

# The State of the Tuna Industry

2023

Understand The Cost Drivers Behind This 40 Billion USD Industry

- What are the cost drivers impacting canned tuna?
- What are the retail price trends for canned tuna?
- How is the consumer offer for canned tuna evolving?
- What does the future of the tuna canning industry look like?



# Foreword

Canned tuna is a popular consumption staple across both mature and developing markets. According to the EU Observatory, the industry was valued at around USD 40 billion in 2022, almost doubling during the previous decade, and is expected to grow by 40-50% by 2030. Uncertainties surrounding recent global events – the COVID-19 pandemic, the war in Ukraine and the cost-of-living crisis – have accentuated the demand for this product as an affordable, easily stored food.

Against an increasingly uncertain global backdrop, it is vital that procurement professionals are able to understand critical aspects associated with producing and marketing a can of tuna. These include cost and price drivers, consumer expectations, sustainability concerns and environmental compliance. Each of these factors exerts various degrees of influence on the final consumer offering.

## **This paper answers the following questions:**

- What are the cost drivers impacting canned tuna?
- What are the retail price trends for canned tuna?
- How is the consumer offer for canned tuna evolving?
- What does the future of the tuna canning industry look like?

The rapidly growing pet food sector has also been considered as another alternative value stream, as there is no differentiation between the fish that goes into pet and human food.



# Authors



## Simon Frost

Founder of Frost Procurement Adventurer Ltd, Simon specializes in delivering his clients excellent sustainable value across end-to-end supply chains in the food, drink and pet care sectors. Using his deep-rooted knowledge and advanced cost modelling skills, tuna has been one of his key focus areas over the last five years.



## Ibi Idoniboye

Ibi Idoniboye is a Senior Seafood Pricing Analyst at Mintec. He has over ten years of experience analysing global food and agricultural markets and delivering insights. Ibi was a leading voice in setting up Mintec's proprietary seafood offering and is committed to expanding the coverage of Mintec Benchmark Prices (MBPs) across the fish and seafood category further, in conjunction with the industry.



## Tosin Jack

With significant experience in analysing, interpreting and communicating commodity and agricultural market intelligence, Tosin has been responsible for generating insights across a wide range of markets within the food and beverage supply chain. As the EMEA Head of Commodity Insights, she now leads a team of commodity market experts in analysing market data and the impact of critical events on prices.

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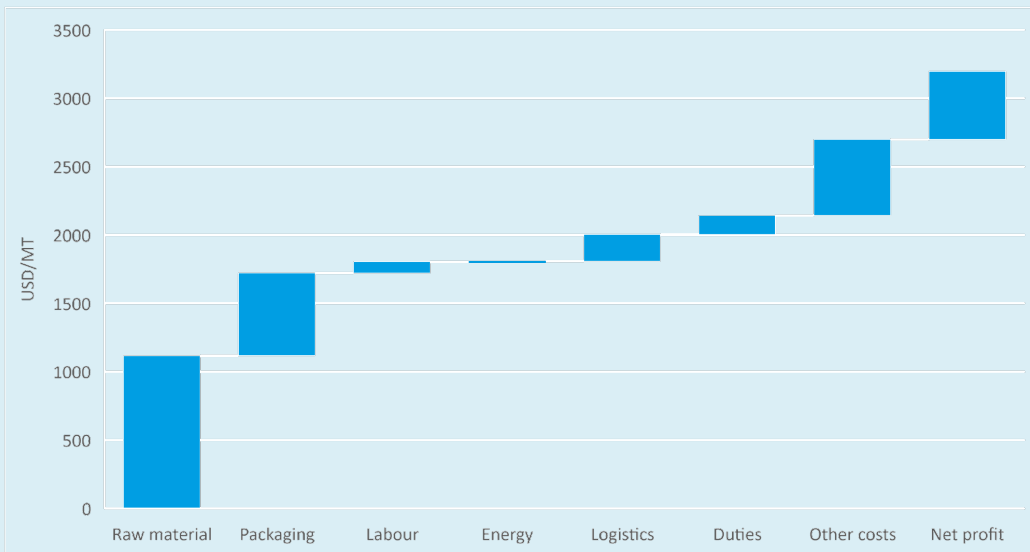




# 1) What are the key cost drivers impacting the cost of canned tuna?

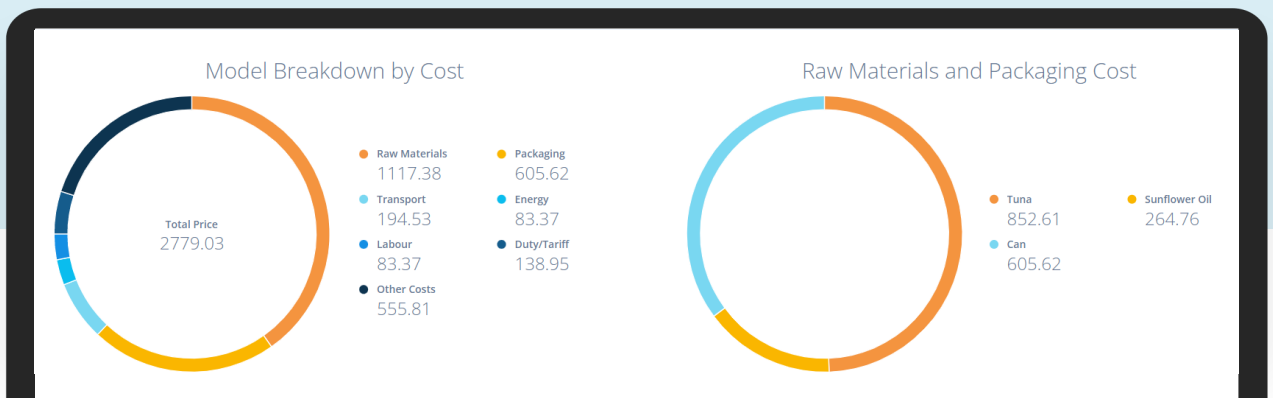
## The cost model of a can of tuna

The two key elements that make up the cost of canned tuna are the tuna and the can. Below is the cost model for a co-manufactured supermarket private-label product of tuna chunks in brine. A similar branded product would come in at ~USD 1,232/T more; the difference accounted for by higher sales and marketing. Higher-value products, such as tuna steak in olive oil, will be more expensive than private-label products.



N.B. - this graph is directional and will vary based on a multitude of factors, such as but not limited to: supplier, production country, spec, prices of tuna, packaging, logistics, end-product destination, and duties.

Source: Mintec Analytics & Frost Procurement Adventurer Ltd



Looking at how the cost has changed over time, there was a peak in 2017 due to the high tuna price. After 2020, costs rose again. This was partially caused by some increase in the tuna price but also driven by energy prices, vegetable oil prices (for tuna products in oil), packaging, and logistics costs pressure. This was further compounded by the hoarding of canned products during the lockdown. The last three to four months showed a reversal of all these factors, leading to a softening of prices.

While the product is relatively straightforward with only a few ingredients, there are nuances worth exploring. Let's start with the value of the fish itself.



Source: Mintec Analytics & Frost Procurement Adventurer Ltd



## Value streams of a tuna fish

It is first essential to understand red and white tuna meat. The meaning of white meat is different depending on the region. In the US, only albacore can legally be sold as 'white' meat. In other regions, yellowfin can also be sold as 'white' meat. There are also different shades of white – in fact, skipjack, mainly used for the UK market, is a pink/salmon color.

Red meat is separated from the white meat. Many countries do not favor eating red meat, but some Pacific countries, like Papua New Guinea, prefer its taste profile. Cats may also prefer red meat. This is causing competition between human food and pet food.

Every single part of the tuna has value. The head contains valuable tuna oil used as a health supplement. The skin contains collagen used in the cosmetics industry. Bones are used to make calcium supplements. All other waste is used to make fish meal.

If conducting your analysis, be sure to account for every single kilogram. 1,000kg at the start of the process must equal 1,000kg at the end of the process. 100% input must therefore equal 100% output. A helpful reminder is to think of everything as a value stream and never call anything waste.

**There are three main value streams (white meat, red meat and other) that have four main uses.**

#	Value Stream	Sub Stream	Usage			
			Human Food	Pet Food*	Fish Meal*	Cosmetics & Supplements
1	White Meat	Steak	Yes	No	No	No
		Chunks	Yes	No	No	No
		Flakes	Yes	Yes	No	No
2	Red Meat	Bloody Meat	Low value markets only	Yes	No	No
3	Other	Guts, Head, Skin, Bones	No	Yes	Yes	Yes

\*Premium petfood uses lower cuts of tuna both white and red meat) as well as fish meal. Fish meal is also used in aquaculture feed and sometimes as a fertilizer

Source: Frost Procurement Adventurer Ltd

Each of these streams holds different values. The easy way to think about this is as an equation. **The sum of the value streams** must be the same/greater than **the cost of the whole raw frozen fish** plus **the cost of the primary preparation of the fish** (composed of defrosting, cooking, gutting and cleaning the loins).



From Whole Fish to Gutted & Cooked	
Whole Fish Piece	1,500
Primary Processing Cost	150
<b>Total</b>	<b>1,650</b>

Putting some numbers behind this equation enables us to estimate the value of the different value streams. Like all equations, they must balance.

**Input value = output value**

Part	Value Stream	% of the Fish	Cost per prepared ton of value stream (USD/T)	Value of Value Stream (USD/T)	% Value of Stream
<b>White Meat</b>	Steak	23%	3,810*	876	53%
	Chunks	13%	3,160*	411	25%
	Flakes	5%	2,395*	120	7%
<b>Red Meat</b>	Bloody Meat	10%	1,455	146	9%
<b>Other</b>	Guts, Head, Skin, Bones	49%	200	98	6%
<b>Total</b>		100%		<b>1,650</b>	100%

N.B. these costs include the conversion costs from whole frozen raw tuna to cooked and filleted tuna. Yields will vary by fish type and size, and the transparency the supplier gives regarding this information.

\*Use these numbers for your cost model

2018

Ecuador loin price EUR 4,780/MT  
China loin price EUR 4,530/MT

Source: Frost Procurement Adventurer Ltd

## Raw Material Tuna Prices

As shown by the cost model, tuna accounts for around 45% of the total value of a can of tuna, and there are a number of factors that impact the fish price. Catch sizes vs. demand is the most obvious factor; consumers stocking up on canned food during Covid lockdowns has been a key demand driver. Furthermore, the price of fuel for fishing fleets and the availability of labor to crew the fishing boats have been additional factors. Other points worth noting are:

### — Thailand vs. Seychelles vs. Ecuador

The pricing for these three tuna hubs correlates closely. There can be some occasional divergence in pricing, such as when Thailand was at a premium over the Seychelles in 2021. Another example of price divergence was when there was limited supply from Western and Central Pacific, due to Covid.

Thailand does not own any of its own fishing fleet and will drive competition between the sellers by such means as halting discharge of vessels in Bangkok. The sawtooth of Thai prices is an indication of more opportunistic buying.

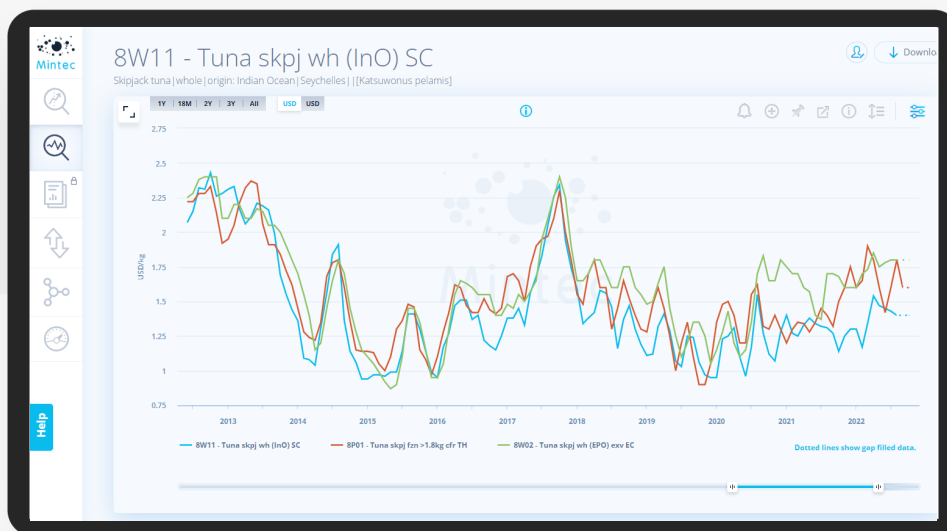
Ecuador, landing some 50% of tuna from its own vessels, tends to have slightly higher and more stable prices. If prices diverge by more than USD 200/T then there is a likelihood they will be diverted to more profitable destinations. The Seychelles and Mauritius tend to price slightly cheaper than Thailand due to the shorter distances from catching regions to port unloading.



Source: Frost Procurement Adventurer Ltd

- **FAD Ban** – Bangkok prices typically rise between July and September every year due to the lower catches as a result of the annual FAD Ban (Fishing Aggregating Devices that increase catch size).
- **EUR vs. USD** – a stronger USD means that purchasing becomes more expensive for buyers whose currency is not denominated in USD. If those buyers have to purchase goods in USD, with the USD strengthening, the products will become more expensive, even if the actual USD price remains unchanged.

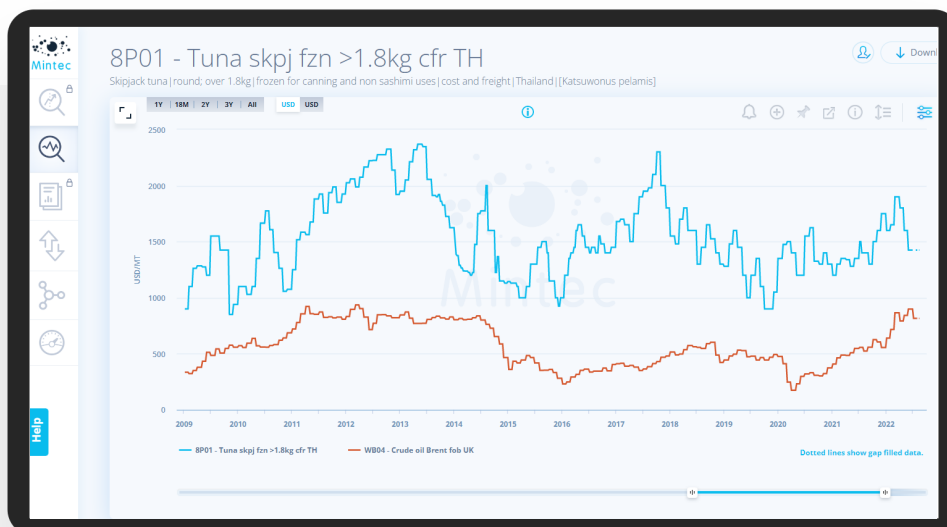




Source: Mintec Analytics

Looking over the longer term, over the last 13 years there is a meaningful correlation between the tuna price and the price of oil. This is not surprising, because tuna fishing vessels use considerable amounts of fuel as they often cover sizeable distances throughout their voyage. Also, as a source of protein, tuna will have some degree of correlation with other sources of protein, such as meat.

It should be noted that in the 1970s, the tuna price was USD ~900/T compared to today's prices of ~USD 1,500-1,800/T. An increase to this level over five decades is remarkably small compared to other protein sources. Tuna, therefore, remains a relatively affordable source of protein.



Source: Mintec Analytics

## Packaging

The cost model section shows that packaging costs an average of GBP 1,232/MT of the finished product – almost 25% of the total cost and around half the cost of the tuna itself. Most prepared tuna is still packed in steel cans or aluminum for small can sizes. There are other pack derivations, such as pouches (for convenience) and glass (for premiumization), as well as a variety of outer coverings, such as shrink wrap (multipack value) and cardboard sleeves (premiumization). As the industry still relies so heavily on steel and aluminum, this report focuses on both metals.

The COVID-19 pandemic caused packaging material prices to rise significantly in 2020 and 2021. However, steel and aluminum prices collapsed to pre-pandemic levels in the second half of 2022, significantly reshaping the packaging market landscape.

## Steel

Tight monetary policies significantly worsened the economic outlook for consumer industries in 2022, and the macroeconomy is a big driver for steel prices. According to the World Steel Association, global steel demand is estimated to fall by 2.3% in 2022 and will increase by only 1% in 2023, compared to a previous five-year average annual growth rate of 3%.

Energy costs are also key to the price of packaging materials. Rising energy prices amid the Russia-Ukraine war, particularly electricity, have also significantly contributed to the elevated cost of steel production. This factor is particularly noticeable in Europe, where electricity costs rose by an average of 40% during the first half of 2022. Rising tariffs have lessened the fall in steel prices, and if electricity costs continue to increase, this will be a significant factor in rising steel prices.

The Russia-Ukraine conflict has significantly impacted the steel market, resulting in changes in trade flows in the global market for finished steel, semi-finished products and raw materials. This is reflected in changes in traditional pricing in regional markets. However, market participants see the most recent price trend as temporary, as it is expected that trade flows will change again once the war ends. In line with the changes in trade flow, relatively high freight rates have also driven steel prices more recently.

## Aluminum

The aluminum market is generally affected by the same factors as the steel market. The differences lie in the smaller number of market players. For example, after Russia's military invasion of Ukraine, sanctions against the Russian aluminum market are still uncertain. It will be difficult to replace aluminum products that come from Russia.

Rising global energy tariffs will likely accelerate imports of aluminum semi-finished products from China, as production in Europe remains uncompetitive. However, with increasing protectionism worldwide, some subsidies for producers might be introduced, or import duties.

The aluminum consumption structure is highly oriented to transport and new technologies in the energy sector. Consequently, the demand for aluminum will be primarily driven by these sectors. Overall, the dynamics of the packaging market have recently been driven by the Russia-Ukraine war and the effect of the pandemic, so canned tuna manufacturers still face elevated packaging costs. However, some price relief reduces the share of packaging in the cost model once the effects of these recent market drivers subside.

Economy cans are typically wrapped in a paper label. Printed cans are perceived as premium products and are often favored in European countries like Spain, Portugal and Italy. Super-premium products often have an outer cardboard sleeve.

The cost model on an economy can includes a printed label. Market players should expect an additional ~10% for a printed can and an extra ~30% for a paper sleeve or outer wrapper.

Steel cans have historically been cheaper as a finished can than aluminum equivalents. More recently, aluminum cans have been cheaper in some markets once manufactured. This has resulted in some switching from steel to aluminum. Aluminum cans work well for small sizes, usually less than 160g of product, but are liable to dent as larger can sizes when palletized.

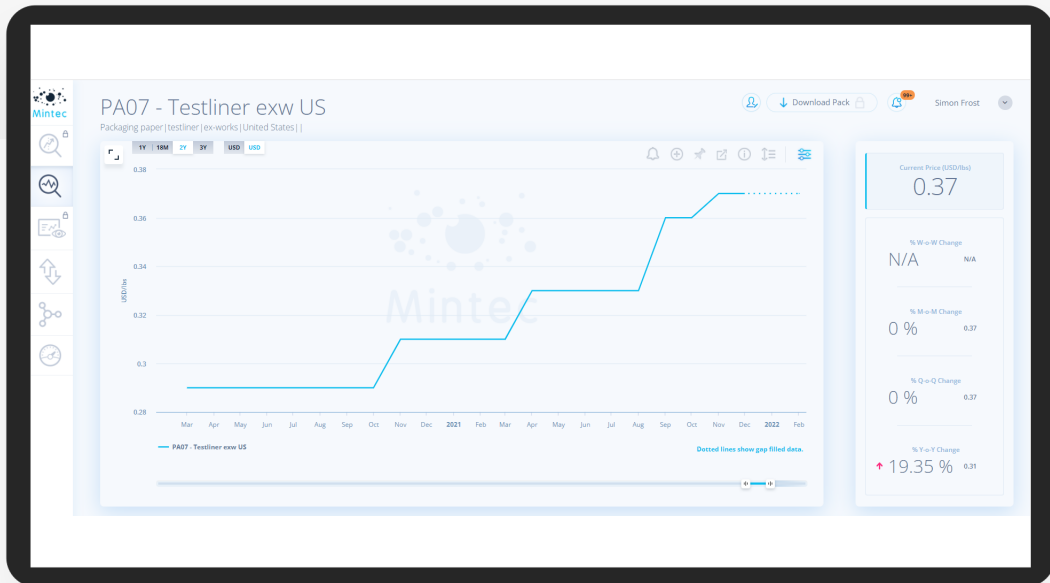
Some canneries, such as large firms in Thailand, produce their own cans onsite to minimize prohibitive logistics costs. Tapered conical cans are also used, and they permit more efficient and cheaper stacking of cans during transit. Damage rates of tapered cans during transit are also lower.



## Cardboard

Metal represents most of the packaging cost, but some 10% to 20% still comes from the outer cardboard box used for transit and storage.

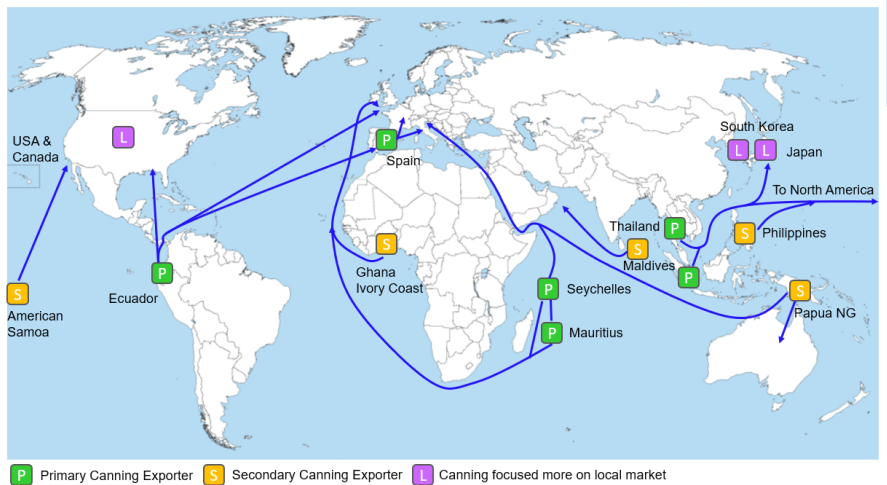
To minimize the cost of cardboard packaging, canneries have made numerous changes. For example, many have stopped printing colors on outer boxes or have reduced the specifications of shelf-ready trays (i.e., using thinner gauge cardboard, reduced color printing, and doing away with hoods where feasible).



Source: Mintec Analytics

## Logistics

Canned tuna is a product enjoyed globally and so will be transported to consumers on a multitude of sea routes. You can see the key trade routes on this map.



Source: Mintec & Frost Procurement Adventurer Ltd

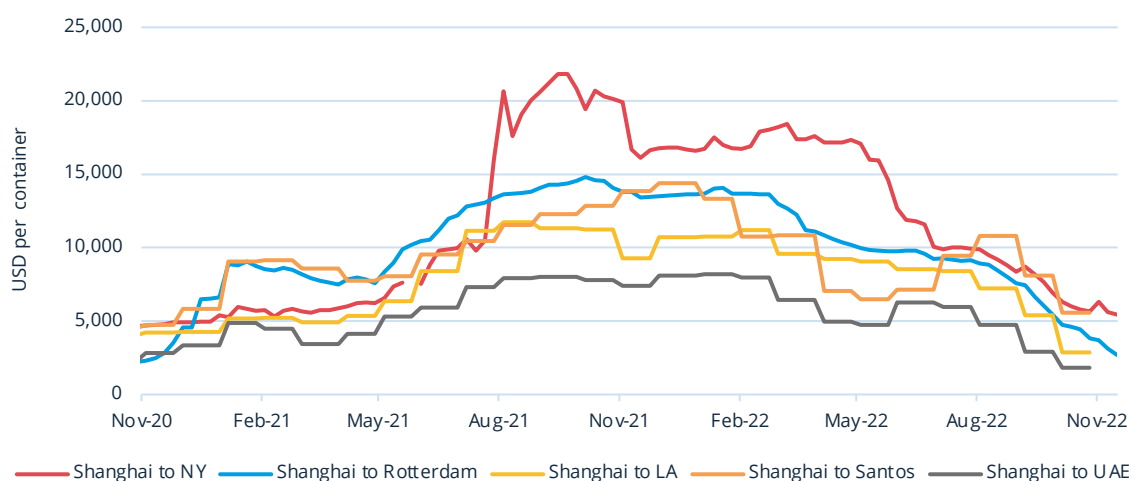
Naturally, routes will vary with some direct shipments and some containers being trans-shipments from smaller locations into major hub ports, like Singapore and nearby Port Kelang in Malaysia, and Durban for the Indian Ocean route into Europe. It is important to understand the general trend of shipping on the key routes, especially the flows east-west and west-east, where there have been significant trade imbalances.

Canning Country (Cluster)	Destination	Notes
<b>Thailand</b>	North America	Well placed to serve North America, as it is duty-free
<b>Thailand</b>	World	Multiple export countries, too numerous to describe
<b>Philippines /Indonesia</b>	World	Plays a similar, but much smaller role, like Thailand
<b>Seychelles Mauritius</b>	Europe	Well placed to serve Europe due to duty-free status
<b>Ghana, Ivory Coast</b>	Europe	Much smaller canning industry, but with a logistics advantage into Europe
<b>Spain</b>	Europe	Key feeder into Europe
<b>Ecuador</b>	Europe & North America	Strong to both regions for canned and loin
<b>American Samoa</b>	North America	A key feeder to North American canning

Source: Mintec

As China is the dominant manufacturing force in the region, container shipping will typically have a correlation to the Chinese sea lanes:

### Average price of a 40ft container from Shanghai to key markets



Source: Mintec



The cost of containerized freight on all routes out of China reached record highs in the second half of 2021, primarily on the back of pandemic-related transport disruptions, long port backlogs and tight container availability. Between June 2020 and October 2021, the average costs of a 40ft container from Shanghai to Rotterdam, Santos Brazil and New York increased by 767%, 761% and 666%, respectively.

Container prices across most of the Shanghai routes have gradually eased since Q2 2022, due to dampened demand amid high global inflation, a strong USD and a worldwide cost-of-living crisis. In the six months to mid-November 2022, average container prices across the five routes featured fell by an average of 55%, which correlated with weaker fuel prices and rising inventories of empty containers.

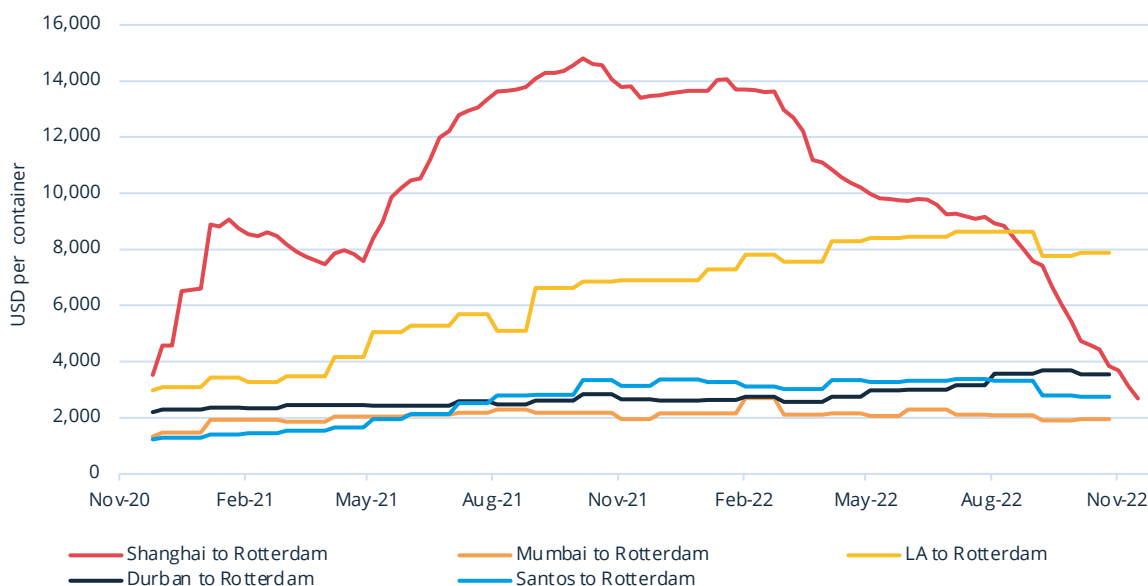
## European Ports

Canned tuna will route directly into all the major European ports, such as Rotterdam, Trieste, Hamburg, Le Havre, Marseille and Felixstowe:



Rotterdam port experienced lengthy bottlenecks through 2020 and most of 2021, related to the logistical disruptions caused by the COVID-19 pandemic. The disruptions were most pronounced on the incoming westbound routes, attributed to container shortages in the Asia-Pacific region. The cost for a 40ft container from China to Rotterdam traded at a 400% premium to Atlantic Ocean shipments in September 2021, from parity one year earlier.

### Average price of a 40ft container from various ports to Rotterdam



Source: Mintec Analytics

The price for a container from Shanghai to Rotterdam fell by 72% during the six months ending November 16, 2022, reaching a two-year low. The large premium for Shanghai-to-Rotterdam containers over other origins has now been completely eroded. The drop has been attributed to subdued demand for raw materials and manufactured goods due to economic uncertainty.

The war in Ukraine also affected demand along the Shanghai route. European demand for 40ft containers from LA increased in the months following the start of the war in Ukraine due in part to some substitution away from eastern hemisphere origins. This contributed to a large premium for LA-to-Rotterdam containers compared to other regions. Indeed, cargoes into Rotterdam from LA fetched a 192% premium over shipments from Shanghai to Rotterdam on November 15, 2022, compared to a 49% discount against Shanghai cargoes one year earlier.

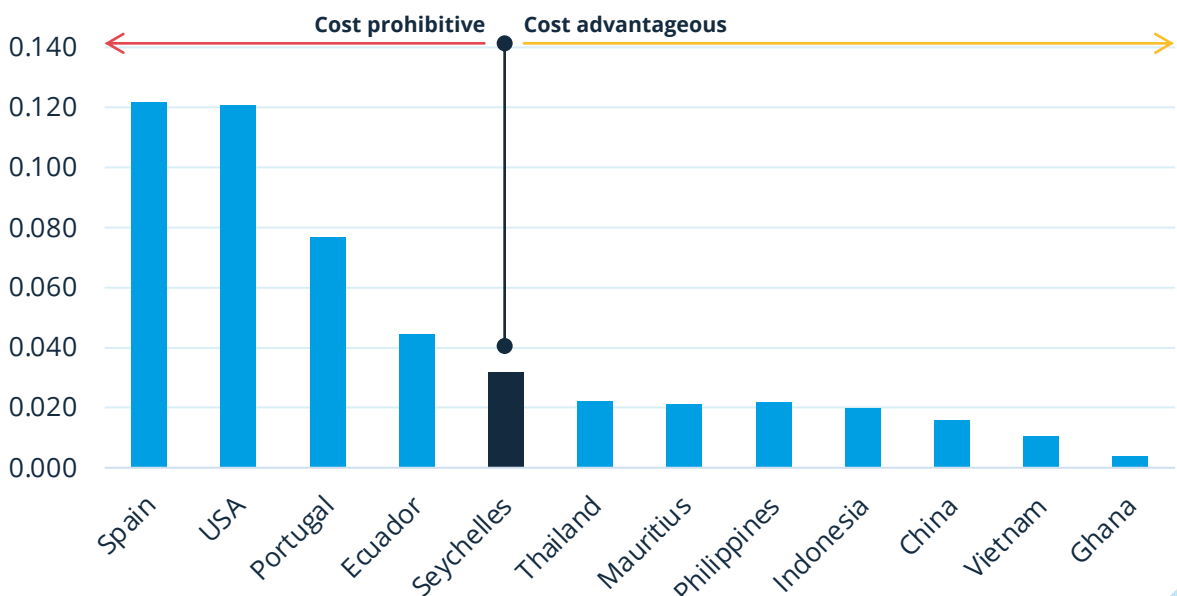
## Labor

Canning tuna is a labor-intensive task. However, tuna is typically canned in lower labor rate countries. For context, the labor for tuna canned in Thailand represents only ~3%-4% of the ex-works price.

Looking at the labor rates below and using the Seychelles as a datum point for sales into Europe, other observations that can be drawn are:

- The reason **Spain** and **Portugal** import cooked loins is to benefit from the lower labor rates in countries like Ecuador and China.
- Similarly, **US canneries** perform upstream labor-intensive production steps in US territories such as Puerto Rico and American Samoa.
- **Ecuador** has a slight labor cost disadvantage compared to the Indian Ocean canneries.
- **Ghana** is attractive for supplying Europe not just for the cheaper shipping, but also the very low labor rates.
- Commercial buyers need to put in place suitable due diligence to ensure fair conditions for migrant labor, such as from Burma to canneries in Thailand.

### Labor cost - minimum wage (USD/minute)



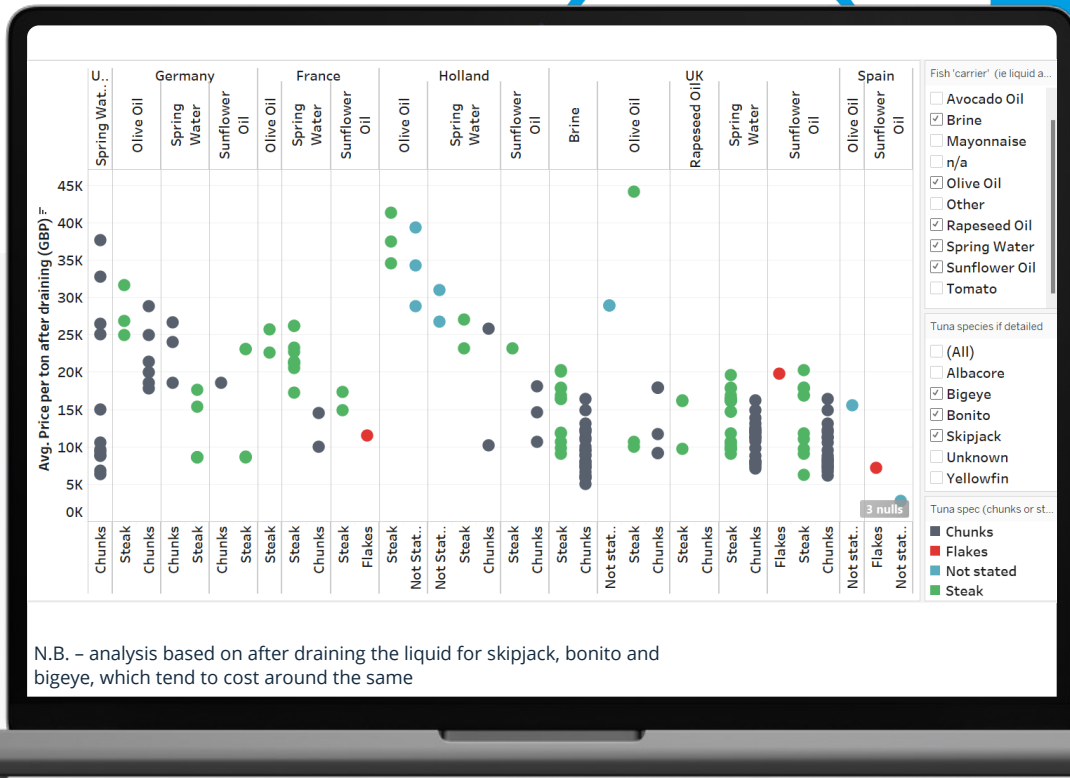
## 2) What are the retail price trends of canned tuna?

Having investigated seven key areas of retail pricing, there is now an extensive database of prices across global retailers.

#	Area	Description
1	Tuna Grade	Analyzing the retail pricing of products made from steak, chunks and flakes
2	Tuna Species	Assessing how tuna species are used as standard or premium products (skipjack, albacore, yellowfin, bigeye and bonito)
3	Fish Carrier	Comparing different liquid carriers: spring water, brine and different vegetable oils
4	Value Add Products	How the addition of ingredients (like mayonnaise, tomato and sweetcorn) and different pack formats (like smaller cans and pouches) are used for premium positioning  Reviewing products that are positioned with additional claims and functionality (such as John West's Immunity, Heart, Energy products)
5	Branded vs. Own Label	Comparing the price premium for branded products over own label products
6	Can Weights and Drain Weights	Assessing whether different can weights and drain weights have an impact on retail prices
7	Sustainability	Reviewing sustainability drivers and their impact on cost

# 1 - Tuna Grade (steak vs. chunk vs. flake)

It may be assumed that tuna steak is always sold at a premium over tuna chunks. Surprisingly, the premium of steak over chunks is not as pronounced as one might think. The premium can be seen, for example, in French products in spring water, but in the UK, the premium is less pronounced:



Source: Mintec & Frost Procurement Adventurer Ltd

From a marketing point of view, it would be understandable to price steak higher than chunks as it is likely to have a perceived higher quality for the consumer.

From a production point of view, once the tuna loin has been removed from the fish, the main quality grades are the white meat (human grade) and the red meat that is predominantly used in petfood. White meat steak, chunks and most of the flakes still come from the same loin.



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Products based on the lowest grade of tuna (flakes) are not widely sold except in the US, where cheap products made from flakes are padded out with fillers, and a few products in France, the UK and Spain.

From a UK perspective, a product composed of flakes is the lowest grade of product and usually has a high water/brine content. It is noteworthy that the UK flake product selling for USD 23.4k/T has a “twist of lime in it”. The lime will not increase costs by much and it is used to suggest premiumization. Flakes are often used as a base when other ingredients like mayonnaise and sweetcorn are added. In France, the flakes are used in rillette (tuna flakes but positioned as a rillette, a type of rough pate).

Another important point for the European consumer is that the specification of tuna is not always clear until the can has been opened. For example, a French product might be described as having “morceaux”, which means pieces. The question is whether these “pieces” are flakes or chunks. Furthermore, are there chunks that could actually be more like a flake? Canneries permit the use of flakes in steak and chunk products to a level between 15% and 25%, but this range can get stretched.

The US market is more extreme. Flakes can be very small and may not even be skipjack or an identified tuna. The flakes may be bulked up with jelly and the can may therefore have an extremely low overall fish content.

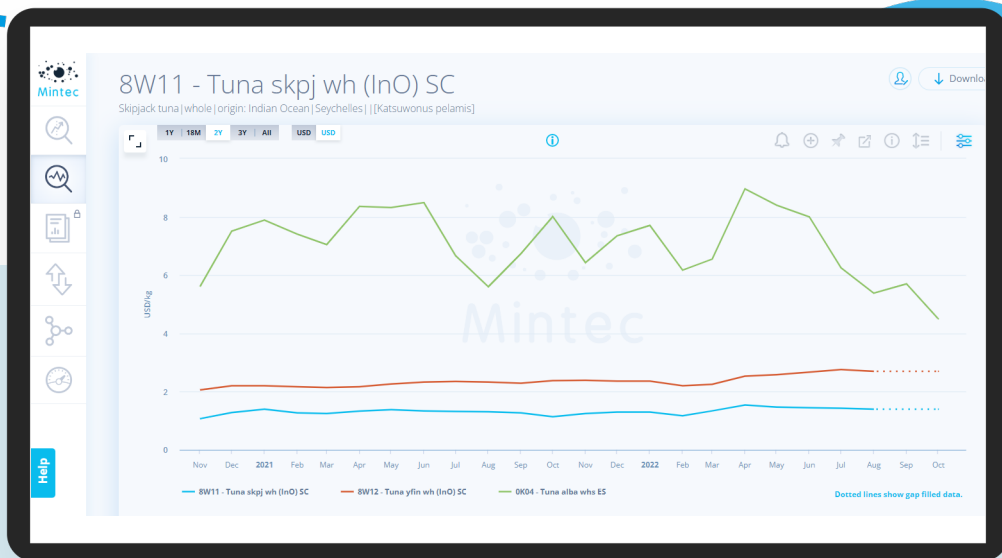
## 2 - Tuna Species

The preference for different species varies considerably by country. In northern European countries, like Holland, Germany and the UK, skipjack is a popular choice. Albacore is only used in premium products with an olive oil base. In southern European countries, like France, Spain and Italy, albacore and yellowfin are preferred. It is noteworthy that albacore attracts a premium over skipjack.





Source: Mintec & Frost Procurement Adventurer Ltd

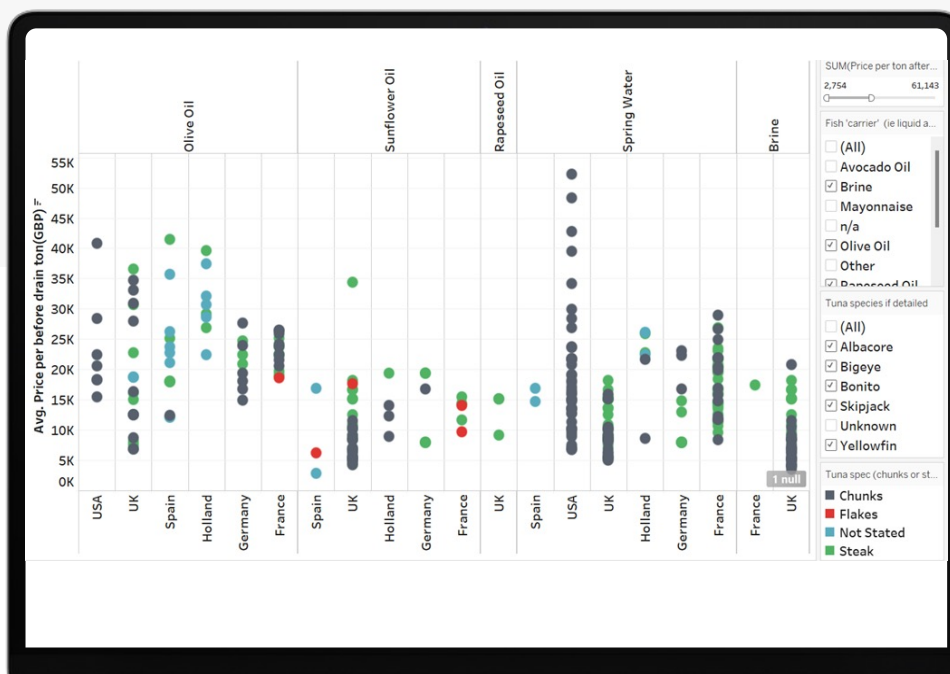


Source: Mintec Analytics

### 3 - Fish Carrier (Oil and Water)

Comparing oil and water, it is only olive oil that attracts a premium over the water/brine-based products. Other oils, such as sunflower or rapeseed, were line-priced with the water-based products. However, recent supply issues caused by the war in Ukraine have resulted in some premium also being applied to these products.

Spring water attracts a premium over brine. The exception is when the spring water is imported from a distance, like the Maldives. The premium for spring water, if extracted from a local source, is a marketing tool and is unjustified.



Source: Mintec & Frost Procurement Adventurer Ltd

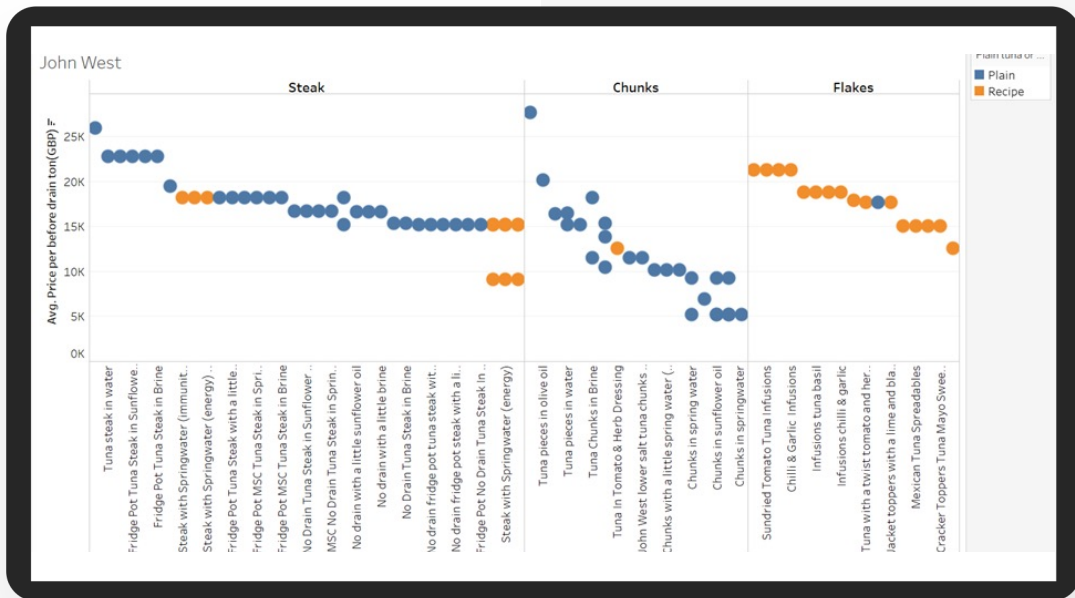
### 4 - Value Add Products

Brands are creative in how they make products with cheaper ingredients. These products are then sold at higher prices with premium positioning. Broadly speaking, the value-added products fall into the following categories:

- **Functional** – There are functional products, such as John West's Immunity and Heart, with minor additions of 'claim' materials such as acerola (at 0.2% inclusion), calcium or Omega-3. For the UK functional steak product detailed in the graph below, the same product is being sold by different retailers at significantly different prices (range USD 23,400/T down to USD 11,000/T). This discounted rate suggests the product is not selling well.

— **A dash of something** – products with a dash of something, such as lime, are aimed to premiumize products but are often composed of cheap cuts, such as flakes, and are therefore highly profitable.

— **Convenience/Added Interest** – the addition of ingredients like sweetcorn, tomato and mayonnaise are a specialty of Rio Mare. Flakes are used as the base and this is a clever way to gain significantly more value from the can, especially as the tuna only makes up 25% of the recipe.



Source: Mintec & Frost Procurement Adventurer Ltd



## 5 - Branded vs. Private Label

Perhaps unsurprisingly, branded canned tuna is sold for more than own label. But there are certain own label products that are sold for much higher prices, like the outlier in the UK that is sold for the equivalent of USD 43,100/T. It is marketed as “Ventresca” which is in fact albacore, the prevailing species sold in France and Spain.

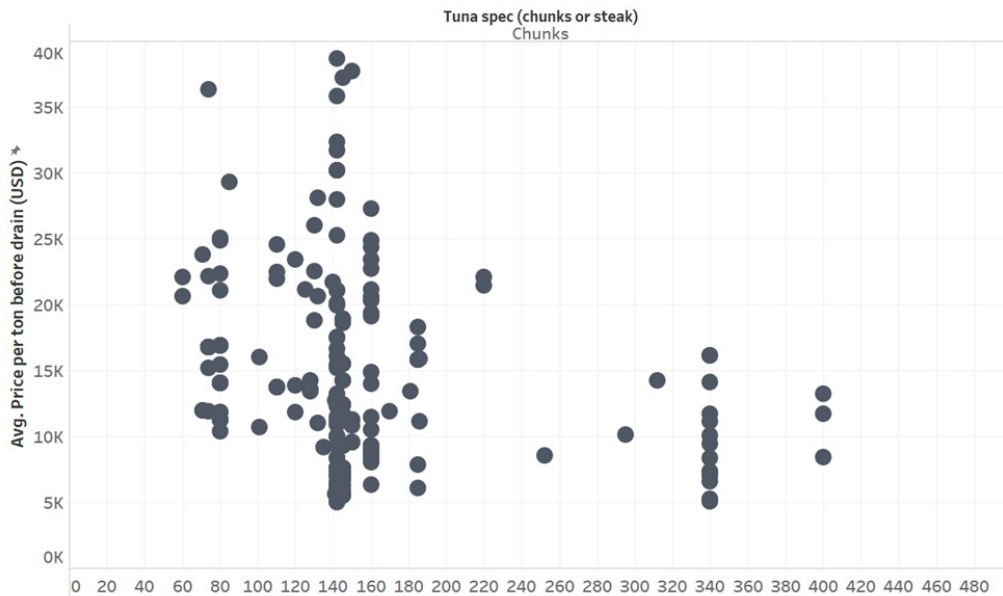


Source: Mintec & Frost Procurement Adventurer Ltd

## 6 - Can Weights and Drain Weights

Like many traded products, the bigger the pack size, the lower the price. For instance, 60-80g cans appear to sell at a slightly higher price per kilogram than 140-180g cans. Cans over 240g are sold at a lower price per ton (or kg). It is also incisive to explore the huge spread of costs per pack size, using as an example the classic 142g pack with the cost spread of USD 5,000/T up to USD 40,000/T.





Source: Mintec & Frost Procurement Adventurer Ltd

Some of this spread can be attributed to the percentage inclusion of tuna vs. liquid, the species of tuna, and the type of carrier liquid. However, much of the spread relates to marketing and the profitability of the brand. As seen previously, skipjack tuna chunks are estimated to be worth ~USD 3,200/T (or ~ USD 1,000/T more for albacore), so a product sold at USD 5,000/T will have a tight profit margin. But a product sold at a price greater than USD 15,000/T is likely to have a very healthy profit.

The true cost impact of the tuna is best understood by looking at prices after draining the carrier liquid. The trend is not totally clear, but there does appear to be a theme:

- **Chunks** – seem to be better value for the consumer at a lower percentage inclusion and worse value at a higher percentage inclusion.
- **Steak** – seems to be worse value for the consumer at a lower percentage inclusion and better value for the consumer at a higher percentage inclusion.



## 7 - Sustainability

Tuna is a product that receives significant press attention regarding its sustainability. This attention can relate to the health of tuna stocks, the by-catch, the maltreatment of workers on fishing vessels and high levels of mercury. While there are undoubtedly sustainability issues in the tuna sector, some of which are very serious, programs such as *Seaspiracy* and media campaigns such as *Human Rights At Sea* (HRAS), *Shark Guardian*, and *On the Hook* have attempted to sensationalize the issues.

These campaigns sometimes use information that is inaccurate. Conversely, an increased number of documentaries have focused on sustainability through the use of spectacular footage. Factual objectivity is imperative. There is a detailed section on sustainability further down this report.

To ensure a balanced view, during the course of this study, a number of leading sustainability experts who specialize in tuna were consulted. The consensus was that the purse seine fishery and canning industry has taken positive steps over the last few years to meet international standards, the biggest risk being over-fishing of yellowfin in the Indian Ocean. An additional concern relates to longline fishery, with possible human rights violations, and illegal, unregulated, unreported fishing (IUU) mostly an issue for albacore.

From a consumer perspective and for retail buyers, it can become quite complicated when looking at the issue of sustainability due to the number of claims being made. Some products even have multiple claims per pack. Additionally, many consumers may not be aware of the meaning of acronyms, like FAD.

It is worth outlining the key fishing methods, issues, debates, claims, certifications and organizations.



Credential	Description	Manage tuna stocks	Minimise by-catch	Worker rights
<b>Fishing Method</b>				
<b>Purse Seine Caught with FAD</b>	Purse seine are huge draw string nets used to encircle shoals of tuna. 63% of tuna is caught with this method.			Well managed fleets
	The use of fish aggregating devices (FADs) can result in significant by-catch and a higher percentage of juvenile fish. FADs are satellite-tracked floating buoys that attract fish, and measure and report on the quantity of nearby fish and tuna species. They are becoming increasingly sophisticated and numerous. However, thousands of obsolete FADs float as waste.			Poorly managed fleets and fisheries
<b>Purse Seine FAD-free</b>	FAD-free purse seine targeting free-schools results in less by-catch and juveniles being caught. Some fisheries have a FAD ban lasting 3 months from June-Sept to replenish stocks.		100% third party observers and chain of custody	Well-managed fleets and fisheries
	Traceability to determine if the catch is actually FAD-free can be an issue.		Without proper system	Poorly-managed fleets and fisheries
<b>Pole &amp; Line</b>	Tuna is caught by hand and ensures no by-catch. There is a risk that the harvest of the bait fish (sardinella) in inshore areas depletes reef resources. Diving to catch bait fish has resulted in some deaths.			Conditions on boats
	Conditions on boats are typically fine, especially as boats are usually only at sea for a matter of days.			Bait fish divers
<b>Long Line</b>	Limited to albacore fishing, the long line method is the most likely to result in by-catch and is a particular risk to dolphins, turtles and sharks. IUU fishing on the high seas is a concern.	Increasingly managed		

Credential	Description	Manage tuna stocks	Minimise by-catch	Worker rights
<b>Drift (Gill) Nets</b>	Extensively used off the coastal areas of the Indian Ocean, this is a very unselective method. Industrial scale drift netting is globally banned under the Wellington Convention, limiting drift nets to under 2km. This type of fishing is used more by local communities and fish are less likely to reach commercial canneries.			
<b>Certifications, Claims, and Organizations</b>				
<b>MSC Certified (Marine Stewardship)</b>	<p>The MSC standard is the gold standard used to assess if a fishery is well-managed and sustainable. It also assesses traceability and worker rights. The MSC has been criticized for certifying some fishing stocks that had questionable sustainability records, a lack of third-party observer coverage, and a reliance on self-certification.</p> <p>Despite this, it is still the most robust certification for managing stocks and minimizing by-catch. There is a concern that the MSC should do more to protect its brand when paired with less reputable sustainability logos.</p>	Generally high, but has lost some credibility with the certification of the whole fishery without the differentiation of free school caught vs. FAD caught	Generally high, but depends on the third-party certification body's assessment vs. the MSC standards	Not a primary driver
<b>Responsibly Sourced</b>	While responsible sourcing is important, it is important to understand what is meant by 'responsibly sourced' as it is a loosely-used term.	Premised against self-certification. Limited meaning		
<b>100% Traceable</b>	<p>The principle of traceability is significant, but it is dependent on understanding the implication of where and how the fish is caught.</p> <p>There have been doubts about the robustness of some traceability programs that claim to be able to trace fish to particular oceans and vessels.</p>			n/a

Credential	Description	Manage tuna stocks	Minimise by-catch	Worker rights
<b>Friends of the Sea</b> <b>Dolphin Friendly</b> <b>Earth Island Institute (EII)</b>	<p>Tuna do not co-habit with dolphins, except in the eastern Pacific Ocean. The schemes allow self-certification for an annual fee. Membership and the use of logos are often leveraged by brand demands.</p> <p>Fishers, processors and brands are strongly encouraged to only trade with other members to be compliant. Non-compliant companies potentially face blacklisting. Most companies, fleets and processors subscribe to the nominal fees to avoid conflict.</p> <p>The schemes generally do excellent work to raise awareness of the direct slaughter of dolphins, such as the Japanese Taiji Slaughter.</p>	Not robust methodology and auditing		n/a
<b>ISSF</b> <b>(International Sustainable Seafood Foundation)</b>	<p>A major US-based group sponsored by big global brands, processors and fleets who see commercial benefit in paying significant membership subscriptions. Like EII, it calls on members to only trade with companies that are members. ISSF maintains that it is not a certification body or standard, but promotes sustainable fishing among its members. It works closely with the MSC.</p> <p>The ISSF works to support the MSC and invests in research, training and lobbying. However, it is not without controversy. The previous chairman and founder of the ISSF was jailed for leading a massive price rigging scandal in the US trade.</p> <p>Furthermore, ISSF comes under considerable scrutiny from Greenpeace.</p>		The schemes are audited by a reputable third party, but the audit is only at the level of members' policy declarations	n/a
<b>FSP</b> <b>(Fishery Improvement Plan)</b>	<p>A Hawaii-based group that works with industry and stakeholders to improve fishery. Such actions are called a Fishery Improvement Plan (FIP).</p> <p>It is not a certifying body, but it maintains a database covering each stock, its science and management <a href="https://www.fishsource.org/">https://www.fishsource.org/</a></p>		Works with industry but does not conduct any certification	n/a



Credential	Description	Manage tuna stocks	Minimise by-catch	Worker rights
<b>FIP</b> <b>(Fishery Improvement Plan)</b>	The commitment of an industry group to reach certain sustainability goals required for certification, like MSC standards.	Unless monitored by a third party, it is just a self-certification claim. Often referred to as 'MSC light', the proof is if a fishery enters a FIP and later achieves MSC certification		n/a
<b>PACIFICAL</b>	<p>Pacificall is a cooperation between Parties to the Nauru Agreement (PNA) governments that operate full observer coverage and compliance, monitoring industry in PNA waters within the WCPO. Each fishing trip is fully monitored by observers, so all aspects of compliance, including human rights, are monitored. Tuna are tracked based on being free school or FAD and kept separate throughout the trip. This includes transshipment up to the processor.</p> <p>At the processor, through to can codes and the retailer, separate Code of Conduct (COC) schemes are applied. This is supported by blockchain and allows a can to be credibly traced by the can code on the lid to the fishing trip and set type.</p>	Extremely high, but limited volumes	Extremely high as it is a credible and audited end-to-end scheme. The PNA COC scheme is subject to independent audit of actual data, not self-declarations	
<b>GDST</b> <b>(Global Dialogue on Seafood Traceability)</b>	Global Dialogue on Seafood Traceability (GDST), is an emerging industry standard for seafood traceability. Initial trials are being conducted with Pacificall and others.	Expected to be a new common benchmark for traceability		n/a

Source: Frost Procurement Adventurer Ltd



## Sustainability by Species and Oceans

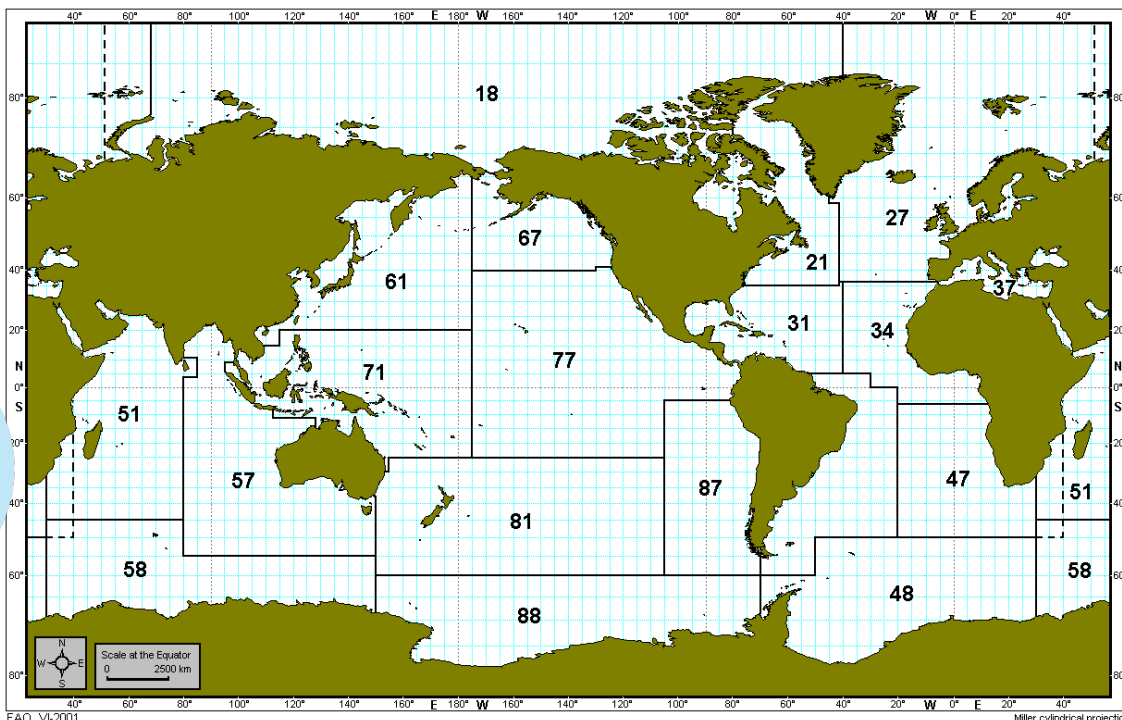
When it comes to ranking the sustainability risk for different tuna, there are some key trends. The bluefin and bigeye are the most endangered and conversely, the skipjack is quite sustainable. However, it is critical to review the species on an ocean-by-ocean basis, as some oceans are well-managed compared to others.

At a species level, the aggregate rankings are:

Species	Status	Action
Bluefin	Critically endangered	Avoid consumption (not typically used for canning)
Bigeye		
Yellowfin	Threatened	Minimize consumption, especially albacore from the Atlantic and Indian oceans, and Yellowfin from the Indian Ocean
Albacore		
Skipjack	Most sustainable stock but may still result in by-catch	OK to eat

Source: Frost Procurement Adventurer Ltd

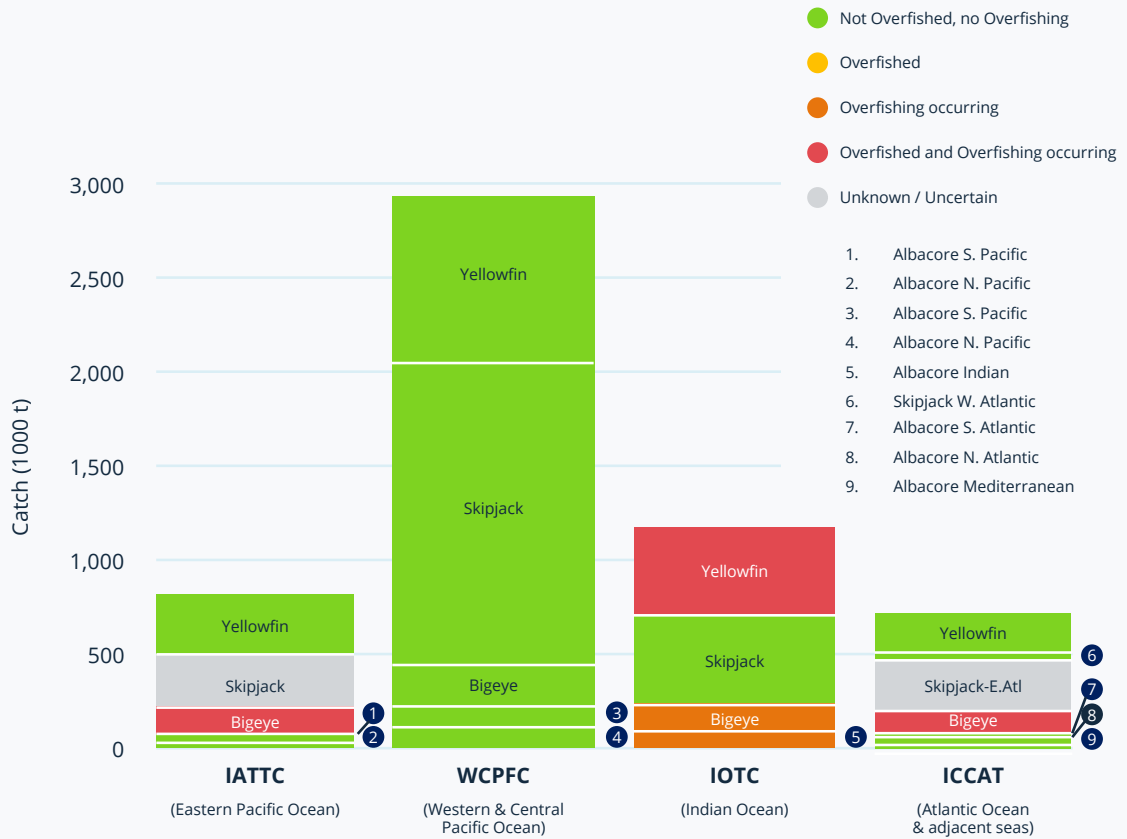
It is now necessary to look at this on an ocean-by-ocean basis, the key oceans being:



Source: FAO



At an ocean level, it appears that the largest fishery, the Western Central Pacific Ocean (WCPFC), is being well managed. The major issue relates to Indian Ocean yellowfin and bigeye in the other oceans.



Source – Western Central Pacific Fishing Commission

In its 2022 report, the International Seafood Sustainability Foundation (ISSF) states that on a global scale 65% of stocks are at a healthy level of abundance, 13% are overfished and 22% are at an intermediate level. In terms of exploitation, 74% of the stocks are not experiencing overfishing and 22% are experiencing overfishing. It varies considerably by species and ocean.

Stock	Catch	SSB	F	Bycatch
<b>Albacore tuna</b>				
PO-ALB-N	55			
PO-ALB-S	70			
AO-ALB-N	31			
AO-ALB-S	18			
AO-ALB-M	3			
IO-ALB	38			
<b>Bigeye tuna</b>				
EPO-BET	75			
WPO-BET	131			
AO-BET	57			
IO-BET	83			
<b>Bluefin tuna</b>				
PO-PBF	14			
AO-BFT-E	35			
AO-BFT-W	2			
SH-SBT	16			
<b>Skipjack tuna</b>				
EPO-SKJ	326			
WPO-SKJ	1711			
AO-SKJ-E	207			
AO-SKJ-W	19			
IO-SKJ	555			
<b>Yellowfin tuna</b>				
EPO-YFT	265			
WPO-YFT	625			
AO-YFT	149			
IO-YFT	433			

Where:

Source: ISSF (International Seafood Sustainability Foundation)

--- SSB = Spawning Biomass, F = Fishing Mortality. Catch = 2020 Catch in '000s of tons.

--- Catch Ocean: PO = Pacific Ocean, EPO = Eastern Pacific Ocean, WPO

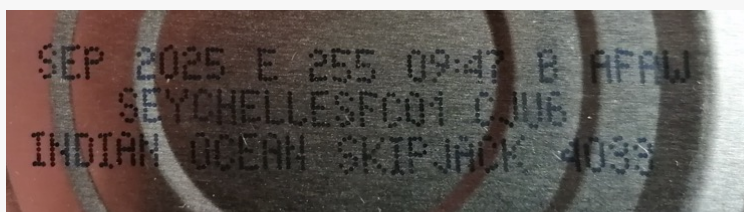
= Western

Pacific Ocean, AO = Atlantic Ocean, IO = Indian Ocean.

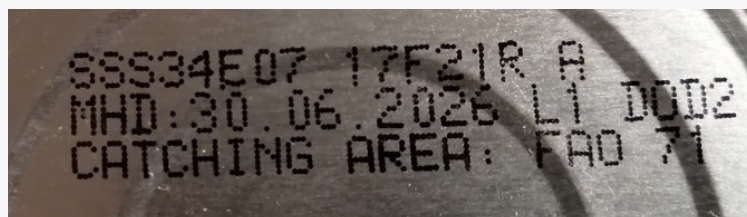
As canned tuna may list multiple oceans of origin, it can be difficult for consumers to avoid buying tuna made from high-risk stocks. Consumers can, however, avoid higher-risk species, such as yellowfin, because the species is usually named on the can if it originated in processors based in areas of concern, like the Indian Ocean.

The above table shows that it is possible to have a tuna species from a given fishing area as 'green' for spawning biomass and fishing mortality (telling us that the tuna stock is healthy), but a high risk of by-catch. Albacore from the Indian Ocean is one such example. Another example could be artisanal gill net-caught yellowfin from Indian beach fishery. The treatment of workers on fishing boats is far less transparent, and the ability of a consumer to tell how well the workers are being treated is very low. It is for these reasons that observer coverage at sea, traceability and validation of claims is critical.

Most markets demand that the origin of the fish be stated on the can, either by catching area code or ocean name. Some cans may also name the canning country.



This coding is of some use, like being able to avoid Indian Ocean yellowfin, but oceans are vast and different fishing methods are used in the same ocean as well as multiple catches being combined.

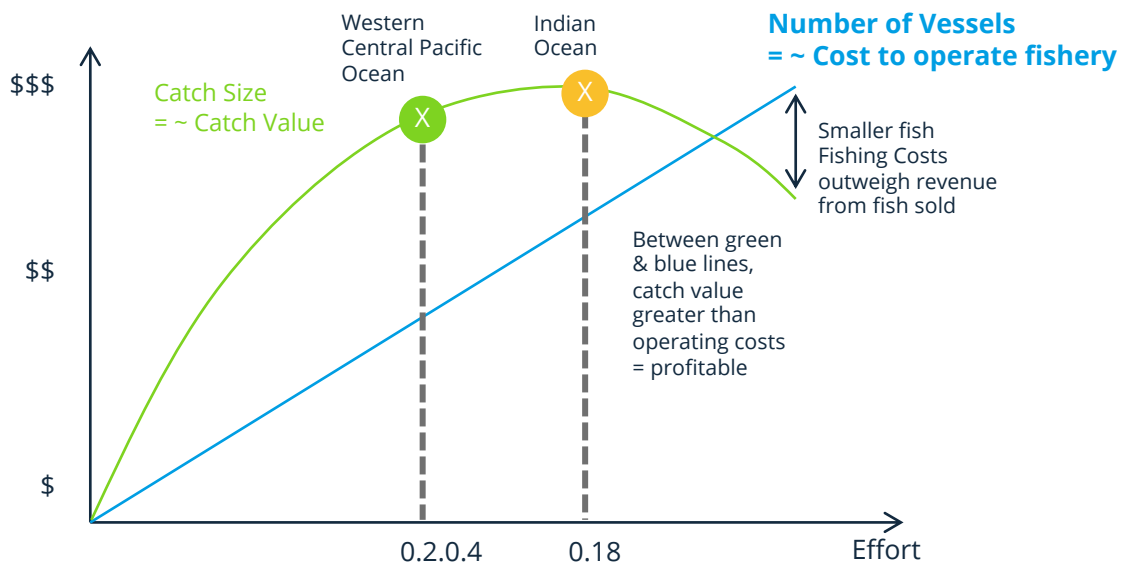


Currently, the traceability of origin is limited, and some declarations are clearly wrong, referencing oceans where the named species does not occur. The growing trend of preparing loins in one country and canning in another makes traceability even more difficult.

## Fisheries Management

It is perfectly possible to manage a fish stock in a sustainable way, something that the WCPO does well. It has struck the right balance between catch size and hence catch value by limiting the number of fishing days per annum.

Interestingly, while it limits the fishing days, it has no limit on the number of boats that can bid to fish. This has resulted in higher competition between vessels, increasing the fees per vessel from ~USD 500-2,000 per day ten years ago to USD 10,000-12,000 today. In contrast, the Indian Ocean has too many fishing boats fishing too many days. Without sufficient control, this results in stocks that are unsustainable and fewer profitable vessels.



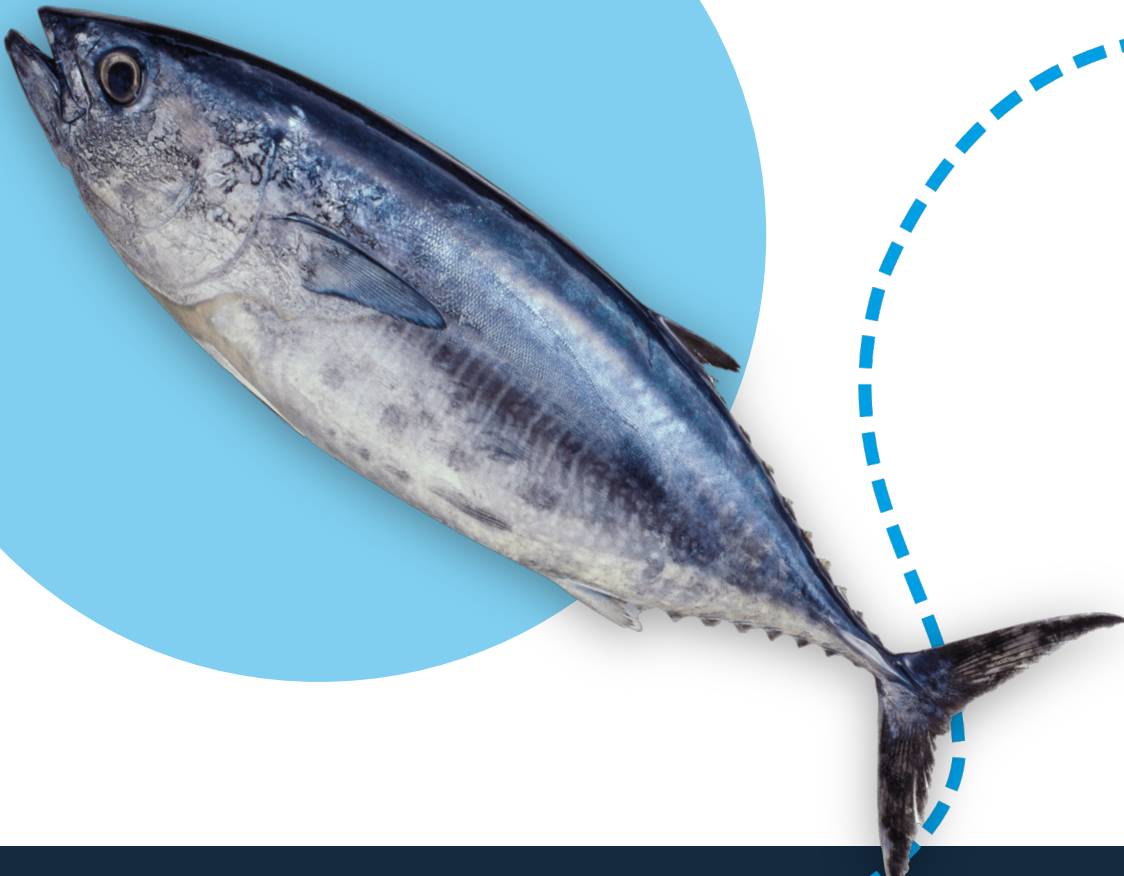
Source: Independent tuna expert

## Cost of Sustainability

It is difficult to calculate the cost of sustainability on the finished canned product because the finished retail prices depend on many factors. These include but are not limited to: catching method and origin, selling region, tuna species, design of the product (steak/chunk/flake), with or without oil, and the strength of the brand. Furthermore, some products have multiple sustainability claims.

There are, however, some known factors:

- **MSC** – it is cited in the industry that MSC-certified tuna attracts a USD 75/T-150/T premium for the landed fish. This is not reflected in the extra cost of production, which is minimal.
- **FADs** – fishing using FADs is not permitted between July and September every year in the Western Pacific Ocean. As FADs increase the size of the catch by between three and seven times, and with an estimated 100,000 FADs in the world's oceans, the price of landed tuna can increase by USD 100-250/T during the FAD ban, but the trend is not always consistent.





### 3) How is the consumer offer for canned tuna evolving?

The consumer offer for canned tuna varies considerably by region and is evolving in different ways. For example, UK supermarkets position tuna as a larger staple, whereas in Spain or Portugal, the packaging is beautiful and merchandised equally well. Iberian consumers are likely to be more discerning with their purchase decisions based on satisfying emotional needs and function requirements.







To understand how the consumer offer is evolving, it is necessary to explore the:

1. Contents of the can
2. Packaging formats
3. Marketing of the products

It is now important to look at how these three elements interact with one another.

#### Contents of the Can

When it comes to the contents of the can, producers have five main variables to contend with: the tuna species, cut of tuna, the percentage inclusion of tuna, carrier liquids, and the addition of other materials over and above the tuna and carrier liquid:

Variables	Economy	Standard	Premium	Super premium
<b>Tuna Species</b>	Skipjack	Albacore (in Mediterranean)	Albacore (in UK)	Yellowfin Bonito del Norte*
<b>Tuna Cut</b>	Flakes/Chunks	Chunks	Steak	Fillet
<b>Carrier Liquid</b>	Brine	Spring Water Sunflower Oil	Olive Oil Or Drained	Virgin Olive Oil
<b>Example - plain</b>				
<b>Example - recipe</b>	Typically, there aren't many, as by their nature, economy products need to be cheap and easy to make			Typically, there aren't many as super premium is all about the purity of the product

\*Ventresca Bonito del Norte - is not actually bonito but the belly cut from albacore tuna caught in the Cantabrian Sea off the north of Spain

In decades past, tuna was a simple commoditized product composed of the can, the tuna and the carrier liquid. More recently, brands have taken the initiative to premiumize their products by adding albacore or yellowfin products to the range. They may also switch from chunks to steak or use virgin olive oil instead of sunflower oil. 'No-drain' has been a clever move because some consumers do not like products in brine or oil. Furthermore, 'no-drain' products alleviate the mess from draining the can and reduce the logistics cost of having to move 15-30% of the liquid.

Recipe products with additions like mayonnaise, tomato or sweetcorn further increase product interest. These additional materials are cheaper than the tuna, reducing the overall material costs. They can also mask cheaper cuts of tuna, especially flakes. Functional products are slightly different because the percentage inclusion of additional materials is very low, usually less than one or two percent, and serve only as a claim. Hydrolyzing protein may be added to visually bulk up contents.

When comparing an economy product, like skipjack chunks in brine, with other formats, we can then see the value of related products, like tuna salad. The materials in the tuna salad represent just 5% of the total RRP vs. 20% in the economy product. So, it is expected that there will be an effort by brands to promote these types of products. Super premium products are also very profitable for brands, an example being albacore in olive oil. Producers may, however, face challenges; drained skipjack steak with minor health inclusions contains more expensive materials but cannot attract such high RRP premiums.

Product details	Economy	Standard	Premium	Super premium
<b>Plain or recipe SKU</b>	Plain	Recipe	Recipe	Plain
<b>If recipe, example recipe</b>	n/a	Tuna salad with beans & sweetcorn	Healthy with 0.3% buckwheat	n/a
<b>Tuna Species</b>	Skipjack	Skipjack	Skipjack	Albacore (Bonito del Norte)
<b>Tuna Cut</b>	Chunks	Chunks & Flakes	Steak	Fillet
<b>Carrier</b>	Brine	Maize Oil	Drained (Spring Water)	Olive Oil
<b>Tuna inclusion</b>	70%	26%	94%	70%
<b>Cost of fish &amp; liquid (GBP/T)*</b>	1,700	1,100	3,500	6,500
<b>Typical Supermarket RRP (GBP/T)*</b>	8,500	24,000	12,500	41,000
<b>Materials as a % of RRP**</b>	20%	5%	28%	16%
<b>Ratio material to RRP ranking</b>	<b>3rd</b>	<b>1st</b>	<b>4th</b>	<b>2nd</b>

\*material prices will fluctuate and vary from country to country and over time so these are indicative

\*\*similarly RRP's fluctuate and vary by region

Source: Mintec & Frost Procurement Adventurer

## Packaging

The key dynamics that shape the offer for packaging are the format, weight, materials and premiumization.

### Format

The can will continue to play a key role in terms of format, but there are derivations of the can that have been introduced, together with some non-can formats. In addition to cans, convenience products are packed in pouches. Super premium products tend to use glass jars. Outer sleeves and boxes may also be used for product differentiation. Plastic pots are now also used to provide the option of storing the product in the fridge once opened. Cans denote 'commodity' and it is perceived that producers are doing everything they can to de-commoditize tuna:



Economy



Value add



Value add



Super premium

The shape of the can is also important. Economy products are usually packed in three-part cylindrical cans or a two-piece pressed can, whereas non-circular cans are used to denote higher quality products. Lithograph-printed cans hint at higher quality vs. cans with paper labels:



Economy



Premium



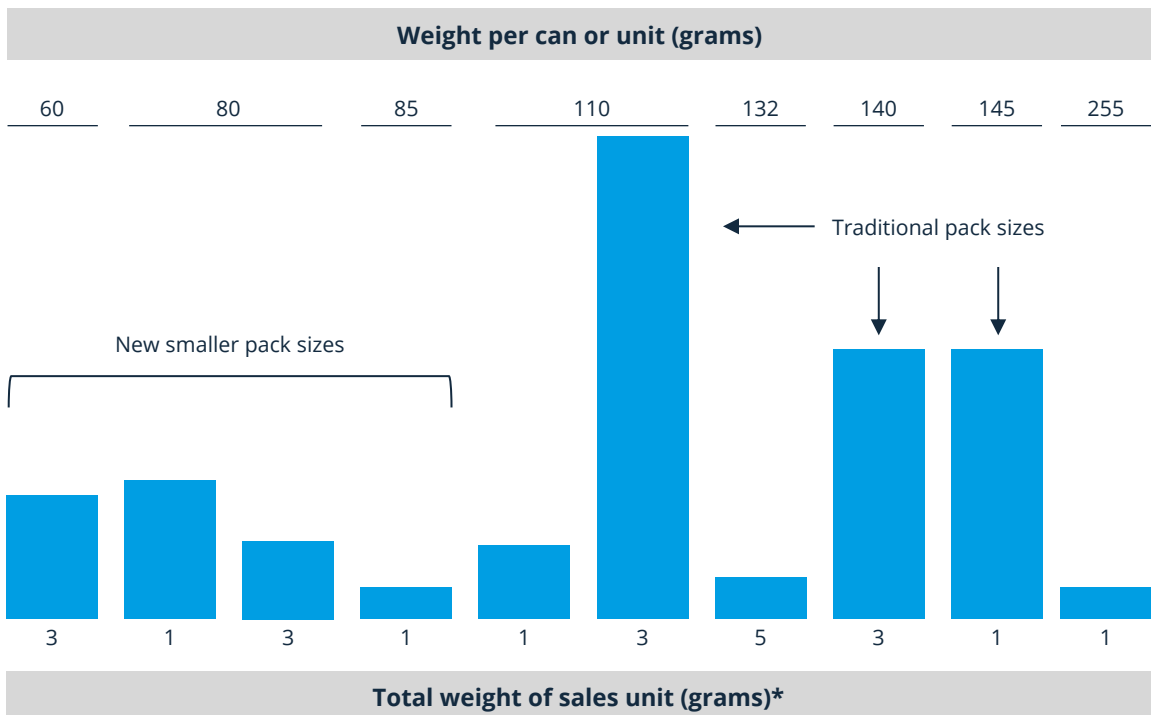
There are other variations on can shape and design. An example is the tapered pot that is actually a can with a plastic lid, seen below. Typical cylindrical cans are expensive to transport due to the low number of cans to volumetric ratio. However, empty tapered cans can be nested inside each other during transit (eight times more in a container than cylindrical) and result in much lower damage while being moved on pallets.

Tapered cans also suggest a more premium product even if the contents inside are standard ingredients, or in the case of this product, tuna flakes.



### Pack Weight

Pack weights will vary by country, but there are commonalities. Here is the distribution from a typical UK supermarket:



\*1 = single pack. More than 1 = multipack

Source: Mintec & Frost Procurement Adventurer

Most packs are sold in the 140-145g gross weight bracket, usually ~70% tuna and 30% liquid. The 110g packs are usually the no-drain version with ~93% tuna inclusion. There is a new range of lighter weight packs being promoted by canneries and brands that are 60g-110g sizes. These pack formats are generally used to denote premium products.

In reality, they offer much higher price points and profits for brands and retailers.

Product details	Economy			Premium	
Pack size	Bigger		Smaller		
Product	Standard chunks in brine	Standard chunks in brine multi-pack	Pot with herbs	Fridge pot	3 x 60g steak cans
<b>Plain or recipe SKU</b>	Plain	Plain	Recipe	Recipe	Plain
<b>Sales unit</b>	Single	Multi-pack	Single	Multi-pack	Multi-pack
<b>Packs per sales unit</b>	1	4	1	3	3
<b>Individual pack weight</b>	145	145	80	110	60
<b>Total weight</b>	145	580	80	330	180
<b>Tuna Species</b>	Skipjack	Skipjack	Skipjack	Skipjack	Skipjack
<b>Tuna Cut</b>	Chunks	Chunks	Flakes	Steak	Steak
<b>Carrier</b>	Brine	Brine	Extra Virgin Olive Oil	Brine	Brine
<b>Tuna inclusion</b>	70%	70%	80%	93%	93%
<b>Cost of fish &amp; liquid (GBP/T)*</b>	1,700	1,700	2,600	3,500	3,500
<b>Cost of packaging (GBP/T)*</b>	950	1,000	1,400	1,200	1,300
<b>Typical Supermarket RRP (GBP/T)*</b>	8,500	7,500	21,000	18,000	16,000
<b>Materials as a % of RRP</b>	20%	23%	12%	19%	22%
<b>Packaging as a % of RRP</b>	11%	13%	7%	7%	8%
<b>Total material/packaging as % of RRP</b>	<b>31%</b>	<b>36%</b>	<b>19%</b>	<b>26%</b>	<b>30%</b>
<b>Ratio material/packaging to RRP ranking</b>	<b>4th</b>	<b>5th</b>	<b>1st</b>	<b>2nd</b>	<b>3rd</b>

Source: John West & Frost Procurement Adventurer

\*material prices will fluctuate and vary from country to country and over time so these are indicative

\*similarly RRP's fluctuate and vary by region

\*cost per ton of finished product

All based on John West portfolio

Even with the higher cost of materials and packaging, the smaller premium-looking packs (80-110g) represent a very clear profit advantage over the bigger traditional weights (145g). It is important to note that the overall tonnage decreases with smaller pack formats.

## Premiumization

A standard two- or three-part can is not typically perceived as premium. While these products are satisfactory for own-label and discount stores, they are less suitable for premium price points.

Variables	Economy	Standard	Premium	Super Premium	Maxi Premium
<b>Description</b>	Mostly, supermarket own brand, to deliver everyday value	Medium price level and the most common offering that balances price and quality	Premium packaging switching from label to printing the can	Attractive packaging and mostly used for premium fish species - albacore	Outer sleeve wraps around can. Can often switched from circular rectangular
<b>Example Product</b>					
<b>Label</b>	Yes	No	No	No	No
<b>Printed on can</b>	No	No	Yes	Yes	Sometimes
<b>Colours</b>	Standard	Standard	Standard	Gold, silver, red, yellow	Classy
<b>Outer sleeve</b>	No	No	No	No	Yes
<b>Example sales countries</b>	UK, Benelux, Germany	UK, Benelux, Germany, USA	France	Spain, Portugal, Italy	Spain, Portugal, Italy

Source: Mintec & Frost Procurement Adventurer

## Marketing

We have seen that the contents of the can and the packaging are two key areas producers use to position their products. Premiumization and convenience are two common traits in branded products. Sustainability is another area that is being marketed. Given the sustainability risks for tuna, it is very important to educate consumers to help them make informed decisions about what they buy. However, marketing sustainability is not completely straightforward, given its multifaceted nature, involving issues like dolphin-friendly fishing, traceability and FADs. As upstream sustainability is not as robust as it should be in areas like traceability and certification, commercial buyers and consumers may not be buying a product that fully aligns with stated credentials.

Two other areas worth exploring are brand image and storytelling and the health benefits of eating tuna.

## Brand Image and Storytelling

In Mediterranean and Iberian countries, canned fish has a long history of artisanal production stretching back around 170 years. These beautifully crafted products are different and more expensive than tuna sold in countries like Holland and the UK. It is therefore difficult to imagine these products being sold in price-sensitive markets, except in specialist delicatessens. In the countries where these products originate, like Spain and Portugal, there may therefore not be much product evolution.





At the other end of the spectrum, price-sensitive markets will be sold predominantly on value as a larder staple. The product quality and provenance will not feature.



As with this private-label product, health is the marketing angle. The product states 'high in protein'. High omega oil and low-fat contents are also marketing angles. Between the expensive artisan products and the cheaper own-label products, we can expect to see other features, like low-salt products.

## 4) What does the future of the canning industry look like?

### Product forms

- **Recipes** – there will be a continued marketing drive by brands to promote ready-made meal and snack formats. These formats may have lower tuna content, with more vegetables. This could add value for the consumer and result in a lower recipe cost for the producer.
- **Can Size** – due to shrinkflation economics, the availability of smaller-sized cans will increase. Easy-peel or easy-open ring-pull lids will become more prevalent.
- **Packaging** – pouched rather than metal cans will continue to emerge, but consumer acceptance has been slow to date.
- **Vegan** – this is a new entrant, composed of vegetable-protein-based alternatives made to look and taste like tuna. Nestle and Princes recently launched ranges. It might take several attempts to crack this offering; Princes' recent Dutch launch is already being sold at a 50% discount.
- **Raw Pack (uncooked tuna)** – this is a niche product, equivalent to yellowfin strips in olive oil being sold in Italy. But with significant health benefits, the market share is growing globally through small brands and local trade.

50%  
discount



### Princes Vegetable tuna natural

140g Normal price per KG € 21.36

2,-99 **1.49**

add +

Deze lekkere visvrije tonijn op basis van tarwe-eiwit is de perfecte tonijnvervanger voor jouw favoriete tonijnrecepten.

- 100% plantaardig
- Rijk aan eiwitten
- Lekker in zowel warme als koude gerechten
- Voor de vegetarier, veganist en voor de visliefhebber die eens wil variëren

## Consumption

There is a direct correlation between GDP and the consumption of meat. Meat is one of the first luxuries people buy when they move out of the lowest income bracket. China is a stark example of this trend; the increase in the consumption of pork and chicken is staggering. Chinese consumers currently consume very small amounts of tuna, both fresh and canned. Might this trend change, or is tuna too far removed from China's culinary heritage?

Additionally, many African countries consume canned tuna. The population growth and wealth in these countries may well cause an increase in global consumption.

## Pricing

In some markets, tuna is perceived as an artisan product with a strong emotional connection; southern Europe is the best example of this. The northern European consumer still views tuna as a larder staple. Brands have worked hard to change this perception, but this can be a difficult task in regions where the own-label presence is still strong. Tuna is still seen as a cheap source of protein.

There appears to be an uneasy tension between providing the consumer with a high-quality product at a sensible price point and paying an acceptable price for the tuna upstream and covering the costs of production. Over the last year, brands have increased prices to retailers by up to 30%. Further price increases are likely in the coming years as brands try to move the position of tuna products away from a larder staple to something with more perceived value.

## Sustainability

Sustainability is of particular relevance upstream in the fisheries. However, the canneries are either vertically integrated with the fisheries or otherwise recipients of the fish, so the canning industry needs to continue to work with fisheries to improve sustainability standards. Besides using more sustainable fishing practices, such as keeping stocks above required thresholds, reducing the negative impact of FADs, switching vessels to low-sulphur fuels and improving worker welfare, traceability is one of the key areas that the industry needs to address.





Currently, powerful markets such as the US and Europe are pushing for greater traceability to satisfy consumer concerns. Canneries also need to play a role in upgrading traceability standards and systems and then delivering against those requirements.

The governmental necessity to ensure food security will have some bearing on how canneries allocate their value streams. Is it better to sell by-products, such as red meat, for pet food or to local markets that are thankful for the protein?

## Major Canning Players

There is also a trend of increased vertical integration.

The world's largest tuna trader, FCF, is based in Taiwan and now owns the US brand, Bumble Bee. This move came after Bumble Bee was forced to sell because of a price rigging scandal in the US, and FCF was Bumble Bee's biggest creditor. This now puts FCF in a strong position with the ability to supply cheap tuna for processing and to increase profitability through the brand. Besides being a brand, Bumble Bee controls several plants feeding the US market. This includes PAFCO in Fiji, that primarily exports cooked albacore loins for US canners.

Thai Union, the world's biggest canner, is unique in that it owns very few fishing boats. Instead, it relies on traders and direct purchasing from fishing fleets. However, its large size means that it has strong buying power. Purchases are made load-by-load, so relationship management is critical. Thai Union's main brands are Chicken of the Sea (COS) in the US, and Petit Navire and John West in Europe. Being the smallest US brand, COS was only minimally impacted by the fines over price rigging by the 'big three': Bumble Bee, Starkist and COS.

Dongwon is a leading South Korean fishing fleet and processor with competitive domestic brands in South Korea. Dongwon also owns the Starkist cannery in American Samoa. There have been suggestions that the fines for involvement in price rigging may lead to Starkist's demise. However, the Dongwon corporation is vast and should therefore be able to weather the storm.

In 2019, the second biggest tuna trader globally, Tri Marine, was sold to the Italian business Bolton Foods Group, a major EU brand holder. Bolton has also acquired some smaller US brands.

The US price rigging scandal is not yet over, with fines reportedly reaching USD 1BN to date. The previous Bumble Bee president, who was also the ISSF chairman, was jailed.

Some smaller brands are establishing direct links with smaller fleets for supply at fixed prices. This development could benefit both the smaller brands and the smaller fleets. The tuna is then contract-processed with the brand that owns the fish. However, the power of the big players will continue to mean minimal prices paid to fishing companies, while maximizing profits through brands.



## Automation and technology

Upstream, there are significant technological advances not just in catching fish but also in onboard monitoring. For example, video surveillance technology can analyze species caught, catch sizes, and by-catch species and quantities inadvertently caught.

The automation of primary fish preparation, involving de-heading, gutting and deboning, is very difficult and is likely to continue manually. Trials have been conducted in an attempt to automate de-heading to improve Omega-3 recovery, but this reduced the yield of the loins.

Automated can packing is possible but is only viable where the capex is cheaper than the labor. In many countries, the labor is still cheaper. Automation tends to be reserved for the easy-to-pack items, such as flakes in liquid packed into pouches.

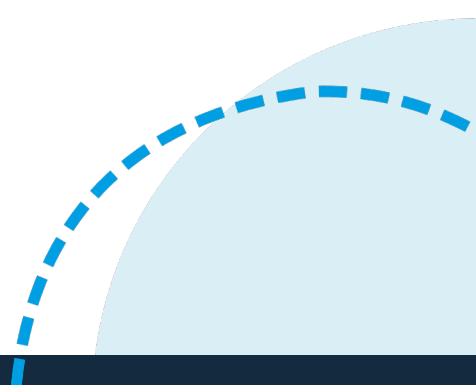
There will be a continued trend to prepare loins in low-cost sourcing countries and then pack them closer to the final sales region.

## Regional Shifts in Fish Preparation and Canning Production

Commercially, tuna is best processed close to the fishing grounds. However, this requires good utilities (power and water), basic infrastructure (wharf facilities), good competitive shipping services, and a ready supply of cheap and dexterous labor with no cultural impediments. This is not always available and has resulted in Burmese migrants working in Thai canneries and Indian Ocean plants utilizing Pakistani workers.

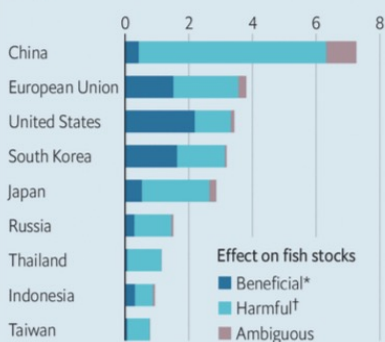
With Thailand under pressure, China is playing an ever-increasing role. China has a rapidly growing processing sector with relatively cheap labor, and a growing fleet of tuna seiners and longliners working globally. An increased proportion of this fleet is operating under Pacific Island flags. Both fishing and processing are heavily subsidized by the Chinese state, which funds new boats and factories, fuel, sustainability claims, and market access. This now means that China is a leading supplier of loins to the EU, the US and Thailand. China's increased dominance would place it in a strong position should consumers turn to canned tuna for food security at a future date. However, there is generally only small demand for canned tuna in a few Western supermarkets in major cities.

Subsidies are not unique to China. The EU, the US, South Korea, Japan, Russia, Thailand, Indonesia and Taiwan also engage in subsidies. However, small developing island states and other vulnerable coastal states in the center of these fisheries have no means to match subsidies or compete in many instances. Vietnam is also rapidly emerging as a low-cost processor that is likely to become a major market player in the future.



## The price of fish

Subsidy amounts by major fishing entities  
2018, \$bn



Source: "A global dataset on subsidies to the fisheries sector", by Sumaila et al., 2019

\*Promotes conservation and management  
†Encourages overexploitation

The Economist

## Duties and Tariffs

Duties and tariffs continue to be major factors that will determine where tuna is canned and the associated trade flows.

It is clear that the EU has blocked Thai and US imports to protect the EU tuna industry. Equally, the US protects its tuna industry with hefty tariffs on southern Europe products.

### Duties for Tinned Tuna

### Duties for Skipjack Tuna Loins

Buying region	EU	UK	USA	Japan	EU	UK	To USA	To Japan
Canning Country	Vegetable oil	Vegetable oil	Vegetable oil	Vegetable oil	n/a	n/a	n/a	n/a
Thailand	24%	20%	0%	0%	24%	20%	0%	0%
Philippines	0%	0%	0%	5%	0%	0%	0%	5%
Seychelles	0%	0%	0%	10%	0%	0%	0%	10%
Mauritius	0%	0%	0%	6%	0%	0%	0%	6%
Maldives	24%	20%	0%	6%	24%	20%	0%	6%
Ecuador	0%	0%	0%	6%	0%	0%	0%	6%
Portugal	0%	0%	35%	0%	0%	0%	35%	0%
Spain	0%	0%	35%	0%	0%	0%	35%	0%
Italy	0%	0%	35%	0%	0%	0%	35%	0%
France	0%	0%	35%	0%	0%	0%	35%	0%
China	24%	20%	35%	0%	24%	20%	35%	0%
Ghana	0%	0%	0%	6%	0%	0%	0%	6%
USA	24%	20%	na	10%	24%	20%	n/a	10%
Vietnam	0%	0%	35%	0%	15%	0%	35%	0%

Notwithstanding EU duties, European canneries rely on cooked loins prepared overseas to remain competitive. Duty-free quotas of tuna loins have increased in recent years, showing European canners' growing demand for loins. In 2015, the Annual Total Quota (ATQ) was set at 22,000T. The quota for 2019/2020 was 30,000T.

For suppliers looking to enter the European market, exporting tuna loins into Europe tax-free is essentially a matter of finding a buyer for the product to qualify for tax-free status until the quota is filled. However, getting into the business may prove difficult because many trading partnerships are already established.

Interested parties must also consider that of the exporters to Europe, 11 countries have zero-duty terms under the Generalized Scheme of Preferences (GSP+), with examples including Ecuador and Papua New Guinea.

With increased trade deals and annual derogations of loins that are duty-free into the EU, the concessions to ACP nations with duty-free access are being progressively eroded.

## Rise of Petfood

Petfood sales are booming, and this is driven by two factors: increased pet ownership and the premiumization of petfood. As a result of the Covid pandemic, "lockdown pet" has been coined as a new phrase. The Pet Food Manufacturing Association estimates that UK pet ownership increased by 2.1M over the last two years.

For many years, petfood products were relatively simple and typically not very inspiring. The products were either dry 'kibble' or wet meat in a sauce. The introduction of pouches for wet petfood around 25 years ago simplified the opening of tins and made removing the contents an effortless task.

How could further value be added to the consumer offer? The answer is the premiumization of the materials in the can or pouch. There has been a transition from cheap off-cuts, including offal, fillers, and meat and fish meals, to premium cuts of meat and fish. For the most premium pet products, the specifications of materials are nearly identical to human-grade products.

This causes a problem because petfood is now in direct competition with human-grade food. This has led to increased demand for red and white meat, for consumption by both animals and humans.

Thai Union's accounts give a strong impression of the value of petfood within its portfolio. While petfood only accounts for 19% of Thai Union's sales, compared to its ambient canned product at 43%, it is growing at 17% and gross profit for petfood is 27% compared to 21% for canned sales.



## Thai Union Accounts

Item	Amount (GBPM)	% Split
<b>Revenue - Total</b>		
Ambient	461,271	44%
Frozen & Chilled	360,662	34%
Petfood	236,685	22%
Revenue (Total)	1,058,618	100%
<b>Revenue - Less inter-segment</b>		
Ambient	361,082	43%
Frozen & Chilled	320,697	38%
Petfood	161,750	19%
Revenue (Total)	843,528	100%
<b>Gross Profit</b>		
Ambient	76,885	51%
Frozen & Chilled	30,060	20%
Petfood	43,785	29%
Revenue (Total)	150,730	100%
<b>Gross Profit % Revenue</b>		
Ambient	21%	
Frozen & Chilled	9%	
Petfood	27%	

Source: Mintec & Frost Procurement Adventurer

# Background information and essential industry terms

## Tuna Species

**There are around 15 distinct tuna species, usually categorized into three groups:**

1. Bluefin
2. Yellowfin
3. Other species

While all three groups are considered tuna species, there are considerable differences

across the fish types. The most obvious difference is the size of fish, from the bluefin that can reach a weight of over 650kg with a length of 4.5 meters to the lesser-known frigate tuna that weighs up to 1.7kg with a length of up to 60 centimeters.

The species' different characteristics lend themselves to various uses, with the four species most commonly used for canning being skipjack, yellowfin, albacore and, to a much lesser extent, bigeye.

Species	Latin Name	Notes	Used for canning?
<b>Thunnus – The Bluefin Group</b>			
Albacore	T. Alalunga	Also called the long fin tuna. It can be confused with the yellowfin due to the similar naming (see below). The meat is whiter/drier than skipjack and is favored in Kosher products in the US.	Yes
Bigeye	T. Obesus	Bigeye's higher fat content tends to cause a discolored product with a fat residue in the can that consumers do not prefer. Bigeye sometimes gets mixed in with skipjack in certain markets like the US, where specifications are more relaxed. Bigeye usually prices below skipjack for canning.	Yes – in some markets
Bluefin	T. Maccoyii T. Orientalis T. Thynnus	Three key species: Southern, Pacific and Atlantic/Mediterranean, are favored for Japanese sashimi. Bluefin is the only species wild-harvested and fattened specifically for the sashimi trade.	Occasionally belly (Ventresca) is used for very high-end products (in glass, not cans)

Source: Mintec & Frost Procurement Adventurer



Species	Latin Name	Notes	Used for canning?
<b>Neo Thunnus – The Yellowfin Group</b>			
Yellowfin	T. Albacares	Juvenile yellowfin is favored for its white meat. Larger mature yellowfin has larger flakes and is more yellow-colored, which is less preferred by consumers. Its Latin name is similar to the words for albacore in French (albacore) and Portuguese (albacora), causing some confusion. It is delisted in some European countries over sustainability concerns regarding the stocks, particularly the depletion in the Indian Ocean.	Yes
Longtail	T. Tonggol	An inshore coast tuna found throughout Asia and used as a yellowfin alternative. Significant in some markets but serious concerns regarding over-fishing.	Sometimes
Blackfin	T. Atlanticus	Typically, not used for commercial purposes.	No
<b>Other – Tuna-type Species</b>			
Skipjack	Katsuwonus Pelamis	By far the most common species for canning.	Yes
Various	Various	There are several other species, such as: slender, bullet, frigate and the little tunny, that do not get used for canning.	No
<b>Other – Non-Tuna Species</b>			
Bonito	Sardini Bonitos	Bonito is in the same sub-family as the tuna but is a distinct species of the 'sardini' tribe. As the characteristics of the bonito closely resemble that of the skipjack tuna, it is sometimes used as a cheaper alternative or mixed with the skipjack, such as in the US markets.	Sometimes
Euthinus	Euthinus	Used for the US market in the same way as bonito.	Sometimes

## Tuna catches

Tuna production tends to be measured at the point of catching rather than the total fish in the sea. The total amount of tuna caught per year is estimated at ~4.6 metric tonnes, with skipjack, yellowfin, bigeye and albacore accounting for 99% of the total catch:

Species	Tonnes caught pa	% Total Catch	Cum. %	Latest price (USD/T)	Price location	Basis of price	Mintec series	Value (USD)	% Value
Skipjack	2,600,000	56%	56%	1,700	Seychelles	Frozen whole	8W11	4,420,000,000	43%
Yellowfin	1,300,000	28%	84%	2,700	Ivory Coast	Frozen whole	MH35	3,510,000,000	34%
Bigeye*	450,000	10%	94%	1,500	Japan	Frozen whole, gutted	2U39	675,000,000	7%
Albacore	250,000	5%	99%	4,000	Spain	Frozen whole, gutted	ML74	1,000,000,000	10%
Atlantic Bluefin**	15,000	0.3%	99%	17,000	Japan	Frozen whole, gutted	2U35	255,000,000	2%
Pacific Bluefin**	15,000	0.3%	100%	17,000	Japan	Frozen whole, gutted	2U35	255,000,000	2%
Southern Bluefin**	10,000	0.2%	100%	17,000	Japan	Frozen whole, gutted	2U35	170,000,000	2%
<b>Total</b>	<b>4,640,000</b>	<b>100.0%</b>						<b>10,285,000,000</b>	<b>100%</b>

\*Bigeye price detailed is for canning which will price a bit below skipjack. It fetches higher prices for sashimi grade  
Bluefin prices will vary by species - USD 17,000/T is indicative

Source: FAO Globefish 2021 yearbook, Poseidon Aquatic Resources Management, Ltd

4.6MT of ExV/Frozen equates to USD ~10BN ex-vessel, USD 34BN once it has been canned or sold as sashimi grade, and over USD 40BN at retail sales.



## Usage and application

Canning is still the most valuable usage, accounting for 54% of the total value ex-vessel, worth 6.6BN per annum. Sashimi attracts a far higher price per tonne, but is based on a much lower tonnage:

Usage	Value ex vessel (USD BN pa)	%
Canning	5.5	54%
Frozen Sashimi	2.8	27%
Fresh Sashimi	1.2	11%
Domestic / Local	0.7	6%
Other	0.1	1%
<b>Total</b>	<b>10.3</b>	<b>100%</b>

Source: Mintec & Frost Procurement Adventurer

## Fishing Methods

### The three most common fishing methods are:

1. Purse Seine
2. Long Line
3. Pole and Line

The three techniques have significant differences in their efficiency and sustainability. Consumers, as well as commercial buyers of tuna products, should be aware of the differences.

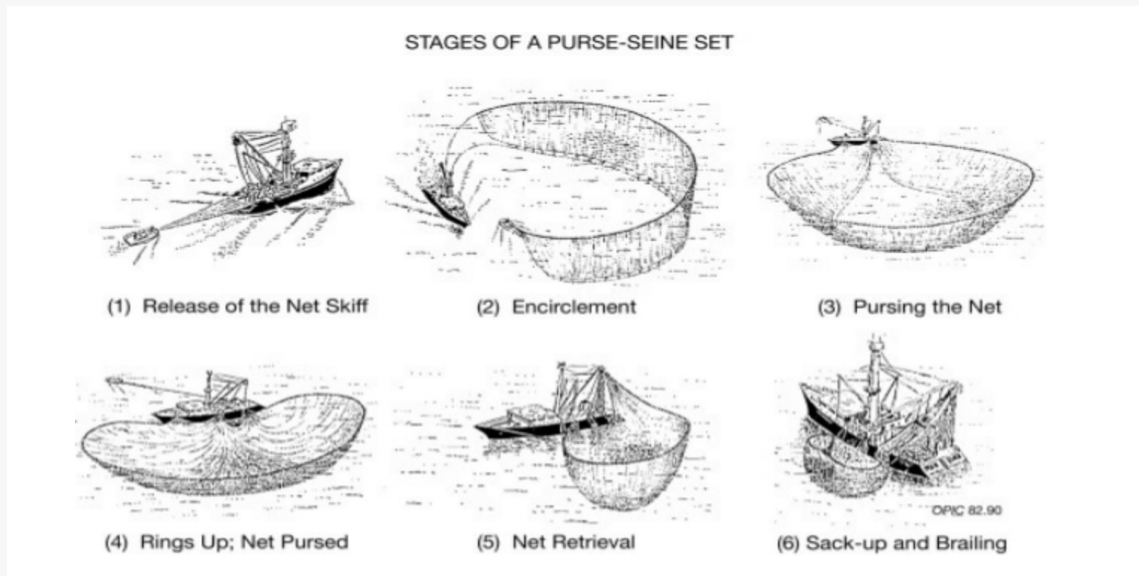
### Purse Seine

Purse seine is the most prevalent technique. Fishing vessels are sizeable, ranging from 50-110m, with each vessel operating a single net up to 2km long and over 300m deep. The net is cast around a school of tuna, and the purse wire at the bottom is tightened to "purse" the net.

Once the net is hauled on the vessel, the tuna are brine-frozen in wells. A single haul may range from a few tonnes to as many as a few hundred tonnes.

Purse seine is used mainly to catch mature skipjack (80%), yellowfin (20%) and small quantities of bigeye. By-catch is limited when targeting free schools of tuna. Although, when used in conjunction with fish aggregating devices (FADs), which are essentially floating buoys, lights on the FADs are used to concentrate fish pre-dawn, resulting in the catching of more juvenile tuna and other by-catch species.

Purse seine tuna is trans-shipped at sea or landed in ports and is typically destined for canning. Some vessels can grade out individual large-quality fish for snap freezing, which may then be used as frozen yellowfin steaks, skipjack katsuobushi (smoked, fermented flakes), and tataki (lightly seared steak).

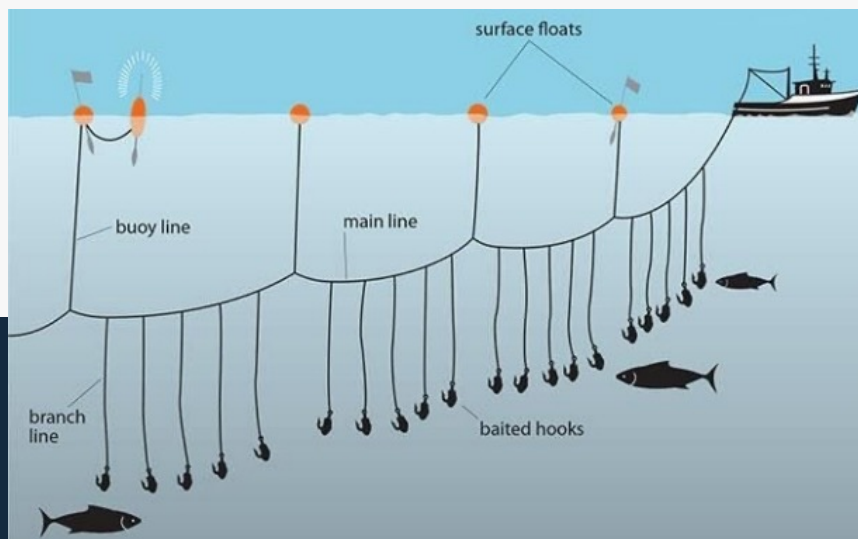


## Long line

Besides mature albacore, which is almost exclusively caught by long line for canning, this method is typically used for large mature bluefin, yellowfin and bigeye destined for fresh and frozen sashimi trade.

The method involves vessels typically 20-50m long, daily setting 40-60km of the main line with 3,000-4,000 individually baited hooks that are hauled and reset daily. Catch rates are relatively low but are very high-value mature tunas. By-catch is more significant than purse seine and may include sharks and, in some areas, seabirds.

Issues related to this method include cramped crew conditions on board smaller boats and less feasible third-party observer coverage. Vessels work the high seas, outside designated fishing zones, and are largely unregulated. Freezer vessels often trans-ship catches at sea, meaning traceability is weaker.



## Pole and Line

Pole and line fishing uses smaller artisanal crafts that head out to sea for a few days. Crews of up to 30 people use live bait fish to entice tuna to take artificial lures on rods. Each fish is flicked on board. From a sustainability point of view, there is minimal by-catch. However, the fish caught are typically juvenile, and the use of live bait fish can deplete in-shore marine resources.

Crew conditions can also be sub-standard, and maintaining fish quality can be a problem on low-tech vessels. Catch rates are only around 10% of a purse seine vessel.

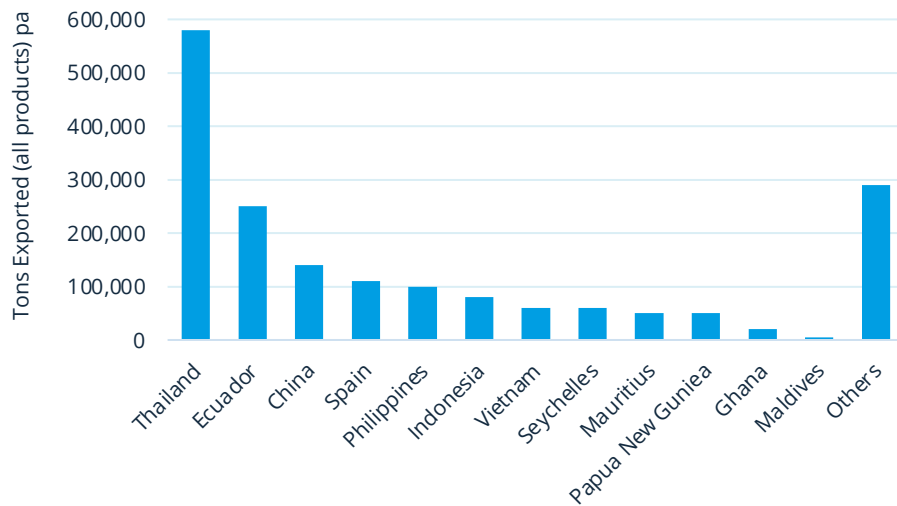
## Canned Production, Imports and Exports

Tuna canneries are spread worldwide and benefit from the extensive oceans where tuna live and are caught. Global exports of tuna products stand at 1.8MT per annum. Considering the global catch of whole fish is 4.6MT, at ~40% yield of usable meat (~1.8MT after gutting, de-heading, de-skinning and de-boning), this means the balance of 0.5MT of tuna products is consumed in domestic markets.

The three largest exporters of tuna products are Thailand, Ecuador and China. Certain canning countries will be better placed to serve certain regional markets based on factors such as proximity to consumer markets, the profile of the products, duties, and historical ties between export and import countries. For example, the UK sources considerable quantities of tuna from the Seychelles due to the duty-free status, but very little from Thailand, which has a 24% duty to the UK. Other countries like Ecuador and China play a key role in supplying prepared loins to the EU market.







Source: Mintec & Frost Procurement Adventurer

Statistics for tuna are often compiled for all grades and pack formats, such as frozen whole, frozen prepared, fresh, and canned. So, it is necessary to explore the key drivers and draw conclusions about the vital trade flows for canned tuna.





## Trade Flows

The key export/import flows for all tuna products (including canned, fresh, and frozen) are:

All in USDM		Exporter												Total	%
		Thailand	Ecuador	Spain	China	Taiwan	Indonesia	S. Korea	Vietnam	Netherlands	Philippines	Italy	Others		
Importer	Japan	206	0	72	168	274	104	194	22	0	84	0	325	1,450	15%
	USA	448	134	24	12	13	210	13	268	0	54	2	253	1,432	15%
	Spain	4	260	0	133	1	13	19	22	12	48	14	355	881	9%
	Italy	7	122	336	19	0	59	28	31	13	18	0	190	823	9%
	Thailand	0	0	1	316	209	72	72	12	0	2	0	110	794	8%
	France	1	54	227	0	0	5	50	4	80	1	7	85	515	5%
	UK	12	144	35	0	0	12	2	0	36	29	2	90	363	4%
	Germany	7	29	14	0	0	1	4	22	139	60	32	40	348	4%
	Netherlands	11	121	16	1	0	5	6	12	0	52	4	102	329	3%
	Vietnam	10	1	0	96	42	34	50	0	0	2	0	44	280	3%
	Canada	110	1	0	1	1	5	1	20	0	5	18	32	196	2%
	Others	1,084	341	455	353	236	179	109	137	202	46	188	659	3,988	42%
	<b>Total</b>	<b>1,900</b>	<b>1,208</b>	<b>1,179</b>	<b>1,100</b>	<b>776</b>	<b>698</b>	<b>550</b>	<b>548</b>	<b>482</b>	<b>401</b>	<b>269</b>	<b>2,286</b>	<b>11,397</b>	<b>120%</b>
<b>%</b>	<b>20%</b>	<b>13%</b>	<b>12%</b>	<b>12%</b>	<b>8%</b>	<b>7%</b>	<b>6%</b>	<b>6%</b>	<b>5%</b>	<b>4%</b>	<b>3%</b>	<b>24%</b>	<b>120%</b>		

Table derived courtesy of FAO Globefish 2021  
Jan 2021 to Dec 2021

While this section mainly focuses on canned tuna, it also highlights broader insights on other uses, such as sashimi grade.

## Exports

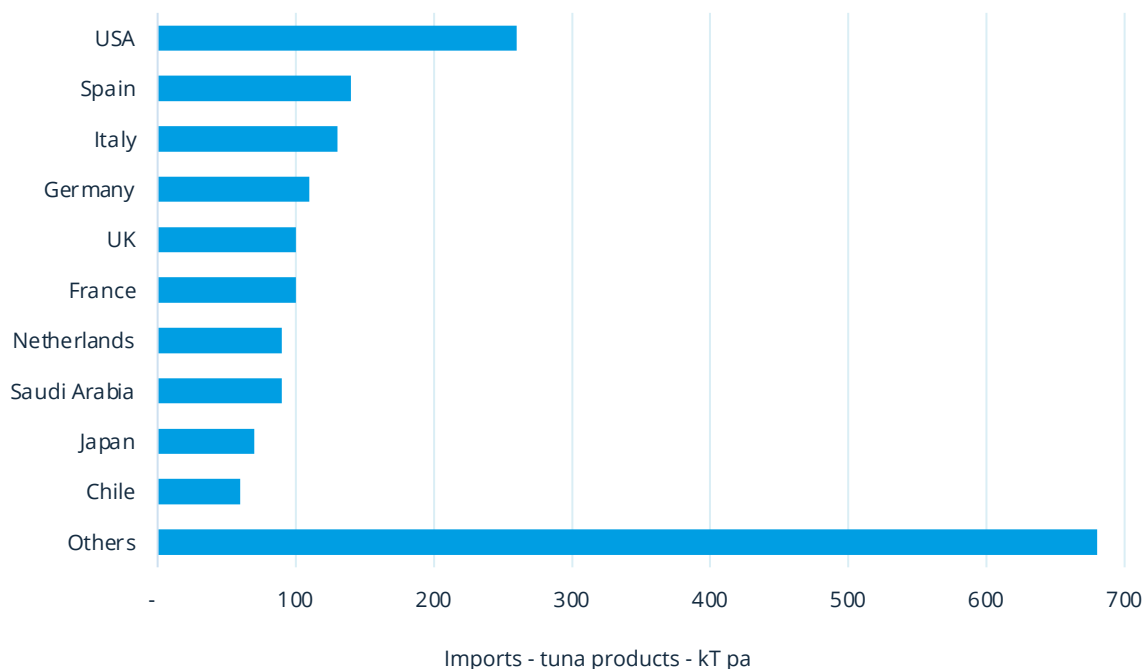
- **Thailand** – predominantly focused on canning at ~90% by value. The US is the key export market for canning and pre-cooked loins. It also has strong canning trade to the Middle East and Australia (detailed under ‘other’ importers). Japan is a significant market for non-canned Sashimi grade.
- **Japan/South Korea** – have robust domestic consumption of canned tuna supplied by domestic canneries. Exports are limited.

- **Ecuador** – is well placed to serve the North American canned market. The Trade Flows table shows high export levels from Ecuador to Spain and Italy, of which a high percentage is cooked loins. European canneries will likely benefit from Ecuador's low labor rate to prepare the fish. Ecuador has been head-to-head with China in the export of cooked loins. As a canning country, Ecuador also sells canned tuna directly to Europe, and many Ecuadorian businesses are Spanish-owned.
- **Spain** – acts as a key canning country for supply into Europe, with significant exports of premium products into Italy, France and Portugal. The robust Spanish imports from Ecuador are predominantly pre-prepared loins.
- **China** – sizeable export to Japan for sashimi grade and a feeder of cooked loins into Thailand, Spain and Portugal for canning industries. China is head-to-head with Ecuador for the share of the European demand for tuna loins.
- **Taiwan** – biggest exporter to Japan for Sashimi grade and a major feeder of frozen fish to the Thai canning industry. In-country canning is minimal.
- **Indonesia** – like Taiwan, is a big feeder to Japan of sashimi and a major supplier of canned products to the US.
- Although not included in the Trade Flows table, **Iran** is still worth mentioning. Despite trade embargoes, Iran has its own purse seine and small-scale fleets in the Indian Ocean. It also has many canneries, canning mainly yellowfin for the domestic, Middle Eastern and Eastern European markets.
- **Other Countries** – account for 36% of all imports, showing the wide diversity of tuna consumption globally. Some exports do not even register on the scale but are noteworthy. The Seychelles and Ghana, which supply canned tuna to Europe, are two prime examples.



## Imports

- **Japan** – very high demand for sashimi grade as well as for domestic canning.
- **USA** – the biggest importer of canned tuna globally, sourcing mainly from Thailand, Indonesia and Vietnam. The USA is also a major importer of cooked loins for canning, with several new factories currently under construction.
- **Europe** – as a whole, is the largest region for consumption globally, even greater than the US, the biggest importer. European stocks produce just 25% of the region's requirements, with a 75% reliance on imports.
- **Spain** – imports considerable quantities of prepared loin (~60kT per annum) for canning and then exported around Europe.
- **Italy/France/Portugal** – predominantly import canned tuna from Spain and frozen loins, such as yellowfin, from the Solomon Islands.
- **UK/Germany/Netherlands** – mainly buy tuna that is already canned because they have very limited canning industries.



## Dynamics of the tuna canning industry

Tuna canning takes place in a number of different regions.

Country	# of canneries	Dynamics of the canning industry
<b>Asia &amp; Pacific</b>		
<b>Thailand</b>	10 major canneries with ~20 smaller ones	Thai canneries are the largest group globally, including the sizeable Thai Union that buys 30% of the world's tuna. Many of the canneries make both human-grade and petfood products, the latter showing strong growth. Major export destinations are North America, Australia and the Middle East. Thai canneries have seen a big drop-off in sales to Europe given the high EU import tariff of 24%.
<b>Philippines</b>	9	The Philippines has only one-sixth of the exports of Thailand but is still a notable exporter both to the US and the EU where it has duty-free status. Like Indonesia, some question marks remain over sustainability (traceability, fish stocks and worker rights). A significant percentage of fish is imported from Filipino-flagged vessels based in the Pacific Islands (mainly PNG).
<b>Papua New Guinea</b>	6	Canneries are mostly owned by Asian fishing companies and most operate under capacity. PNG has a 'global sourcing' concession for non-ROO (Rules of Origin) fish to enter the EU duty-free, provided it is canned in PNG. PNG is in the top four exporters of cooked loins to Europe.
<b>China</b>	Estimated at 5	The export value for tuna is about the same as Indonesia. The major export focus is on cooked loins for the EU and US.
<b>Indonesia</b>	15	Canneries are typically much smaller than in Thailand. Increasing production of cooked loins. Canneries are often under the spotlight for not meeting international standards of traceability, sustainability and worker rights.
<b>Solomon Islands</b>	1 factory	Mainly produces yellowfin cooked loins for Italy. Canning for the domestic market and some export markets.
<b>Fiji</b>	1 major and several minor plants	The main plant produces almost exclusively albacore loins for US packers, although, in recent times, it has started canning skipjack for exports.
<b>Vietnam</b>	4 major and many small plants	Emerging processor with productive and low labor cost.
<b>Japan</b>	Up to 14	Significant production for domestic markets. Increased competition from Thailand.
<b>South Korea</b>	6 main factories	Very significant and lucrative domestic market with in-country production.

Country	# of canneries	Dynamics of the canning industry
<b>Indian Ocean</b>		
<b>Seychelles</b>	1	It has the second largest cannery in world, 60% owned by the Thai Union. Strong fisheries partnership agreement with the EU, with zero percent duty. Key canning exporter to France, the UK and Spain.
<b>Mauritius</b>	2	Contains a large cannery – a joint venture between Princes, IBL and the Mauritian State. Key canning exporter to the UK, Spain, Italy, and France.
<b>Maldives</b>	3 small canneries	Very small scale and not a big player. Less focused on canning, more on frozen/loins. Significant export of pole and line-caught tuna to Thailand.
<b>Americas</b>		
<b>USA</b>	3	<p>Big consolidation to three major players in the US market: Starkist (owned by Dongwon, a South Korean firm), Bumble Bee (owned by FCF, from Taiwan), Chicken of the Sea (owned by the Thai Union). Significant reputational damage of the US industry caused by price fixing scandal.</p> <p>Typically, poor quality products with low fish content, containing additives, and lax labelling laws. Most trade is price point driven, unlike the EU and Australia, where quality is paramount.</p> <p>Two plants in the US mainland exclusively pack cooked loins, with two more reported to be under construction. Canning plants in off-shore territories such as American Samoa and Puerto Rico benefit from lower labor rates.</p>
<b>Ecuador</b>	19	Significant investment by Spanish Canners. Duty-free exporting to Europe means Ecuador has won lots of business at the expense of Thai canneries. Major exporter of cooked loins to Spain.
<b>Europe</b>		
<b>Spain</b>	5 main canneries	Second largest canning industry after Thailand. Saw significant growth in the 1980s after joining the EU. Consolidation of canneries over the last 10 years. Imports 50kT of loins for canning. Major exporter to the European market. Produces premium products.
<b>Italy, Portugal</b>	4 major plants and many small players	Many plants are not specialized.

Country	# of canneries	Dynamics of the canning industry
<b>Africa</b>		
<b>Ghana</b>	1	One major cannery owned by Thai Union.
<b>Ivory Coast</b>	2	Both EU-owned.

Source: Mintec & Frost Procurement Adventurer

## How canned tuna is made

Compared to other high-tech industries, tuna canning is a relatively straightforward process. However, there are still a number of processing steps. The efficiency of each step has an impact on the final cost of the finished product.

- **Gutting** – after thawing, tuna are gutted manually before they are cooked.
- **Cooking** – fish are cooked on trays in large steam cookers.
- **Cooling** – tuna are cooled and sprayed with water to increase yield.
- **De-Heading, Skinning, De-boning** – the four fillets per tuna need to be removed manually. Tuna is a surprisingly bony fish, and a high degree of dexterity is required to remove the considerable number of bones.
- **Cleaning** – the cooked loins need to be carefully cleaned and prepared, again by hand. The red meat (a dark brown color) is scrapped and separated from the white meat (a pink-beige color, depending on the species). Human food predominantly uses only the white meat, although some local markets, particularly in the Pacific, consume the red meat. Petfood uses white meat for premium products, a blend of white and red meat for mid-range products, and red meat for lower-end products.
- **Canning** – the cans are filled with the tuna as flake, chunk or steak, with many variations, and often with salt and other additions, such as diced vegetables, tomato or mayonnaise. These additions are to increase perceived value but effectively make the product cheaper, because the additions are cheaper than the tuna. Plain products are topped up with spring water, vegetable oil or olive oil. This is done either manually or with automated fillers. It is easier to automate the packing of flakes, which can be pre-mixed with their carrier liquid, than it is to mechanically fill a can with tuna chunks or steak.



- **Other Additives** – to enhance flavor, some markets such as Japan, will add MSG. A common additive is Hydrolyzing protein, a starch that bulks up the appearance of the flakes. In extreme cases, especially in local markets, additives like polyphosphates are added to reduce weight loss when cooking. A growing health trend is to reintroduce the Omega-3 fish oil that was extracted from the precooking water and processing waste or to add finely ground tuna bone calcium to the pack.
- **Sterilization** – after the cans are hermetically sealed, they are cooked in a steam retort under pressure to ensure a safe product.
- **Packing** – after labelling, packing of the cans into shelf-ready trays and cardboard outers is either done by hand or with automated packers, depending on the supplier.

This all highlights the fact that tuna canning is a highly manual process. The implication of this is that tuna canning is sensitive to the availability and cost of suitable labor. That is why canning in countries such as Spain and the US tends to focus on cooked loins because the labor cost for the upstream tasks would otherwise be prohibitively expensive. The need for high levels of labor is also why it is important to ensure the fair treatment of migrant workers, such as Burmese workers in Thailand.



→ Drying at fish meal plant



Tuna being de-boned, filleted and having the red meat separated from the white meat.

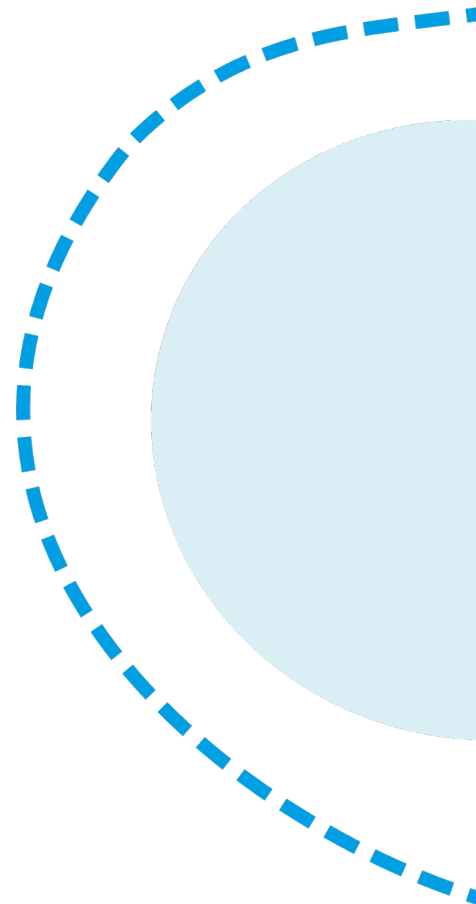


Source: Frost Procurement Adventurer

Tuna (in this case tuna and ham for petfood) is all filled in the cans manually.



Source: Frost Procurement Adventurer



# The State of the Tuna Industry

2023

Understand The Cost Drivers Behind This 40 Billion USD Industry

- What are the cost drivers impacting canned tuna?
- What are the retail price trends for canned tuna?
- How is the consumer offer for canned tuna evolving?
- What does the future of the tuna canning industry look like?

