processing delays with no independent verification.

Figure 25. Estimates of IUU fishing in the SLL fishery



Source: MRAG AsiaPacific, 2016.

To help mitigate misreporting, since December 2012, the WCPFC has required 5 per cent of fishing effort by longline vessels in all fisheries to have observer coverage (compared to 100 per cent in the purse seine fishery).²⁵ This has yet to be achieved in most fleets included in this case study, as illustrated in Table 4 (Williams, Tuiloma, & Panizza, 2018).

²⁵ CMM 2007-01 Attachment K Annex C para 6 (Western & Central Pacific Fisheries Commission, 2007b) and CMM 2012-03 (Western & Central Pacific Fisheries Commission, 2012).



Table 4. Observer coverage in the SLL fishery

CCM fleet	Fishery	Metric selected for coverage	Reported by flag state
China	Ice/fresh	No. of trips	3%
	Frozen		
Fiji	Pacific Islands	No. of trips	23%
French Polynesia	Pacific Islands	Fishing days	3%
Solomon Islands	Pacific Islands	No. of trips	n/a
Chinese Taipei	Small longline	Days at sea	2%
	Distant water longline	Days at sea	8%
Vanuatu	Pacific Island-based, short trip	Days at sea	2%

Source: Williams et al., 2018.

The constraints and difficulties of onboard observer coverage (i.e., safety, facilities for observers, distances, language, length of trips—some longliners do not return to port for 1–2 years) can be ameliorated using electronic monitoring. Electronic monitoring and reporting can also solve data processing delays. It is currently being trialled in some countries (Palau, Federated States of Micronesia, Solomon Islands and Fiji), but universal adoption will take some time.

5.2.2 Identification of Infractions

The FFA operates a Regional Fisheries Surveillance Centre at its headquarters in Honiara that provides coordination for both ongoing and time-limited regional surveillance and enforcement operations on behalf of its members. This integrates “aerial and patrol ship support from the four FFA partners Australia, New Zealand, the United States and France, police and fisheries monitoring, control and surveillance personnel from all FFA member countries, a dedicated analytical hub and national and coordinated regional patrol boat operations” (Ministry of Fisheries and Marine Resources of Solomon Islands, 2018b).

There is some capability to identify misreporting (at sea boarding and inspections), but insufficient observer coverage and current paper-based catch reporting systems are vulnerable to errors and verification issues. There is also insufficient observer coverage on longline vessels (for China, Chinese Taipei and locally based vessels in Vanuatu) and no comprehensive electronic monitoring or reporting systems to date.

Three vessels have been listed on the WCPFC IUU Vessel List for 2019, all with no known current flag (two were previously registered in Georgia and one in Chinese Taipei). With respect to the ex-Chinese Taipei vessel, the Chinese Taipei government has reported that its fishing licence was revoked in 2009 and that its owner was penalized with repeated fines for breaching the rules by not returning to port. In 2017, WCPFC received a communication from Chinese Taipei informing WCPFC that the vessel had been deregistered by Chinese Taipei (WCPFC, 2018b).



5.2.3 Illegal Transshipping

Transshipment appears to be a particular problem in the SLL fishery. Transshipment is a practice that allows fishing vessels to offload their catch and take on supplies while staying in or close to their fishing grounds. Fishing vessels can thus stay at sea and continue fishing for long periods of time, saving time and money on fuel costs to transit to home port. The larger (typically approximately 40 to 50 metres in length) Japanese, Korean, Chinese and Chinese Taipei (flagged and otherwise) longline vessels can spend up to a year or more at sea, refuelling from tankers at sea and obtaining bait and other supplies from refrigerated carriers. Many transshipment events involve a carrier vessel as the receiving vessel and a longliner as the offloading vessel (Campling et al., 2017).

The WCPFC requires all vessels that transship to comply with WCPFC procedures to control the quantity and species being transshipped and allow full access by persons authorized by the WCPFC to gather any information to monitor the transshipment fully. The WCPFC also tries to limit transshipment at sea by establishing both a general framework for transshipment and a specific prohibition against transshipment at sea by purse seine vessels. The general framework requires CCMs to “encourage” their fishing vessels to transship in port “to the extent practicable.”

In 2009, the WCPFC adopted a CMM²⁶ that requires that “there shall be no transshipment on the high seas except where a CCM has determined, in accordance with certain guidelines that it is impracticable for certain vessels to operate without being able to transship on the high seas and has advised the Commission of such” (WCPFC Secretariat, 2018). There is a two-part test for determining when transshipment in port is “impracticable” (Wold, 2018):

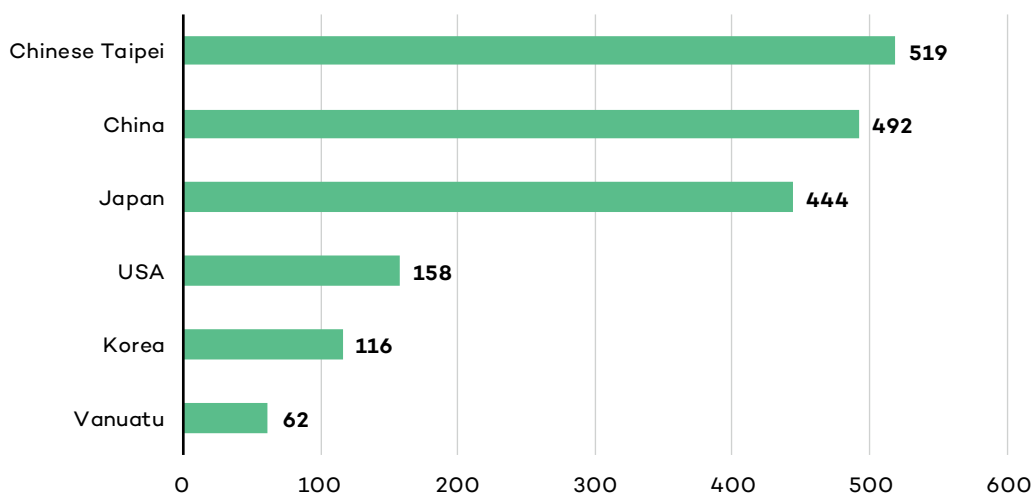
1. The prohibition on high seas transshipment must create “significant economic hardship” based on “the cost that would be incurred to transship or land fish at feasible and allowable locations other than on the high seas, as compared to total operating costs, net revenues, or some other meaningful measure of costs and/or revenues” (Western & Central Pacific Fisheries Commission, 2009, p. 7).
2. The prohibition on high seas transshipment must cause the vessel to make “significant and substantial changes to its historical mode of operation” (Western & Central Pacific Fisheries Commission, 2009, pp. 7–8). But no guidance is provided on how that determination should be made, leaving considerable discretion to individual CCMs.

In 2018, within the whole WCPFC area, the majority of vessels on the WCPFC RFV—of which 82 per cent were longliners—were authorized to transship on the high seas (2,193 out of 3,997 vessels). The total number of vessels by flag state authorized to transship in 2018 is shown in Figure 26. As a percentage of estimated total catch by species, 19 per cent of the total South Pacific albacore catch, 42 per cent of bigeye and 12 per cent of yellowfin was transshipped (WCPFC Secretariat, 2018).

²⁶ CMM 2009-06 (Western & Central Pacific Fisheries Commission, 2009)



Figure 26. Summary of the vessels contained in the WCPFC RFV with positive determinations by their flag CCM of authorization to transship in the high seas, as of September 13, 2018



Source: WCPFC Secretariat, 2018.

In the report estimating IUU fishing in the SLL fishery (MRAG Asia Pacific, 2016), 84 per cent of IUU activity in the post-harvest sector was attributed to illegal transshipping. This was estimated to have an ex-vessel value of USD 43 million.

New subsidy rules provide a possible way to deter IUU activity in the SSL fishery, including the particular problem of transshipment that does not conform to the rules described above.

5.2.4 Application of Possible Subsidy Rules

Regarding possible new WTO rules to prohibit fisheries subsidies that contribute to IUU fishing, the central question is how IUU cases can be identified under these rules. In other words, it is necessary to know who can determine that a vessel has engaged in IUU fishing activities and therefore trigger the subsidy prohibition for such a vessel or its operator. In this section, four options proposed in WTO negotiations are considered:

- Option 1: A WTO member identifying IUU activity by vessels of operators it subsidizes.
- Option 2: A flag state identifying IUU activity by vessels under its flag that receive subsidies from another state.
- Option 3: A coastal state identifying IUU activity by foreign vessels within its EEZ.
- Option 4: A vessel being listed by the RFMO(s) with jurisdiction over the fishery.

Option 1. A WTO member identifying IUU activity by vessels of operators it subsidizes

This option would establish an obligation independent of WCPFC processes. Subsidizing WTO members (all flag states in this case study) would be obliged to stop subsidizing vessels/operators that they had identified as having engaged in IUU fishing either in domestic waters, high seas or the EEZs of other countries. As a domestic policy process, reporting these vessels through the WCPFC process would not be required.



The impact of this option is obviously strongly dependent on how zealously the subsidizing states choose to apply this discipline as well as their capacity to identify IUU fishing in the SLL fishery, particularly misreporting. Furthermore, the impact of this option would also depend on whether fines and penalties for IUU fishing under domestic legislation are effective in preventing and penalizing IUU fishing. If severe infractions attract only small fines, removing subsidies could be a greater deterrent, particularly for those vessels that are only marginally viable.

As discussed above, the SLL fishery has poor observer coverage, so the capacity of WTO members to identify IUU fishing (misreporting) by their fleets is limited; this prohibition would therefore have increased effectiveness if electronic monitoring and reporting were implemented.

Option 2. A flag state identifying IUU activity by vessels under its flag that receive subsidies from another state

The IUU identification mechanism by a flag state already exists within the WCPFC process, but there are no known incidences of a flag state reporting its own vessels (personal communication, FFA Monitoring, Control and Surveillance Adviser, October 1, 2018). This option would allow flag states to identify IUU fishing by vessels flying their flag and trigger a subsidy prohibition by communicating this to the subsidizing member, irrespective of WCPFC processes, enabling greater control over such vessels. For the countries in this case study, this option could be used by Vanuatu and Fiji, as both countries have vessels that may receive subsidies from other states. Similar to option 1, however, the impact of this option would depend on the rigour with which these states choose to apply the new discipline as well as their capacity to identify IUU fishing activities committed under their flag. The impact may be more significant if existing IUU sanctions are not severe enough to act as an effective deterrent.

Option 3. A coastal state identifying IUU activity by foreign vessels within its EEZ

Here again, the WCPFC listing process already allows coastal states to identify IUU activity within their EEZ and report presumed IUU vessels to the WCPFC for their potential listing. There are examples in the WCPFC where a coastal state has identified IUU fishing in their EEZ and acted through WCPFC processes. For example, the Cook Islands identified and reported a Chinese vessel fishing illegally in its EEZ. In this incident, the company paid by a fine to the Cook Islands and the vessel was not added to the WCPFC IUU register (Cook Islands News, 2017).

This option would, however, provide an additional mechanism to deter IUU fishing in a coastal state's EEZ, since it would be independent of the WCPFC process. In the SLL fishery, it would allow PICs to identify IUU fishing activities in their EEZ, as a coastal state, and trigger a subsidy prohibition for those vessels or operators. As for the previous options, the capacity to effectively monitor fishing activities (in this case, within coastal states' EEZs) would strongly influence the potential impact.

Option 4. A vessel being listed by the RFMO(s) with jurisdiction over the fishery

As mentioned in Section 3, the WCPFC has a process for listing IUU vessels. The impact of a subsidy prohibition triggered by a WCPFC listing for vessels in the SLL fishery would depend on the effectiveness of this process in identifying and listing IUU vessels. Taking into account that the WCPFC IUU list only included three vessels in 2019, the impact of this option on IUU fishing is likely to be low at the current time.



Comprehensive application of this subsidy rule would therefore require, at a minimum, a greater ability to identify misreporting and illegal transshipping through improved observer coverage (at least to the recommended 5 per cent), catch reporting and greater regional capacity for monitoring, control and surveillance. The current WCPFC transshipment measure (CMM 2009-06) would need to be strengthened to real-time (or near real-time) reporting of transshipment events, with transshipment authorizations and declarations sent to all relevant authorities and all carrier vessels to notify the WCPFC of plans to transship when entering the CMM area.

Feasibility of Discontinuing Subsidies Paid to the Operators

Transfers to individual fishers or companies owning the vessel (e.g., interest-free loans or fuel rebates) could be (and have been) discontinued by subsidizing states (Ministry of Agriculture and Rural Affairs, People's Republic of China, 2018). Subsidies provided in the form of one-off payments (as opposed to subsidies to ongoing operational costs) such as vessel construction or modernization grants, however, may require a different approach, for example, rendering operators ineligible for future support for a longer period of time.

Would Removal of Subsidies Reduce the Risk of IUU Fishing?

Profit is the underlying incentive to undertake illegal fishing. Operators (and vessel masters) weigh the gains to be made against the risk of being caught (MRAG Asia Pacific, 2016). The four options consider the removal of subsidies after a vessel has been identified and listed. In terms of impact, although stronger and more effective deterrents to IUU fishing exist (through, for example, the listing process and punitive fines), a subsidy prohibition could increase the cost of fishing and, for some fleets in the SLL fishery, affect the profitability of vessels or operators that engage in IUU fishing.

However, as identified by the FFA, the identification of a vessel may not be a sufficiently effective deterrent to IUU fishing (FFA, 2018c). IUU fishing is directed by the master of the vessel and sometimes by the company they work for. If subsidies are prohibited only to vessels, there is a significant risk that the master moves or is transferred by the company to an alternative vessel to continue IUU fishing. The current initiative by FFA to establish a Register of Persons of Interest would mitigate this risk. From this perspective, it would be important that any WTO prohibition applies both to vessels and operators that have engaged in IUU fishing activities (FFA, 2016)

A note of caution is warranted, as adding additional deterrents to detected IUU infractions could shift the risk of IUU fishing in other fisheries or areas where detection is less likely. Additional efforts at detection could help to reduce this risk over time.

5.3 Overcapacity and Overfishing

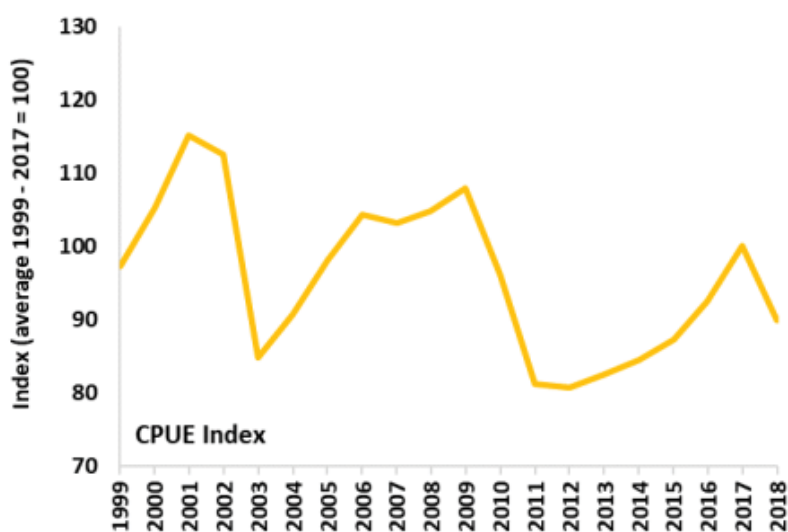
The South Pacific albacore stock is assessed as healthy because total biomass is high. The longline fishery for albacore targets a segment of this stock (known as the “vulnerable biomass”). These are large adult fish that are growing slowly or have stopped growing. There are far fewer fish in the vulnerable biomass than there are in the total biomass. As more vessels target the vulnerable biomass, the CPUE, measured in catch per 100 hooks, falls. This leads to a situation for some vessels or fleets where the direct cost of fishing effort (hooks) exceeds the revenues from the catch. This is termed “economic overfishing.” For the fishery to be profitable, catch rates must be maintained at a relatively high level.



Over several years, the CPUE for South Pacific albacore in the SLL fishery has been falling (see Figure 27) (Terawasi & Reid, 2018). It has become increasingly difficult to catch enough larger adult fish to be economical (Williams & Reid, 2019). CPUE has been on a gradual downward trend since around 2000. This indicates that the SLL fishery, while not suffering from biological overfishing (see Figure 2), as overall stocks are healthy, may be suffering from economic overfishing (catch rates are too high to allow vessels to make profits from the fishery). Some vessels may be profitable, but to maintain economically viable catch rates in the fishery overall and to avoid a decline in the vulnerable biomass, a reduction in the mortality of adult fish (that is a reduction in fishing effort) is required. Subsidizing additional vessels to enter the fishery or supporting already unprofitable vessels exacerbates economic overfishing.

The economic conditions in the SLL fishery have been a subject of ongoing concern for PICs trying to develop their domestic industries against a growing number of vessels from China and Chinese Taipei participating in the albacore fishery and operating at sub-economic catch rates (FFA Member CCMs, 2017). The analysis of subsidy patterns in Section 4 of this report illustrates how, for the fleets where costs and revenues have been estimated, vessels may be struggling to catch enough fish to cover their operating costs—and that subsidies may play a role in supporting unprofitable operations.

Figure 27. Catch rate indices in the SLL fishery



Source: Williams & Reid, 2019.

5.3.1 Application of Possible Disciplines

Regarding possible WTO disciplines related to subsidies that contribute to overfishing and overcapacity, this section examines eight options:

- Option 1: All subsidies for the construction or modernization of fishing vessels, or the acquisition of equipment, are prohibited.
- Option 2: All subsidies for the importation or transfer of fishing vessels are prohibited.
- Option 3.a: All subsidies for operating costs, including fuel, are prohibited.
- Option 3.b: All subsidies for operating costs, excluding subsidies for fuel, are prohibited.



- Option 4.a: All subsidies for fishing in waters beyond a WTO member's national jurisdiction are prohibited.
- Option 4.b: All subsidies for industrial-scale fishing in waters beyond a WTO member's national jurisdiction are prohibited.
- Option 5: All subsidies provided in the form of below-cost access rights to fish in another WTO member's EEZ are prohibited.

The impact of each of these options is explored below.

Option 1: All subsidies for the construction or modernization of fishing vessels, or the acquisition of equipment, are prohibited.

As discussed earlier, the SLL fishery is faced with falling CPUE resulting in low and sometimes negative profitability. There is overcapacity in the fishery primarily due to the growth in the number of DWF vessels, some of which may have been constructed with government support (Ministry of Finance, People's Republic of China, 2018). Both China and Chinese Taipei have stated that they are not supporting further expansion of their DWF fleets (Ministry of Agriculture, People's Republic of China, 2016; Fisheries Agency, Council of Agriculture, Republic of China, 2014). Vessels owned by PIC countries (except for French Polynesia) have been purchased on the secondhand market.

Subsidies for the modernization of fishing vessels do exist for renewal and “reconstruction” of vessels and have been described in Section 4 of this report, although specific information is not available for SLL fleets in this case study. Modernization often increases the efficiency of fishing vessels and therefore overall fishing effort. A prohibition of this type of subsidy would prevent further increases in fishing effort and help limit overcapacity in the future but would not reduce existing effort, at least in the short term.

However, without qualifications, this prohibition could also delay the adoption of cost-saving technologies (such as more fuel-efficient engines) and inhibit opportunities to increase the value of catch (e.g., by preventing the installation of new freezer technology). A prohibition of this type of subsidy would therefore be likely to disproportionately affect the older PIC fleets as well as some of the older vessels in DWFN fleets. This would make them less competitive with the more modern DWFN vessels, which may have already benefitted from modernization subsidies.

Option 2: All subsidies for the importation or transfer of fishing vessels are prohibited.

This prohibition would mainly affect PIC countries that do not construct their own vessels. Although specific information is not available on the extent and value of subsidies for importation or transfer of fishing vessels (see Section 4), PIC countries do offer non-budgetary incentives in the form of import duty exemptions to import fishing vessels as part of their strategy to develop a domestic fishing industry.

This prohibition would have a disproportionate impact on the development of the domestic tuna industry in PICs, which is faced with higher capital and operating costs due to geographical location and where economic incentives to offset the costs of importing a vessel can assist local companies in developing a locally based industry.



A prohibition would therefore constrain future increases in domestic PIC fishing capacity and effort. In the short term, however, it would have a negligible effect on profitability in the fishery because it would be unlikely to affect the current levels of fishing effort.

Option 3.a: All subsidies for operating costs, including fuel, are prohibited.

As discussed earlier, vessel construction subsidies may have contributed to the growth of fishing efforts in the SLL fishery, and operating cost subsidies may have assisted economically marginal operators in continuing fishing, even at uneconomic catch rates.

Prohibiting operating cost subsidies would reduce the profitability of vessels from all case study countries that provide subsidies, making some vessels unprofitable and leading to them potentially exiting the fishery. Those vessels from countries that provide the highest operating cost subsidies would be affected more, but given the lack of data on the subsidies provided and the diversity of fishing operations (e.g., vessel size, targeting behaviour, freezing facilities on board, crew costs and target markets), it is impossible to predict how many or which “type” of vessel would exit the fishery or whether alternative measures to reduce costs would be adopted to compensate for the loss of subsidy (e.g., using lower-wage crews, changing the target species mix). If sufficient effort were removed, it is plausible that the profitability of remaining vessels would be improved through increased CPUE.

Removal of fuel subsidies could also incentivize the move to more fuel-efficient engines, reducing greenhouse gas emissions. However, it should be noted that the profitability of those remaining in the fishery will soon also be affected by the anticipated increase in fuel prices on January 1, 2020, the result of a reduction in the maximum allowable sulphur content of marine fuels from the current 3.50 per cent to 0.5 per cent mass/mass under the International Convention for the Prevention of Pollution from Ships (International Maritime Organization, 2016). This may also reduce fishing efforts in the SLL fishery and increase CPUE for those remaining in the fishery.

However, this option also has some potentially negative impacts until fleets adjust to the new economic conditions. Economically marginal vessels that lose their subsidies may look for ways to reduce their costs by intensifying their effort in high seas areas where costs are lower because access and/or licence fees are not payable. This could be ameliorated if the WCPFC agrees to stronger management measures for the albacore fishery and these measures are enforced. Alternatively, these vessels may shift their efforts to unregulated fisheries, increasing the risk of overfishing in those fisheries. Operators may also search for cost savings in other operational areas, such as hiring crew from lower-wage countries, increasing the potential risk of exploitative labour practices or compromising safety.

PIC countries may also have to manage some downstream, short-term negative effects. It is plausible that landings at processing facilities in the region may fall if locally based DWFN vessels exit the fishery, affecting employment and the viability of processing plants in the PIC countries. Government revenues from access fees under bilateral agreements may also be reduced.

In the longer term, however, subsidy reform may provide an opportunity for the growth of the domestic PIC industry. Increased CPUE and overall economic conditions in the fishery could help make locally based fishing operations more viable and could allow PICs to capture more benefits from tuna resources in their waters.



Option 3.b: All subsidies for operating costs, excluding subsidies for fuel, are prohibited.

As described in Section 4, subsidies to other operating costs are not significant. The same impacts as those identified under option 4 would still be applicable, but the severity of these impacts is likely to be much less unless fuel subsidies are incorporated into general operating cost subsidies.

Option 4.a: All subsidies for fishing in waters beyond a WTO member's national jurisdiction are prohibited.

As described in Section 2, around 40 per cent of South Pacific albacore catches are caught in high seas areas, with the remaining 60 per cent caught in the EEZs of PICs. With the exception of French Polynesia, whose vessels fish only in their EEZ, subsidies either in the form of budgetary transfers or non-budgetary transfers for fishing beyond a WTO member's jurisdiction are available to several fleets included in this case study (see Section 4).

The impact of this subsidy prohibition would affect all DWF fleets as well as some PIC vessels that fish in other countries' EEZs and on the high seas. In the short term, this prohibition may lead to some economically marginal vessels leaving the SLL fishery, potentially improving CPUE for remaining vessels in the fishery.

However, if fishing assets cannot be decommissioned, resold or disposed of in some way, there is a potential risk that some DWF vessels may compensate for this lost subsidy by further intensifying fishing efforts in lower-cost areas (high seas) and reducing efforts in EEZs where costs may be higher (due to access and licence fees). Should this occur, government revenues in PICs may fall. An effective cap on effort and/or catch in the SLL fishery could help to mitigate this risk.

For the PIC fleets, where subsidies are in the form of non-budgetary transfers, there are administrative and implementation complexities regarding the application of this prohibition, as many vessels fish both in their EEZs and on the high seas. In this context, implementation would require establishing how fuel tax concessions could be allocated to fishing in different areas, for example, based on the proportion of days spent in-zone, the percentage of catch in-zone (which could lead to a risk of misreporting) or estimated fuel usage in-zone. Furthermore, implementation of this option would also require establishing how such a prohibition could be applied to subsidies for the acquisition or construction and purchase of vessels, which may fish both within a WTO member's jurisdiction as well as on the high seas and in other EEZs.

As with options 3.a and 3.b above, there are potentially similar short-term downstream impacts to PIC economies if fewer DWF vessels land their catches in PICs. In the longer term, however, there are opportunities for growth of domestic PIC tuna industries.

Option 4.b: All subsidies for industrial-scale fishing in waters beyond a WTO member's national jurisdiction are prohibited.

As the SLL tuna fishery is industrial, the impacts under this option are the same as those under option 4.a.

Option 5: All subsidies provided in the form of below-cost access rights to fish in another member's EEZ are prohibited.

This option would apply to access rights paid by governments for their national fleets whose costs are not subsequently recovered from the fishing entities that gain access.



Although it is widely known that some fleets active in the SLL operate under bilateral agreements involving the payment of access fees by the government of their country of origin, no clear information could be obtained about the extent to which such costs are borne by governments without being recovered from the industry (and as a result constitute subsidies). The impact of such an option thus remains unclear.

5.3.2 Special and Differential Treatment

Overfishing, IUU fishing and overcapacity are complex issues that are already addressed in a challenging and interlinked policy and legal environment outside of the WTO. Subsidies may exacerbate these problems, but they are not the only cause. Differentiating between cause and effect in the complex economic environment of international tuna fisheries is not straightforward. There is a risk that a simplistic analysis can lead to misleading conclusions. Our conclusions above were thus made only tentatively when data was absent or incomplete.

Effective management measures may have greater impacts and be the most straightforward tool for ensuring the sustainability of fisheries, but it is important that these measures are not undermined by economic measures, such as subsidies. Subsidy reform and effective fisheries management should thus ideally go hand in hand.

Two out of six WTO members in the case study are classified as least-developed countries (LDCs) by the United Nations: Vanuatu and Solomon Islands (United Nations Department of Economic and Social Affairs Economic Analysis, 2019). Both countries expect to move to the status of “developing country” in 2020 and 2024, respectively (United Nations Department of Economic and Social Affairs Economic Analysis, 2018). Two other case study countries have self-declared as developing countries to the WTO: China and Fiji. The remaining two WTO members have declared themselves developed: Chinese Taipei at the end of 2018 (Focus Taiwan, 2018) and French Polynesia as an Overseas Territory of France.

In the context of special and differential treatment, this would mean that flexibilities for developing countries could apply to China, Fiji, Vanuatu and Solomon Islands and would exclude Chinese Taipei and French Polynesia.

The impacts of three possible exceptions to the rules on subsidies contributing to overcapacity and overfishing have been explored to determine their impacts on overfishing and overcapacity in the SLL fishery as well as their potential implications for meeting social and economic objectives in PICs.

1. **Subsidies for small-scale (“artisanal”) fishing, as defined by national legislation.** Exempting subsidies for small-scale fisheries would be unlikely to have any impact on economic overfishing and overcapacity in the SLL fishery, given the nature and scale of albacore tuna fishing. However, artisanal fisheries do catch small amounts of albacore that contribute to food security, employment and income.
2. **Subsidies for fishing activities within the subsidizing member’s EEZ.** As discussed earlier, tuna, including albacore, is a migratory species, and fleets follow the tuna across the Pacific. In the SLL fishery, subsidies are in the form of budgetary and non-budgetary transfers. This potential exception might have the most impact for non-LDC PICs fishing within national EEZs, but it presents implementation complexities. Applying the exemption for fishing activities within a subsidizing member’s EEZ for vessels and fleets moving across boundaries



can be challenging. However, it may be feasible to make an attribution based on the days spent in-zone and out of zone, but the administrative costs may outweigh the benefits. An exemption may also create perverse incentives to increase the fishing effort in-zone, potentially causing localized depletion and/or falling CPUE, or placing pressure on other in-zone stocks. On balance, these possible perverse outcomes may not occur given the economic trade-off between benefitting from the subsidy and the economic imperative to fish where the tuna is.

With regard to an exemption for subsidies for vessel construction, modernization and transfer for fishing activities within the subsidizing member's EEZ, these subsidies would help enable the development of domestic industries and modernization of the fleet. This would further the social and economic objectives of increased employment and the domestic tuna industry's contribution to GDP. Coastal states in the Pacific have long argued the case for greater participation in the SLL fishery, in support of national aspirations. These benefits could be captured if there was an increase in CPUE (brought about by economically marginal DWFN vessels exiting the fishery) and effective management measures to maintain CPUE at economic levels.

If this exemption was only applied to LDCs, some key PICs involved in the SLL fishery (Fiji, Vanuatu and Solomon Islands) would be excluded, preventing them from using subsidies to encourage the development of their domestic industries.

3. **Subsidies for the fishing of RFMO quota.** There are currently no effective and enforceable catch or effort limits in the SLL fishery, as discussed in Section 3. By capping effort or catch, much of the problem of overcapacity and economic overfishing can be resolved. However, given the pace of decision making at the WCPFC, agreement on these measures may be a long way off. Subsidy prohibitions would still be relevant to ensure that the effectiveness of management measures is not undermined.



6.0 Pathways and Support for Reform

This case study highlights both the opportunities and the challenges of applying subsidy disciplines to solve the management of highly migratory species moving between EEZs and the high seas over vast areas of the ocean. Additional challenges include highly complex supply chains, mobile fleets at sea for long periods of time, transshipment at sea, and multifaceted economic relationships between PICs and DWFNs (and PIC-owned and DWFN-owned businesses).

Progress, albeit slow, is being made to adopt fisheries management measures that reduce economic overfishing for South Pacific albacore in the SLL fishery and protect stocks. Disciplining subsidies that have contributed to economic overfishing to accelerate this has great merit, but there are important implications and potential tensions for PICs wishing to develop their tuna sectors. Domestic industry development in PICs is hindered by physical and economic isolation, and PICs benefit from the revenues earned from access fees and economic benefits gained from bilateral agreements with DWFNs to fish in their waters (and land fish in their ports).

For all PIC countries in this case study, the development of their tuna industries offers one of the few opportunities for economic advancement. However, opportunities for further expansion face a number of challenges and have been the subject of sustained efforts to establish a domestic longline industry within the FFA member countries for many years (Gillett, 2008).

Compared to other regions such as Southeast Asia, investment and building profitable tuna fishing or processing companies in the Pacific is comparatively expensive. This is due to the physical and economic isolation of the islands hindering efficient logistics and economies of scale and the considerable infrastructure (including ports, processing facilities) and business (including the availability of capital and expertise) constraints. The lack of airfreight has been a continuing barrier to the export of high-quality sashimi-quality tuna, with a very limited number of specialist freight operations that have aircraft suitable for transshipment connecting services to hub airports. Several attempts to introduce charter flights for the transport of tuna have evolved and then floundered due to costs and inconsistency of supply. It is anticipated that the trend toward more ULT “offshore” and domestic vessels operating from PIC ports will mean longer trips with fewer port calls per year. This will reduce government revenues (through use fees for harbours and wharves), although the benefits from the supply of bait, fuel and provisions should continue as long as unloading remains in port and does not take place at sea. As the tuna industry becomes increasingly globalized, developing the industry for the benefit of Pacific Islanders must give consideration to engaging and competing at the global level.

This analysis suggests that the removal of budgetary transfers to offset vessels’ operating costs, including fuel, may result in a proportion of the current (primarily DWF) SLL fleet no longer being economically viable. Some of these vessels may exit the fishery. The extent of any economic benefits from their exit being realized by the remaining vessels hinges on the extent to which catch rates will improve and the effectiveness of fisheries management measures. Agreement on interim target reference points is a positive step, and if there is agreement on a target reference point, this should enable vessels in the SLL fishery to remain profitable. All other things being equal, increased profitability of the remaining vessels (both DWFN and PIC fleets) in the fishery will encourage greater compliance with regulations on the premise that operations that are losing money tend to be less compliant.



Where fishing is being conducted in the EEZs of WTO member states, better economic conditions would provide an opportunity to capture economic rent and increase access fees payable by foreign vessels to access their zones. It may also provide an opportunity for the expansion and further development of domestic tuna industries. This would require financial support to PIC fishing companies (provided their operations are economically viable), capacity-building support in business skills and global market engagement. Until these PIC businesses are fully equipped to compete in the global marketplace, maintaining non-budgetary transfers (tax concessions) to address some of the comparative economic disadvantages due to their geographical isolation may be justified over a period of time.

Reform pathways and staging will therefore be a delicate balance between avoiding economic overfishing (through subsidy disciplines and fisheries management measures), minimizing economic impacts to PIC tuna industries, increasing rent capture from DWFN fleets, and allowing time for the domestic fleet to innovate and improve efficiency to compete effectively in the global tuna market.



7.0 Conclusion

The world's largest and most valuable tuna fisheries are found in the WCPO, generating a delivered value of just under USD 6 billion in 2017. The total value of catch of South Pacific albacore tuna caught south of the equator, which is predominantly caught in the SLL fishery and the subject of this case study, was estimated at USD 268 million in 2017 (Brouwer Pilling, Williams, & WCPFC Secretariat, 2018). While stocks are healthy overall, the fishery is facing poor economic conditions, with falling CPUE for the target adult albacore. Around 290 vessels are estimated to target South Pacific albacore; at least 50 per cent of these are owned by DWFNs and account for at least 50–60 per cent of the catch.

With regard to SDG target 14.4, which relates to ending IUU fishing, the greatest current risk in the SLL fishery comes from misreporting by licenced vessels, rather than “pirate fishing” by illegal vessels. This has implications for stock assessment and management as well as for the implementation of catch limits or schemes based on vessel days. There is a need for capacity development and support to the WCPFC and its members to implement additional measures strengthening observer coverage; implement electronic monitoring and reporting; and better monitor, control and estimate the extent of transshipping activity.

With regard to SDG 14.6, this case study has shown that, based on the available data, the revenues of some vessels may not cover operating costs. Subsidies may assist them and, by doing so, keep otherwise unprofitable vessels fishing in a fishery where a reduction in effort is necessary to improve economic viability. Non-budgetary transfers in the form of tax exemptions provided to PIC fleets make a negligible impact on their profitability and arguably help to mitigate higher operating costs due to the geographical location of PICs. Furthermore, the development of the tuna industry offers one of the few economic growth opportunities for PICs and is dependent on economically viable fisheries.

The report explores this trade-off and makes qualitative judgements on the likely impact of different subsidy prohibitions. The analysis of the impact of different subsidy disciplines illustrates that, while IUU and economic overfishing can be mitigated by disciplining subsidies, impacts on tuna industries can be both positive and negative depending on their own economic and social contexts. The SLL fishery is part of a complex supply chain, with many factors affecting the profitability of operations. Subsidy prohibitions may result in a reduction of effort, but the effectiveness of the prohibitions in combatting IUU and improving economic viability will require taking these other factors into account to develop a coordinated and coherent policy framework for the industry.



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