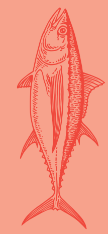

NOVA SCOTIA SPECIES SPOTLIGHT: ALBACORE TUNA (*Thunnus alalunga*)

FISHERY

Albacore tuna in the Atlantic Ocean is separated into a Northern and Southern stock, separated at 5° latitude.

Albacore is found from Nova Scotia to Argentina. Other albacore stocks are located in the Mediterranean and Pacific Oceans.

Albacore is a target species within the NS swordfish longline fishery, which takes place from April to December.

The total allowable catch (TAC) in the Northern stock is 37,801 tonnes. Canada receives an annual quota of 200 t per year with up to 25% carry forward from previous year. In 2020, 12 t of albacore was captured in Canada (AL31).

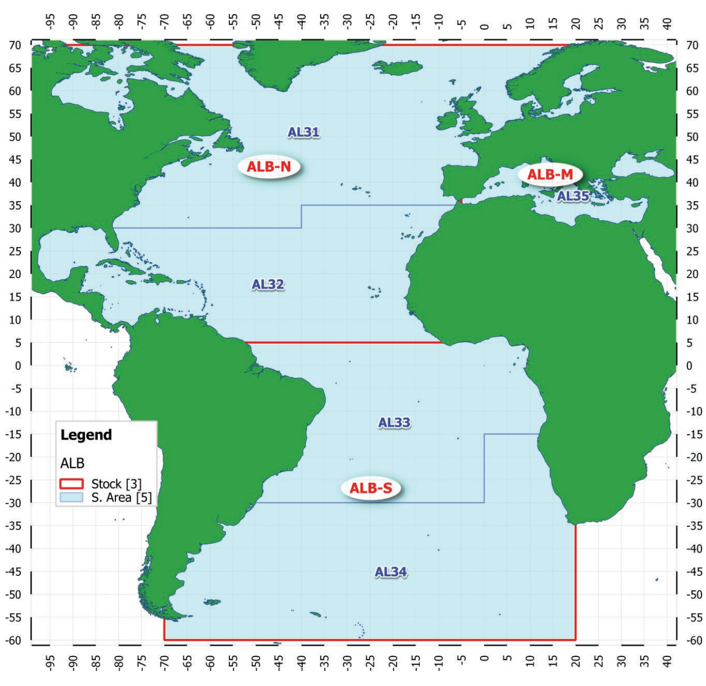

Figure. Albacore tuna fishing areas in the Atlantic Ocean

BIOLOGY

Albacore is considered a temperate species and spends more time in temperate waters than yellowfin or bigeye tunas. They prefer deep, open waters, with temperatures from 14 to 20 °C.

Young albacore spend more time in surface waters than adults, which reach depths of 450 m. Their oxygen requirement is 2.5 times greater than bigeye, but equivalent to yellowfin.

Albacore feeds primarily on fishes include sardine, anchovy, mackerel and squid, and to a lesser part crustaceans.

There is no external morphological difference between sexes. Albacore grow up to 130 cm in length and 88 lbs in weight.

LIFE CYCLE

Atlantic albacore reaches maturity in 50% of fish by age 5.

North Atlantic albacore spawn in the Sargassum Sea and the Gulf of Mexico, from April until September, and when surface water temperatures exceed 24 °C.

Females lay from 2 to 3 million eggs per spawning season. Larvae measure 2.5 mm when laid.

The oldest recorded fish was less than 10 years of age.

MANAGEMENT AND CONSERVATION

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is an inter-governmental fishery organization responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas. Representatives from Fisheries and Oceans Canada, as well as industry associations, participate with other member countries in ICCAT meetings to ensure consistent management measures get adopted.

Statistical models adopted by ICCAT in 2019 indicated the stock is not overfished, and overfishing is not occurring.

Management measures include gear restrictions, seasonal closures, minimum size limits, vessel observer coverage, catch weights and size information reported by an independent dockside monitoring company.

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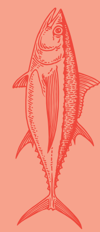


NOVA SCOTIA SPECIES SPOTLIGHT: **ALBACORE TUNA** (*Thunnus alalunga*)

SEAFOOD LABELLING

	Terminology	Description
Common Name	**English**: Albacore Tuna, Albacore, Tuna **French**: Thon Germon Blanc, Thon	Accepted common name(s) for *Thunnus alalunga*
Production Method	Wild	Harvested from the ocean
Certifications	Marine Stewardship Council (MSC)	Certifies that fish products come from wild fisheries that meet environmental standards for sustainable fishing
Product Forms	Round	Unprocessed
	Dressed	Eviscerated and head, tail and fins removed
	Gutted	Eviscerated and gills removed
	Loin	Dorsal (back) or ventral (belly) segment of a tuna fillet
Process Description	Superfrozen	Frozen and maintained at temperatures < -60 °C
	Ikejime	Brains spiked, metal rod inserted into spinal column, fish bled then flushed with sea water.
	Sushi-Grade	Previously frozen and stored below -35 °C for over 15 hrs, or below -20 °C for over 7 days

PROCESSING/HANDLING

ICCAT Conversion Factor

Round weight = Gilled & Gutted weight * **1.13**

Round weight = Dressed weight * **1.25**

Primary Products
Dressed

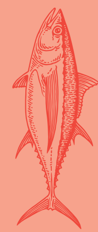
Secondary Products
Loins, steaks, canned

Post-Harvest Primary Processing
Harvest » Slaughter » Bleeding, Evisceration » Vessel Stowage » Off Loading » Head and Tail removal Grading » Packaging » Storage » Transportation

By-Products
Heads, Skin, Viscera, Bones, Fins (up to 40% of round fish weight)

Post-Harvest Processes Impacting Quality

- Slaughter Technique (Ikejime)
- Delay in Slaughter
- Product Exposure
- Bleeding Practice
- Product Chilling (delay in chilling, temperature abuse)
- Gentle Handling (Gaff punctures and ragged cuts)
- Cleanliness of Gut



NOVA SCOTIA SPECIES SPOTLIGHT: **ALBACORE TUNA (*Thunnus alalunga*)**

CHEMICAL COMPOSITION

Proportion (g / 100 g)		
	Raw	**Dark Meat**
Moisture	67.6	70.7
Protein	25.2	22.8
Fat	6.3	5.5
Carbohydrate	0.0	0.0
Ash	1.4	1.2

*Sidwell, 1981

STORAGE

Chilling should commence as quickly as possible once on board the vessel. A mixture of brine and ice can produce a low temperature slurry capable of accelerating the chilling process over ice alone.

Freezing can extend the shelf life of the product, but tuna remains susceptible to fat oxidation and textural changes over the long term if not adequately protected by packaging.

Frozen storage at -18 °C is effective for maintaining a shelf life for up 6 months, whereas -30 °C is effective for maintaining a shelf life of up to 12 months, for a good quality product. Superfreezing to below -60 °C can greatly extend the shelf life by slowing the onset of textural changes that occur in fish frozen stored at -18 °C.

KEY FOOD SAFETY AND QUALITY CONCERNS

Tunas possess high concentrations of the amino acid histidine within their tissues, and temperature abuses allow microbes found naturally in the marine environment to grow and convert it to histamine. Histamine is a biogenic amine that if consumed leads to an allergic-type reaction called scombroid poisoning.

Tuna can bioaccumulate environmental contaminants and a primary hazard is heavy metals. Organic mercury (methylmercury) can accumulate within tuna flesh and limit of 1 ppm is permitted for tunas by Health Canada.

Tuna flesh quality is assessed primarily by its colour and clarity. The following post-harvest practices influence flesh quality:

Ikejime method – this slaughter technique prevents post-mortem stimulation in the nervous system that prevents further energy consumption in the muscle. Post-mortem muscle activity consumes additional ATP, and can drive increases of both temperature and lactic acid that overall affect clarity and flavour of the muscle. This method is the most humane method of killing fish, and is prized for sushi because of the quality of flesh that it produces.

Increasing internal temperature during harvest – tunas generate heat when their activity increases, and fighting on the line during capture can drive their internal temperatures up to 10 °C greater than the surface water temperature. Both colour and clarity become affected if harvested in this condition.

Lactic acid build-up in the muscle during harvest – as tunas fight on the line during capture, they use up available energy within the muscle and begin to produce lactic acid. Lactic acid accumulation reduces muscle pH, and degrades the protein structure of the muscle tissues. Both colour and clarity become affected if harvested in this condition.

Speed of bleeding - delays in bleeding will make it more difficult to remove blood particles from the flesh. Slow or incomplete bleeding will affect the clarity.

Speed of chilling – chilling is necessary to drive down the internal product temperature. Tuna held longer at elevated temperatures post-harvest will lose colour and clarity more rapidly than if chilled sooner.

Bleeding – during the bleeding process, warm blood can interact with cool edible meat leading to damage to the flesh and stimulation of the development of rancidity in fat.

NOVA SCOTIA SPECIES SPOTLIGHT: **ALBACORE TUNA** (***Thunnus alalunga***)

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