

Genetic testing on tinned and pouched tuna products

November 2010

1) Background

Tinned tuna sold in shops and supermarkets is caught predominantly in the Indian and Pacific Oceans. There are various species of tuna in these oceans, the most plentiful being the skipjack tuna (*Katsuwonus pelamis*), a comparatively small fish that makes up the majority of tuna sold in the EU. Although skipjack tuna is currently being fished at an unsustainable rate, stocks remain relatively healthy; however, there are early signs of stock decline in some regions.

By contrast, a number of other commercial species used for canning, in particular yellowfin (*Thunnus albacares*) and bigeye tuna (*Thunnus obesus*), are in trouble as a result of overfishing in all oceans.

Although skipjack tuna may seem to be the most sustainable choice, consumers who buy skipjack may still be contributing to the decline of other species. Much of the skipjack tuna (and other tuna) sold in the EU is caught using 'fish aggregating devices' (FADs) in combination with purse seine nets. A FAD is usually man-made floating object, such as a buoy or primitive platform made from wood or bamboo, or a hi-tech platform with nets or similar structures hanging down from it, to depths of around 100 metres. Natural floating debris, such as logs, may also act as a FAD. FADs can be anchored or free-floating on the oceans surface. The use of free-floating FADs has become particularly prolific in recent times.

Many species of fish, including tuna species, are attracted to such floating objects, which provide a rare visual stimulus in the open ocean. Over time, large numbers of fish and other marine creatures will collect around a FAD, creating a mini-ecosystem. A net can then be drawn in a circular motion around the gathering and pulled closed at the bottom. This method of fishing is called purse seining.

Because FADs attract not only skipjack tuna, but also juvenile bigeye and yellowfin tuna, sharks, turtles and so on, this method of fishing creates substantial bycatch. This is not only killing millions of sharks, which are either drowning in the nets or dying an agonizing death once they have had their fins cut off and are thrown back into the sea, but it is also killing many turtles and non-target fish species. Fishermen should be concerned that fishing on FADs is driving overfishing of tuna stocks as well hindering the recovery of depleted bigeye and yellowfin stocks, due to juvenile tuna, as well as adults, being taken on board indiscriminately.^{1, 2}

The use of FADs is widespread. The proportion of skipjack tuna taken under such devices was estimated to be around half of the total global catch on skipjack taken by purse seining in 2003.³ More recent reports suggest that this figure is now even higher – at around 70% of the total purse seine catch.⁴ While FAD-based fishing has developed rapidly as a technique, research to determine their impact both on target species and the broader marine environment has not been carried out to the sufficient degree. Overall, while it appears that the use of FADs has intensified markedly in recent years, there is little data on their overall impact.

2) Testing strategy

Tinned and pouched tuna products sold in supermarkets in twelve countries where tinned tuna is a popular product, were DNA tested by an independent laboratory to identify the species of tuna they contained. The products originated from Australia, Austria, Canada, Germany, Greece, Italy, the Netherlands, New Zealand, Spain, Switzerland, the United Kingdom, and the US. A minimum of five different products from each country were tested, and for each product, tests were usually run on three different cans from the same batch or from different batches. In total, products from 50 tuna brands were tested (see Annex 1 for lists of brands) with a total 165 products were tested.

Preferably, but not exclusively, medium to low quality (chunks and flakes), lower price products were chosen.

3) Testing results

Several tuna products with inconsistent species content were detected. Three situations were found:

1. In some brands, a mixture of two different species inside individual tins was found.
2. In other brands, different tins of the same product were found to contain different species. This was detected in both tins from the same batch, as well as in tins from different batches.
3. In some brands, a different species was found in the tin than was indicated on the label.

Annex 2 lists all testing results that showed inconsistencies in tuna tin contents. The full report from the independent laboratory with all testing results can be downloaded at <http://www.greenpeace.org/international/publications/reports/Tinned-Tuna--Fish-Aggregation-Devices/>

4) Discussion of results

Difficulties in distinguishing small bigeye and yellowfin tuna

Even though different tuna species are relatively easy to distinguish in fresh condition, misidentifications and grouping of yellowfin and bigeye tuna species commonly occurs in surface fisheries.⁵ This is because these two species are more difficult to distinguish in the small to medium size classes that are caught by tuna purse seine vessels.⁶

In addition, this identification becomes more difficult if the fish are not sorted by species soon after landing, as their colours fade very quickly after death, making both species appear similar in colour.⁷ Frozen bigeye and yellowfin tuna are even more difficult to distinguish due to discoloration, loss of body markings, fin damage, skin abrasion, and loss of body shape by distortion or crushing that occurs during the storage and transport processes. The bodies of juvenile yellowfin and bigeye tuna end up looking very similar once they have been frozen, stored and transported.^{8,9}

Lower likelihood of correct species identification because of late sorting

It appears that tuna caught in purse seine nets is often not sorted on board but at a later stage, after the fish have been stored and frozen in a vessel's hold. According to Itano and Fukofuka young bigeye and yellowfin specimens from purse seine vessels are marketed at the same low value, which results in little incentive for fishermen or processors to separate by species.¹⁰ Although this is probably not always the case, it does seem to be common practice.

At two canneries in Bangkok, sorting and weighing by species/size are not implemented on the vessel or following unloading operations at port, but rather at each cannery before fish goes into cold storage of the company. Both canneries acknowledged the difficulty in separating juvenile bigeye from yellowfin and the possibility that a substantial amount of bigeye is overlooked and counted as yellowfin.¹¹

In a further example, an examination of the accuracy of species identification at three canneries in Thailand reported that smaller bigeye and yellowfin are difficult to identify in one glance in sorting lines, which leads to a relative high mixture rate.¹² In these canneries yellowfin and bigeye are sorted to five market categories according to their sizes (below 1.4 kg, 1.4–1.8 kg, 1.8–3.4 kg, 3.4–9.0 kg, and over 9.0 kg) for each species. For the two smallest categories the mixture rates were relatively high – 12.6% (by weight) on average (range 0–21.7%) with variation between factories. The mixture rates for the larger three categories represented relatively accurate values – 2.8% on average (range 0–6.8%).¹²

The issue of species misidentification appears to have led to inconsistencies in the content of various tinned tuna products, as revealed by laboratory testing. The key issues identified are as follows.

Mixing of species in one can:

It can be assumed that usually the mixing of different species in one can is unintentional, and that the cannery was unable to differentiate between the two species. However, while unintentional, it is against the law for products sold in the European Union.

Mixing of two species in one tin is contrary to European Union Regulation (EEC) No 1536/92 of 9 June 1992,¹³ which lays down common marketing standards for preserved tuna and bonito. Article 2(2) of this Regulation says that when marketing preserved tuna, “[d]ifferent species may not be mixed in the same container.” (An exception is made for “culinary preparations using tun[a] or bonito flesh entailing disappearance of the muscular structure”.¹⁴ In Spain products sold as ‘light tuna’ may contain yellowfin or bigeye tuna (but not a mix of the two because of the EU Regulation)¹⁵. This regulation is also valid in Switzerland since the adaptation of the respective legislation to EU legislation in 2009.¹⁶

In the US and in other countries where the testing was undertaken there are no comparable rules. In the US, ‘white tuna’ is officially defined as albacore tuna (*Thunnus alalunga*) by the US Food and Drug Administration. However, ‘light tuna’ can refer to any other tuna species that is not albacore.

No consistency in usage of species in a batch/ several batches:

A batch (also ‘charge’ or ‘lot’) describes the entity of all units of a product that were produced or packaged under the same conditions. A batch number is a number that allows the identification of the specific batch this product was part of.

The fact that tuna species are hard to differentiate also seems to lead to usage of different species in a single batch as well as in different batches of the same product. Although there is no legal obligation to use the same species in one batch/ several batches of the same product this means that it is not possible for customers to know what tuna to expect in a can.

Lack of labelling:

Many canned and pouched tuna products are not labelled when it comes to the specific tuna species that is in the can (full common and/ or Latin name). Labelling of full species names is currently not mandatory in the EU, the US, Australia or New Zealand.

Consumers are left in the dark with regard to what tuna species have been used in the cans, let alone how or where the fish has been caught. By making no commitments on what species are being used in the cans, producers have no obligations to live up to, and can use whatever low-cost tuna they can get hold of.

Over the last few years, many producers in Europe and other countries have improved their labelling on a voluntary basis and some now even print the Latin species names, which is a laudable step and much needed for improving product transparency.

Mislabelling:

Incorrect labelling of tinned tuna products is an act of fraud in various countries.

Article 2 of the European Union Directive 2000/13/EC of 20 March 2000¹⁷ on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs, states:

“The labelling and methods used must not:

(a) be such as could mislead the purchaser to a material degree, particularly:

(i) as to the characteristics of the foodstuff and, in particular, as to its nature, identity, properties, composition, quantity, durability, origin or provenance, method of manufacture or production; ...”

Labelling a tin as containing one species of fish, when in fact it contains another, misleads the consumer regarding the nature, identity or composition of the product. It can also be argued that such false labelling misleads consumers “to a material degree” as many consumers wish to avoid buying overfished species and incorrect labelling may prevent them from doing so.

Moreover, Regulation (EEC) No 1536/92,¹⁸ discussed above, already implicitly recognises that consumers have an interest in a ‘consistent’ tuna product, since it prohibits mixing of species in one container.

Mention should also be made of Regulation (EC) No 178/2002 of 28 January 2002, the ‘General Food Law Regulation’.¹⁹ It provides in Article 16:

“Without prejudice to more specific provisions of food law, the labelling, advertising and presentation of food or feed, including their shape, appearance or packaging, the packaging materials used, the manner in which they are arranged and the setting in which they are displayed, and the information which is made available about them through whatever medium, shall not mislead consumers.”

In Australia, labelling a can with a species name other than the species contained in the can contravenes the Australian Trade Practice Act 1974.²⁰ Also Canada’s *Fish Inspection Regulations* clearly state:

“27. No person shall package any fish or mark or label any container of fish in a manner that is false, misleading or deceptive.”²¹

In troubled waters – the tuna species identified in the tins

Yellowfin tuna (*Thunnus albacares*)

Yellowfin tuna is found throughout the world's tropical and subtropical seas except in the Mediterranean. All four stocks are known to be declining, they are all being fished at a high rate, and overfishing is occurring.^{22, 23, 24, 25}

60% of yellowfin are caught by purse seine, and an increasing number of these are using FADs (e.g. over 40% of seiners in the Indian Ocean) which have a wide range of problems as well as killing endangered sharks, turtles and cetaceans. About 15% of yellowfin tuna are caught by longline fishing which a) can have a discard rate of 40% for large long-range boats and b) kill endangered sharks, turtles, cetaceans, seabirds.²⁶

Bigeye tuna (*Thunnus obesus*)

Bigeye tuna is a tropical and subtropical species found in the Atlantic, Indian and Pacific oceans. All stocks of bigeye tuna are in a long-term decline. All stocks except the Atlantic stock are considered overfished, and catches of juvenile bigeye in purse seine FAD fisheries is a major problem for stock recovery.^{27, 28, 29, 30}

Bigeye fisheries have similar bycatch issues to other tuna fisheries. They are mainly caught by longline fishing and purse seining. Atlantic longline fisheries also impact upon bluefin tuna and declining billfish stocks. Purse seiners setting on FADs have the potential to cause serious problems particularly for juvenile bigeye.³¹

Longtail tuna (*Thunnus tongol*)

Longtail tuna is a small tuna species living in tropical waters. Its main distribution area is the Indo-West Pacific. No quantitative stock assessments for longtail tuna have been performed by the regional fisheries management organisations (RFMOs) that manage tuna fisheries in these regions, therefore the status of its stocks is uncertain. Recorded catches of longtail tuna have been increasing recently.³²

As for other tuna fisheries, there are bycatch concerns associated with longline fisheries for longtail tuna.^{33, 34}

Skipjack tuna (*Katsuwonus pelamis*)

Skipjack stocks worldwide are generally considered to be in a healthy state. However, fishing rates continue to increase and recently initial concerns over the status of some of the stocks have started to emerge.^{35, 36, 37, 38}

Since the early 1990s skipjack is mainly, and increasingly, fished by purse seiners targeting FADs.³⁹

Euthynnus species

The *Euthynnus* genus are tuna-like fish, that includes species such as black skipjack (*Euthynnus lineatus*) and kawakawa (*E. affinus*) and little tunny (*E. alletteratus*). Kawaka and little tunny are coastal species. Black skipjack is found in coastal and offshore waters and forms multi-species schools with yellowfin and skipjack (*K. pelamis*). Little is known about the stock status of these species.

4. Conclusions and recommendations

The results of the genetic testing show 50 out of 165 products tested (30.3%) having inconsistencies in the species of tuna used in the products. It should be noted that the sample size from each product was relatively small (usually three tins per product). Furthermore the quality of the DNA in 56 of the products was so deteriorated that no species identification was possible hence leaving the status of the products unclear, apart from the fact that they were not yellowfin or bigeye tuna.

Based on these results and scientific studies showing that the catches of other species of tuna than just the target species skipjack are significant in purse seine fisheries, especially when FADs are used, it can be concluded that the issues raised here are an overarching problem in tinned tuna products and go beyond the companies tested and inconsistent found in this study.

Currently purse seine fisheries on FADs make over 70% of the world catch of tuna by purse seine vessels. This reality on the water as well as the present methods of storage, handling and sorting of the tuna suggest that there is no certainty for consumers what they are consuming when buying tinned tuna coming from industrial purse seine fisheries.

Inconsistent usage of species in tinned products is a huge problem not only to retailers and consumers who are made an unaware and unwilling accomplice of ocean destruction. It is also a huge challenge to the tuna fishing industry itself as the catch of large numbers of juvenile tuna is impacting on the health and recovery of tuna stocks, especially bigeye and yellowfin tunas. Scientific studies have shown that the most effective and immediately available way of reducing the bycatch is to catch tuna on free swimming schools without the use of FADs⁴⁰.

An immediate rejection of tuna coming from purse seine FAD fisheries is required from tuna brands, retailers and consumers while at the same time a full ban on the use of FADs needs to be put in place by the RFMOs in charge of the management of these fisheries. A ban on FADs in purse seine fisheries can be expected to significantly reduce catches of other non-target species and consequently reduce the level of mixing of species in processing. Most importantly it would bring the much needed conservation benefits for rebuilding the declined stocks of several species of tunas and other marine life indiscriminately caught and killed in FAD associated purse seine fisheries.

Annex 1: List of tuna brands tested:

- Albo
- Alfabetta Vassilopoulos
- Almare
- Asda
- Bumble Bee
- Calvo
- Campos
- Carrefour
- Century
- Chicken of the Sea
- Chop Chop!
- Clover Leaf
- Coles
- Dolores
- Gold Seal
- Grand Gérard
- Great Value
- Greenseas
- Gut & Günstig
- Hacendado
- Isabel
- John West (both European and Australian brand)
- Kaiser's Tengelmann Star Marke
- La Miranda
- Mare Aperto Star
- Morrisons value
- Nixe
- Nostromo
- pams
- President's Choice
- Raimond Frères
- Rio Mare
- Saupiquet
- Schlemmer Küche
- Sea Harvest
- Sealand
- Sirena
- Sole Mare Conga Foods
- Spar
- Spar Budget
- Starkist
- Statesman
- Supremo
- Tesco
- Toni
- Trata
- Tuna
- Vier Diamanten
- Woolworths' home brand

Annex 2: Products with inconsistent species content

Yellowfin tuna and bigeye tuna mixed in one tin

Product name	Brand	batch	Tuna species found
Atún claro en aceite vegetal	CALVO	L-T155 ALS3 07:35	<i>Thunnus obesus/ Thunnus albacares</i>
Atún claro en aceite vegetal	CALVO	L-T102 ALS4 09:09	<i>Thunnus obesus/ Thunnus albacares</i>
Atún claro en aceite vegetal	CALVO	L-T140 ALA/BLS3 08:25	<i>Thunnus obesus/ Thunnus albacares</i>
Atún claro en aceite vegetal	CAMPOS	LE51YGL5 AB20109	<i>Thunnus obesus/ Thunnus albacares</i>
Atún claro en aceite vegetal	CAMPOS	LE42YGL4 A10109 00:40A	<i>Thunnus obesus/ Thunnus albacares</i>
Tuna in brine	Toni	MI 2 YFW KC1ED	<i>Thunnus obesus/ Thunnus albacares</i>
Tuna in brine	Toni	MI 2 YFW L1LED	<i>Thunnus obesus/ Thunnus albacares</i>

Possible mix for skipjack and other Euthynnus spp. in one tin

For these products the laboratory found evidence (a 'double peak' where there should have been a single one) that "*probably points out the presence of Euthynnus species in the same sample*" (quote from laboratory report).

Product name	Brand	batch	Tuna species found
Tuna Chunks in sunflower Oil	NIXE	2 50701K	<i>Katsuwonus pelamis/Euthynnus spp.</i>
Tuna Chunks in sunflower Oil	NIXE	2 5J801K	<i>Katsuwonus pelamis/Euthynnus spp</i>
Tuna Chunks in sunflower Oil	NIXE	2 50605J	<i>Katsuwonus pelamis/Euthynnus spp</i>
TONIJN met groente in pikante saus	Grand Gérard	SDNONLB	<i>Katsuwonus pelamis/Euthynnus spp</i>
TONIJN met groente in pikante saus	Grand Gérard	SDNONLD	<i>Katsuwonus pelamis/Euthynnus spp</i>
Insalatissime Mexicana au thon	Rio mare	09H46/3 A	<i>Katsuwonus pelamis/Euthynnus spp</i>
Insalatissime Mexicana mit thunfisch	Rio mare	17H26/3 A	<i>Katsuwonus pelamis/Euthynnus spp</i>
Thunfischnaturale-ohne Öl	Saupiquet	USJ23B7 J1B	<i>Katsuwonus pelamis/Euthynnus spp</i>
Thunfisch in Sonnenblumenöl	Saupiquet	USI26J6	<i>Katsuwonus pelamis/Euthynnus spp</i>
Thunfisch-Stücke (Skipjack, Katsuwonus pelamis) in eigenem Saft und Aufguss	LA MIRANDA	LE11SNC1 101E	<i>Katsuwonus pelamis/Euthynnus spp</i>

Different species in the same batch

Product name	Brand	batch	Tuna species found
TONIJN met groente in pikante saus	Grand Gérard	SDNONL A PROD: 17-08-2009	<i>Euthynnus spp.</i>
TONIJN met groente in pikante saus	Grand Gérard	SDNONL B PROD: 17-08-2009	<i>Katsuwonus pelamis/Euthynnus spp.</i>
TONIJN met groente in pikante saus	Grand Gérard	SDNONL D PROD: 17-08-2009	<i>Katsuwonus pelamis/Euthynnus spp.</i>
Insalatissime Mexicana au thon	Rio mare	11H04/3 A PROD28/07/09	<i>Katsuwonus pelamis</i>
Insalatissime Mexicana au thon	Rio mare	09H46/3 A PROD04/08/09	<i>Katsuwonus pelamis/Euthynnus spp.</i>
Insalatissime Mexicana mit thunfisch	Rio mare	17H26/3 A PROD16/06/09	<i>Katsuwonus pelamis/Euthynnus spp.</i>
Tonno al Naturale	RIO mare	L9358 31/12/2012 L9358 31/12/2012	<i>Thunnus obesus</i>
Tonno al Naturale	RIO mare	L9358 31/12/2012 L9358 31/12/2012	<i>Thunnus albacares</i>
Tonno al Naturale	RIO mare	L9358 31/12/2012 L9358 31/12/2012	<i>Thunnus albacares</i>

Different species in different batches of the same product

Product name	Brand	batch	Tuna species found
Martinique style salad with tuna	NIXE	L-10-053-E 7EMAR5	<i>Katsuwonus pelamis</i>
Martinique style salad with tuna	NIXE	L-10-053-F 7EMAR5	<i>Katsuwonus pelamis</i>
Martinique style salad with tuna	NIXE	L-09-348-D 8EMAR5	<i>Thunnus obesus</i>
Tunfisch schnitzel (flakes) in aufguss	STATESMAN	CJGBC H97GW	<i>Thunnus albacares</i>
Tunfisch schnitzel (flakes) in aufguss	STATESMAN	CJGBC 49DAX. BBE	<i>Thunnus tonggol</i>
Tunfisch schnitzel (flakes) in aufguss	STATESMAN	CJGBC 3031W	<i>Thunnus tonggol</i>

American style salad with tuna	NiXe	L-10-123-G BEAME5-21:32	<i>Thunnus obesus</i>
American style salad with tuna	NiXe	L-10-123-G BEAME5-21:49	<i>Thunnus obesus</i>
American style salad with tuna	NiXe	L-10-159-H 7EAME4-17:35	<i>Katsuwonus pelamis</i>
Tonno al naturale Prime Scelta	NOSTROMO	L T050 L1LP1A 11:14	<i>Thunnus albacares</i>
Tonno al naturale Prime Scelta	NOSTROMO	L T134 L1ME1B 19:59	<i>No Thunnus albacares or Thunnus obesus</i>
Tonno al naturale Prime Scelta	NOSTROMO	T138 PLM1B 06:11	<i>Thunnus albacares</i>
Tonno all'olio di oliva	MareAperto STAR	A 249010 220558	<i>No Thunnus albacares or Thunnus obesus</i>
Tonno all'olio di oliva	MareAperto STAR	A 237409 380558	<i>Thunnus obesus</i>
Tonno all'olio di oliva	MareAperto STAR	A 008009 150558	<i>No Thunnus albacares or Thunnus obesus</i>
Flacked Light Tuna DILL & LEMON	CLOVER LEAF	VT104R LJ4201 A1511 APR 2012	<i>No Thunnus albacares or Thunnus obesus</i>
Flacked Light Tuna DILL & LEMON	CLOVER LEAF	VT104R LIC152 DO210 DEC 2011	<i>Thunnus obesus</i>
Flacked Light Tuna DILL & LEMON	CLOVER LEAF	VT104R LJ4201 D1615 APR 2012	<i>No Thunnus albacares or Thunnus obesus</i>
Tuna salad mexicana AB	for ALFA BETA VASSILOPOULOS	MI 2 BFO K1VFD	<i>Thunnus albacares</i>
Tuna salad mexicana AB	for ALFA BETA VASSILOPOULOS	MI 2 BFO L6AHD	<i>Thunnus obesus</i>
Tuna salad mexicana AB	for ALFA BETA VASSILOPOULOS	MI 2 BFO J3Z3D	<i>Thunnus albacares</i>
Tóvog oe vepó	CARREFOUR	MI 2 YFW KC2ED	<i>Thunnus albacares</i>
Tóvog oe vepó	CARREFOUR	MI 2 YSW L5FCD	<i>Thunnus obesus</i>
Tóvog oe vepó	CARREFOUR	MI 2 YSW L4TCD	<i>Thunnus obesus</i>
Tuna in brine	Toni	MI 2 YFW KC1ED	<i>Thunnus obesus/ Thunnus albacares</i>
Tuna in brine	Toni	MI 2 YFW L1LED	<i>Thunnus obesus/ Thunnus albacares</i>
Tuna in brine	Toni	MI 2 YFW L33DD	<i>No Thunnus albacares or Thunnus obesus</i>

Different species than labelled were found in the following products:

Product name	Brand	Batch	Tuna species labeled (Latin names of brackets were added by Greenpeace)	Tuna species found
Tuna Chunks in sunflower Oil	NIXE	2 50701K	Katsuwonus pelamis	<i>Katsuwonus pelamis/ Euthynnus spp.</i>
Tuna Chunks in sunflower Oil	NIXE	2 5J801K	Katsuwonus pelamis	<i>Katsuwonus pelamis/Euthynnus spp.</i>
Tuna Chunks in sunflower Oil	NIXE	2 50605J	Katsuwonus pelamis	<i>Katsuwonus pelamis/Euthynnus spp.</i>
American style salad with tuna	NiXe	L-10-123-G BEAME5-21:32	Katsuwonus pelamis	<i>Thunnus obesus</i>
American style salad with tuna	NiXe	L-10-123-G BEAME5-21:49	Katsuwonus pelamis	<i>Thunnus obesus</i>
Thunfisch-Stücke in eigenem Saft und Auguss	LA MIRANDA	LE11SNC1 101E 15:48	Skipjack, Katsuwonus pelamis	<i>Katsuwonus pelamis/ Euthynnus spp.</i>
Tόvou oe vepό	CARREFOUR	MI 2 YSW L5FCD	Yellowfin (<i>Thunnus albacares</i>)	<i>Thunnus obesus</i>
Tόvou oe vepό	CARREFOUR	MI 2 YSW L4TCD	Yellowfin (<i>Thunnus albacares</i>)	<i>Thunnus obesus</i>
Tuna in brine	Toni	MI 2 YFW KC1ED	Yellowfin (<i>Thunnus albacares</i>)	<i>Thunnus obesus/Thunnus albacares</i>
Tuna in brine	Toni	MI 2 YFW L1LED	Yellowfin (<i>Thunnus albacares</i>)	<i>Thunnus obesus/Thunnus albacares</i>
Tuna in brine	Toni	MI 2 YFW L33DD	Yellowfin (<i>Thunnus albacares</i>)	<i>No Thunnus albacares or Thunnus obesus</i>
Tuna in olive oil chunk style	SOLE MARE CONGA FOODS	MU58CG LMPSEW 3DA1H	Yellowfin (<i>Thunnus albacares</i>)	<i>No Thunnus albacares or Thunnus obesus</i>
Tuna in olive oil chunk style	SOLE MARE CONGA FOODS	MU58CG YLMPSEW 2MMCS	Yellowfin (<i>Thunnus albacares</i>)	<i>No Thunnus albacares or Thunnus obesus</i>

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¹ Greenpeace International (2010). A Growing FAD. Briefing paper for Kobe-II Bycatch Workshop, Brisbane, Australia 23-25 June 2010. Accessed November 2010 at: www.greenpeace.org/international/publications/reports/Tinned-Tuna--Fish-Aggregation-Devices/

² Greenpeace (2010). Fish Aggregation Devices: No More Excuses. Briefing paper. Accessed November 2010 at: www.greenpeace.org/international/publications/reports/Tinned-Tuna--Fish-Aggregation-Devices/

³ Bromhead D, Foster J, Attard R, Findlay J, Kalish J (2003). A review of the impacts of fish aggregating devices (FADs) on tuna fisheries. Final Report to the Fisheries Resources Research Fund. Bureau of Rural Sciences, Canberra, ACT, Australia. 122pp. Accessed May 2010 at: <http://adl.brs.gov.au/brsShop/data/PC12777.pdf>

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