FFA TRADE AND INDUSTRY NEWS

Volume 11: Issue 4 July-August 2018

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SPECIAL FEATURE

FFA study on 'Corporate Dynamics in the Shelf-stable Tuna Industry'

Recent years have seen FFA members develop successful strategies for increasing returns from their valuable tuna fisheries, and a continued desire to innovate new approaches and links with the global industry to further advance such efforts. Part of this process has been increasing knowledge about where value is added as the raw material is transformed into finished product, gaining an understanding about how industry players across the value chain capture such value, and examining how Pacific Island countries are positioned within these dynamics. To advance such efforts, FFA recently published a study that provides industry and market intelligence on the current status of the shelf-stable (e.g. canned, pouched) tuna processing industry[1]. The report aims to update and build on a major report published by FFA in 2011, *Market and Industry Dynamics in the Global Supply Chain*, which included a global overview of the canned tuna processing sector and profiled a number of key canned tuna processing sites. The current report offers an updated global snapshot of processing capacity and markets. However, the main analysis largely focusses on five major case-study firms to demonstrate the range of industry dynamics currently in play in the sector. The five case study firms are: Thai Union, Dongwon Industries and F&B, Bolton Group, Princes and Bumble Bee. The analysis identifies general dynamics for major processing companies and sites and draws out the implications for Pacific Island countries. A short summary of the report is presented here.

Global Overview of Processing Dynamics

Between 2008 and 2017, global tuna processing capacity (whole round and cooked loins) increased 12-13%, while the total number of processing plants increased from 144 to at least 215. Whole round fish represents around 85% of raw material processed, and 15% frozen cooked loins. Thailand remains the world's largest canned tuna processor, accounting for around 15% of global production. The European Union is the world's largest market for canned tuna and an important market for pre-cooked frozen loins. EU import volumes of loins from Papua New Guinea and the Solomon Islands increased by 48% and 64% respectively between 2013-2017. The United States remains the second largest shelf-stable tuna market, supplied by two domestic plants which process 100% imported cooked loins, as well as imports from 35 countries. Frozen cooked loin import volumes to feed two processing plants on the mainland have declined by 17% since 2013, with Fiji as a significant supplier of albacore loins in the range of 11,000-12,000mt/year.

Globally, the industry continues to struggle with overcapacity, with a majority of plants operating below full capacity, while new plant investments and expansions continue. Cyclical, short-term raw material price volatility puts pressure on processors in periods of higher prices, especially those that are not backward integrated into trading or fishing. Costs of key production inputs such as cans and ingredients such as olive oil have been increasing. Broadly, the industry has continued to consolidate through mergers and acquisitions (M&A), though the rate of M&As is expected to slow. Supermarkets continue to dominate retailed canned tuna sales globally, with private label brands providing strong price competition to national brands. Market access remains a key consideration. Several countries with significant canned tuna and frozen cooked loin processing capacity that compete with Pacific Island processors in the EU market have concluded or are in negotiations for preferential trade agreements with the EU. Initiatives related to sustainable fisheries, supply chain transparency, and ethical labour are now permanent fixtures in the industry.

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PNG and the Solomon Islands have increased loin exports to the EU significantly since 2013

Case Study Firms

Thai Union is the largest tuna company in the world. Thai Union's core business is processing seafood for its own brands and as a private label processor for clients. It owns extensive processing operations in Thailand that contribute to a total of 17 production facilities in North America, Europe, Africa and Asia. Over the last 20 years, one of Thai Union's key corporate strategies has been to forward integrate into brand ownership, notably with the purchase of Chicken of the Sea (1997) and MW Brands (2010), enabling it to capture a greater proportion of value through brand rents. Thai Union's major markets are the US, Europe, Thailand and Japan, with 15% of total sales made in emerging markets. Thai Union is emerging as a leader in environmental and social responsibility. Ensuring stability of tuna supply is critical for the firm, which is not backward integrated into fishing. As such it is dependent on the WCPO for tuna raw material supply. Thai Union has increased its processing of co-branded Pacifical canned tuna for Northern European markets and the US market. Thai Union is a partner in Majestic Seafood Corporation in Lae, PNG, notably, however, the plant has not operated at full capacity.

The ***Dongwon Group*** is a sprawling South Korean industrial conglomerate with a high degree of vertical integration that enables the Group to expand market and product reach. Two of its subsidiaries are central players in the tuna processing industry. ***Dongwon Industries Co.,*** *Ltd.* is Korea's largest deep-sea fishery company, owning 19 purse seine vessels. Dongwon Industries vertically integrated into brand ownership by purchasing US market-leader Starkist (2008). It owns processing facilities in American Samoa, Senegal and Ecuador. Dongwon Industries is moving strongly into the MSC certification market for several of its fleets. ***Dongwon F&B Co. Ltd*** is a branded manufacturer that controls 75-80% of the Korean canned tuna market through brands ownership and three processing plants. Both Dongwon Industries and F&B are heavily dependent on the WCPO for raw material supply. Dongwon Industries has announced a collaboration to build a small tuna processing plant in Kiribati and has engaged in ongoing negotiations to build processing plants in exchange for access in PNG and Solomon Islands, though there has been no recent progress on these proposals.

Bolton Foods is part of a large privately-owned company; tuna offerings focus on premium branded shelf-stable tuna products. It wholly or partially owns several important brands and distributes tuna products to over 60 countries, though its primary markets are in Europe. It has processing capacity around the world. Bolton pioneered the import of pre-cooked loins and has continued to innovate mechanized canning facilities that require minimal labour. It is developing corporate social responsibility initiatives related to environment, health and labour. Bolton's 2013 acquisition of a significant share in the global tuna trading company, Tri Marine, strengthened its links to the WCPO and gave it access to fishing vessels, supply, processing capacity, a niche brand in the US market and fishing vessels. Tri Marine is the majority shareholder of the ***Soltuna*** processing plant in the Solomon Islands, whose primary business is to process loins for Bolton.

Princes Group manufactures and distributes food and beverage products to the grocery trade. It is a private company headquartered in the UK and owned by Mitsubishi Corporation. It holds a wide portfolio of over 350 Princes' own brand products, including Princes canned tuna, and also provides private label canned tuna for EU supermarkets. Over 70% of all sales take place in the UK. Princes is vertically integrated from canned tuna brand ownership into processing, with a major factory complex in Mauritius, making it a competitor to Pacific Island processors because of its duty-free access to the EU market. It also has contract processing arrangements

Sustainability, traceability and social accountability are now standard (though variable) in the processing sector

Case studies firms rely heavily on raw material supply from the WCPO

with firms in Ecuador, Thailand and the Philippines. Princes has committed to sourcing 100% of its supply from either pole and line fishing or purse seine fishing on free schools. Princes does not own boats, which makes it sensitive to raw material price. It does not have direct investments in the WCPO but is a leading partner with Pacifical and was the first UK brand to sell the PNA's MSC tuna.

Bumble Bee is a manufacturer and brand owner of seafood products with a focus on tuna, ready-to-eat meals and a range of other shelf-stable and frozen seafood and protein products in the US and Canada; it is the market leader in albacore in the US. Bumble Bee is owned by Lion Capital, a private equity firm and is not backward integrated into vessel ownership. To secure supply, it has developed a global sourcing and production strategy that focuses on import of pre-cooked albacore and light meat loins for its plant in the mainland US. Thai Union attempted to acquire Bumble Bee, an effort that terminated in 2015 as antitrust clearance procedures stalled and opened the door to price fixing revelations among the US 'big three' canned tuna brands. Future developments focus on health attributes, sustainability, traceability and product diversification. Bumble Bee has several direct links to the WCPO. It manages the majority government-owned PAFCO plant in Levuka, Fiji, which supplies its US plant. Its 2013 purchase of Anova Foods deepened links to the Pacific as the firm sources from the Cook Islands and the Federated States of Micronesia. Bumble Bee has announced a deal to bring Pacifical products to the US. Several exploratory initiatives, including for a loining plant in Samoa and for processing in Vanuatu, are yet to come to fruition.

Several case study firms have direct investments in processing in PICs for loin supply and/or resource access

Implications for Pacific Island Countries

The five case study firms reveal a diversified set of strategies in the shelf-stable tuna sector. While all of the firms use M&As to expand the scope of their business portfolio, they do so in different ways and for different reasons. In some cases, this has deepened horizontal integration, for example, purchasing processing plants in strategic locations, or acquiring brands that offer access to new markets. Others have enabled vertical integration outward from processing into direct marketing, branding, trading and/or fishing. The cases studies offer evidence of consolidation among leading firms with core competencies in processing and branding, though the pace of consolidation is likely to slow. The large investments that several firms are making into brands offers evidence of brand rent in shelf-stable markets. This has relevance for efforts from Pacific Island countries, like Pacifical, to develop links into branding to improve returns.

Large investments in brands offers evidence of 'brand rent' in shelf-stable markets

Firms that are vertically integrated into fishing have lower exposure to raw material price volatility and may benefit from price increases. Processing-focussed firms have adopted strategies such as investing in cold storage to hedge against fluctuating raw material price. Several of the case study firms are financialized, that is, intertwined with transactions in which profit making and risk hedging occurs through financial channels, rather than only through trade and commodity production. Access to financial capital enables these firms to make strategic investments, counter hostile take-overs, and weather unexpected costs that might hit competitors with access to fewer resources. Processing firms create global procurement and production strategies to secure both raw material supply and market access. These strategies continue to be formulated around trade policy, labour productivity, and resource access.

In addition to these firm-specific dynamics, the analysis reveals several broader dynamics that are impactful industry-wide and have specific implications for Pacific

Island countries. As a group, branded-processors are able to weather fluctuations in raw material price. This might be explained by a combination of factors including (a) cross-subsidisation into boat ownership and/or other business segments; (b) greater focus on cost control and/or synergies from M&As; and (c) investment in new process technologies and value-added product innovation. There has been relative stability in aggregate branded-processor profit. This might reflect the market power of the case study firms and their related ability to squeeze non-branded suppliers, capture brand rents, and use ad hoc strategies such as the US price fixing scandal and former collaborative efforts to stabilise canning-grade albacore price. The firms appear to have factored in, and adapted to, the PNA Vessel Day Scheme, and related WCPO initiatives such as high seas closures and FAD-related regulations.

Product diversification and development of value-added products is finally becoming more established in many of the major and emerging markets. If value-added products take fuller hold and spur market growth and improvements in profitability, all of those involved in the global value chain – including Pacific Island country resource owners and processing firms – will compete to capture the value added. WCPO yellowfin stocks remain healthy, while the IOTC stock is overfished. This presents potential to direct existing WCPO yellowfin catch into high value EU market segments.

One of the most significant recent developments in the canned tuna sector is the increasing focus on sustainability, eliminating IUU fish in supply chains, traceability and ethical labour practices. Firms have now internalised such efforts, and/or are developing initiatives through collaborations with advocacy groups and other industry players. Generally, these movements will present both costs (auditing, management and production changes) and opportunities (reputational gains, market access, potential price premiums) to fishing fleets, processors, brandowners and retailers. It is not yet clear how these will shape raw material prices and related access fees.

Pacifical stands to be an important supplier of certified product but will also face increasing competition from other MSC certified fisheries as major fishing and trading companies (Tri Marine, FCF, Dongwon) obtain their own certifications for purse seine fishing operations in the WCPO. Competing certifications will not have compulsory labelling requirements, which is a key feature of the Pacifical model. In relation to foreign direct investments in processing in PICs, PICs needs to continue to conduct careful analysis of proposals, as many existing investments continue to operate below capacity.

FISHERIES TRADE

Trump's US trade-war and China's tuna

The trade war between the US and China is heating up, with tit-for-tat tariff increases and increasingly hostile rhetoric, especially from the Trump Administration. In July 2018, the Office of United States Trade Representative (USTR) released a new list for public consultation of products set for a 10% tariff increases in October, which could potentially increase to 25%. The list covers US$200 billion in value of China's products exported to the US in 2017, including around US$2.7 billion in fresh, frozen and processed seafood. The US industry body the National Fisheries Institute (NFI) has stated that it thinks the application of tariffs is likely, even for US-caught fish sent to China for export-processing back to the US such as cod, pollock and salmon, which is worth around US$900 million.[2]

Value-added tuna products are finally becoming more established in major and emerging markets

The PNA's MSC certification will face growing competition as major fishing and trading companies obtain certification

This has made repeated headlines in the seafood industry press, but what does it means for tuna in particular? The USTR list includes all major tuna products.[3] However, the commercial impacts on China's tuna industry will be minor for some segments. For example, the US generally imports around US$190 million worth of yellowfin and bigeye tuna of which China is an insignificant supplier. China is similarly insignificant in the US frozen yellowfin market.[4] Despite this, these products are included on the current list of products 'threatened' with a tariff increase.

However, for frozen tuna 'fillets' (e.g. used as steak) and pre-cooked tuna loins for re-processing, the impact may well be serious, both for the Chinese and US industries. For example, China supplied around 4% of US imports of frozen albacore in 2013-2016, increased its share of the US$323 million frozen tuna 'fillet' import market (in 2016) from around 1% in 2012-14 to 4% in 2016. It also exported almost US$6 million in pouched albacore to the US in 2016, around 6% of that import market.[5] Also, after a relative peak of US$31 million in canned tuna exports to the US in 2013 (4% share of the import market), supply from China since declined in significance to US$11.7 million in 2017 (2% share).[6] Commercially significant tariffs on each of these product types would present minor inconveniences for US buyers. Yet because of the small volumes and ready competing capacity globally, the supply gap would likely result in rapid trade diversion to alternative producers, except perhaps for pouched albacore.

By far the most important product under threat is pre-cooked frozen tuna loins, where China was the second largest supplier in 2017 with imports worth US$97 million (see Table). Imported loins are central to the Bumble Bee and Chicken of the Sea's tuna canneries on the US mainland which depend entirely on imported loins. Trade data does not specify species composition of loin supply from China, but it is likely a mix of albacore from China's growing longline fleet and skipjack from its purse seiners.[7] While China's trade in skipjack loins will quickly be captured by other suppliers such as Thailand, the availability of alternative major sources of albacore is less certain, which would be a particular threat to Bumble Bee because of its relative commercial focus on 'white meat' tuna.

Table 1: USA import of pre-cooked frozen tuna loins by selected supplier, 2012-2017 (in USD)[8]

Supplier	2013	2014	2015	2016	2017
Thailand	127,294,008	127,639,128	87,677,578	86,599,543	98,299,470
China	84,432,792	98,315,096	87,577,695	67,683,925	96,689,845
Fiji	61,534,497	57,099,097	65,077,979	68,515,339	63,699,971
Mauritius	43,467,670	42,789,937	39,943,681	40,161,163	34,122,710
Indonesia	2,270,120	6,379,811	10,338,233	8,627,422	7,732,292
Selected 5 suppliers as % of world	80%	86%	93%	93%	95%
China as % world	**21%**	**25%**	**28%**	**23%**	**31%**
World	397,161,514	386,059,938	313,219,701	292,939,498	314,913,584

United States is set to impose 10% tariff increases on all types of major tuna products imported from China

The impact on China's tuna industry will be uneven; the greatest threat is to China's tuna loin exporters and the US canneries that depend on them

Kiribati meets all requirements for EU market access

After meeting all regulatory requirements laid down by the EU, Kiribati has become the fourth Pacific Island country to gain EU market access for fish and fisheries products. As reported in *FFA Trade and Industry News, May-June 2017*, on 16 June 2017, Kiribati gained approval from the EU's Directorate General for Health and Safety (DG SANTE) to export fishery products to the EU.[9] Five Kiribati-flag purse seiners and the Kiribati Fish Limited processing plant have passed a sanitary inspection and been issued EU numbers and added to DG SANTE's list of approved establishments for exporting fishery products to the EU.[10] Kiribati's total domestic fleet (as per the WCFPC Record of Fishing Vessels) currently consists of eleven purse seiners and four fish carriers,[11] each of which require an EU number to export to EU markets.

Kiribati has met the EU's food safety and IUU fishing regulation requirements to gain EU market access for its fish and fish products

As of 14 May 2018, Kiribati has also been included in the EU's list of third countries notifying their competent authorities for the EU's IUU Fishing Regulation. Kiribati's Ministry of Information, Communications, Transport and Tourism Development (MICTTD) is responsible for flag state vessel registration, while the Ministry of Fisheries and Marine Resources Development (MFMRD) is responsible for vessel licencing, catch certificate validation and verification and control and enforcement of laws, regulations and conservation and management measures which must be complied with by its flagged vessels.[12] With both the EU's food safety and IUU Fishing Regulation requirements met, tuna from Kiribati flagged-vessels and its fish processing facility (with EU numbers) is now eligible to enter the EU.

However, Kiribati's 'yellow card warning' which was issued by DG MARE in April 2016, remains in place. Kiribati is communicating regularly with the EU on this matter and has improved it Port State Measures and monitoring and control of transhipment in port. Competent Authority staff have received traceability training which should enable them to trace fish and fishery products and measures have been put in place to improve the implementation of the VDS and control foreign fishing fleets, including the recruitment of additional compliance officers.

Update on EU 'yellow card' IUU fishing warnings

Since the EU's IUU Fishing Regulation (No. 1005/2008) entered into force on 1 January 2010, 25 countries have been issued 'yellow card' warnings by the EU for being potentially uncooperative in the global fight against illegal, unreported and unregulated fishing. Of this 25, six countries were unsuccessful in addressing their shortcomings within an acceptable timeframe and as a result, received 'red cards' for being non-cooperating, with fisheries products from their vessels banned from entering the EU while the country remained on the list of uncooperative third-party countries. EU vessels are also banned from fishing in these countries' waters. Three of the six red-carded countries remain on the uncooperative list – Cambodia, Comoros, and St. Vincent and Grenadines. Several PICs have been given 'yellow card' warnings during this time – Fiji, PNG, Solomon Islands, Vanuatu and Tuvalu - and successfully had these lifted after making significant improvements to their legislative, fisheries management and monitoring, control and surveillance (MCS) systems to meet EU requirements.[13]

Since the EU IUU Fishing Regulation came into effect, 25 'yellow card' warnings have been issued to potentially uncooperative countries

Tuvalu is the latest PIC to have its 'yellow card' warning lifted on 20 July 2018, after addressing shortcomings in its fisheries governance. Tuvalu has amended its fisheries legal framework to reflect international Law of the Sea instruments and strengthened sanctions. It has also adopted a fisheries management system based on the best scientific advice and the precautionary approach and complies with WCPFC conservation and management measures. Tuvalu has also reinforced its MCS

systems including patrol capacity and port inspections and granted access to Vessel Day Scheme information for foreign vessels fishing in Tuvalu waters.[14] While Tuvalu currently does not have access to the EU market for fish and fish products from its domestically flagged fleet of two purse seiners and two longliners, it would have suffered reputationally if the yellow card warning was upgraded to a red card. As mentioned above, Kiribati's yellow card warning which was issued in April 2016 still remains in place, with Kiribati officials working hard to address the issues and have this warning lifted.

Several key flag and processing/market states of significance to the WCPO also have EU 'yellow card' warnings – Thailand, Taiwan and Vietnam.

Despite considerable efforts over the past three years since April 2015, Thailand's yellow card still remains in place. An EU inspection in April 2018 highlighted that while there has been good progress in addressing Thailand's shortcomings, weaknesses remain within legal frameworks and fleet management.[15] Thailand has been given another four months to resolve outstanding issues. If Thailand were to receive a red card, the interruption of tuna trade to EU markets from Thai processors would be limited, given Thailand does not have a domestic tuna fleet (besides some vessels targeting neritic tunas), with the majority of raw material imported from vessels operating under other flags. However, the reputational damage for Thai packers could hamper business, with some European buyers already indicating they have been cautious booking in long-term contracts with Thai canners.[16]

Taiwan, one of the most significant distant water fishing fleets operating in the WCPO and the highest supplier of raw material to Thailand for processing, received an EU yellow card warning in October 2015. The EU identified serious shortcomings in Taiwan's fisheries law, insufficient IUU sanctions, and ineffective monitoring, control and surveillance of the long-distance fleet.[17] An EU inspection took place in Taiwan in March 2018, after which EU officials indicated that only a small portion of the measures outlined in Taiwan's EU action plan had been addressed. At the same time as the inspection, an Environmental Justice Foundation Report was released claiming persistent IUU fishing and labour abuses on Taiwanese vessels[18] and a few months later in May 2018, a Greenpeace exposé on human trafficking and labour abuses. Another EU inspection is scheduled for September 2018. The risk of a red card for Taiwan has serious implications for the supply of canning-grade tuna to processors supplying the EU market, particularly Thailand.

Vietnam received an EU yellow card warning in October 2017, with nine recommendations laid out in an action plan to be addressed. In May 2018, an EU inspection took place and Vietnam was given a further six months to continue to address these issues, with EU inspectors scheduled to return to Vietnam in January 2019. To date, Vietnam has passed the Law on Fisheries which includes strict sanctions against IUU fishing, with two related decrees and nine circulars to guide law enforcement. VMS units are also progressively being fitted on Vietnamese offshore fishing vessels, with a target of having 30,000 vessels eventually covered.[19] A 'white book' on combatting IUU fishing has also been released in Vietnamese and English to provide information on Vietnam's fisheries sector, its regulations and steps being taken by the Vietnamese Government and industry to combat IUU fishing.[20]

Following recent EU inspections, Thailand, Taiwan and Vietnam's yellow card warnings still remain in place

FISHERIES MANAGEMENT

Continued scrutiny by scientists to impacts of climate change on WCPO tuna fisheries

The impacts of climate change are already being felt by Pacific Island residents in the form of increased intensity of tropical cyclones and, in some cases, the effects of discernible rises in sea level, among other indicators. Climate change will also have significant impacts on tuna resources, the importance of which to the people of the Pacific islands is well known.[21] The discussion of climate change impacts on tuna in the WCPO is perhaps understandably not given the same amount of publicity as sea-level rise, but is nonetheless an important consideration in assessing the future economic well-being of many Pacific Island countries.

There is a growing body of knowledge and heightened awareness of changes in the environment affecting marine species brought about by climate change in general. For example, a recent study projected thermal habitat shifts for 686 species on the North American continental shelf.[22] In another development, the School of Environmental and Biological Sciences at Rutgers University in the US has begun a website to provide tools and information on the impacts of climate change and other factors on the distribution of marine life in the North American context.[23]

In the Pacific Islands region, SPC has been at the forefront of providing information to resource managers and others that seeks to further discussion and awareness of climate change in general, as well as its future impacts on fisheries.[24] In 2016 and 2017, scientists collaborating with SPC produced important discussion papers that utilized refined modelling focusing on climate data and fishing and tagging data to predict impacts on skipjack (2016)[25] and yellowfin (2017)[26] for WCPFC's Scientific Committee.

Keeping in mind the complexities of the oceanographic and biological systems at work in the WCPO and gaps in existing knowledge, the paper presented to WCPFC in 2016 for skipjack concluded that stocks would move eastward and predicted a decrease in biomass brought about primarily by the warming of surface waters affecting spawning and larval development. Similarly, the 2017 presentation on yellowfin to WCPFC's Scientific Committee predicted that the impacts of climate change will result in a decrease of yellowfin stocks in the WCPO and increase in the EPO driven by the changes in spawning habitat (temperature and productivity) and subsequent larval recruitment. (Parenthetically, the additional impact of ocean acidification is described as minor in the yellowfin assessment.) With respect to albacore, the impacts of climate change are seen as shifting spawning grounds poleward from tropical to subtropical waters. This is predicted to occur after a declining phase of the present spawning grounds until the warming of subtropical waters reaches the optimal spawning temperature for this species.

Although not immediate, this 'ENSO on steroids' can be expected to bring about thermal changes to habitats that will result in large scale displacements of tropical tunas. The predicted shifts in tuna stocks eastward and poleward (for albacore) are predicted to occur gradually over the next 30 years or so and continue unless there is are significant declines in CO^2 emissions.

Pacific Island countries' economies are also likely to see impacts from these changes. A useful analysis of this point was contained in a presentation at the 15th World Tuna Trade Conference and Exhibition in Bangkok during 28-30 May 2018 delivered by Dr. Valerie Allain, a fisheries research scientist at SPC.[27] The analysis used projected fishing mortality brought about by geographic changes in the biomass of skipjack

Scientists in collaboration with SPC have been leading research efforts on the effects of climate change on tuna stocks in the WCPO

Warming surface waters affecting spawning and larval development will cause shifts in tropical tuna stocks eastward

and yellowfin separately for 2035 and 2050. It was shown that most countries and territories in the SPC region, including all of the PNA countries, would be the 'losers' in the case of yellowfin that is projected to move eastward. Only French Polynesia comes out a 'winner' by 2050.

In the case of skipjack, the largest negative impacts will be felt by Papua New Guinea and Solomon Islands by 2035, with Tokelau, Tuvalu, FSM and Nauru not far behind by 2050. Kiribati remains in the negative column for skipjack, but only marginally so due to the position of its fragmented EEZ in the eastern portions of the region. Countries that could see an increase over current small catches relative to those in the countries noted above include Fiji, Vanuatu, and Tonga.

A further impact of climate change on the region's tuna resources to consider is that on existing systems and arrangements for ocean governance. With roughly 50% of the world's catch of skipjack tuna currently caught in their waters, the countries comprising the Parties to the Nauru Agreement could be looking at vastly different management scenarios by as early as 2050. As tuna move eastward out of the WCPO and into international waters the need for fishery access in PNA waters could diminish. The tuna industry, particularly the capture sector, is relatively quick to adapt and could adjust current technology and practices employed in the industry. The processing sector could among other things make shore bases in the WCPO redundant by shifting production to countries in the Eastern Pacific or even at-sea onboard factory ships.

The gradual nature of impacts of climate change on tuna resources in the WCPO may tend to discourage consideration of the implications at the political level. It is useful however to keep an historical perspective on the situation as tuna purse seining in the WCPO began in earnest just 35-40 years ago and some of those vessels are still actively fishing.

PNG and Solomon Islands will feel the largest negative impacts of the shift of tuna stocks eastward

MSC retracts 'mixed fishery' standard changes

As reported in the Jan-Feb 2018 edition of *FFA Trade and Industry News*, in response to significant pressure from the 'On the Hook' campaign, the MSC Board released a decision in January 2018 regarding Units of Assessment (UoA) for mixed fisheries. Under this decision, the MSC fisheries certification standard would be changed to only allow MSC-certified fishing activities to take place on a target stock in a single fishing trip. In the case of MSC-certified tuna purse seine fisheries, sets made on uncertified drifting FADs in the same trip as certified free-school sets would render the entire trip's catch as being non-MSC certified and ineligible to enter the MSC supply chain. This UoA change was scheduled to come into effect in August 2018, with certified and in-assessment fisheries having three years to transition to the new requirements, while fisheries entering MSC for the first time after February 2019 would need to comply from the outset.[28]

On 2 August 2018, the MSC made an announcement that it intends to re-open its review of MSC's UoA requirements. This announcement follows feedback from NGO stakeholders that this solution did not meet their expectations and from industry that it would be difficult to operationalise. In particular, there are concerns that these rules could negatively impact on developing world and small-scale fisheries. MSC's Board has instructed MSC to investigate alternative options over the next six months to develop a new solution which will be once again presented to key stakeholders for formal public consultation.[29] MSC will endeavour to develop a solution which addresses stakeholders' concerns, increases the effectiveness of MSC's 'Theory

MSC has retracted its January 2018 decision that only MSC-certified set types can take place in a single purse seine trip if the fish is to enter the MSC supply chain

of Change', is simple to implement and has acceptable levels of at-sea impact on fisheries in the MSC program, including small-scale and developing fisheries. The MSC Board has also agreed that MSC will engage in MSC-funded research with third parties to establish best practices for FAD fishing.[30]

Despite MSC heading back to the 'drawing board' on UoA consultations and pushing out timeframes for a solution to be adopted by a minimum of six months, it remains highly likely that MSC-certified tuna purse seine fisheries will be affected and be required to implement changes, given the 'On the Hook' campaign specifically targeted the PNA's purse seine fishery (which has similar implications for other WCPO MSC purse seine fishery certifications). Industry representatives anticipate that significant advancements will continue to need to be made in FAD fishing to enhance the sustainability of this fishing method. However, vessel operators will have three years to implement any UoA modifications adopted in line with ISEAL and FAO's Eco-Labelling Guidelines to enable them to adapt to changes.

It is anticipated that any UoA changes will require purse seine FAD fishing to become more sustainable

TUNA INDUSTRY

Purse seine capacity grows with new vessel builds and modernization projects

Although consensus has emerged that managing of fishing capacity is central to controlling overfishing in tuna fisheries,[31] recent years have seen a flourishing of new boat building in tuna fisheries and a concomitant expansion in total capacity. A recent analysis by the International Seafood Sustainability Foundation (ISSF) drew on RFMO data to make a global estimate of purse seine vessel capacity.[32] ISSF identified 673 large-scale purse seiners with a fish hold volume of 335 m^3 or greater, for a combined fishing capacity of over 860,000 m^3 as of June 2018. Eighty-six new large- scale purse seine vessels were built and added to the global fleet since 2013. By contrast, a 2011 study using the same methods, identified 678 large-scale purse seiners, for a combined fishing capacity of 781,000 m^3.[33] The increase in capacity, without a significant increase in total vessel numbers offers evidence that new vessels are greatly expanding the capacity of those vessels they are replacing. A key point from the analysis is that it has historically been difficult to count purse seine capacity accurately because of a lack of a single, mandatory global registry. However, ISSF now estimates that 99% of all large-scale purse seine vessels have unique International Martime Organisation (IMO) numbers – the result of a requirement by all four tRFMOS that large-scale vessels obtain unique vessel identifiers.

Total capacity of large scale tuna purse-seine vessels has grown by almost 80,000 m^3 since 2011

Meanwhile, announcements of new and planned investments in vessels continue to emerge. The Marshall Islands-based subsidiary of Chinese deep-sea fishing company, Shanghai Kaichuang Marine International has recently ordered three new tuna purse seiners at a total cost of US$61.7 million. The vessels will be built at a Chinese shipyard in Mawei, Fujian province; each will have a hold capacity of 1,200GT. Shanghai Kaichuang is a subsidiary of China's largest seafood company (Shanghai Fisheries Group). Its two subsidiaries in the Marshall Islands are fishing company Pantai Fisheries and tuna processing firm Pantai Foods.xs[34] Korean firm Dongwon Industries has built seven new vessels since 2006: five have roughly 2,000GT and two have 1,000GT of capacity.[35] Dongwon reports that two additional seiners will be joining the fleet in 2018, each with have 2,200GT of capacity.[36] Dongwon's fleet modernization has reportedly increased the firms' average annual per-vessel catch to 10,800mt in 2016 up from 7,500mt in 2013.[37]

Recent reports indicate that the Ecuadorian fishing industry is also interested in modernising its aging fleet, but that plans have been slow to emerge on account of: taxes related to building, difficulty obtaining credit, the high cost of vessels, as well volatile raw material prices. Industry have been keeping an eye on a new economic development law up for approval in Parliament, which, if passed, would provide economic incentives for shipbuilding.[38] The proposed law would offer several years of tax exemptions for, for example, foreign currency exit taxes and value-added taxes. Reportedly, Spanish, Chinese and other Latin American shipbuilding firms have visited with Ecuadorian industry to engage in discussion about plans for new building.[39]

Fishing firms continue to express interest in new purse seine builds to enhance capacity and modernize aging fleets

Thai Union takes a lead on labour standards; Thai government improves but lags

Following negative publicity (including from major supermarkets such as Costco and Walmart in the USA, and Tesco and Sainsbury's in the UK) on working conditions and labour standards in Thailand in general and specifically in Thai Union's supply chain, Thai Union began to transform its approach to labour standards in its supply chain. The principal piece in this reform process is Thai Union's SeaChange program launched in 2015, which includes commitments to 'safe and legal labour', compliance with labour regulations and a Business Ethics and Labour Code of Conduct.[40] In terms of concrete changes, in its shrimp business, TU brought over 1,200 workers in-house previously employed by suppliers in pre-processing ('peeling sheds') in Thailand, and has ceased to outsource this activity.[41] TU is also the first Thai seafood firm to apply a 'zero recruitment fee' for migrant workers, generally paid to labour intermediaries 'a practice that effectively forced workers into debt bondage'.[42]

In July 2017, Thai Union entered into a wide-ranging agreement with Greenpeace on environmental and social sustainability. Much of the agreement mirrors the SeaChange program with the major difference that progress will be reviewed by an independent third-party at the end of 2018.[43] The TU-Greenpeace agreement includes two major labour standards commitments. First, a 12-point vessel code of conduct on working conditions for all TU suppliers, launched in January 2018, which includes annual audits and a commitment to a Vessel Improvement Program should a boat not comply with all clauses.[44] This may cause TU difficulties given widely reported labour abuses on a number of tuna fishing fleets in recent years, especially longliners.[45] Second, Thai Union has reaffirmed its commitment to support freedom of association and collective bargaining in its own facilities and throughout its supply chains. This is a far- reaching commitment and may prove challenging to implement in practice. For example, like all Thai tuna processors, TU relies on migrant labour but Thailand's Labour Relations Act (1975) bars migrant (foreign) workers from establishing a trade union.[46] Further, TU has investments in countries with limited active trade unions, such as its factory in Seychelles which currently does not have an independent union.[47]

Thai Union's labour standards commitments with Greenpeace are wide ranging, but may run into implementation challenges

At the national scale, the Thailand government ratified the Protocol to the ILO Forced Labour Convention in June 2018.[48] The US State Department also upgraded Thailand from Tier III to Tier II status in its 2018 *Trafficking in Persons Report* (TIPs), which found that while the 'Government of Thailand does not fully meet the minimum standards for the elimination of trafficking ... it is making significant efforts to do so'. These efforts include several investigations and prosecutions in the seafood industry and of officials accused of corruption and/or complicity in trafficking.[49] The president of the Thai Tuna Industry Association, Chanintr Chalisarapong, stated that '"The TIPs upgrade will better reflect on Thailand's image and the fishing

industry in the future'".[50] Further, in May 2018 an independent trade union was set up for fishing boat crew in Thailand – Fishers' Rights Network (FRN).[51] This is relevant to TU because of the supply of 'trash fish' in its shrimp feed supply chain – a key issue highlighted in the Associated Press investigation. Among FRN's demands are the elimination of labour recruitment and related fees (which TU has already implemented); increased wages and improved working conditions; basic first aid training and kit; and that the Thailand government ratify, among others, ILO Convention 188 (see below) and allow migrant workers the rights to freedom of association and collective bargaining.[52]

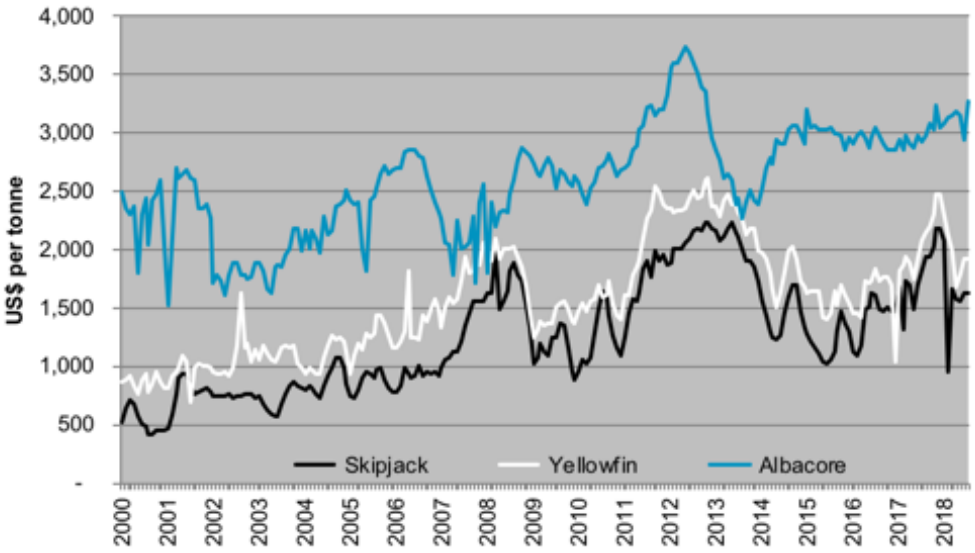
However, according to the International Transport Workers' Federation which has been working 'on the ground' in Thailand in 2017 and 2018 with migrant fishers from Cambodia and Myanmar, "little has changed. Labour and human rights abuses remain ingrained in the industry".[53] This echoes sentiments from prior investigations by the Environmental Justice Foundation in 2015 and a Walmart Foundation funded study in 2017 by the Issara Institute (a Thai NGO) and the International Justice Mission (an anti-slavery organisation).[54]

In August, a coalition of 32 civil society organisations called on the Thai government to stand up to lobbying by the National Fishing Association of Thailand (NFAT) to not ratify the ILO Work in Fishing Convention (ILO C188). The statement argues that Adopting C188 would also give seafood buyers and retailers around the world greater confidence that Thai seafood is ethically sourced'.[55] ILO C188 came into force on 16 November 2017 and provides crew working on the global fishing fleet recourse to another layer of labour rights and protection of working conditions, including in regard to: occupational safety and health and medical care at sea, and that sick or injured fishers receive care ashore; sufficient rest for crew health and safety; written work agreements; equivalent social security protection as other workers; and the aim of ensuring vessels are constructed and maintained so that workers have decent living conditions on board.[56]

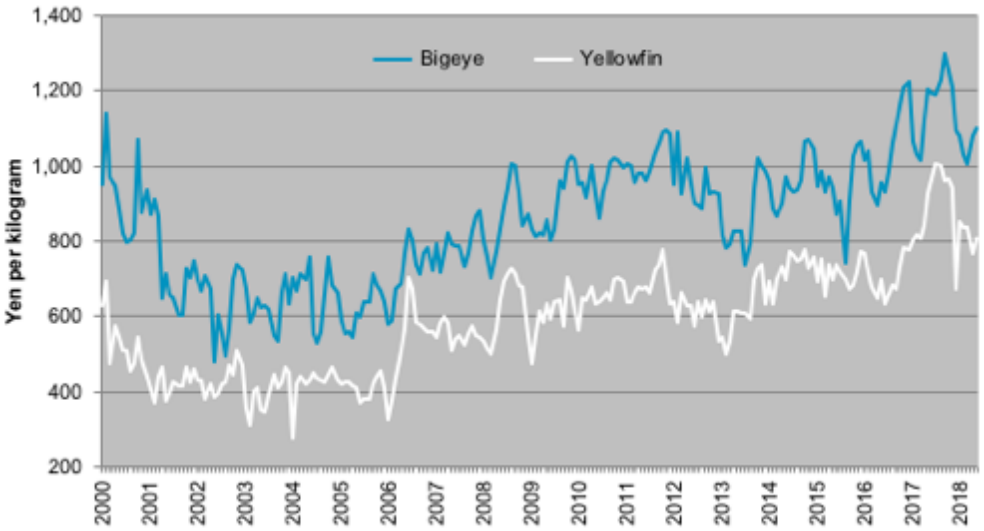
Despite Thailand ratifying the ILO forced labour protocol and moving up to Tier II in US TIP, it hesitates over ratification of ILO Work in Fishing Convention

TUNA PRICE TRENDS[57]

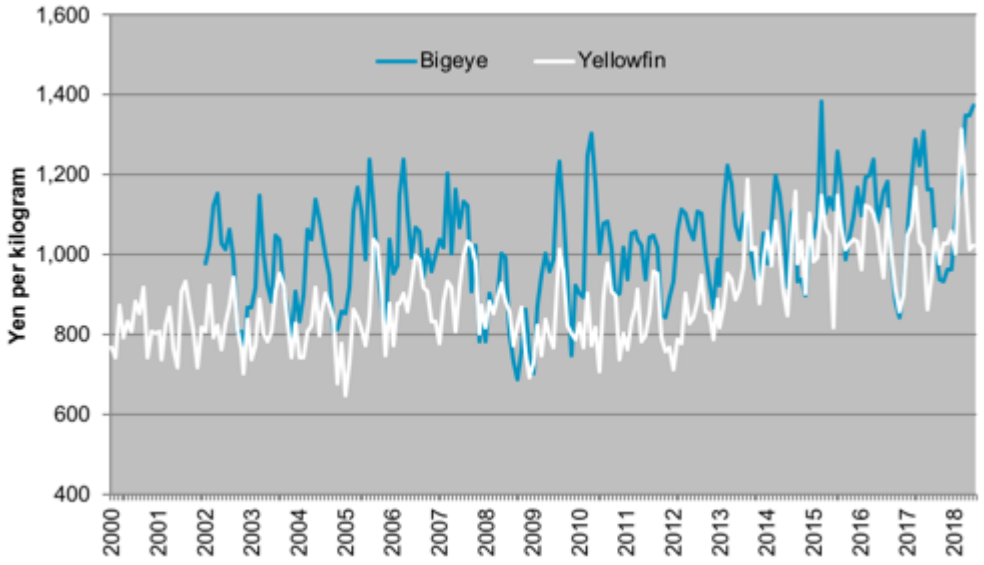
Bangkok canning-grade prices to July 2018[58]



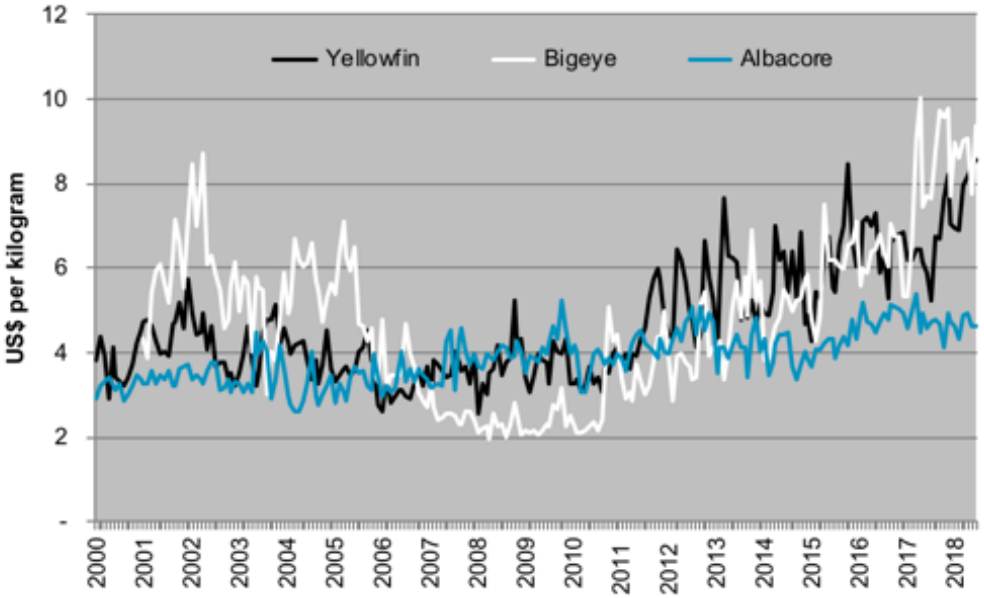
Japan frozen sashimi prices (ex-vessel, Japanese ports) to June 2018[59]



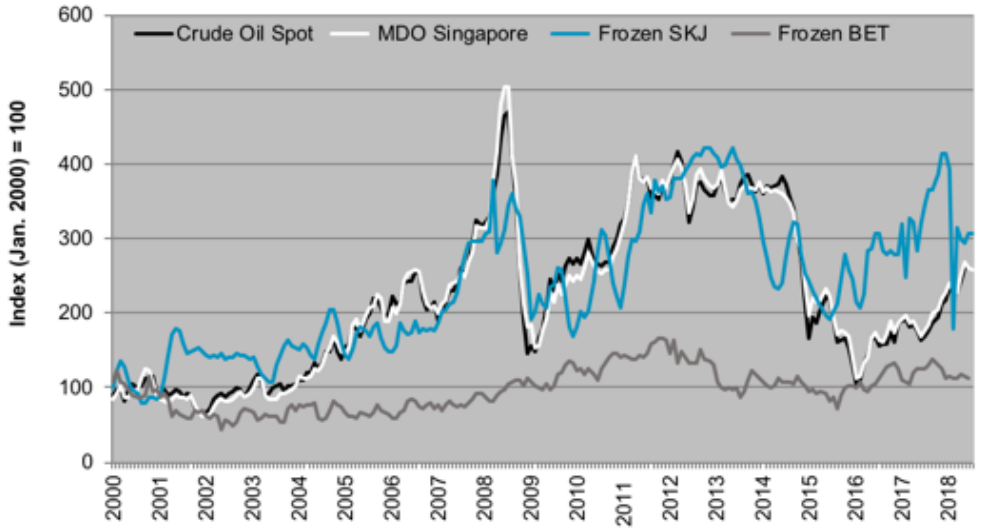
Japan fresh sashimi prices (origin Oceania) to June 2018[60]



US imported fresh sashimi prices to June 2018[61]



Crude oil, canning-grade frozen skipjack (SKJ) and frozen bigeye (BET) price index to July 2018[62]



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