

# ALBACORE — THE OTHER SASHIMI TUNA

There has been a dramatic change in the longline fishery in the western and central Pacific Ocean (WCPO) since the early 1990s, when domestic longline fisheries began developing in Pacific Island countries and territories. The main target species in the fishery have been high value, fresh chilled bigeye and yellowfin tuna, bound for export markets in Japan, Hawaii, and the US west coast.

Fresh chilled, longline-caught bigeye and yellowfin tuna end up as sashimi or sushi in restaurants or for home consumption. Longline vessels targeting albacore tuna have mostly been foreign freezer vessels fishing south of the equator and off-loading at canneries in American Samoa and Fiji.

These boats make trips of several months duration and freeze all fish whole while at sea. Albacore is their main target species and all other tunas and billfish are considered byproduct. There is also a substantial fleet of albacore troll boats from the US, Canada and New Zealand that, until recently, have also produced frozen fish at sea for canneries. The albacore caught by the longline fleet and by troll boats usually ends up in salads or sandwiches. More and more, however, albacore is being consumed as sashimi.

In the early 1990s, albacore tuna (*Thunnus alalunga*) was considered a byproduct species of the fresh sashimi longline boats, which targeted bigeye and yellowfin tuna. Between 1991 and 2001, however — and in spite of the fact that the boats were targeting bigeye and yellowfin — the albacore catches in the

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WCPO have more than doubled in volume, going from less than 40,000 metric tons (mt) to more than 80,000 mt annually.

During the same period, the catch of all longline-caught tunas increased only about 1.6 times, going from 147,000 mt to 240,000 mt. In some Pacific Island countries the component of albacore in the longline catch is as high as 75 per cent. It is no longer a byproduct. In Fiji Islands, for example, the albacore catch has gone from 36 per cent to 66 per cent of the total catch in the last decade, while the catch of the main target species, bigeye tuna, has dropped from 21 per cent to 5 per cent.

There are more examples of a glut of albacore in the region. The developing longline fishery in New Caledonia had an overall catch of 2064 mt in 2001 of which 49 per cent was albacore. Tonga, which had a record catch of 1988 mt for 2001 reported that 74 per cent of this was albacore. That's 1268 mt of what used to be considered byproduct.

The increase in albacore in the longline catch may not seem

significant without understanding the market and the fishery. Since the early 1980s, longline vessels have been targeting the lucrative fresh sashimi markets in Japan, Hawaii and the US mainland. Albacore does not have the same value in these markets as bigeye and yellowfin tuna. Targeting parameters for catching albacore and bigeye tuna, however, are basically the same — deep day sets using sanma (saury), sardines, pilchards, or squid for bait.

The seasons and geography are slightly different for the two species, but basically, it is not possible to avoid catching large numbers of albacore when targeting bigeye tuna. Some fresh albacore has been exported to Japan in past years but usually only seasonally in the months of July and August. Markets in the US for fresh albacore have not been strong, especially when airfreight is factored into the equation. Airfreight is the single most important component of marketing costs in a fresh tuna export operation, and available air cargo space has been shrinking in the region. Often the price of fresh albacore is not high enough to justify export by air. The only options have been to market fresh fish locally, freeze whole fish for the canneries, or produce value-added frozen products. Local markets are often glutted with fresh albacore resulting in depressed prices, and whole fish, frozen for export to canneries, are sometimes rejected because of improper handling.



*Thunnus alalunga*

**Pacific Island fisheries cope with the increased albacore catches**

In French Polynesia the percentage of albacore in the longline catch has gone from 27 per cent to 55 per cent since 1991. During this same time the percentage of bigeye in the longline catch has dropped from 12 per cent to 10 per cent and the percentage of yellowfin has dropped from 32 per cent to 12 per cent. Tahitian fishermen found a solution several years ago and have been the forerunners in developing new value-added markets for albacore.

The longline fleet in Tahiti includes several 25 metre boats that have processing rooms and blast freezers for producing quarter loins on board. The vessels involved in this fishery are equipped with monofilament systems and HACCP-certified processing rooms, blast freezers, and large freezer holds. The vessels are capable of staying at sea for one to two months and catching and processing 50 mt or more of quarter loins. (see *Fisheries Newsletter #85* for a description of the fishery and *Fisheries Newsletter #90* for fish cutting techniques).

Most of these frozen quarter-loins are destined for US or EU supermarkets where they end up as steaks. The yield on quarter-loined albacore is about 50 per cent of the whole weight of the fish so the market price for quarter loins has to be more than twice the price of whole frozen cannery fish for this fishery to be feasible. When the price of cannery fish increases, some boats in the fleet switch to freezing whole fish. During 2002 two of these Tahiti style boats began fishing in New Caledonia, freezing albacore loins at sea for EU markets.

In Fiji Islands some vessels freeze whole fish on board while icing fresh sashimi grade fish. Many boats in the fleet, however, use ice or refrigerated seawater to chill the catch. These boats usually don't have freezing capabilities, so fresh chilled albacore are frozen on shore and then loaded into freezer containers for shipment to canneries.

Most of the New Caledonia based longline fleet handles albacore in a similar manner: fish are frozen on shore and stockpiled for later shipment to canneries. In both of these situations a separate company is used for freezing and shipping fish, adding to production costs and reducing profit margins for the vessels.

Many other fisheries, however, are not coping with the abundance of albacore as well as they could. There is often dumping on the local market, and frozen fish are either not handled properly or are handled so much that profit margins are low because of increased costs.

In Samoa, for example, there is often a high rejection rate for cannery albacore that are landed fresh and then frozen on shore. Many of the vessels are small, so freezing at sea is not an option. Some of the smaller boats, in fact, offload fish at ambient temperature because they do not carry ice. Histamine contamination has been an important cause of rejection. In 2001 the Samoa fishery exported 5150 mt of fish, of which 412 mt were rejected. That's almost one million US dollars worth of fish. The percentage of albacore in the longline catch in 2001 in Samoa ranged from 56 to 79 per cent, depending on the size class of vessel.

In New Caledonia one company re-ices fish on shore and then

trucks whole chilled fish from the north to the south (five hours by road) to be frozen at a freezer works for later shipment to canneries. Each handling costs money and provides opportunity for damage to the product. Profit margins, as a result, are not as high as they could be.

**Canadian fishermen have developed another strategy**

Albacore tuna is not usually thought of when the talk turns to sashimi. It has been a good substitute when there is no bigeye or yellowfin, but usually fresh albacore goes into the frying pan or on the barbeque. In contrast to the bright red flesh of bigeye and yellowfin tuna, albacore flesh ranges from pink to white in colour and doesn't have the texture or flavour of the other tunas. The status of albacore tuna is changing, however, and this has been largely due to the efforts of west coast Canadian fishermen and fish marketers.

The Canadian albacore fleet consists of two types of vessels: small coastal boats from 10 to 20 metres that fish from the southern California coast (under the Canada/US Albacore Tuna Treaty) to the northern tip of Vancouver Island, and larger boats over 20 metres that fish the high seas in the western and eastern Pacific from May or June to October or November, following the fish as they move from the waters around Midway Island to the US/Canada west coast. Some of the fleet ventures down into the South Pacific, east of New Zealand between December and April.

All of the boats in the fleet are called jig boats, which is another name for troll boats. The larger boats usually have two to four crew who stay at sea for

several months, freezing all of the catch. Some of the catch goes to the canneries but lately, a large portion has been bled and blast frozen at sea and then sold to the fresh-frozen sashimi market. A small percentage is smoked for smaller niche markets or loined and sold directly to consumers. In 2001 the total estimated catch in the north Pacific from this fleet was 6438 mt. Most of this was taken in the northeast Pacific. In 2001 the jig boats fishing in the southern fishery landed an estimated 206 mt of albacore.

About five or six years ago some of the Canadian boats switched from salmon fishing to albacore fishing. The salmon boats were equipped with high-capacity, low temperature plate freezing systems that can quickly take the catch down to  $-40^{\circ}\text{C}$  or lower. The result was that the albacore they were catching and freezing was of higher quality than that landed by the American jig boats, which for

the most part had been using spray brine systems for freezing fish. The Canadian fishermen began selling this high-grade product to sushi restaurants in California. Five years ago they were selling about 500 short tons a year but by 2001 the sales volume was up to 5000 short tons a year and the markets had expanded to the US east coast and Japan. Cannery prices for whole frozen albacore go as high as USD 2500/short ton but usually average lower than that at around USD 1700–1800/short ton. Top grade bled and blast frozen albacore, on the other hand, can reach prices as high as USD 3000/short ton. [A short ton is 2000 pounds; a metric ton is 1000 kg or 2204 pounds; 1 pound = 0.454 kg]

The secret to producing sashimi grade albacore tuna is to bleed the fish, freeze them quickly to  $-40^{\circ}\text{C}$  or below, and keep them at or below this temperature. Producing a suitable product is not enough, however. Care has

to be taken to ensure that the cold chain is not interrupted from the time the fish leaves the vessel until it reaches the market. That means that transport systems — storage facilities and shipping containers — must be able to maintain the same cold temperatures as the processing boat. On-board systems that have been successful in producing sashimi grade albacore include blast freezers and plate freezers.

Some boats use seawater/ice slurries to get the temperature of the fish down before freezing them with the blast or plate freezer. The old-fashioned spray brine freezers (often used with cannery grade albacore) don't get cold enough for sashimi grade fish. There are advantages and disadvantages to both blast freezing and plate freezing, but plate freezing seems to be the most popular. Blast freezing tends to dehydrate the fish — they may lose about five to seven per cent of their weight



*Jig boats in San Diego, California*  
[Photo: Lindsay Chapman]

through dehydration. With plate freezers dehydration is reduced to about one per cent. Another consideration is that most Japanese processors use plate freezers. Japanese buyers may expect foreign producers to follow their standards.

After the success of the Canadian fishermen, many US west coast albacore jig fishermen followed suit and have installed blast or plate freezing systems on their boats. This has been timely for these fishermen as most albacore buying stations and canneries on the US west coast have closed down, leaving the fleet without many options for marketing their catch. The Western Fishboat Owners Association ([www.wfoa-tuna.org](http://www.wfoa-tuna.org)), which represents about 500 US albacore jig boats and promotes marketing of fish and fishery products, issued a word of caution to its members in their June

2002 newsletter that the recent rapid growth in the albacore sashimi fishery may be a case of too many too soon.

But they also said there is no reason that the US could not consume more of the sashimi grade albacore. Not unexpectedly, in the latter part of 2002, prices for sashimi grade albacore dropped and new entrants into the fishery were having trouble. This may be just a case of growing pains for the industry, however, and not a permanent trend.

In any case, anyone wanting to enter this potentially lucrative alternative to marketing albacore to the canneries should study the markets and transport links well before investing in the refrigeration and other equipment needed for a vessel conversion. Another thing to consider is that higher latitude

troll-caught albacore generally have a higher fat content than larger longline caught albacore.

This may be a factor in producing sashimi grade fish and is something that requires investigation. Notwithstanding the potential problems, however, bleeding and blast freezing albacore for the sashimi market may well turn out to be a solution to increased albacore catches in the South Pacific and a saving grace for fishermen who are catching more albacore while at the same time finding it increasingly difficult to market fresh sashimi grade fish because of a shortage of air cargo space. SPC's Fisheries Development Section welcomes any comments on the subject and would like to hear from any fishermen, boat owners, processors, or marketers who would like to venture into this aspect of the fishery or who already have.

