PART 3 – VALUE-ADDED & OTHER TUNA PRODUCTS

8 FRESH & FROZEN VALUE-ADDED PRODUCTS

8.1 General Overview

Outside of Japan, the major markets for non-shelf-stable tuna are the European Union and the United States. Both markets rely heavily on tuna imports and support a wide array of products, from high end fresh tuna, to lower grade frozen, processed product used for catering sectors, supermarket sushi and increasingly, value-added\textsuperscript{767} tuna products. While fresh tuna consumption has increased in both markets over the last two decades, market growth is near, or at maximum capacity because of increased competition for tuna products, supply constraints, and the seasonality of products. Buyers express interest in new sources of supply. Suppliers are exploring new ways to serve the market, including the use of ultra-low temperature technological innovation. The markets for frozen tuna products are expanding and diversifying to include a wide range of product types. Trends on the horizon include further development of value-added products and the increasing role of certifications (food safety, as well as sustainability).

This chapter provides an overview of major trends in the EU and US markets for fresh and frozen value-added tuna products.

8.2 European Union

In the EU, fresh tuna products are supplied either to retailers as chilled pre-pack and fresh loins for their fish counters or to wholesalers in loin or whole (headed and gutted) form. The wholesale market is aimed primarily at the restaurant trade (especially for tuna, mahi mahi, etc). By far the most important tuna species for this product type in the EU is yellowfin, although in France and Spain albacore plays an important market role. The main imported product is chilled, vacuum packed, skinless and boneless yellowfin tuna loins, which are currently sourced primarily from the Indian Ocean.\textsuperscript{768} They are then processed and pre-packed in the EU according to retailer specification. Buyers do not import pre-cut fresh tuna steaks because of the loss of colour and freshness. Fresh tuna loins are also displayed on a supermarket fish counter and cut in front of customers. Table 8.1 offers a set of estimates by an industry professional for the EU retail market for non-canned tuna. Interestingly the top-four consumers of non-canned tuna products also lead per capita EU consumption of canned tuna (see Section 5.2.2).

\textsuperscript{767} The term ‘value-added’ refers to fresh-chilled or frozen tuna that has been processed into loins, fillets, steaks, medallions, blocks etc.

\textsuperscript{768} In trade statistics, this product type is classified as ‘fillets’ rather than chilled loins (see below).
Table 8.1 EU Non-Canned Tuna Market – Retail Sales Value ($US million) and Market Penetration (% Households), 2008

<table>
<thead>
<tr>
<th></th>
<th>Est. Value retail sales ($US m)</th>
<th>Market penetration (% Households)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>245</td>
<td>15%</td>
</tr>
<tr>
<td>France</td>
<td>210</td>
<td>15%</td>
</tr>
<tr>
<td>Italy</td>
<td>190</td>
<td>2.5-8%</td>
</tr>
<tr>
<td>UK</td>
<td>165</td>
<td>c.4%</td>
</tr>
<tr>
<td>Germany</td>
<td>96</td>
<td>c.4%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>47</td>
<td>n.a.</td>
</tr>
<tr>
<td>Scandinavia</td>
<td>15</td>
<td>n.a.</td>
</tr>
<tr>
<td>Switzerland</td>
<td>13</td>
<td>n.a.</td>
</tr>
<tr>
<td>Austria</td>
<td>12</td>
<td>n.a.</td>
</tr>
<tr>
<td>Portugal</td>
<td>7</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total</td>
<td>$1,000m (€780m)</td>
<td>--</td>
</tr>
</tbody>
</table>

n.a. = no data available
Source: Orsini 2010.

Unlike canned tuna and value-added shelf-stable seafood products, sales of fresh and frozen seafood in France are not dominated by supermarkets (Table 8.2). Eating out plays an important role for both fresh and frozen segments and institutional catering has a major share in consumption of frozen seafood. Of particular interest in France is the continued role of ‘traditional’ retail channels (i.e. fishmongers) in the sale of fresh fish. In Spain, per capita consumption of fresh tuna and bonito in 2005 was 0.8kg, totalling 33,580 mt. Of this, 79.5% was consumed in the household, 19.2% in hotels, restaurants and catering and only 1.3% in institutions such as schools, hospitals etc.

Table 8.2 Total Seafood Consumption in France by % Share of Distribution Channel, 2008

<table>
<thead>
<tr>
<th></th>
<th>Fresh</th>
<th>Value-Added</th>
<th>Frozen</th>
<th>Canned</th>
<th>Total Seafood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyper/supermarkets</td>
<td>51.5</td>
<td>90.6</td>
<td>57.6</td>
<td>89.5</td>
<td>65.2</td>
</tr>
<tr>
<td>Traditional</td>
<td>18.8</td>
<td>3.1</td>
<td>0.0</td>
<td>0.0</td>
<td>8.2</td>
</tr>
<tr>
<td>Restaurants</td>
<td>27.8</td>
<td>5.3</td>
<td>16.2</td>
<td>5.3</td>
<td>17.6</td>
</tr>
<tr>
<td>Institutional catering</td>
<td>1.9</td>
<td>1.0</td>
<td>26.3</td>
<td>5.2</td>
<td>9.1</td>
</tr>
<tr>
<td>Total Volume (mt)</td>
<td>377,895</td>
<td>163,750</td>
<td>263,221</td>
<td>123,064</td>
<td>927,930</td>
</tr>
</tbody>
</table>

Source: Author’s calculations based on Seafish 2009: 12.
In the UK, tuna was the only tropical fish in the top ten fresh seafood species in terms of retail value sales in 2009 (salmon was ranked first and warm water prawns second). Fresh tuna was in eleventh position in volume sales, indicating its relatively high value per unit. Tuna was the fourteenth most popular frozen seafood both in terms of volume and value.

While there is a general growth trend for seafood in the UK food service sector, one buyer noted that tuna market growth has now evened out, having grown rapidly over the past 15 years. Both fresh and frozen tuna products have declined in volume and value sales in the three years between 2007 and 2009 (see Table 8.3). This could potentially stem from the impact of declining consumer demand in the face of the economic downturn, supply constraints, as well as a wider range of seafood products coming onto the market, which has watered down demand for tuna products.

Table 8.3 UK Non-Canned Tuna Sales in Value and Volume, 2007-2009

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2007-2009 % Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh Tuna</td>
<td>Value (£’000s)</td>
<td>44,207</td>
<td>41,230</td>
<td>36,891</td>
<td>-16.5%</td>
</tr>
<tr>
<td></td>
<td>Volume (mt)</td>
<td>2,141</td>
<td>2,164</td>
<td>1,933</td>
<td>-9.7%</td>
</tr>
<tr>
<td>Frozen Tuna</td>
<td>Value (£’000s)</td>
<td>5,143</td>
<td>3,805</td>
<td>3,566</td>
<td>-30.7%</td>
</tr>
<tr>
<td></td>
<td>Volume (mt)</td>
<td>696</td>
<td>476</td>
<td>439</td>
<td>-36.9%</td>
</tr>
</tbody>
</table>


UK buyers emphasise that quality is their primary demand, noting that it is a more important determinant in procurement decisions than price (albeit of course, within certain parameters). These buyers’ expectations of supplier’s processing facilities in terms of quality standards are very high. They consider the meeting of EU regulations as a basic requirement. For one buyer, ‘exporters must be prepared to exceed EU demands’; nonetheless, they went on to point out that they ‘look for businesses with EU approval and work with them to improve to meet our requirements’. On top of EU SPS and food safety standards, suppliers also have to meet a range of private quality standards, in particular those set by the British Retail Consortium (BRC). One buyer noted that if a supplier did not meet BRC standards ‘we wouldn’t even begin to talk’.770

Sushi has become a mainstream product in the UK. The total sushi market was worth £38.9 million in the 52 weeks up to mid-July 2008, which represented a 21% growth from the previous year.771 There was only one sushi restaurant in the UK in 1974, but by 2008 there were an estimated 350.772

It is impossible to provide formal data on the EU import market for fresh-chilled tuna ‘fillets’ because import data is not species-specific.773 Instead tuna ‘fillets’ (e.g. fresh chilled vacuum packed loins) are imported under a generic tariff heading.774

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770 Various pers. comm., 2008.
771 Seafish 2008f.
772 Hoby 2008. See Chapter 7 for a more detailed discussion on sashimi markets.
773 Appendix 6 provides the full range of EU tariffs (including as applied under trade preference schemes) for non-canned tuna fish products of relevance to PICs (i.e. those falling under Chapter 03 of the Harmonised system of tariff classification (HS)).
774 Aside from bigeye and bluefin, fresh or chilled tuna ‘fillets’ do not have a unique HS code (see Appendix 6). It is known from industry sources that other tuna species (i.e., yellowfin) are imported under the tariff line ‘other fresh chilled salt water fish fillets’ (HS Code 0304.1939.90).
A specific tariff code is applied to frozen tuna ‘fillets’ for direct consumption (e.g. tuna steaks), which although they may be in ‘loin’ form are differentiated from loins for canning (see Section 5.2.1) because they are not pre-cooked. The data in Figure 8.1 includes frozen bigeye ‘fillets’ and of ‘other’ species of tuna, which are probably primarily yellowfin (see Appendix 4). The data indicates that the price of frozen tuna ‘fillets’ rose from €3,079 per tonne in 2000, to €3,425 in 2004, and to €4,630 in 2009; or an increase of around 27% in the ten-year period 2000-2009. During the same period, import volumes of frozen tuna fillets have increased from just under 4,000 mt in 2000 to around 8,500mt in 2009. The price increase since 2006-07 might be explained by the relative decline in yellowfin catch in the Indian Ocean in c.2007 – the main source of tuna fillets for the EU markets. During the same period, import volumes of frozen tuna fillets have increased from just under 4,000 mt in 2000 to around 8,500mt in 2009.

Figure 8.1 Total EU27 Imports of Frozen ‘Fillets’ of Tuna, 1995-2009


Trends in sources of supply for the two major EU import markets for frozen tuna fillets (France and the UK) are detailed in Figures 8.2 and 8.3 respectively. Data is provided for 2002 to offer a medium-term perspective of changing supplier-countries, and a comparison of 2007 and 2009 illustrates short-term changes. Sri Lanka is the major player in supplying the EU market with this product segment. Industry representatives based there and in the Maldives have made clear that duty-free tariff preferences (GSP+ for Sri Lanka, Everything But Arms for Maldives) are of central commercial importance, not least in overcoming other cost disadvantages (compared to Southeast Asian production) such as relatively high transport costs. 777

775 Eurostat 2010.
776 For more information on EU tariff preferences see Campling et. al. 2007.
777 Fernando 2006; personal communication with Maldivian and Sri Lankan industry representatives in 2006 and 2008.
Exporters from Maldives, Oman and Sri Lanka all indicated that they would like to export more tuna products to Europe, but are limited by the seasonality of tuna fisheries in the Western Indian Ocean. Political instability has reportedly seriously affected the industry in Yemen. Conversely, the end of the civil war in Sri Lanka may improve this country’s dominant position in this tuna product segment.

South Korea and China have also both emerged as major suppliers of frozen tuna fillets in recent years. The role of China is driven by it being a competitive site of production and its expansive fleet of longline vessels. South Korea also boasts a large tuna fleet, but it is a relatively high cost location of production for labour intensive non-canned tuna products. Vietnam is a competitive location for labour-intensive production and it has recently registered substantial growth in processing facilities (to the extent that processors are often producing well under capacity).778

Some ultra low temperature (ULT) product is finding its way to the EU market, which is defrosted and can be legally retailed as ‘fresh’, although the packaging makes it clear that it was originally frozen. ULT cold stores are being created in the UK and the market potential is currently small, but increasing (apparently there is a similar situation in Belgium). Reportedly ULT infrastructure is already in place in the Netherlands and Spain.779 While establishing a ULT cold chain is a highly complex and expensive project in infrastructure development, it is an important area of market development and suppliers will have to meet these new demands in order to access high value markets.

778 Campling et. al. 2008.
Figure 8.2 France Imports of Frozen Tuna ‘Fillets’ by Major Supplying Country (2002, 2007, 2009)

Figure 8.3 UK Imports of Frozen Tuna ‘Fillets’ by Major Supplying Country (2002, 2007, 2009)
8.3 United States

The most common non-shelf-stable tuna products in the US market are fresh and frozen whole fish and value-added products (i.e. tuna fillets, steaks and saku blocks). The vast majority of product consumed in the US market is imported (Table 8.4).\textsuperscript{780} In 2009, the total volume of US fresh and frozen tuna imports into the US was 27,000 mt, valued at just over US $200 million. Both the volume and value of fresh and frozen tuna imports declined between 2008 and 2009, likely as a result of reduced household expenditure on luxury food items given recessionary pressures.

Table 8.4 US Imports of Fresh and Frozen Tuna by Volume ('000 mt) and Value ($ US million), 2006-2009

<table>
<thead>
<tr>
<th>Year</th>
<th>ALB</th>
<th>BET</th>
<th>BF</th>
<th>SBF</th>
<th>SKJ</th>
<th>YFT (dressed)</th>
<th>YFT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>06</td>
<td>1.5</td>
<td>5.3</td>
<td>6.4</td>
<td>39.7</td>
<td>1.2</td>
<td>19.0</td>
<td>0.1</td>
<td>2.4</td>
</tr>
<tr>
<td>07</td>
<td>1.1</td>
<td>5.9</td>
<td>7.1</td>
<td>45.5</td>
<td>1.3</td>
<td>17.9</td>
<td>0.2</td>
<td>2.9</td>
</tr>
<tr>
<td>08</td>
<td>2.3</td>
<td>7.7</td>
<td>8.1</td>
<td>46.7</td>
<td>0.5</td>
<td>11.6</td>
<td>0.1</td>
<td>2.6</td>
</tr>
<tr>
<td>09</td>
<td>2.2</td>
<td>6.5</td>
<td>6.6</td>
<td>44.1</td>
<td>0.5</td>
<td>9.7</td>
<td>0.2</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Source: NMFS 2009.
\textsuperscript{a} Includes both head-on and head-off dressed YFT.
Note: Does not include data on non-specified tuna imports or tuna in airtight containers. Data is for all imports, including tuna for the sashimi and sushi grade markets (see Chapter 7).

The US has a commercially significant market for value-added tuna products. Specific import data for these products is not available, but data on domestic production of fillets and steaks is presented in Table 8.5. Frequently, domestic firms import fresh and/or frozen whole fish (or headed and gutted), process and repackage them to retail outlets or restaurants. Lower quality tuna steaks are becoming increasingly popular in supermarkets and restaurant chains.\textsuperscript{781}

Table 8.5 US Production of Tuna Fillets and Steaks by Volume (mt) and Value ($US million), 2006-2009

<table>
<thead>
<tr>
<th>Product</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MT</td>
<td>$US m</td>
<td>MT</td>
<td>$US m</td>
</tr>
<tr>
<td>Tuna Fillets</td>
<td>3,255</td>
<td>57.0</td>
<td>3,177</td>
<td>49.8</td>
</tr>
<tr>
<td>Tuna Steaks</td>
<td>1,352</td>
<td>11.1</td>
<td>1,393</td>
<td>12.8</td>
</tr>
</tbody>
</table>

Source: NMFS 2007: 44; NMFS 2009: 44.

\textsuperscript{780} NMFS 2009: xi.
\textsuperscript{781} Interviews, US tuna wholesalers and distributors, 2010; Campling et. al. 2007: 299-304.
Frozen products have increased in significance over the last ten years, driven by the introduction and extensive use of carbon monoxide (CO) treated tuna in the US market. CO treatment, which is prohibited in Europe, enhances the red colour of the tuna flesh, which consumers associate with tuna quality. CO treatment has benefited firms dealing in frozen tuna by stabilising pricing and supply and offering consumers a lower-priced option in comparison with fresh tuna; product is primarily used for ‘supermarket sushi’, steaks for restaurants and the catering sector, saku blocks and ground meat for use in sushi rolls. CO-treated tuna products have fuelled significant growth in supermarket and food service sushi items and the market is reportedly growing rapidly, though no data are available on trends.

Despite its prominence and growth, treated tuna is controversial as it has been accused of misleading consumers on the quality and freshness of the product. Many wholesalers and distributors and some retailers that deal in fresh and frozen tuna have refused to carry CO treated fish over food safety and freshness concerns. Nevertheless, consumers often are unaware when they are purchasing treated tunas. When marketed as ‘seared ahi’, treated tuna has high consumer acceptance, arguably because consumers assume they’re being served fresh fish.

Several trends are on the horizon of relevance to the fresh and frozen segment of the US market. Reportedly the frozen market is expanding in value-added ready-made products that are boxed in single servings and include flavourings, though there are no data available on the prevalence of such products. In response to increasing demand for ‘sustainable’ seafood, some exporters and distributors are looking to source fresh and frozen tuna (as well as other fish) that has been certified as sustainable (e.g. by the Marine Stewardship Council, see Chapter 10). Sustainability is expected to continue to be an important and growing consideration. Related, and linked to larger concerns of food safety and food regulations, industry is carefully watching a trend towards increased traceability for tuna products.

8.4 Implications for PICs

As discussed in Chapter 7 (see Section 7.4), fresh tuna products have become year-round fare in high-demand in both the US and EU markets, despite tuna fisheries often being seasonal and unable to provide steady streams of supply. This presents a significant opportunity for PIC suppliers of fresh-chilled and frozen tuna and tuna products. One UK buyer stressed that, “If we find someone who could regularly supply 10 tonnes of tuna per week I’d be dancing on the roof”, which supports the point by a separate buyer that, “while summer is the high season, chilled tuna steaks are now a year-round product”. Another buyer noted that in early May to mid-August “the price goes through the roof”, and that “in this period new entrants could break in, or [in any period] if they can offer product below the market price”. However, a third buyer emphasised that “the trend is always for an increased price and we expect that to be the pattern going forward”, but that this element “will limit the attractiveness of tuna to the customer”.

Frozen products are also reported to be growing in both markets, and with them, opportunities for new innovative products, including from PICs. For example, in the UK sales of frozen value added meals using tuna have expanded, demonstrating that there might be market opportunities for processed frozen tuna which is not for reprocessing into cans.
From the perspective of the PACPS, the EU27 market for frozen tuna fillets has grown in significance over the past four years. Fiji, in particular, has registered exponential growth of almost 95% between 2005 and 2007 from 34 mt to 669 mt\(^784\) (prior to suspension of exports to the EU of fish and fish products in 2008, due to problems encountered with the Competent Authority). Combined with the examples of French Polynesia and New Caledonia which have been exporting significant quantities of frozen tuna ‘fillets’ for several years, this indicates that the high sea-freight differentials can be overcome.

Trends in fresh and frozen tuna markets in the US and the EU point to considerable potential for PIC firms to supply the growing demand for tuna. However, several challenges face PIC firm market penetration:

- sanitary and phyto-sanitary standards in the EU;
- implementing sustainable fishing techniques for some US and Northern European markets; and
- remaining competitive despite high airfreight costs.

Compliance with strict EU SPS standards is by far the most important barrier to entry facing PIC fish exporting firms. It is beyond the scope of this report to go into detail on the requirements here, but it is worth noting that not only does a local competent authority and appropriate domestic legislations have to be in place, but vessels supplying fish, as well as processing/exporting facilities, have to meet certain requirements. In addition to the fact that a supply of SPS compliant fish cannot be guaranteed, it is also important to stress that failings on the part of local competent authority’s (as has been the case for Fiji) can result in preferential market access and improved RoO becoming temporarily worthless.

The introduction and maintenance of more ‘environmentally friendly’ fishing techniques is a key area for consideration by buyers in the US and several northern European countries (e.g. Germany, Holland, the Scandinavian countries and the UK). All UK buyers of fresh-chilled tuna consulted for a prior study pointed out that they would only procure from line-caught fisheries and some favoured artisanal/small-scale fisheries, based upon the assumption that they are more sustainable.\(^785\) The implementation of other environmentally friendly practices in PIC tuna fisheries such as the use of circle hooks, turtle exclusion devices and other by-catch mitigation measures would certainly make it a more desirable source of supply for US and Northern European buyers. While this may not translate into a price premium in the short-term, the rise of sustainability concerns among EU and US consumers and associated sustainability commitments by major retailers, means that forward planning in this area may pay dividends. Nonetheless, at a minimum, UK buyers are ‘looking for proven quota-based and well managed fisheries’. Marine Stewardship Council certification may not be essential; instead, line-caught and sustainably managed [supply] may be sufficient.\(^786\) Two major buyers noted that they check foreign flag activity in the fishery they are procuring from, and assess the degree of transhipment (as more transhipment equates to higher risk regarding sustainability criteria), as well as the relative risk of IUU-caught fish entering the supply chain.

\(^784\) Eurostat 2010.
\(^785\) Campling et. al. 2008; Seafish 2008.
\(^786\) Pers. comm., 2008.
Air miles are another popular concern among UK consumers and may increasingly affect demand for air-freighted product. This issue may be of concern to PICs, given the considerable distance between PICs and the UK.

One of the biggest constraints facing PIC firms is remaining competitive despite high airfreight costs. Some Fiji-based firms and firms based in French Polynesia and New Caledonia have overcome this constraint, in part because each country has very good flight connections to the EU, and in the case of the French territories, concessionary freight rates. To overcome airfreight costs issues, PICs could look more into the export of frozen tuna products by sea, including the growing market for ULT product.

For an overview of the food miles debate, see FFA Fisheries Trade Briefing, May 2008 (1:6) and June 2008 (1:7).
9 OTHER PRODUCTS – KATSUOBUSHI

9.1 General Overview

In addition to shelf-stable and fresh-chilled and frozen products, another notable product utilizing tuna, which is unique to Japan, is katsuobushi – flakes or shavings of dried and smoked skipjack (bonito) tuna, used widely in Japanese cooking as a condiment and as a key ingredient in soup broths (dashi) and sauces. The use of katsuobushi in Japanese cuisine is steeped in tradition as its origins date back as early as the Muromachi period (1336-1573).

Katsuobushi is made from the boiling, drying, smoking and fermentation (moulding) of skipjack tuna and is broadly categorized into three main product types:

- **Honbushi** – boiled, smoke-dried and moulded loins that are sold as whole pieces (fushi) and shaved in restaurants/homes prior to use as a condiment/soup stock.
- **Arabushi** – intermediate product; boiled and smoke-dried loins (no moulding) that are pre-shaved at a factory and packaged in plastic bags for immediate use as hanakatsuo (a lower quality, cheaper grade of katsuobushi shavings).
- **Namaribushi** – intermediate product; boiled, used as whole loins or bite-size pieces as an actual dish (rather than a condiment/soup base).

Following is an overview of Japan’s katsuobushi industry, including the current status of processing operations and future industry prospects.

![Honbushi](https://www.en.wikipedia.org/)

9.2 Current raw material sources

Previously, around 200,000 mt of raw material was required annually for domestic katsuobushi production in Japan. However, over the past five years or so, raw material requirements have declined to around 160,000 mt, due to decreasing consumer demand, as well as an increase in the volume of imported katsuobushi products.

Katsuobushi production ideally requires skipjack tuna with a low fat content. Hence, the majority of raw material is sourced from vessels fishing in the tropical waters of the WCPO, which has a lower fat content than skipjack sourced from more temperate waters around Japan. Historically, raw material for katsuobushi production was supplied by Japan’s pole and line fleet.
However, with the development of the WCPO purse seine fishery during the 1980’s and related significant decline in the Japanese pole and line fleet, skipjack for katsuobushi production is now supplied mainly by the Japanese purse seine fishing fleet. Eighty to ninety percent of raw material (around 140,000 mt/year) is currently sourced from Japanese purse seine vessels (which accounts for around 60% of the Japanese purse seine fleet’s total annual catch) (See Section 2.2).\textsuperscript{788} Purse seine catch is mostly purchased by katsuobushi processors by auction at producers’ markets in the major skipjack landing ports (i.e. Yaizu, Makurazaki and Yamagawa). Katsuobushi processors also purchase raw material directly from vessel operators and through trading companies.

While the majority of skipjack catch from Japan’s distant water pole and line vessels (27 vessels in 2010) is sold for sashimi, small volumes of high quality skipjack are supplied to katsuobushi processors (~2,000-3,000 mt).\textsuperscript{789} Industry sources indicated that Japanese consumers prefer katsuobushi manufactured from pole and line caught skipjack due to a perception that the quality is higher, as well a traditional association of pole and line fishing with katsuobushi production. However, given the pole and line fleet has decreased over time and will likely continue to supply the majority of its catch to Japan’s sashimi market, purse seine caught skipjack will continue to dominate supply.

Raw material is also imported from other fleets (both purse seine and pole and line). In 2007, 14,000 mt was reportedly imported,\textsuperscript{790} with at least a portion of this volume sourced from the Taiwan-associated component of the Marshall Islands purse seine fleet (see Section 2.12.3), as well as from Indonesian pole and line vessels. Industry sources indicated that around 16,000 mt is currently sourced through imports.

### 9.3 Current processing operations status

Since the mid 2000’s, total annual domestic production of katsuobushi products in Japan has ranged between 35,000-40,000 t (net finished weight) (Table 9.1). In 2009, the total volume produced domestically was around 36,000 t.

<table>
<thead>
<tr>
<th>Year</th>
<th>Production - Finished Weight (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>38,258</td>
</tr>
<tr>
<td>2005</td>
<td>40,084</td>
</tr>
<tr>
<td>2006</td>
<td>38,735</td>
</tr>
<tr>
<td>2007</td>
<td>34,662</td>
</tr>
<tr>
<td>2008</td>
<td>35,587</td>
</tr>
<tr>
<td>2009</td>
<td>36,000\textsuperscript{a}</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Provisional estimate  

\textsuperscript{788} Multiple interviews, Japanese industry representatives, June 2010.  
\textsuperscript{789} Author’s own estimate.  
\textsuperscript{790} Shima & Kawamoto 2010.
Katsuobushi processing in Japan is concentrated in three main sites, which collectively account for around 95% of total production – Yaizu (Shizuoka Prefecture), Makurazaki and Yamagawa (Kagoshima Prefecture). Makurazaki is the largest processing site of the three (15,000 t in 2010), while Yaizu and Yamagawa have similar processing capacities (both 10,000 t in 2010). Processing also takes place at various other sites around Japan, but on a comparatively smaller scale (2,000t in 2010). The katsuobushi processing sector is characterised by several large production facilities and many small, often family-run, operations. Collectively, there are at least 180 factories in Yaizu and Makurazaki.

Final product (i.e. honbushi) cannot be imported, due to Japanese regulations which specify that moulding must be conducted by Japanese factories to minimise the quarantine risk associated with importing overseas moulded product. However, intermediate product (arabushi) is imported from a number of overseas processing sites including Indonesia, Philippines, China, Vietnam and the Maldives. The Solomon Islands formerly supplied arabushi to Japan, but the processing facility was damaged in 2007 and currently remains inoperable (Section 9.4). In 2002, the volume of imported katsuobushi was around 4,500 t. In 2009, total imports reached 6,660 t, with Indonesia and Philippines being the major suppliers of 3,418 t and 1,694 t, respectively. Japanese katsuobushi producers’ most preferred overseas sources of processed product are Indonesia and the Philippines, as they are reportedly the best at maintaining quality.

Of the various katsuobushi products, the production of flaked and sliced products from arabushi (kezuribushi) accounts for around 60-75% of total production, while honbushi production volumes are low at around 3,000 t/year, mostly for use by expensive restaurants. The remaining production is processed into soup stock powder (dashi nomoto) and liquid/broth (mentsuyo).

Given the decline experienced in consumer demand, increasing competition from imports and rising production costs, in recent years, Japanese katsuobushi processors’ profitability levels have suffered considerably. As a means of cutting costs and creating economies of scale, large production facilities were established. However, this has created productive overcapacity and has led to oversupply, which has resulted in a downward trend in prices.

9.4 Fishing and processing links to WCPO

As mentioned, Japan’s katsuobushi processing industry relies heavily on raw materials caught in WCPO waters by the Japanese purse seine fleet (and to a much lesser extent the Japanese distant pole and line fleet), as well as imported skipjack from other fleets, also operating in WCPO waters.

Indonesia’s pole and line fleet has been a notable source of imported raw material for Japanese processors. In addition, Indonesia is now the most significant katsuobushi processing site outside of Japan (currently supplying around 3,500 t).
Industry sources report that there are currently six katsuobushi processing companies operating in Bitung, with each facility employing Japanese nationals on staff to train local workers in an effort to maintain quality.799

Solomon Islands has a long history of supplying processed product to the Japanese katsuobushi market. Since the commencement of tuna processing operations in the 1970’s, Solomon Taiyo (now Soltai) operated an arabushi processing plant, in addition to canning/loining facilities. Soltai had the largest overseas arabushi processing facility, utilising raw materials caught by its pole and line fleet. By Japanese standards its quality was considered to be standard, however, in comparison to other suppliers outside of Japan (e.g. Indonesia, Philippines), it was deemed to be the highest quality of all imported product.800 Since the 1980’s, production was under contract to Japan’s largest katsuobushi manufacturing company, Yamaki. During the 1990’s, Soltai supplied 17-18 containers per month (equivalent of around 1,000-1,200 mt per year). In 2000, following the Solomon Island’s ethnic tension and subsequent withdrawal of Maruha from Soltai, a strategic alliance was established with Soyo Sansho, a subsidiary company of Yamaki, which handles overseas katsuobushi production and procurement. From 2000-2005, annual production was around 1,000 mt (8-10 containers per month).801 In 2006, katsuobushi production was suspended while Soltai and Soyo Sansho reviewed contractual arrangements. Processing operations were yet to resume, when the plant was badly damaged in April 2007 by an earthquake and tsunami experienced in Western Province. Since this time, Soltai has ceased processing katsuobushi and it is unknown at this stage if production will recommence in the future.

In late 2009, a joint venture fishing operation entitled the ‘Yamagawa Project’ was established for a two-year trial period in PNG between one of Japan’s major purse seine fishing companies, Kyokuyo Suisan and PNG-based, Philippines company, Frabelle.802 Under the project, half of the vessel’s catch is to be supplied to Frabelle’s tuna processing facilities in Lae and General Santos, while the other half is to be exported to the Yamagawa market in Japan for katsuobushi production. The purpose of the joint venture project is reportedly three-fold: to facilitate islandisation of the Japanese purse seine fleet; to open a new market channel for PNG-based fishing operations; and, to introduce new purse seine fish harvesting and handling technologies developed by Japan to local vessels in PNG.

9.5 Major markets

Katsuobushi accounts for almost 25% of total tuna consumed in Japan annually.803 Given katsuobushi products are so culturally ingrained in Japanese cuisine and the market is mature, this relative trend is long-standing and unlikely to change. However, like canned tuna and sashimi consumption, the actual volume of katsuobushi products consumed annually is steadily declining, due to an aging population and low population growth.

799 Interview, Japanese katsuobushi industry representatives, June 2010.
800 Contributing factors to Soltai’s production quality was the availability of pole and line caught skipjack with low body fat, as well as the use of local coastal timbers for smoke drying that were hot-burning. Barclay 2008.
801 Interview, Milton Sibiospere (former Soltai Managing Director), May 2006.
802 Under the ‘Yamagawa Project’, Kyokuyo Suisan and Yamagawa Fisheries Cooperative have chartered out a Japanese purse seiner (Wakaba Maru No. 8) to Frabelle, which Kyokuyo Suisan and Frabelle jointly operate.
803 In 2007 and 2008, katsuobushi consumption was reported to be 23% of total tuna consumed in Japan, with sashimi and canned tuna accounting for 60% and 17% respectively (in whole round equivalent). Shima & Kawamoto 2008, 2010.
The major retail market for katsuobushi products is the supermarket sector, with products sold under major national brands, including Yamaki, Marutomo, Nimben and Yanagia. Product is also sold in regional markets under producer place brands (e.g. Yaizu). The restaurant and catering sector is another important market outlet.

Katsuobushi is a primary product that is purchased by reprocessing facilities for further processing into other products including shaved flakes/slices, soup stock powder and liquid/broth. Industry sources provided an overview of the current market status of each of these products:

- **Shaved/sliced katsuobushi (kezuribushi)** – a very traditional product (oldest market for katsuobushi products); production is highly technical and profit margins are tight. The larger players dominate this market accounting for 80% of production (Yamaki, Marutomo, Nimben and Yanagia). Given the market is mature demand has been stagnant for some time.

- **Soup stock powder (dashi nomoto)** – used to be a high volume, high margin market, but with many companies entering this sector competition has significantly increased, resulting in lower prices and subsequently, lower profit margins. The powder market is the second oldest market and demand is leveling off.

- **Liquid/broth (mentsuyo)** – relatively new product introduced in the last 30 years or so; but demand is now leveling off. Due to an increasing number of market participants, downwards pressure is being placed on prices and profit margins.

Japanese consumers’ katsuobushi purchasing decisions are driven by perceptions concerning quality. As mentioned, Japanese consumers consider katsuobushi products manufactured from pole and line-caught skipjack to be of a higher quality than products utilising purse seine-caught skipjack. One company indicated that in order to capitalise on consumers’ preference for pole and line-caught product, they use a specific label on their products which are manufactured using raw materials sourced from pole and line vessels.

Product origin is also very important to Japanese consumers and there is a perception that imported products are of lesser quality than those processed domestically. According to industry sources, products labeled ‘Made in Japan’ fetch higher prices than those using overseas processed product. Currently, Japanese Government regulation specifies that it is mandatory to include country of origin labeling on the packaging of shaved/sliced products, whereas this is not a requirement for stock powder and liquid. Also, so long as moulding is carried out in Japan, the product is deemed to be ‘Made in Japan’, irrespective of the arabushi being sourced from overseas processors. Some level of discord has developed within the katsuobushi processing industry concerning ‘loopholes’ in the current country of origin labeling rules and the national katsuobushi association is working closely with the Japanese Government to try to resolve the issue.

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804 Yamaki is Japan’s top katsuobushi brand, accounting for 12% market share. Interview, Japan katsuobushi industry representatives, June 2010.
805 Interview, Japan katsuobushi industry representatives, June 2010.
806 One major brand indicated that it would ideally like to market its liquid/broth product at ¥ 380/100 ml bottle, but due to market forces, in mid-2010 it was retailing at ¥ 198/100 ml.
To date, katsuobushi exports from Japan have been very limited, given the products are so unique to Japanese cuisine.

9.6 Recent developments and future prospects

Until recently, the Japanese market for skipjack has been higher value than the Bangkok canning market (at times, often 10-20% higher) (Figure 9.1). The Japanese skipjack price is now more heavily influenced by the Bangkok price and the differential between the two markets is much lower. Previously, strong historical relationships between Japanese purse seine vessel owners and katsuobushi processors resulted in price premiums offered in the Japanese skipjack market. Japanese Government regulations also specified that Japanese-flagged purse seiners must return to Japanese ports to offload, also prompted Japanese purse seine companies to market their catch in Japan. However, more recently, and in the future, if the Bangkok market for skipjack is stronger than the Japanese market, then Japanese vessels will likely opt to export more product to Bangkok. This will continue to influence raw material supply arrangements for domestic katsuobushi production. Instead of relying so heavily on catch from the Japanese purse seine fleet, the volume of imported raw material, as well as imported processed arabushi will continue to increase.
Industry sources identified difficulties sourcing labour and high labour costs, as a major constraint for Japan’s katsuobushi processors. Like the canned tuna processing sector, it is becoming extremely difficult to attract Japanese nationals to work in katsuobushi processing plants and workers are aging (50-60 years old). While factory owners would like to employ more imported labour, current Japanese Government labour regulations makes this difficult. At present, under an arrangement between the Katsuobushi Association and the Department of Labour, processors are sourcing labourers from China and South America (i.e. Chile, Peru, Brazil) to work in factories for two year cycles under a training scheme, which currently accounts for up to 10% of the workforce. If labour sourcing issues cannot be resolved with a more permanent solution, this will also contribute to an increase in the level of katsuobushi processing activity outside of Japan. Increasing environmental standards may also influence the decision of processors to source greater volumes of imported product.

Given domestic demand for katsuobushi products is stagnant, industry sources indicated that several companies are working to develop export markets and have commenced marketing efforts with Japanese restaurants and supermarkets in other Asian countries (i.e. China, South Korea and Taiwan). Over time, there is an intention to extend marketing efforts to other South East Asian countries, as well as the US and EU. Developing export markets will take considerable effort, given the use of katsuobushi products to date is more or less limited exclusively to Japanese cuisine.

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807 Interview, Japan katsuobushi industry representatives, June 2010.
9.7 Implications for PICs

The WCPO will remain the major source of skipjack raw material for katsuobushi processing activities, both in Japan and other sites of production. However, given that Japanese katsuobushi market demand is stagnant and opportunities for export growth are very limited, overall raw material demand levels are likely to remain stable or even decline.

Depending on the success of the ‘Yamagawa’ joint venture fishing project established in PNG, this type of arrangement may be replicated by some other Japanese purse seine vessel operators, which may see commercial links developed between locally-based fishing operations and Japanese katsuobushi processors.

Given overcapacity already exists in the Japanese processing sector, there appears to be limited opportunities for PICs to establish katsuobushi processing facilities and expand exports from the region. Similarly, like the canned-tuna processing situation, Japanese investors are also likely to be reluctant to invest in new facilities in PICs. If production is to be shifted offshore from Japan, industry sources indicate it will likely shift to Mainland China.808

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808 Campling et. al. 2007: 277.
PART 4 – OTHER RELEVANT ISSUES

10 SUSTAINABILITY MOVEMENT

10.1 Overview

In the past several years, concerns over the health of tuna populations and resource sustainability have steadily become a part of mainstream debates in the tuna sector. Sustainability issues are directly influencing the nature of tuna production in the WCPO, and the industry more broadly. Four major sustainability movements are outlined in this section: sustainability certification schemes (also known as eco-labels), the industry-led advocacy organisation International Seafood Sustainability Foundation, the activities of environmental non-governmental organisations (eNGOs) and consumer information campaigns.

10.2 Sustainability Certification Schemes

An eco-label is a mark or a logo that identifies a consumer product as ecologically superior to commercially similar products. Since the 1990’s, several eco-labelling initiatives have been introduced in the fisheries sector and increasingly, are being applied to tuna fisheries. The goal of these efforts is to tap into market-based incentives to improve fisheries management systems and contribute to sustainability of fisheries resources, with various implications and outcomes for the tuna industry.

**Dolphin-Safe Labels:** This label, facilitated and enforced by the environmental non-governmental organisation Earth Island Institute, is so comprehensively a part of the canned tuna industry in the United States and much of the EU, that it is rarely thought of as an eco-label. Dolphin-safe labels are obtained by fishers when they self-declare that their fishing practices comply with the terms of the Dolphins Protection Consumer Information Act. The dolphin-safe label has widely shaped the nature of the tuna sector. For example, when it first came into effect and was accompanied by US legislation, it was the main impetus for the US fleet moving from the EPO to the WCPO, where tuna and dolphins do not naturally school together.

In addition, Mexican tuna products have essentially been barred from the US market for over twenty years because the Mexican fleet fishes on dolphin-associated schools in the EPO. Mexico has contested the dolphin-safe label at the World Trade Organisation and the United States has requested that the dispute be settled through the North American Free Trade Agreement (NAFTA), rather than at the WTO. Regardless of where the dispute is settled, if a decision were to deem the dolphin-safe label an illegal market access barrier, Mexican canneries would be able to access the US canned tuna market duty-free under the preferential terms of NAFTA, an eventuality that could substantially alter the structure of the canned tuna production cycle and market.

Some scientists have begun to express concern that the market imperative of ‘dolphin-safe’ product has negative ecosystem-level impacts because it has pushed vessels towards Fish Aggregating Devices (FADs), which have high incidental bycatch and catch high levels of juveniles. Despite these ecosystems concerns, the US processing industry indicates that it will still use dolphin-safe tuna since consumers recognise and demand the label.

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809 For more on the dolphin-safe label, see: http://www.earthisland.org/dolphinSafeTuna/consumer/.
813 Interview, US processing industry representative 2010.
The dolphin-safe certification is presenting a challenge for processing aspirations in the Solomon Islands. The Solomon Islands permits a live dolphin trade of 100 dolphin exports per year, mostly from Guadalcanal Province. Despite there being no link between tuna processing facilities and dolphin exports, Earth Island has indicated that until the Solomon Islands Government bans live dolphin exports, exports from any Guadalcanal-based tuna processing facility will not be deemed dolphin-safe.\textsuperscript{814} This is a serious concern, given the Solomon Islands Government is actively negotiating two tuna processing developments in Guadalcanal and generally seeks to further expand its processing sector (see Section 4.14). The Korean (Dongwon) and Filipino (Frabelle) investors have been actively lobbying the Solomon Islands Government to ban live dolphin exports, a step necessary to secure the dolphin-safe label that is critical for market access in the US and the EU.\textsuperscript{815}

**Marine Stewardship Council:** The Marine Stewardship Council (MSC) is an independent not-for profit organisation that was founded in 1997 through a joint effort from WWF and Unilever (a multinational corporation with large interests in fish retail products).\textsuperscript{816} In late-2010, the MSC had certified 95 fisheries and had an additional 133 fisheries in assessment. The MSC certification is based on a set of principles and criteria for sustainable fisheries and chain-of-custody certification (to ensure that MSC certified fish are distinct from non-certified fish throughout the entire supply chain from catch through to retailing). Notably, the MSC adopts the United Nations’ definition of ‘well managed fisheries’, the main principles of the FAO’s Code of Conduct for Responsible Fisheries and is in full compliance with FAO guidelines for voluntary eco-labelling schemes for fish and fishery products.\textsuperscript{817} Fisheries interested in MSC certification undergo a third-party assessment to determine if they qualify as a ‘sustainable’ fishery and what modifications (conditions) are necessary for compliance.

While enrollment in the eco-label scheme is increasing, certification is dominated by developed country fisheries, despite the fact that developing countries provide the vast majority of capture fisheries production, both for domestic production and export markets.\textsuperscript{818} The MSC is attempting to expand its eco-label to small scale and ‘developing’ fisheries through its ‘Fisheries Assessment Methodology’ which allows for assessment of data limited fisheries. The process starts with qualitative assessment in which certifiers gather expert opinion, including local ecological knowledge. The initial assessment can be followed with a semi-quantitative assessment based on productivity of the species concerns and its susceptibility to fishing gear.\textsuperscript{819}

Across the board, MSC certification has gained market relevance as major retailers have committed to selling MSC-certified products. For example, Wal-Mart pledged that all wild-caught fresh and frozen fish for the US market will be MSC certified by 2011. Though still a long way from meeting the commitment, by 2010, 55% of Wal-Mart’s seafood products were MSC certified.\textsuperscript{820} Interest in MSC-certified canned tuna is also growing rapidly, though available supply of sustainably certified raw material is a major constraint. The MSC indicates that there is significant unmet global demand for MSC certified tuna products and that certified tuna is one of its strategic priorities.\textsuperscript{821}

\textsuperscript{814} FFA Fisheries Trade News, April 2010 (3: 4).
\textsuperscript{815} Solomon Star 2010.
\textsuperscript{816} For further details on the MSC and progress of MSC certification process see: http://www.msc.org/.
\textsuperscript{817} Havice 2009: 288.
\textsuperscript{818} In 2001, developing countries were responsible for over 65 million mt of capture fishing production, while developed countries produced less than 30 million mt. World Bank 2004: 10.
\textsuperscript{819} FFA Fisheries Trade News, May–June 2010 (3: S6).
\textsuperscript{820} WalMart 2010: 38.
\textsuperscript{821} FFA Fisheries Trade News, May 2009 (2: 5).
Even without a large volume of MSC certified tuna available, several UK supermarkets have launched own-brand canned tuna ranges that make sustainability claims. For example, several markets source only pole and line caught canned tuna, including Marks and Spencer, Sainsbury’s and Waitrose, among others. Indications are that major retailers are seeking to supply pole and line caught tuna and are also receptive to broader MSC certification, though data on demand and the potential for price premiums of MSC certified canned tuna products are not available. The American Albacore Fishing Association (AAFA), an MSC-certified tuna fishery, indicates that the price premiums afforded by MSC certification have been critical to the survival of the pole and troll fleet. However, the higher fish price for AAFA’s product can translate into a 50% retail price increase for canned tuna, leading some industry members to fear that if pricing of MSC certified tuna is too high, brands and consumers may be pushed away.

Still, with market demand growing, suppliers of both canning and fresh-chilled/frozen tuna products have begun MSC certification processes for three main reasons. First, fisheries want to be prepared to deliver product, and perhaps capitalise on market leadership to supply the emerging ‘sustainable’ category; a category that has the potential to grow rapidly and perhaps become an industry standard. Second, MSC certification carries with it opportunity to tap into niche markets and their potential (but not guaranteed) price premiums that environmentally conscious, high-end consumers might be willing to pay to help make sustainable fishing profitable. Last, but not least, complying with certification guidelines for fisheries management has the potential to improve the sustainability of the fishery for the long-term, a factor of increasing importance given that many tuna populations are fully- or over-exploited. To access these potential benefits, however, fisheries must undergo what is often a time consuming and costly certification process.

In the tuna industry specifically, the Marine Stewardship Council is playing an increasingly significant role. In late 2010, there were five certified tuna fisheries; four albacore (pole and line, troll and jig) and one skipjack (pole and line) fishery. In addition, there were six tuna fisheries of multiple gear types undergoing full assessment for MSC certification, and at least one large scale-purse seine fishery in the pre-assessment phase (Ecuadorian fleet, see Section 2.11). Notably, in September 2010, the St. Helena pole and line and rod and line tuna fishery that was under full assessment was deemed to not be in accordance with the MSC standard; the first time a fishery has not met MSC criteria. The St. Helena failure occurred in part because ICCAT, the RFMO governing the fishery, offered insufficient stock management regulatory compliance mechanisms. This result highlights that in the certification process, individual fisheries are subject to the larger management failings in the regions in which they operate. According to one international fisheries specialist, ‘The [St. Helena] fishery is 400 tonnes caught with low impact gears, but it has failed because of ICCAT failures to manage any of the species.'
The fishery is probably totally sustainable, but external factors make it fail the certification process.\footnote{828}{Interview, International Fisheries Specialist 2010.}

In 2010, the PNA skipjack purse seine fishery for free swimming schools and log-sets (i.e. net sets that do not use artificial FADs) entered into full assessment under MSC. PNA hopes the MSC certification process will be completed in 2011 and, if the outcome is positive, PNA countries have indicated that they will consider developing their own branding options to promote the newly-minted ‘sustainable’ fishery.\footnote{829}{Freitas 2010b.} PNA countries are anticipating that the challenges will be well-worth the rewards of market access and potential price premiums. Some challenges may include:\footnote{830}{Interviews, International Fisheries Specialists 2010.}

- **Traceability** – the majority of vessels fishing on free-swimming schools also fish on FADs, and some operate in both EEZs and the high seas. Traceability systems will need to verify separation of FAD and non-FAD set catches (i.e. separate storage space for MSC-compliant catch with 100% observer coverage). Catch separation will also apply to carrier vessels, cold storage facilities and tuna processing sites receiving MSC-certified catch from the PNA purse seine fishery.\footnote{831}{Notably, ISSF has objected to MSC certified fish being caught on the same vessels in the same fishing trips as non-MSC certified fish, suggesting that defining ‘the fishery’ as only a subset of a fishing trip is ‘contrived and ignores the fact that the fishing vessel will have adverse impacts on retained and bycatch species’. Jackson 2010: 3.}

- **Conferring benefits and sharing costs** – since the majority of vessels operating in the PNA purse seine fishery are foreign vessels, PNA members will need to determine how best to ensure that they receive an equitable share of any benefits stemming from MSC certification. It is costly to carry out MSC certification, as well to maintain the certification (i.e. annual audits, complying with certification conditions). Again, since the majority of vessels currently operating in the fishery are foreign vessels, PNA members will need to determine how best to cover the associated costs.

- **Objections** – the MSC full-assessment process involves wide consultation with all fishery stakeholders and allows stakeholders the opportunity to challenge the certifying body’s decision and lodge objections. Environmental NGOs and the canning industry-led International Sustainable Seafood Foundation (ISSF—see below) have already begun to scrutinise the full assessment. ISSF, in particular, has loudly objected to the certification on grounds that the fishery is not sustainable;\footnote{832}{Susan Jackson 2010.} though the PNA office has suggested that ISSF objection reflects the threat that MSC certification poses to the industry.\footnote{833}{Freitas 2010c.}

- **Conditions** – all fisheries certified to date under MSC have had conditions attached (either conditions that need to be met within specified timeframes following certification or pre-conditions that must be met prior to certification being awarded). In meeting such conditions (e.g. improvements in fisheries management, changes to vessel operations), additional costs and time delays could be encountered. Conditions that might pose challenges for the PNA fishery include the lack of a formal management structures at the Western and Central Pacific Fisheries Commission-level, by-catch and the ecological status of bigeye (and to a lesser extent, yellowfin) populations.
Several additional tuna fisheries in the WCPO are in various phases of MSC assessment, including the New Zealand albacore troll fishery and the French Polynesian albacore fishery. Pending funding, Fiji’s longline-caught albacore fishery will also likely enter into full-assessment. These fisheries will be closely watching the PNA certification process to see if RFMO failings and eNGO and ISSF objections to tuna certifications prove as roadblocks for earning the eco-label.

Friend of the Sea: Like MSC, Friend of the Sea is a voluntary eco-label that is awarded through a third party certification process. As of late 2010, Friend of the Sea had certified over 30 fisheries, including fourteen tuna fisheries of a wide variety of gear types. The FOS certification scheme outlines ecological and regulatory requirements (including social accountability and carbon footprint reductions). It requires the target fish stock to not be overexploited and by-catch species must not be on the IUCN Red List. Certification also includes a chain of custody verification. From the WCPO, Frabelle PNG, a Philippine-owned fishing and canning venture based in Papua New Guinea has had its purse seine and handline fleet of 21 vessels certified by Friend of the Sea.

FOS certification has not received the sales commitments from large scale retailers that its competitor, the MSC, has. However, Italian retailer Esselunga has asked Friend of the Sea to audit and certify all seafood products sold in its stores, and FOS products are in retail outlets in Europe and the United States. Though the number of Friend of the Sea products is growing, so too are criticisms over the rigour of the certification scheme. Recent independent assessments have given Friend of the Sea low marks for governance structures and procedures, and the strength of its standards, and have highlighted that criteria are not clearly defined and lack specific parameters to assess compliance. However, given audit costs are comparatively low to MSC certification, makes the certification accessible to small-scale fisheries and producers in developing countries.

835 Seafood Source 2009.
836 Grandin 2009.
837 Accenture 2009.
In addition to MSC and Friend of the Sea, several smaller eco-label schemes have emerged from industry actors. One such example – the United Kingdom ‘Responsible Fishing Scheme’ – was developed by UK retailers, the UK Seafood Authority and the seafood industry and promotes ‘good operational and environmental practices’. In 2010, more than twenty Sri Lankan tuna vessels adopted the scheme to assist their access to the UK market.\textsuperscript{840} Industry leaders have decried the proliferation of sustainability certifications, suggesting that having multiple certifications and labels creates confusion in the consumer market and sends consumers mixed messages about tuna products. Industry representatives have expressed interest in a single set of global minimum sustainability standards as a means to address confusion and diminished confidence created by the rapidly growing numbers of competing programs.\textsuperscript{841}

\textbf{10.3 International Seafood Sustainability Foundation}

In 2009, leading players in the canned tuna industry collaborated with marine scientists and environmental NGOs to establish the International Seafood Sustainability Foundation (ISSF). The ISSF is comprised primarily of tuna processing firms and trading companies representing roughly 60\% of global tuna processing capacity\textsuperscript{842} and its mission is undertaking ‘science based initiatives for the long-term conservation and sustainable use of the tuna stocks, reducing by-catch and promoting ecosystem health’\textsuperscript{843}. The founding members of ISSF are Bolton Alimentary, Bumble Bee Foods, LLC/Clover Leaf Seafoods, MW Brands, Princes Ltd., Sea Value Co. Ltd., StarKist Co., Thai Union Manufacturing Co. Ltd./Chicken of the Sea International, Tri Marine International and WWF. In March 2010, Negocios Industriales Real NIRSA S.A. and FRINSA joined ISSF as participating companies, followed by Conservas Garavilla, S.A., and Jealsa Rianxeira S.A. in June.\textsuperscript{844}

ISSF is emerging as a major player in tuna management since the organisation represents some of the sector’s most powerful players, although players that have historically not had a voice in tuna management bodies. The ISSF serves to lobby RFMOs to adopt conservation measures based on scientific grounds. Members are also committed to adopting practices that can promote conservation and complement the efforts of RFMOs. Given its broad membership, ISSF holds the power to use members’ collective control over tuna processing to shape tuna management and production.

Since its founding, ISSF has enacted several conservation measures targeting IUU fishing and fish products and requires members to provide catch data to RFMOs to enhance scientific assessments.\textsuperscript{845} ISSF is a regular participant in RFMO and tuna conservation meetings and has tabled proposals urging stronger conservation measures, such as seasonal fishing closures. Though indicating that it fully supports FAO compliant eco-labels, ISSF has openly opposed the MSC certification process for the PNA skipjack fishery, on the grounds that the highly migratory species will have multiple fisheries operating in a single stock, that there is inconsistent management across the migratory route, that certified vessels will fish using both certified and non-certified methods (i.e. FAD fishing) during the same trip and there is insufficient monitoring to control for this complexity.\textsuperscript{846}

\begin{itemize}
  \item \textsuperscript{840} FishNewsEU 2010c.
  \item \textsuperscript{841} IUCN 2008: 5
  \item \textsuperscript{842} Email communication, ISSF representative 2010.
  \item \textsuperscript{843} Quoted from http://www.iss-foundation.org/aboutus
  \item \textsuperscript{844} Crispano 2010a,b.
  \item \textsuperscript{845} FFA Fisheries Trade News, March-April 2010 (2: 3&4).
  \item \textsuperscript{846} Atuna 2010r.
\end{itemize}
ISSF entrance into the tuna sustainability debate has come with speculation on the organisation’s motives. While ISSF members have an interest in the long-term sustainability of fisheries, critics question the conflict between ISSF’s commitments to environmental sustainability and its membership’s imperative to secure and expand access to fish resources, suggesting that ISSF is a mechanism for industry to position itself to influence policy in favour of its members. For example, the organisation’s objection to MSC certification has left some fearing that ISSF gives industry a forum to present itself as sustainable, while opposing third party independent certification schemes that industry cannot control, but that may present challenges and costs to the industry.847 There has been speculation that ISSF has been interested in developing its own eco-label and that it is working with major retailers to develop a sustainability indicator that is more appropriate for a purse seine fishery than those offered by MSC and Friend of the Sea.848 In addition, Greenpeace has questioned why, rather than simply urging IATTC to fix its at sea transhipment loophole, ISSF members have not used their considerable buying power and uniformly stopped buying tuna from fishing companies that engage in at sea tuna transhipment.849

The ISSF represents an important change in the tuna management and tuna sustainability debate. ISSF has the potential to strengthen RFMO conservation measures by adding a new and powerful source of pressure and expertise into the management debate. ISSF also stands to offer multiple gains for producers, as it at once reduces pressure to undergo external environmental certifications, gives industry a strong voice in management debates and offers industry an opportunity to approach sustainability concerns without fostering competition among firms. The innovation of the organisation has firmly placed tuna processing firms and trading companies in the centre of the tuna management discourse.

10.4 Environmental Non-Governmental Organisations

Environmental non-governmental organisations (eNGOs) are playing an increasingly important role in tuna management and the tuna industry by employing a wide array of strategies to encourage shifts towards conservation and sustainability in tuna fisheries. In addition to participating as observers and tabling statements at tuna management meetings, eNGOs conduct independent research, present policy recommendations to and collaborate with governments and industry, undertake direct and indirect government lobbying, and undertake direct action campaigns to act as watch-dogs and urge reform in fisheries production (e.g. tracking and reporting IUU vessels) and in retail markets (e.g. publicising information about seafood sourcing strategies).

Greenpeace has long been present in tuna conservation issues by participating in regional fisheries management meetings and monitoring fishing vessels in the high seas for IUU activities. In the fishing sector, Greenpeace has strongly pushed for a shift to pole and line fishing in the WCPO (though critics site the proposal as unfeasible due to bait and labour constraints, as well as catching inefficiencies relative to purse seining) and is lobbying distant water fishing nations to reduce their tuna catches.850
On the retail side, Greenpeace engages and pressures supermarkets, canned tuna brands and tuna traders to promote sustainability. For example, the organisation developed a sustainability ranking system for supermarkets. A year after publishing results, Greenpeace launched public action campaigns against those supermarkets that did not improve their scores and shift their sales away from unsustainable products. The organisation has also undertaken and published assessments of eco-label schemes, positioning itself as a sustainability expert.

As one of the founding organisations of both the MSC and ISSF, WWF is an important actor in the tuna industry and has plans to expand its influence in the WCPO region. More generally, WWF has been a leading voice in efforts to curb fisheries subsidies at the World Trade Organisation (WTO), a negotiation that while not tuna-specific, stands to impact the economic status quo in the fishing industry. WWF has played a critical role in shaping fisheries subsidies-related proposals and dialogue among WTO members. US-based Oceana has also been an active participant in the fisheries subsidies negotiations. Likewise, US-based Pew Oceans Commission has identified the WCPO tuna fishery as an emerging project focus and in 2010 was working to build its tuna program.

10.5 Consumer Recommendation Campaigns

Several fisheries interest groups, such as aquariums and eNGOs have developed sustainability recommendations designed to influence consumer buying patterns towards more sustainable products. While these are not eco-labels, per se, they offer consumers easily digestible recommendations on seafood products in three categories: those that are the best sustainability choices, those that are good and those that consumers should avoid. Sustainability is measured based on a series of criteria including, for example, management structure, fishery health and the impact of fishing, among other variables. This type of certification fills an important gap for retailers and food service providers that want to source sustainable seafood, but want to buy fish that aren’t yet certified by some of the eco-label schemes. Several of the organisations developing purchasing guides work with restaurants and major retailers to influence their buying patterns and to assist them in developing customised sustainable purchasing strategies.

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852 FFA Fisheries Trade News, August 2009 (2: 8).
853 For example, see Schorr 2004.
854 Interview, Pew representative 2010.
10.6 Implications for PICs

Sustainability is a growing concern in tuna fisheries in the WCPO, and globally. A wide array of organisations and regulations has emerged to address such concerns. New regulatory authorities (including eco-labels, industry and eNGO lobby efforts and consumer awareness campaigns) are significant in the global tuna industry and their influence is likely to increase. All actors stand to influence regulatory outcomes, production practices and consumption trends in major markets, and thus, should be taken seriously.

**Eco-labels:** Eco-labels are a well established and growing part of the fishing industry in general. They are expanding to the tuna sector with several fisheries undergoing certification for fresh, frozen and canned tuna products. There is growing market interest in eco-labelled tuna products, however, supply is the primary constraint in meeting this demand. As such, those fisheries undergoing assessment for canning grade tuna will be well positioned to meet market demand and to capture any price premiums that might emerge in the eco-label market, should these fisheries be deemed sustainable. Given that canned tuna is a very low margin item in all major markets, it is unclear if price premium opportunities will emerge for eco-labelled canned tuna. Another consideration is the negative publicity likely to be received should a fishery fail or withdraw from the assessment process. These are some factors that fisheries must take into consideration when deciding if they should undergo the time consuming and costly certification process. Furthermore, notably absent from the eco-label assessment process are socio-economic indicators that could encourage local investment, create jobs and boost local fisheries economies. Such social indicators are so far not included in most eco-labels, though retailers, particularly in the EU are beginning to require ‘social accounting’, including in the tuna sector.855

**ISSF:** Since the membership of ISSF has strong interests in the WCPO fishery, PICs can expect increased interaction with the organisation. ISSF is a potentially important ally in the push for enhanced sustainability and improved management at sub-regional and regional levels. However, ISSF’s opposition to one of the PNA group’s top priorities – MSC certification of the WCPO purse seine skipjack fishery – indicates that ISSF maybe representing its members’ interests (which includes its own definitions of sustainability); interests that may or may not align with those of PICs.

855 Campling et. al. 2007: 219
eNGOs: The sustained and growing presence of eNGOs in the WCPO tuna fishery, and tuna fishery more generally, reflects growing international concern over tuna sustainability, as well as a global shift towards increased participation of NGOs in resource management. For Pacific Island countries, eNGOs can be an important source of information and project collaboration, but their presence in management structures can also serve to increase the complexity of already arduous fisheries management processes. Notably, eNGOs are demonstrating increasing sophistication by applying diverse strategies and engaging with stakeholders throughout the entire global tuna supply chain.
11 DEVELOPMENTS IN THE INTERNATIONAL TRADE REGIME

11.1 General Overview

Since tuna is a globally produced and traded product, the industry is shaped by an increasingly complex suite of international and regional trade regimes. Some relate directly to the fisheries sector (i.e. WTO Fisheries Subsidies Negotiations, EU-IUU Fishing Regulation), while others are much broader in scope, but also have implications for fisheries (i.e. EU-Economic Partnership Agreement, Pacific Agreement on Closer Economic Relations).

The following chapter provides a brief overview on the current status of key fisheries-related international and regional trade issues, as well as some discussion on the implications for PIC’s tuna fisheries.

11.2 EU – Economic Partnership Agreement

11.2.1 Current Status

Since the mid 1970’s, former EU colonies in the African, Caribbean and Pacific regions (ACP) have enjoyed preferential market access for exports to the EU under the Lomé Convention, and more recently, the Cotonou Agreement. The EU’s primary stated rationale for offering preferential market access to ACP countries has been to boost industry competitiveness and promote development. Under the Lomé/Cotonou preference, PICs benefit from duty free access for processed tuna products (cans/loins), while competing exports are subject to a 24% tariff. For fresh and frozen processed products the margin of preference ranges from 15-22%. These tariff preferences have been critical in tuna fisheries development in PNG, Solomon Islands and Fiji, particularly for processed tuna.

Under the Lomé Convention (1976-2000), preferential market access was offered to ACP countries on a non-reciprocal basis. However, under WTO law, non-reciprocal trade agreements are deemed to be discriminatory to non-ACP developing countries. Hence, the Lomé Convention was replaced by commitments under the Cotonou Agreement to make ACP-EU trade relations reciprocal and complaint with the WTO by 2008. This eventuated in preferential trade arrangements being reformulated under a series of reciprocal Economic Partnership Agreements (EPAs). The ACP countries (77 in total) were divided into several sub-regions in order to negotiate separate EPAs. To date, only one comprehensive (full) EPA has been concluded between the EC and the Caribbean region (CARIFORUM), which covers trade relations for a number of sectors including goods, services, investment etc. All other agreements to date have covered only the reciprocal trade in goods. These interim EPAs (IEPAs) contain clauses committing both parties to continue negotiations towards comprehensive EPAs.
Regional negotiations between the EC and the 14 Pacific ACP States (PACPs) commenced in 2004 and fisheries issues have been a critical component. From the outset, the principle fisheries-related demands of PACPs in negotiations have been:

- ongoing preferential market access for fisheries products (particularly tuna);
- relaxed rules of origin (RoO) that deems fish to be originating regardless of where the fish is caught or vessel ownership (discussed further below); and
- assistance for development and investment promotion in the PACP fisheries sector.

In return, PACPs offered guaranteed fishing access for EU vessels in PACP waters (5% of total allocated purse seine effort) under a multilateral fisheries partnership agreement (MFFPA), which would serve as a head agreement to bilateral fisheries access agreements (Fisheries Partnership Agreements (FPAs) in EC terminology).

The EC, particularly the Directorate-General for Fish (DG Fish), rejected the PACP’s offer of comprehensive multilateral fisheries access, since EC purse seine vessels already had bilateral FPAs established with Solomon Islands, Kiribati and FSM. The EC also stressed that fisheries access and development assistance issues fall outside the negotiating mandate of the EC’s Directorate General for Trade (DG Trade) (and hence, EPA negotiations). The EC clearly stated that additional funding would not be available for development assistance beyond that which is available under existing general development cooperation funding mechanisms (i.e. EDF 10). Hence, the draft Fisheries Chapter has become a general agreement, rather than an agreement which includes specific provisions regarding access to fisheries resources, market access and development cooperation.

In 2007, PACPs were successful in negotiating simplified ‘global sourcing’ RoO for processed fish (HS Chapters 1604 and 1605, covering canned tuna and cooked loins) which permits PACPs to source fish from any vessel regardless of flag or where it was caught, provided it has been ‘substantially transformed’ by a PACP-based processing facility. This provision means that PACPs are able to source qualifying fish from a much wider range of vessels for onshore processing than under previous Cotonou Agreement rules of origin. For the EC this was a one-off and specific exception offered exclusively to PACPs because of their historical lack of ‘compliant’ fish under the prior RoO.

EC-PACP negotiations have been complex, drawn out and, at times, heated, resulting in an inability to conclude a comprehensive EPA by the end-2007 deadline. Fiji and PNG signed an interim EPA in November 2007 to ensure uninterrupted preferential market access into the EU for tuna (PNG, Fiji) and sugar (Fiji) exports from 1 January 2008. While the IEPA did not include a separate fisheries chapter, it contained global sourcing provisions for canned tuna and cooked loins (HS 1603/1604).

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859 For an overview of several fisheries components of EPAs, see Campling 2008b.
860 The EC Directorate-General for Fish (DG Fish) has been superseded by the Director-General for Maritime Affairs and Fisheries (DG Mare).
861 Under former RoO, only processed fish sourced from vessels flagged and registered by EU or ACP countries and 50% owned by nationals of these countries were eligible for the duty preference. The RoO were also met by any vessel catching within signatory countries’ territorial waters and (for PNG and the Solomon Islands) archipelagic waters.
862 While Fiji signed an IEPA for continued market access to the EU, fish exports were suspended in May 2008 due to non-compliance issues relating to the EU-accredited competent authority.
Rather than signing an IEPA, to date, Solomon Islands has opted to utilize its least-developed country (LDC) status under the EU’s Generalised System of Preferences (GSP) regime’s ‘Everything But Arms’ (EBA) agreement to maintain preferential market access (since, amongst other issues, signing the EPA has broader implications for other non-fisheries sectors, such as services). While the tariff preferences available to the Solomon Islands under EBA are comparable to those offered under an EPA/IEPA, Solomon Islands is not able to benefit from the liberalized rules of origin for processed tuna negotiated under the EPA. Hence, foreign investors looking to establish processing facilities in the Solomon Islands have been lobbying the Solomon Islands Government to sign an IEPA or the comprehensive EPA. The Solomon Islands is currently conducting an economic analysis and risk assessment to compare the benefits of their current EBA market access conditions with what could potentially be achieved under the IEPA or comprehensive EPA, with global sourcing RoO provisions.

A number of other PACPs are interested in improved market access for fresh-chilled and frozen fisheries products (HS 0304/0305), since these are high-value products in demand in the EU and are of critical developmental importance to those PACPs without canning or loining capacity. Global sourcing provisions were not offered for HS 0304/0305 under IEPA though, and as such, has been one of the contributing factors to these PACPs not wanting to sign an IEPA.

Negotiations are ongoing between the EC and full PACP membership for a comprehensive EPA, with PACP trade and fisheries officials now considering outstanding issues in drafting the legal text of the comprehensive EPA, including the fisheries chapter and improved market access for fresh-chilled and frozen fisheries products (HS 0304/0305). However, PACPs are reportedly growing increasingly frustrated by the slowness of negotiations.

11.2.2 Implications for PICs

**Fishing Access:** Access to fisheries resources is covered in Article 6 of the draft Fisheries Chapter and currently contains a provision that PACPs will discuss access for EC vessels of at least 5% of the total regional fishing opportunity granted to purse seine vessels under the Palau Arrangement (provided bilateral fisheries agreement are in place with PNA members). PACPs proposed the deletion of this article, given DG Fish’s original position that additional fisheries access in the WCPO is not a priority for the EU purse seine fleet. However, during negotiations in September 2009, DG Trade expressed surprise that PACPs wish to delete Article 6 since it was first introduced by them. The EU also stated that it considers negotiations concerning global sourcing RoO to be linked to Article 6, so believe this article should be retained.864 This is of serious concern to PACPS, since relaxed RoO seem to be the one remaining tangible fisheries-related benefit of concluding a comprehensive EPA, especially given that additional development assistance has dropped off the negotiating table.

**Rules of Origin:** EU officials have received strong political backlash from the EU tuna fishing industry (particularly Spain) regarding global sourcing RoO offered to PACPs for processed tuna (HS 1603/1604), on the grounds that this provision presents a ‘horrific threat’ to canning operations in the EU.865 While it is politically difficult for the EU to retract the global sourcing offer for canned tuna and loins, this issue is highly likely to further complicate negotiations concerning future reform of RoO under the comprehensive EPA, particularly the extension of global sourcing RoO provisions to fresh-chilled and frozen tuna fillets and steaks (HS 0304/0305).

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864 Len Rodwell, pers. comm. 2010.
865 Pareti 2010.
EU negotiators have taken the line during interim EPA negotiations that the issue of global sourcing RoO for HS 0304/0305 products needs to be discussed in the context of a comprehensive EPA. In addition, in past negotiations the EU has indicated that their willingness to extend global sourcing to HS 0304/0305 products depends on favourable outcomes in negotiations regarding the Trade in Services component of the EPA. (However, some PACPs have been reluctant to sign off on the Trade in Services component due to concerns that provisions for labour mobility may set an unfavourable precedent for PACER negotiations with Australia and New Zealand.)

**Triggering Other FTAs:** Outcomes from EU-EPA negotiations may have implications for free trade agreements negotiated between PICs and other trading partners. For instance, commencement of negotiations with the EU served as a ‘trigger mechanism’ for PACER-Plus negotiations between PACPs and Australia and New Zealand (see Section 11.6). PACPs are concerned that outcomes negotiated under the EPA will serve as a precedent for PACER-Plus negotiations. For example, PNA members reportedly have concerns that if fisheries access is guaranteed to EU purse seine vessels under the EPA, Australia and New Zealand may then be able to demand similar guaranteed access arrangements under PACER-Plus. While this is likely a fairly low risk in the case of Australia, since it does not have a purse seine fleet operating in the WCPO, New Zealand is a distant water fishing partner of PNA members (albeit minor compared to other fleets, with only four purse seine vessels licensed in 2010).

The US Freely Associated States (Palau, FSM and Marshall Islands) have concerns that signing the EPA will require these PICs to offer similar liberalized tariffs to the US under the US-COMPACT Agreement, resulting in a serious loss of government revenue, since these countries rely heavily on imports from the US.

**Market Access:** To date, only three PICs export fisheries products to the EU – PNG, Solomon Islands and Fiji. Even if all PACPs sign onto a comprehensive EPA, market access to the EU is not guaranteed, since these countries also need to comply with very strict quality standards (sanitary and phytosanitary (SPS) measures) and have established an EU-accredited competent authority (CA) to verify that fisheries exports comply with the EU's quality standards. This is evidenced by Fiji’s loss of EU market access in May 2008, due largely to deficiencies identified in the performance of the competent authority.

There is an upsurge in interest in establishing competent authorities from a number of other PACPs, with preparatory work currently in progress in Vanuatu, Kiribati, Marshall Islands, FSM, the Cook Islands and Tonga.

**Preference Erosion:** It is unlikely that the benefits to PACPs of trade preferences negotiated under an EPA will last indefinitely due to erosion of preferences potentially stemming from multilateral tariff liberalization through the WTO (if the Doha Round concludes) (see Section 11.4) and the rise in free trade agreements established between the EU and other major competing countries/regions in terms of tuna production (see Section 11.5).

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866 Pareti 2010.
867 Almost three years after losing access to the EU market in May 2008, Fiji received approval from DG Sanco to recommence exporting fish and fisheries products in early 2011. FFA Fisheries Trade News – March 2001 (4: 3).
868 Hugh Walton (FFA), pers.comm., 2010.
11.3 EU – IUU Fishing Regulation

11.3.1 Current Status

Illegal, unreported and unregulated fishing (IUU) fishing is a major contributor to the depletion of global fish stocks and undermines conservation and management efforts to improve the long term sustainability of fisheries resources. In addition, IUU fishing leads to major economic losses for coastal states in the form of foregone fishing access fees and provides unnecessary competition for legitimate fishing operations. It has been estimated that around 11-26 million tonnes of IUU caught fish is traded annually and is valued at between US $10-$23 billion (20% of the reported worldwide value of catches).869 The European market is particularly attractive to IUU operators since the EC is the largest global market for fisheries products, and until very recently, has lacked effective mechanisms for tracking fisheries products through complex supply chains.

In an effort to combat the flow of IUU fish into the EU market, in September 2008 the European Union (EU) adopted a Regulation (EC Regulation No. 1005/2008) establishing a system to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing (referred to as the ‘IUU Regulation’), which entered into force on 1 January 2010.870

The IUU Regulation establishes a catch certification scheme to enhance the traceability of fisheries products through the various stages of the supply chain, from fishing vessels onwards. Fisheries products from ‘third countries’ (i.e. non-EU members) into the EU must be accompanied by a catch certificate issued by the competent authority of the flag state country of the fishing vessel, which verifies that fish have been caught in accordance with applicable national, regional and international laws, regulations and conservation and management measures. Any imports that are not accompanied by a validated catch certificate will be refused entry into the EU. The IUU Regulation covers all catches of marine fishery products originating from third country fishing vessels and exported to the EU, irrespective of where the fish were caught (i.e. EU waters, other countries’ EEZs or high seas).

In the case of Pacific Island countries, the IUU Regulation affects most countries, as it applies to:

- **Fishing vessels** – both PIC-flagged fishing vessels and distant water fishing vessels licensed to fish in PICs EEZs, who either export fish directly to the EU through PIC-based exporters/processors, or indirectly, by transhipping catch which is sent to facilities outside the Pacific region to be processed and exported to the EU.

- **Processors/exporters** - PIC-based processors and exporters involved in trade with the EC (i.e. Fiji, Solomon Islands, PNG).

In October 2010, 90 third countries (non-EU members) had provided notification of their competent authorities for the purposes of the IUU Regulation to the EC; only 3 of which were PICs – Fiji, Solomon Islands and PNG.871

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869 MRAG & UBC 2008.
871 EC 2010
Several others are in the process, and have lodged the necessary documentation to the EC, but are apparently experiencing some difficulties meeting the necessary requirements, particularly with respect to flag state responsibility (i.e. FSM, Vanuatu, Marshall Islands).872

Since the IUU Regulation was implemented on 1 January 2010, it is too early to draw any definitive conclusions about the impacts of the system, whether positive or negative. Although, in January 2011, one year on from its implementation, the EU Fisheries Commissioner suggests that the IUU Regulation has yielded concrete results - 90 of the EC’s trading partners have implemented the catch certification scheme, 240 infringements have been detected, 14 imports refused, and firms are now sourcing fish from companies that strictly comply with the rules.873

Several points of interest were raised during consultation conducted for this study with various industry representatives.

In the first few weeks/months of implementation in early 2010, some exporting countries held back tuna shipments for fear of facing problems with catch documentation on arrival into the EU and there were delays experienced in the processing of some shipments. However, by and large, supply volumes into the EU were not significantly affected.874

While the IUU Regulation is not intended to affect existing EU sanitary and phytosanitary (SPS) measures and vice versa, the IUU Regulation will make it easier for EC authorities to check that all imported fish products were caught by vessels that comply with the EU’s strict regulations (i.e. boats that have EU sanitary numbers). Any fish exported to the EU caught by vessels that are not SPS compliant could be rejected. Hence, two markets have essentially developed for purse-seine caught yellowfin:

1) EU market – yellowfin supplied by vessels with EU sanitary numbers.

2) Bangkok and other markets (US $200-$300/mt less than EU market) – yellowfin supplied by vessels without EU sanitary numbers; or, vessels with EU sanitary numbers that are flagged to countries without an EU-approved competent authority.

Widespread concerns exist that the catch documentation scheme is administratively burdensome. To demonstrate this point, two German seafood processors provided a hypothetical example estimating that a consignment of five tonnes of mixed fish from five different exporters in Norway to a single client in Germany would require 1,875 catch certificates to be issued, creating a ‘paper tsunami’.875 This concern was also affirmed by media reports that Spanish authorities were overwhelmed by the volume of applications received for the issuance of catch certificates covering tuna catches by Spanish-flagged purse seiners.876 Thailand-based industry representatives confirmed that the processing of catch certificates by competent authorities is very slow – it can take up to 6-8 weeks for the catch documentation to move through the appropriate channels and be endorsed.877

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872 Len Rodwell 2010, pers.comm.
874 Interviews - industry representatives 2010.
875 Seaman 2009.
876 Freitas 2010d.
877 Interviews, Thai industry representatives, June 2010.
Several industry representatives also expressed concerns that the IUU Regulation has been poorly written and explained and, while the EU has issued a series of guidance notes (and continues to do so), there are still areas that require further clarification.

A major issue raised by PICs concerning the IUU Regulation is the role of coastal and flag states. While the EU IUU Regulation stipulates that validation responsibility rests with the flag state, PICs are of the view that coastal states, not flag states, should validate and verify catch documentation. The development of a WCPFC catch documentation scheme (CDS) is also being considered and members resolved at WCPFC6 that PNG would lead an inter-sessional working group to develop a CDS strategy that will meet and exceed EU requirements. 878

11.3.2 Implications for PICs

The loss from IUU fishing in the Western and Central Pacific (WCPO) region has been estimated to be in the vicinity of 21-46% of reported catch and valued at US $0.7-$1.5 billion.879 In 2009, catch from the EEZs of PICs represented around 45% of the total value of catch from the WCPO.880 Hence, the total value of IUU fish caught in PICs waters could be in the order of US $300-700 million annually.

If implemented effectively, measures to prevent, deter and eliminate IUU fishing, such as the EU-IUU Regulation, stand to benefit PICs in terms of enhanced fisheries sustainability. However, there are potential trade and development impacts for PICs (and other developing countries) associated with the IUU Regulation which have been cause for concern.

Market Access – Non-Tariff Barrier to Trade: The IUU Regulation is not intended to affect market access arrangements in place with the EU. However, given the complex additional administrative arrangements required for implementation, the IUU Regulation may constitute a non-tariff trade barrier for legally caught fish from PICs, if countries have difficulties meeting these requirements. Concerns have been raised by a number of developing countries that, without external financial support, the high costs involved in establishing a full traceability system may be prohibitive (particularly for artisanal and small-scale commercial fisheries) and exclude them from supplying fish to the EU market.

Another potential impact relates to the EU’s SPS regulations. Any fish exported to the EU caught by vessels that are not EU-SPS compliant will now be more easily detectable. Hence, all countries supplying to the EU (either directly or indirectly) will need to ensure that their vessels comply with EU-SPS standards (which too can be a costly and cumbersome exercise).

Developing Country Capacity Constraints: Concerns have been raised regarding the capacity of developing countries to comply with the IUU Regulation. A study undertaken by ANCORS and Monash University to assess the development impacts of the IUU Regulation concluded that many ACP states will find it difficult to meet its requirements, not least since additional resource and administrative burdens will be placed on already weak fisheries administrations.881

878 Hugh Walton (FFA), pers. comm., 2010.
879 MRAG & UBC 2008
880 FFA 2009.
881 Tsamenyi et. al. 2008.
Specific areas identified that may pose challenges for ACP countries, include: effective implementation of fisheries management measures; effective monitoring, control and surveillance systems in place to ensure ACP members have strong flag state control over their vessels; and implementation of appropriate legislative and administrative measures to support the catch certification system requirements.

**WTO Compatibility:** Some aspects of the IUU Regulation have been questioned regarding their compatibility with World Trade Organisation (WTO) rules. Concerns have been raised that less stringent rules might apply to EU vessels which would unfairly disadvantage non-EU vessels (including PIC vessels). An analysis undertaken on the interaction of the IUU Regulation with WTO rules concluded that the likelihood of a dispute regarding the IUU Fishing Regulation per se is unlikely and that, to date, no country has officially expressed concerns. However, some of the general provisions of the IUU Regulation may become contentious, particularly if non-EU flag states feel they are being competitively disadvantaged relative to EU-vessels. In any case, PICs (and many other developing countries) would be unlikely to have available sufficient resources (both financial and technical) to carry through a WTO dispute given the settlement process is both lengthy and costly.

### 11.4 WTO Fisheries Subsidies Negotiations

#### 11.4.1 Current Status

Over the past decade, it has been widely recognised that fisheries subsidies contribute significantly to excess fishing capacity, which is one of the major causes of over-fishing and the subsequent depletion of global fish stocks. The World Trade Organisation’s (WTO) Negotiating Group on Rules has been tasked with developing rules to eliminate fisheries subsidies that contribute to overcapacity and over-fishing and distort international trade in fisheries products.

Since the beginning of the Doha Round in 2001, debates have been ongoing between WTO members in an effort to reach consensus on reforms to the Agreement on Subsidies and Counterveiling Measures (ASCM), including fisheries subsidies. While the need for disciplines on harmful fisheries subsidies is generally supported by most (if not all) WTO members, considerable divergence remains in positions regarding which subsidies should be prohibited.

Effective Special and Differential Treatment (S&DT) provisions for developing country members have been an integral part of the proposed WTO disciplines on fisheries subsidies. The Hong Kong Mandate of the Doha Round acknowledges that fisheries subsidies disciplines should take into account the importance of the fisheries sector to development priorities, poverty reduction, and livelihood and food security concerns. S&DT has been the subject of much debate amongst WTO members due to strongly opposing views about the level of flexibility in disciplines that should be granted for developing members and has the potential to become a stalemate in negotiations.

On 30 November 2007, the Chair of the WTO Negotiating Group on Rules released his first draft legal text (referred to as the ‘Chair’s Text’) which includes disciplines for fisheries subsidies to marine wild capture fisheries.

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882 Baumuller 2010.
883 Chair’s Text available at: www.wto.org/english/tratop_e/rulesneg_e/rules_chair_text_nov07_e.doc (See Annex VIII, page 87 onwards).
The Chair’s Text is comprised of a list of proposed harmful subsidies to be prohibited. S&DT provisions are also included which exempt developing country members from certain elements of the prohibited list of subsidies, subject to fisheries management conditionalities.

A series of ‘cluster’ meetings were held from December 2007-May 2008 to discuss the Chair’s Text. On the whole, WTO members provided support for draft legal text, in so far as it provides a solid basis for negotiations. However, a number of elements were controversial and became the subject of considerable debate and divergence between members.

In December 2008, the Chair released a ‘Roadmap’ document to further guide discussions, as he felt he was not in position to release a comprehensive revised draft text given the lack of consensus in prior discussions concerning the first draft. The Roadmap presented a complex set of political and technical questions regarding each Article in the draft text that were intended to get to the core of the deep divergences of positions between members and demanded detailed evidence-based analysis by Members. Discussions concerning the Chair’s Roadmap were conducted from February-December 2009. Following these discussions, the Chair called for new proposals for consideration. WTO members were hopeful that the Chair would release a revised Chair’s text in the first quarter of 2010. However, this did not eventuate given the wide divergences still remaining in member positions after the Roadmap discussions.

Reports from a meeting held in October 2010 indicate renewed energy amongst members concerning fisheries subsidies negotiations, in part, due to the newly appointed chair (Trinidad and Tobago) introducing some new structure for discussions which, in some WTO members’ views, helped to make some positive advances. Delegations were also very keen to inform the new chair of their negotiating positions on the December 2007 draft text from the former chair.884

In February 2011, the Chair established a series of ‘contact groups’ comprised of individuals from prominent demandeur/defensive developed and developing countries members to discuss key issues where significant divergence in negotiating positions exists – high seas fisheries, artisanal/small-scale fisheries, income support and fuel subsidies.

In April 2011, the Chair provided a detailed narrative report on the state of play of fisheries subsidies negotiations, in lieu of a revised legal text, given the ongoing lack of convergence on core substantive issues. He indicated that despite intensive work undertaken and a wealth of new proposals, negotiations remain in more or less the same impasse at as at the end of 2008. While strong consensus exists amongst members concerning the serious decline in global fisheries resources and the significant contribution that harmful fisheries subsidies make to overfishing, the Chair feels that the majority of delegations are focusing on minimizing the impact of any disciplines on their own activities, instead of seeking to build convergence and accepting an appropriate level of disciplines to effectively address the issue.885

Fisheries subsidies is only one component of the Doha Round negotiations at the WTO. Even if WTO members reach a consensus on fisheries subsidies rules, unless consensus is reached in other negotiations (i.e. non-agricultural market access (NAMA) and agriculture) the Doha Round will not conclude.

Like fisheries subsidies, NAMA and agriculture negotiations have been contentious and politically charged. Unbridgeable gaps in member positions concerning market access for industrial goods under NAMA have been cited as the major issue blocking progress in negotiations and the most serious threat to the Doha Round reaching conclusion.

It is unlikely that the Doha Round will successfully draw to a close in the near future, if at all. Since the commencement of the Doha Round in November 2001, negotiations have stalled several times. Negotiations are once again on the brink of collapsing, with serious concerns raised by the WTO Director-General and WTO members that the Doha Round will ‘die’. In the event the Doha Round collapses completely, there may still be some hope for an agreement on disciplines for fisheries subsidies, should attempts be made to conclude selected stand-alone agreements for less contentious issues where solid progress has been made in negotiations. Fisheries subsidies disciplines are one such area of negotiations that have been identified as a suitable candidate for pursuing a smaller stand-alone agreement.886

11.4.2 Implications for PICs

PICs stand to gain from effective disciplines on fisheries subsidies, since the long-term sustainability of their fisheries resources is paramount to economic and social development. However, proposed WTO disciplines may eventually block a range of strategic subsidies which are currently (or could be) provided by Pacific Island Governments to promote domestic fisheries development. This is further complicated by the need to consider how fisheries subsidies disciplines might impact on PICs’ distant water fishing partners operating in the Western and Central Pacific Ocean.

886 FFA Fisheries Trade News – April, May 2011 (4: 4-5).
PICs’ position on the prohibited list of fisheries subsidies (Article I) rests heavily on their developmental needs being adequately met under S&DT provisions (Article III) and conditions relating to fisheries management system conditions (Article V) being reasonable and achievable. Hence, analytical and negotiating efforts of PICs have mostly concentrated on S&DT and fisheries management provisions.

**Special & Differential Treatment:** The Chair’s text on S&DT is based on the premise that fisheries subsidies permitted for developing country members should be subject to ‘sustainability criteria’; that is, conditions to substantially reduce or eliminate the possibility that permitted subsidies will contribute to overcapacity or overfishing. WTO Members generally agree that the S&DT provisions for developing members (other than LDCs) should not amount to a ‘blank cheque’ (i.e. an unlimited and unconditional right to provide fisheries subsidies). However, views differ considerably as to which types of subsidies should be permitted, as well as the conditionalities that should be attached to each type of subsidy.

PICs acknowledge that a blanket exemption to developing members from the prohibition could create a loophole for unsustainable fishing for other larger developing country members, which in turn would be highly detrimental to PICs competitive and sustainable development interests. However, under the 2007 Chair’s text, subsidies for operating costs (e.g. fuel, bait, insurance, etc.) are only allowed for decked vessels 10 metres or less in length. This restriction could serve as a huge barrier for fisheries development in developing countries, particularly PICs, where operating costs are often the most common (in some cases, only) and affordable form of subsidies provided to the fisheries sector.

A further limitation contained in the Draft Chair’s Text for industrial-scale fishing operations is a restriction on subsidies for vessel acquisition, construction, repair, renewal, renovation, modernization to fishing and service vessels active only within a developing country Member’s EEZ. This limitation restricts vessels targeting straddling and highly migratory fish stocks who may fish outside their national EEZs, since they need to follow the fish, and is especially restrictive for those PICs with relatively small and/or non-abundant EEZs.

PICs, as members of the Small Vulnerable Economies (SVEs) group, submitted a proposal in January 2010 for consideration by WTO members and the Chair which acknowledged that ‘one size does not fit all’ in terms of developing countries.\(^{887}\) The proposal calls for enhanced S&DT treatment for SVEs, given the critical importance of fisheries to these members, coupled with the fact that SVEs are not the major subsidisers, nor contributors to overfishing and overcapacity. The proposal called for SVEs to be able to subsidise both operating costs and capital costs for vessels greater than 10 metres, including those targeting highly migratory and straddling stocks beyond their own EEZs. The proposal was met with mixed reactions from WTO members. Larger developing countries (i.e. Brazil, China, India) expressed reluctance to establish a separate category within non-LDC developing members and have indicated that doing so may have a negative impact on the conclusion of the Doha Round. ‘Friends of Fish’ members, New Zealand, Australia and the USA do not support additional flexibility, as they believe SVEs needs are adequately met under the current Chair’s text.

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They are particularly concerned about the call for enhanced S&DT for SVE vessels fishing beyond their own EEZs.

Fisheries Management Systems: Subsidies permitted for use by developing members under S&DT provisions of the draft Chair’s text are made conditional on the existence of a fisheries management system in a Member’s jurisdiction. While there is strong support amongst a number of WTO Members for the inclusion of management-related sustainability-criterion, including PICs, there are differing views on the strength of such management requirements. The broad PIC position so far has been to support minimum/adequate elements of a good fisheries management system, since PIC commercial fisheries are generally well-placed to meet with the conditions and elements of a fisheries management system as listed in Article V. However, PICs consider the conditions too onerous for subsistence, artisanal and some small-scale fisheries where sophisticated management tools are not used.

11.5 Direct and Indirect Preference Erosion

11.5.1 Current Status

Duty free market access available to PICs under preferential trade agreements for tuna exports (particularly preferences for processed tuna to the EU under the Cotonou Agreement) have been vital in enabling PIC exporters/processors to remain competitive against other developing country competitors with lower production costs (i.e. Southeast Asia and Latin America). However, several developments stand to erode the benefits of preferential market access currently enjoyed by PICs over the next ten years or so:

- Direct erosion of trade preferences through multilateral tariff liberalisation under Doha Round Negotiations at the WTO.
- Indirect preference erosion due to the rise of the importance of Free Trade Agreements (FTAs) between developed countries (i.e. PICs’ principal markets) and developing countries (i.e. PICs’ competitors).

11.5.2 Implications for PICs

i) WTO – Non-Agricultural Market Access (NAMA)

Should the WTO’s Doha Round conclude, tariffs will be reduced on all industrial products (including fish and fish products) under Non-Agricultural Market Access (NAMA) negotiations at the WTO.

The objective of NAMA is to reduce and harmonise bound tariff rates on all industrial goods. The method for reducing tariffs under NAMA has been highly debated and contentious. Members appear to have agreed on a ‘Swiss Formula’ approach, whereby tariffs are reduced using a non-linear formula which applies different coefficients for developing and developed countries. The most recent Chair’s draft NAMA modalities text proposes a coefficient of 8 for developed members and 20, 22 and 25 for developing members.

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888 A bound tariff rate refers to the maximum tariff that a WTO member can apply to other WTO member with whom preferential trade agreements are not in place (i.e. countries trading under the Most-Favoured Nation Principle).

889 WTO 2008a.
Under these proposed coefficients, the bound (maximum) tariff rate for developed countries would be 6–7%, while developing countries would average around 11–12%. Upon conclusion of the Doha Round, tariff reductions are to be implemented over a 5-7 year period for developed members and a 10 year period for developing members.\footnote{WTO 2008b.}

Of major concern to PICs is the reduction in tariff levels applied in their major export markets and the impact that these reductions will have on PIC competitiveness. Under the current draft discussions, in as little as five to seven years following the conclusion of the Doha Round, PICs competitors who are currently subject to a 24% tariff for processed tuna products into the EU may pay a much lower tariff of 6-7%, which will significantly erode the competitive advantage that PICs currently have under the Cotonou Agreement trade preference by around 70%.\footnote{Campling, Havice and Primack 2007.}

\section*{ii) Free Trade Agreements (FTAs)}

Delays in the conclusion in the Doha Round at the WTO has seen a rise in the level of interest in free trade agreements (FTAs) as an alternate means of improving market access on a bilateral basis between countries. The rise in FTAs is cause for concern for PICs since the competitiveness of PIC processors will be directly and indirectly affected, resulting in the erosion of benefits stemming from existing preferential market access arrangements.

FTAs negotiated between competing tuna exporting countries (particularly those in Southeast Asia) and developed countries with principal markets for processed tuna (EU, US, Japan) pose the greatest threat to PICs competitiveness. FTAs provide an opportunity for PICs competitors to improve their market share of principal markets and increase economies of scale in production, which could then translate into lower costs of production and place downward pressure on international market prices. In the case of the EU and US markets, the competitive advantage of preferential market access enjoyed by PICs will be indirectly eroded, as competing tuna exporters can price their products more cheaply.\footnote{Campling et. al. 2007; Campling 2008a.} In addition, other developing countries negotiating FTAs may receive similar preferences to those extended to PICs.

Of greatest concern to PICs are FTA negotiations between the EU and the Association of Southeast Asian Nations (ASEAN) countries which commenced in 2008, since this grouping includes major tuna producers Thailand, the Philippines and Indonesia, as well Vietnam and Malaysia, who are emerging players. While discussions between the EU and the ASEAN group as a whole have stalled,\footnote{Reportedly due to difficulties in reconciling differences in how comprehensive the FTA should be and concerns about whether Burma should be included or not given current trade sanctions in place.} the EU is now actively pursuing bilateral agreements with several individual ASEAN members (currently Thailand, Philippines, Vietnam, Singapore and Malaysia).

The EU recently concluded an FTA with Korea (October 2010); Europe’s first FTA with an Asian nation. While canned tuna processing activities in Korea currently fully supply the domestic market, the conclusion of an FTA opens up an opportunity for Korea to divert or expand production to commence supplying the EU market. This is however, subject to strict rules of origin and SPS measures.

Other FTA negotiations that PICs need to carefully monitor include: EU-Central American Countries, EU-ANDEAN, EU-Mexico, US-Thailand (currently stalled), US-Ecuador (currently stalled) and US-ASEAN, since these countries/regional groups are major tuna industry players.
11.6 Pacific Agreement on Closer Economic Relations (PACER)

11.6.1 Current Status

The Pacific Agreement on Closer Economic Relations (PACER) is an umbrella agreement established in 2001 between Pacific (Forum) Island Countries and Australia and New Zealand (ANZ), which provides a framework for regional trade and economic cooperation. PACER is designed to yield a WTO-compatible reciprocal regional free trade agreement which, in theory, helps to help draw PICs into the global economy by fostering increased economic opportunities and competitiveness.

Under PACER provisions, negotiations towards an FTA between PICs and ANZ are scheduled to commence in 2011, or earlier, if one or all PICs enter into FTA negotiations with any other developed countries. In August 2009, PICs began discussions with Australia and New Zealand concerning a free trade agreement known as ‘PACER-Plus’, since PACP EU-EPA negotiations served as a trigger mechanism (see above). PACER-Plus will potentially cover the trade in goods, services, investment and intellectual property.

Priority issues for negotiation under PACER-Plus for PICs include addressing market access and biosecurity for agricultural products, development assistance, improved rules of origin, labour mobility and infrastructure.\(^{894}\)

For most PICs, one of the largest benefits of PACER Plus could be the temporary movement of labour to work in the ANZ job market. Also, PIC consumers could benefit from lower-cost imported goods. However, there are a number of potential disadvantages of serious concern for PICs, including significantly reduced government revenues and losses of local businesses and employment, due to competition from lower-cost imports.

ANZ have been criticized for pushing too fast for PACER negotiations, since PICs are still engaged in highly complex EPA negotiations with the EU. While PICs have proposed that negotiations begin in 2013, ANZ have pushed for 2011.

Given that Fiji is the second largest economy in the Pacific region and is a major trading hub, there has also been some controversy over whether or not Fiji should be included in negotiations since Fiji’s current military regime has led to its exclusion from Forum membership. Calls have been made for negotiations to be postponed until Fiji is able to once again participate in negotiations.

Concerns exist over PICs negotiating capacity and resource availability to effectively enter into negotiations (evidenced by difficulties encountered during EU-EPA negotiations). Hence, one of the PICs pre-conditions to commencing PACER negotiations was the appointment of a Chief Trade Advisor and the establishment of an independent regional trade office to provide necessary support in preparing for and conducting negotiations. In October 2009, the Chief Trade Advisor was appointed and the Office of the Trade Advisor (OCTA) established in Vanuatu in March 2010.

\(^{894}\) Islands Business 2010.
11.6.2 Implications for PICs

The prospects for improved market access for PIC fish and products to ANZ markets through PACER are limited, since both countries already maintain duty free or very low tariffs on fish and fish products. In any case, any preferential market access offered to PICs under PACER for tuna products would be eroded, since ANZ already has a free trade agreement established with the ASEAN countries.

To date, ANZ has been a minor market for PIC tuna. However, tuna exports to ANZ have the potential to rise, particularly higher value niche-markets. While PACER Plus is unlikely to offer significant opportunities in terms of tariff preferences, improvement in terms of trade may be experienced through accompanying trade facilitation and technical assistance programmes, which could lead to improvements in meeting bio-security and quality control regulations.\textsuperscript{895}

\textsuperscript{895} Campling et. al. 2007.
12 CONCLUDING COMMENTS

Over the past ten chapters, the authors have endeavoured to provide an overview of the current status of the global tuna industry in terms of major fishing fleets, trading companies, processors and principal markets. As the tuna industry is one of the most complex and highly dynamic of the world’s seafood industries, this report can only hope to provide a ‘snapshot’ of historical events that have shaped today’s industry, recent major developments and future prospects.

Components of the global supply chain are closely interrelated. Hence, developments relating to just one of these components has the potential to generate change throughout the entire supply chain. In addition, ongoing developments external to the supply chain continuously alter and shape the tuna industry on a global basis. In the coming months and years, all segments of the global tuna industry will continue to be influenced by an array of factors including, but not limited to: tuna resource sustainability concerns, stricter regulatory requirements, increasing operating costs, technological innovation, changing consumer preferences and developments in international trade (tariff) regimes.

Pacific Island countries have the ability to significantly influence industry and market dynamics along all segments of the tuna supply chain, given such a significant portion of global tuna catch comes from WCPO waters. As major stakeholders in the global tuna industry, it is critical that PICs have a comprehensive understanding of supply chain dynamics. An enhanced understanding of how industry drivers and market dynamics shape the global tuna supply chain and influence the major industry players will greatly assist in the development and implementation of policies and strategies concerning fisheries management, fisheries development and monitoring, and control and surveillance. In turn, this will help PICs in better achieving their goals of gaining stronger control and deriving greater economic benefits from their tuna resources.

Information and data relating to industry and market status contained within static reports of this nature will inevitably become quickly outdated. In fact, during the twelve month period over which this study has been undertaken (i.e. 2010-2011), multiple revisions have been made to the text to account for major ongoing developments. By the time of publishing and circulation, more developments will have eventuated and new data will have become available, which will supersede some of the information presented in this report.

This demonstrates that in order to stay abreast of ongoing global tuna industry developments, it is imperative that adequate resources are dedicated to developing a system for ongoing and meaningful intelligence gathering, interpretation, analysis and dissemination. This report is intended to demonstrate the broad scope required of such an undertaking. The report can serve as a platform in the development of a systematic approach to improving the ongoing provision of accurate and useful global tuna industry and market information to Pacific Island countries.
## Appendix 1 – Persons Consulted

### China

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Position</th>
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</thead>
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<td>LI, Zhou Yang</td>
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<td>MENG, Fanyong</td>
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<td>QIAN, Alan</td>
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<td>Assist Vice President</td>
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<td>WONG, Vivi</td>
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<td>WANG, Cheng</td>
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<td>Vice President</td>
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<td>DUAN, Junheng</td>
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<td>Secretary, Board of Directors</td>
</tr>
<tr>
<td>ZHANG, Zuliang</td>
<td>Pan Pacific Foods, (RMI), Inc.</td>
<td>President</td>
</tr>
<tr>
<td>CHEN, Shirley</td>
<td>Ningbo Today Food Co. Ltd.</td>
<td>Assistant to Gen. Mgr</td>
</tr>
<tr>
<td>XIA, Tommy</td>
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<tr>
<td>CHEN, Yifang</td>
<td>Ningbo Today Food Co. Ltd.</td>
<td>General Manager</td>
</tr>
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</table>

Note: Surnames are capitalised and listed first.
## Ecuador

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<tr>
<td>Luigi Benincasa</td>
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<tr>
<td>Karen Cedeño</td>
<td>Marbelize S.A.</td>
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</tr>
<tr>
<td>Mónica Maldonado S.</td>
<td>Cámara Ecuatoriana de Industriales y Procesadores Atuneros</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Marlon Barchi</td>
<td>Salica</td>
<td>Commercial Director</td>
</tr>
<tr>
<td>Fernando Velastegui</td>
<td>Guayatuna S.A.</td>
<td>Fleet General Manager</td>
</tr>
<tr>
<td>Eduardo Aguirre</td>
<td>NIRSA S.A.</td>
<td>Executive Vice President</td>
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<tr>
<td>Joffre Leon Oreillana</td>
<td>NIRSA S.A</td>
<td>Vice President of the Board of Directors</td>
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<tr>
<td>Luis Carlos Hidalgo</td>
<td>NIRSA S.A</td>
<td>Financial Sub-Manager</td>
</tr>
<tr>
<td>Andrés Holguín Espinel</td>
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<tr>
<td>Ec. Mario Torres Torres</td>
<td>NIRSA S.A</td>
<td>Administrative Manager - Plant Operations</td>
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<tr>
<td>Rafael E. Trujillo Bejarano</td>
<td>Cámara nacional de Pesqueria</td>
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<tr>
<td>Victoria Serrano C.</td>
<td>Seafman S.A.</td>
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<tr>
<td>Carlos Manuel Serrano C.</td>
<td>Seafman S.A.</td>
<td>Procurement Manager</td>
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<tr>
<td>Esthela Nieto</td>
<td>Seafman S.A.</td>
<td>Plant Manager</td>
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## European Union

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Misja de Schepper</td>
<td>Princes Group Rotterdam, Amsterdam</td>
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<tr>
<td>Inaki Lachanga Bengoetxea</td>
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<tr>
<td>Luisa Lachanga</td>
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<td>Imanol Loinaz Eguiguren</td>
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<td>Carlos Sánchez Plaza</td>
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<tr>
<td>Juan Manuel Vieites Baptista de Sousa</td>
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<td>José Carlos Castro Neila,</td>
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<td>Marta Aymerich Cano</td>
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# European Union cont.

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<tr>
<td>Juan Coralles</td>
<td>Conservas Garavilla, Galicia, Spain</td>
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</tr>
<tr>
<td>José Manuel Blanco Cid</td>
<td>Conservas Garavilla, Galicia, Spain</td>
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<tr>
<td>Benjamin Recarey Rendo</td>
<td>Jealsa Rianxeira, Galicia, Spain</td>
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</tr>
<tr>
<td>Paula Fabeiro Castro</td>
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<tr>
<td>Alfonso Beitia</td>
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# Indonesia

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<tr>
<td>Ir Abdul Khalid</td>
<td>PT Delta Pasific Indotuna</td>
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<tr>
<td>Candido M Biel</td>
<td>PT International Alliance Food Indonesia</td>
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<tr>
<td>Ivonne S Peleh</td>
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<td>QA Manager</td>
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<tr>
<td>Achmad</td>
<td>PT Deho Cannery</td>
<td>Production Manager</td>
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<tr>
<td>Purwanto</td>
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<tr>
<td>Mistun</td>
<td>RCCF</td>
<td>TRO/port sampler Bitung</td>
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<tr>
<td>Budi Prisantoso</td>
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<tr>
<td>Anung Widodo</td>
<td>RCCF</td>
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# Japan

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<tr>
<td>YANAGIDA, Masayuki</td>
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<td>SUZUKI, Hirofumi</td>
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<td>HONJI, Hiroshi</td>
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<td>TOGHUCHI, Shojiro</td>
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<td>OKUDA, Yuki</td>
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<td>KAWAMOTO, Taro</td>
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<tr>
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<td>HASHIDA, Takayuki</td>
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<td>MATSUO, Tatsushi</td>
<td>Japan Fisheries Agency Ministry of Agriculture, Forestry and Fisheries (SUISANCHO)</td>
<td>Deputy Director – Office of Overseas Fisheries Cooperation</td>
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<td>ISHII, Koichiro</td>
<td>Maruha Nichiro Foods Inc. Overseas Operations Department</td>
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<td>ITO, Hidetoshi</td>
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<tr>
<td>CHIYO, Kikuo</td>
<td>Japan Tuna Fisheries Co-operative Association (NIKKATSUREN)</td>
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<tr>
<td>NAKAMURA, Masaaki</td>
<td>Japan Tuna Fisheries Co-operative Association (NIKKATSUREN)</td>
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<tr>
<td>HARADA, Yuchiro</td>
<td>Organisation for the Promotion of Responsible Tuna Fisheries (OPRT)</td>
<td>Managing Director</td>
</tr>
<tr>
<td>MURAMATSU, M.</td>
<td>Yamaki Co. Ltd/Soyo Sansho Ltd. Soyo Sansho Company Ltd</td>
<td>Managing Director</td>
</tr>
<tr>
<td>KAWANO, Ryuichi</td>
<td>Yamaki Co. Ltd/Soyo Sansho Ltd.</td>
<td>Manager – Overseas Business Department</td>
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<tr>
<td>OKA, Masaharu</td>
<td>Yamaki Co. Ltd/Soyo Sansho Ltd.</td>
<td>General Manager – Raw Material Dept.</td>
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<tr>
<td>IMAMURA, Horonobu</td>
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<td>Chairman</td>
</tr>
<tr>
<td>ABE, Toshio</td>
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<td>President</td>
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<tr>
<td>FURUKATSU, Takahashi</td>
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<tr>
<td>TATENO, Yoshimi</td>
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<td>Group Manager – Purse Seine Fishery Group</td>
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### Japan cont.

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<td>MORIWAKA, Ryozo</td>
<td>Tsukiji Uoichiba (Tsukiji Market Auction House)</td>
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<td>YOKOYAMA, Koki</td>
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Note: Surnames are capitalised and listed first.

### Korea

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<tr>
<td>SHIN, Hyun-Ai (Ms)</td>
<td>Korean Overseas Fisheries Association (KOFA)</td>
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<tr>
<td>NA, Il-Kang</td>
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<td>KIM, Sang-Doo</td>
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<td>Silla Co Ltd</td>
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<td>KIM, Guan-Hak</td>
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<td>HWANG, Seon-Jae</td>
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<td>KIM, Zang-Geun</td>
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<td>Manager, Changwon Factory</td>
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<td>PARK, Jai-Ick</td>
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<td>Production Manager</td>
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<td>PAK, Chong-Sam</td>
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<tr>
<td>Mariano Fernandez</td>
<td>Ocean Canning Corporation</td>
<td>General Manager (also President, Tuna Canners Association, General Santos)</td>
</tr>
<tr>
<td>Herminia Narciso</td>
<td>Alliance Tuna International Inc.</td>
<td>Vice President - Plant Operations</td>
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<tr>
<td>Vicente Macato</td>
<td>RD Corporation</td>
<td>Special Assistant to the president</td>
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<tr>
<td>Erwin Sarne</td>
<td>RD Fishing Industry Inc</td>
<td>SAVP, Engineering and Maintenance</td>
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<tr>
<td>Alexander Lagmay</td>
<td>RD Corporation</td>
<td>AVP, Logistics</td>
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<tr>
<td>Dionruf A. Asis</td>
<td>RD Tuna Ventures Inc.</td>
<td>SVP, Finance/Admin Division</td>
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<td>Atty Rene Barrion</td>
<td>RD Fishing Industry Inc</td>
<td>AVP, Business Affairs</td>
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<tr>
<td>John Heitz</td>
<td>Not specified</td>
<td>Fish buyer and handline vessel owner</td>
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<td>Engr Augusto Natividad</td>
<td>Frabelle Fishing Corp</td>
<td>SVP</td>
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<td>Ritche Rivera</td>
<td>Philbest Canning Corp</td>
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<tr>
<td>Janina Mendoza</td>
<td>Century Pacific Group</td>
<td>Section Manager, Export Sales &amp; Marketing</td>
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<tr>
<td>Francisco Buencamino</td>
<td>Tuna Canners Association of the Philippines</td>
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<tr>
<td>Glennville Castrence</td>
<td>MSU/BFAR</td>
<td>Fisheries lecturer/tag recovery officer</td>
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<tr>
<td>Bayani Fedeluces</td>
<td>SOCSKSARGEN Federation of Fishing &amp; Allied Industries, Inc. (SFFAII)</td>
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<td>Phil Roberts</td>
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<tr>
<td>Narin Nirrutinarrin</td>
<td>Thai Union</td>
<td>Deputy General Manager</td>
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<td>Sunan Chantavichaij</td>
<td>Thai Union</td>
<td>Manager – Procurement Dept.</td>
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<tr>
<td>Rick Heroux</td>
<td>Sea Value (I.S.A. Value &amp; Unicord)</td>
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<tr>
<td>Masaru Ikemi</td>
<td>Kingfisher Holdings Ltd.</td>
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<tr>
<td>Nat Onsri</td>
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<td>Yanee Arunthong</td>
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<tr>
<td>Marco D’Agostini</td>
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<tr>
<td>Tim Real</td>
<td>Heinz – S.E. Asia</td>
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<tr>
<td>Prachote Bedi</td>
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<td>Brilliante Company Ltd.</td>
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<tr>
<td>Dr. Smith Thummachua</td>
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<td>Chief - Overseas Fisheries Management and Economic Cooperation Group</td>
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## Taiwan

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<tr>
<td>Charles C.P. Lee</td>
<td>Taiwan Deep Sea Tuna Purse Seiners Boatowners and Exporters Association</td>
<td>General Secretary</td>
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<tr>
<td>James T.P. Tsai</td>
<td>Fong Kuo Fishery Co. Ltd</td>
<td>Chairman</td>
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<tr>
<td>Janet C.H. Tsai</td>
<td>Fong Kuo Fishery Co. Ltd</td>
<td>Asst. to Chairman</td>
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<tr>
<td>Martin S.C. Ho</td>
<td>Taiwan Tuna Boatowners and Exporters Association</td>
<td>Asst. Secretary</td>
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<tr>
<td>Yu-Chih Lin</td>
<td>Taiwan Tuna Boatowners and Exporters Association</td>
<td>Chairman, Pacific Operational Committee</td>
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<tr>
<td>Wei-Yang Liu</td>
<td>Overseas Fisheries Development Council</td>
<td>Secretary</td>
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<tr>
<td>Peter Ho</td>
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<tr>
<td>David Chang</td>
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<td>C.L. Chen</td>
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<td>Jerry K.H.</td>
<td>Tsai Tri-Marine</td>
<td>Agent</td>
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<td>Robert H.C.</td>
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<td>Brandon Chiao</td>
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<td>Manager, Noro Base</td>
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<tr>
<td>Chris Hsu</td>
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<td>Jung-Yao Lin</td>
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## United States

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<td>Karen Sack</td>
<td>Pew Charitable Trust</td>
<td>Deputy Director – International Ocean Conservation</td>
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<tr>
<td>Julia Roberson</td>
<td>Pew Charitable Trust</td>
<td>Manager – Global Tuna Campaign</td>
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<tr>
<td>Gerry Leape</td>
<td>Pew Charitable Trust</td>
<td>Senior Officer – International Marine Conservation</td>
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<td>Randi Parks Thomas</td>
<td>National Fisheries Institute (NFI)</td>
<td>Vice President</td>
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<tr>
<td>Guillermo Compeán</td>
<td>Inter-American Tropical Tuna Commission (IATTC)</td>
<td>Director</td>
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<tr>
<td>Bill Fox</td>
<td>World Wildlife Fund (WWF) – US</td>
<td>Vice President – Fisheries</td>
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<tr>
<td>John Barrett</td>
<td>New Zealand Seafood</td>
<td>South Pacific Specialist</td>
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<tr>
<td>Kevin McClain</td>
<td>Bumble Bee Seafood</td>
<td>Vice President</td>
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<tr>
<td>Pete Trutanich</td>
<td>Tri Marine</td>
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<td>Tomi Furuta</td>
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<td>Ted Takashima</td>
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<tr>
<td>Geoff Bolan</td>
<td>Marine Stewardship Council</td>
<td>Commercial Director - Americas</td>
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<td>Jim Humphreys</td>
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<td>Fisheries Director – Americas</td>
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<td>John Zuanich</td>
<td>Starkist</td>
<td>Senior Manager – Seafood Procurement</td>
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<tr>
<td>Paul Krampe</td>
<td>American Tunaboat Association (ATA)</td>
<td>Executive Director</td>
</tr>
<tr>
<td>Thomas Kraft</td>
<td>Norpac</td>
<td>Managing Member</td>
</tr>
<tr>
<td>Tom Worthington</td>
<td>Monterey Fish Market</td>
<td>Manager</td>
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Appendix 2 – Canned Tuna Processing:
Key Terminology

Raw material: Typically whole frozen round tuna, but can also include small volumes of fresh or frozen headed, gilled and gutted fish.

Processing cycle: Raw material is thawed, cut (headed, gilled and gutted), racked and pre-cooked (where 30% weight loss may occur), cooled, carried by conveyor belt to the cannery interior where it is cleaned manually on tables or lines (i.e. red meat, bones, and skin removed, leaving two loins per side), prepared for packing as solid, chunks or flakes (see below), packing material (oil, spring water, brine) and various flavouring and/or seasoning added, before automated sealing, retort sterilization, labelling and packing by carton/case (usually 48 cans/carton).

Recovery rate (percentage of raw material recovered as cooked light/white meat) varies between 30% to nearly 50%, depending on fish size (higher for larger fish) and cleaning procedures; typically around 40%.

Canned Tuna products: Tuna is packed in various forms - solid (i.e. loin cut into transverse portions), chunks (i.e. loin cut into smaller pieces) and flakes (i.e. smallest pieces without skin, red meat etc). Albacore is often marketed as ‘white meat’ tuna; skipjack, yellowfin and other Thunnus tunas as ‘light meat’ tuna. Other tuna-like species (Euthynnus, Sarda, Auxis etc.) may be sold as bonito.

Can sizes vary depending on the market. The standard sized can now ranges from 5-6 oz (formerly 7 oz). Smaller and larger sized cans are also produced – ranging from as small as 95 g to large institutional/catering packs (1kg and 2kg). Cans may be three-piece or two-piece ring-pull. One carton usually contains 48 cans.

Other processed tuna products:
- **Loins** - increasingly produced as an intermediate stage during the canning preparation process. Cooked side/fillet with red meat, skin and bones removed, then frozen and plastic-wrapped. Loining accounts for ~80% of cannery labour costs and is generally undertaken in processing sites where labour costs are lower; also results in savings on transportation costs to endpoint canneries where labour costs are typically higher.
- **Pouch** - recent product innovation; processed tuna in a foil-lined, easy-open pack, with little or no liquid.
- **Others** - tuna may also be packed in glass jars, cooked raw in the can or processed into a range of value-added products (e.g. pastes, burgers, salads, fillet portions in oil, other ready-made meals etc.).

By-Products: Red meat is utilised in pet food and some low-grade packs; fish meal is produced from offal and waste; fish oil and protein concentrate may also be extracted from waste.
**Production units:**

- Raw material – whole round fish (metric tonnes)
- Loins - whole round fish equivalent or finished loin weight (metric tonnes)
- Cans – net finished weight (metric tonnes)
- Processing capacity (maximum) – volume of raw material processed per day/year at full production levels (metric tonnes)
- Cannery production (actual) – volume of canned product per day/year (net finished weight, metric tonnes)

**Conversion ratios:**

Given the complex and highly variable nature of the canned tuna production, there are no valid standard/universal conversion ratios. There is wide variation in recovery rates (i.e. the volume of tuna in the can, inclusion of hydrolysed protein, protein extenders), drain weights (i.e. volume of packing media used – brine, vegetable oil), additives (i.e. flavourings, seasonings, other ingredients), can size (5 oz, 6 oz etc.) and relative weight of cans (i.e. larger cans use less steel relative to tuna and vice versa).

There are several loose ‘rules of thumb’ which are sometimes applied, although their accuracy cannot be guaranteed:

- Since the 1990s, FAO has applied a conversion factor of 1.92 to the net finished weight of canned tuna or cooked loins to determine the whole round raw material equivalent. This coefficient is problematic and likely outdated because of its fixed assumptions regarding drain weights, can size, can weights etc.
- Recovery rate (for canning and loining) – typically 40%; may range from as low as 30% to 50%.
- One metric tonne of whole round skipjack produces around 80 cases of standard skipjack cans.
- Approximately 12,500 mt of whole round raw material produces one million standard cases (higher in past with larger cans).
## Appendix 3 – WCPO Purse Seine Catch Disposal and Cannery Receipts 2009

<table>
<thead>
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<th>Region</th>
<th>Catch/fleet (mt)</th>
<th>Cannery Receipts By Source/Fleet (‘000 mt)</th>
<th>Total</th>
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</tr>
<tr>
<td></td>
<td></td>
<td>Phils PH</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>San Salvador</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Taiwan</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>USA</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vanuatu</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vietnam</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Australia</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solomons</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spain</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EU</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total WCPO</td>
<td>372</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Indian Ocean</td>
<td>2,012</td>
</tr>
</tbody>
</table>

### Notes
-appendix
### Appendix 3 – WCPO Purse Seine Catch Disposal and Cannery Receipts 2009 (continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>20</td>
</tr>
<tr>
<td>India</td>
<td></td>
</tr>
<tr>
<td>Maldives</td>
<td>23</td>
</tr>
<tr>
<td>Indonesia</td>
<td>5</td>
</tr>
<tr>
<td>Seychelles</td>
<td>4</td>
</tr>
<tr>
<td>Spain</td>
<td></td>
</tr>
<tr>
<td><strong>Total IO</strong></td>
<td>52</td>
</tr>
</tbody>
</table>

**NOTES:**

Cannery receipts do not always add up to p/s catch by fleet, as not all catch is canned (e.g. katsuobushi supply).

1. Purse seine catches for 2009 from SPC preliminary estimates.
2. Raw material receipts of skipjack and yellowfin (excludes albacore) for processing (canning/loining); rounded to nearest 000mt; data from various sources.
3. Thailand import data from Thai Customs website (www.customs.go.th) - frozen fish only; SJ, YF and BE imports ~ 772,000 mt, ALB 39,545 mt in 2009.
4. Includes some pole-and-line fish; much for local consumption and other processing (e.g. katsuobushi).
5. Cannery receipts not known; assume the majority of fish is imported.
6. The majority of catch (~60%) is used for katsuobushi production, only 20% is canned (10% by Japanese canners, 10% in Thailand) (see Section 2.2.3).
7. Slightly higher catch in 2009, due to introduction of three new joint-venture vessels.
8. PPF loining plant commenced full operations in April 2009.
10. 2010 catch likely to exceed 30,000 mt due to additional vessels entering the fleet.
11. Author’s own estimate.
12. Domestically-based p/s and ring net vessels; excludes bilateral access PNG vessels (~71,000 mt).
13. Catch in PNG by bilateral vessels.
14. Thai imports (62,000 mt) may include some of PNG catch from Vanuatu-flagged vessels (PNG is the registered home party under the FSMA).
15. Source of raw material is unknown.
## Appendix 4 - EU Tariffs for Selected Fish Products Under HS Code CODE 0304/3035

<table>
<thead>
<tr>
<th>TARIC/ Description</th>
<th>EPA</th>
<th>GSP+*</th>
<th>EBA</th>
<th>GSP</th>
<th>MFN**</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fresh Chilled Products</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03041110 Fresh chilled swordfish fillets (Xiphias gladius)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>14.5%</td>
<td>18%</td>
</tr>
<tr>
<td>03041190 Fresh chilled swordfish meat ‘whether or not minced’ (excl. fillets)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>11.5%</td>
<td>15%</td>
</tr>
<tr>
<td>0304193970 Fresh chilled bigeye tuna fillets (Thunnus obesus)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>14.5%</td>
<td>18%</td>
</tr>
<tr>
<td>0304199970 Fresh chilled bigeye tuna meat (whether or not minced, excl. fillets)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>11.5%</td>
<td>15%</td>
</tr>
<tr>
<td>0304199965 Fresh chilled shark meat (whether or not minced, excl. fillets)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>5.2%</td>
<td>15%</td>
</tr>
<tr>
<td>0304193990 Fresh chilled salt water fish fillets ‘other’</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>14.5%</td>
<td>18%</td>
</tr>
<tr>
<td>0304199990 Fresh chilled salt water fish meat (whether or not minced, excl. fillets) ‘other’</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>11.5%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Frozen Products</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0304210000 Frozen swordfish fillets</td>
<td>0%</td>
<td>%</td>
<td>0%</td>
<td>2.6%</td>
<td>7.5%</td>
</tr>
<tr>
<td>0304910000 Frozen swordfish meat (whether or not minced, excl. fillets)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>7.5%</td>
</tr>
<tr>
<td>0304294520 Frozen bigeye tuna fillets</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>14.5%</td>
<td>18%</td>
</tr>
<tr>
<td>0304294590 Frozen tuna fillets ‘other’ species</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>14.5%</td>
<td>18%</td>
</tr>
<tr>
<td>0304999950 Frozen bigeye tuna meat (whether or not minced, excl. fillets)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2.6%</td>
<td>7.5%</td>
</tr>
<tr>
<td>0304999999 Frozen fish meat (whether or not minced, excl. fillets)</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2.6%</td>
<td>7.5%</td>
</tr>
</tbody>
</table>

* GSP+ = Generalised System of Preferences ‘Plus’ for countries that meet set criteria of economic vulnerability and that have ratified and implemented up to 27 conventions on good governance, labour rights and the environment.

** MFN = Most favoured nation
### EU Tariffs for Selected Fish Products Under HS Code CODE 0304/3035 cont.

<table>
<thead>
<tr>
<th>TARIC/ Description</th>
<th>EPA</th>
<th>GSP</th>
<th>GSP</th>
<th>MFN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other forms of preservation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0305200019 Livers and roes of fish, dried, smoked, salted or in brine [NB: same regardless of species]</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>7.5%</td>
</tr>
<tr>
<td>0305309040 Swordfish fillets, dried, salted or in brine, but not smoked</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>12.5%</td>
</tr>
<tr>
<td>0305309075 Bigeye tuna fillets, dried, salted or in brine, but not smoked</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>12.5%</td>
</tr>
<tr>
<td>0305309090 ‘Other’ fish fillets, dried, salted or in brine, but not smoked</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>12.5%</td>
</tr>
<tr>
<td>0305498020 Smoked swordfish, including fillets</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>10.5%</td>
</tr>
<tr>
<td>0305498060 Smoked bigeye tuna, including fillets</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>10.5%</td>
</tr>
<tr>
<td>0305498090 Smoked ‘other’ species, including fillets</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>10.5%</td>
</tr>
<tr>
<td>0305598050 Dried swordfish, whether or not salted but not smoked</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8.5%</td>
</tr>
<tr>
<td>0305598045 Dried bigeye, whether or not salted but not smoked</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8.5%</td>
</tr>
<tr>
<td>0305598090 Dried ‘other’ fish, whether or not salted but not smoked</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8.5%</td>
</tr>
<tr>
<td>0305698040 ‘Other’ forms of preservation of bigeye tuna</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8.5%</td>
</tr>
<tr>
<td>0305698050 ‘Other’ forms of preservation of swordfish</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8.5%</td>
</tr>
<tr>
<td>0305698090 ‘Other’ forms of preservation of ‘other’ fish</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>8.5%</td>
</tr>
</tbody>
</table>

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