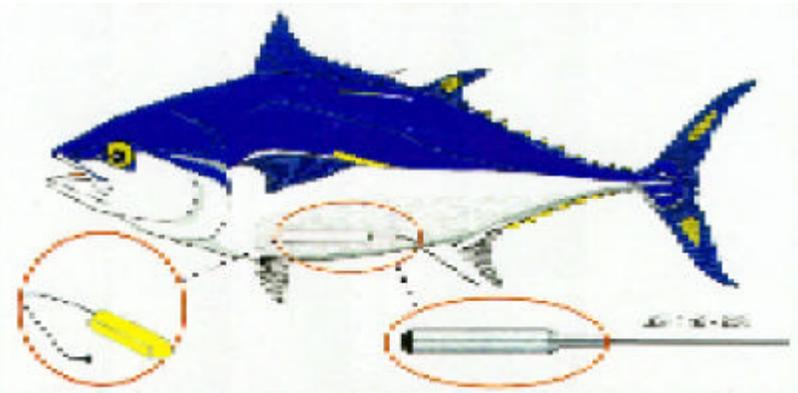


\$1,000 Reward

OFFERED FOR ARCHIVAL TAGS FROM ATLANTIC BLUEFIN TUNA



What are archival tags? Archival tags are electronic data-logging devices that provide location estimates by measuring light intensity through a light sensor. They also provide data on swimming depth, water temperature, and body temperature of the fish. This information is collected on a daily basis and stored in the tag for several years.

How do you determine that a bluefin tuna has an archival tag? Archival tags are implanted in the body cavity of the tuna and only the light sensor protrudes out of the body. However, these specially equipped bluefin tuna also carry unique external conventional streamer tags, with two-tone coloration, to help fisherman recognize these fish and return the archival tags. The external tags are placed about an inch off the dorsal midline on each side of the fish. On the white portion of the streamer tag it says "electronic tag inside cavity" and on the green side it says "Big \$\$\$ reward".

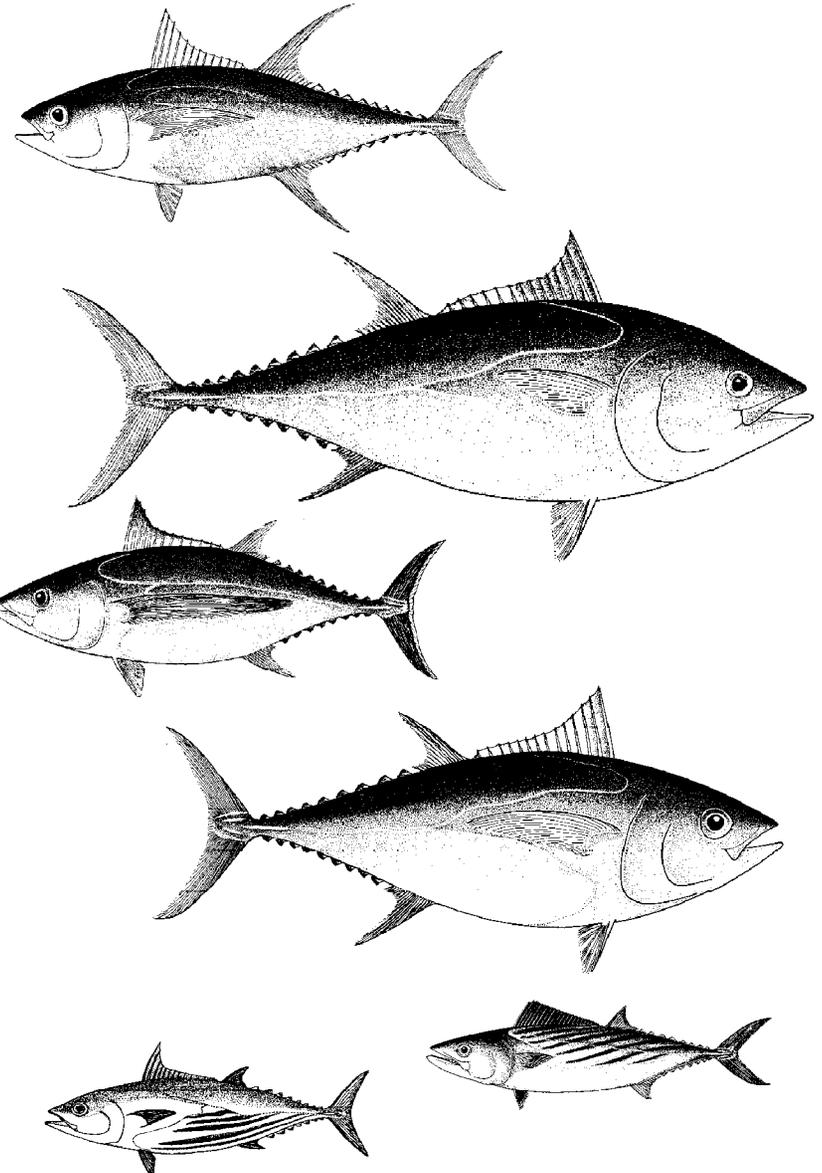
PROCEDURE FOR GETTING YOUR REWARD:

1. Report all archival tagged bluefin tuna to **YOUR LOCAL FISHERIES AGENCY**, or in the West Atlantic call the toll free number 1-800-437-3936¹. In the East Atlantic/Mediterranean call the International Commission for the Conservation of Atlantic Tunas (ICCAT), Madrid, Spain, at 34-1-579-3352. Additional instructions will be provided regarding where and how the tags should be mailed. Inquires can also be made to Dr. Eric Prince at his e-mail address: eric.prince@noaa.gov

2. DO NOT REMOVE THE ARCHIVAL TAG BY PULLING ON THE LIGHT SENSOR. To remove the archival tag, make a carefully placed 6 inch incision in the belly cavity, in front of the area where the sensor enters into the fish. Remove the silver or yellow archival tag (with light sensor attached) by hand. Wash the tag with water and keep it at room temperature. Streamer tags can be cut off the fish and the portion of the tag with writing or information should be kept. In addition to saving both the archival and streamer tags, data on location and date of recapture, fishing gear used, length, weight of fish, and your name and address are also important.

¹ Outside the United States, this toll free number can be used by dialing the access code for the country that you are in for AT&T DIRECT service to the United States.

A Guide to the Tunas of the Western Atlantic Ocean



INFORMATION AND CONTACTS

The information in this guide was compiled by the Highly Migratory Species Management Division (HMS) of the National Marine Fisheries Service. Fishermen are responsible for complying with current official regulations and since fishery rules are subject to change, fishers must familiarize themselves with the latest regulations. In order to help keep the public informed, HMS maintains an information line for news and catch reports concerning Atlantic tunas. The HMS Information Line, which is updated daily, announces closure notices, scoping and public hearing locations and times, inseason quota adjustments, and updates of landings of Atlantic bluefin tuna. Callers may reach the 24-hour Information Line by dialing (978) 281-9305, or toll free at (888) 872-8862. Information about the Atlantic tuna fisheries is also available on-line at www.nmfspermits.com.

For further information concerning the Atlantic tuna fisheries contact:

Highly Migratory Species Management Division
1315 East West Highway, Room 13522
Silver Spring, MD 20910 (301) 713-2347

Highly Migratory Species Management Division
One Blackburn Dr.
Gloucester, MA 01930 (978) 281-9260

Cooperative Gamefish Tagging Program (800) 437-3936

NMFS Enforcement Hotline (800) 853-1964

**24-hour HMS Information Line: (978) 281-9305;
(888) 872-8862**

INTRODUCTION

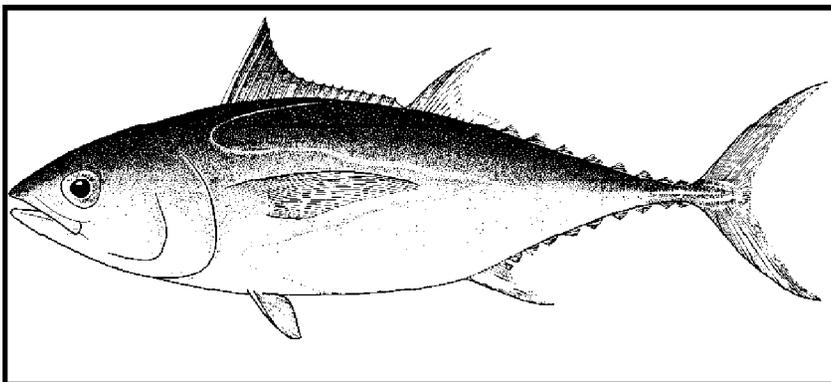
The National Marine Fisheries Service (NMFS) has developed this pamphlet, *A Guide to the Tunas of the Western Atlantic Ocean*, to assist commercial, charter/headboat and recreational users and dealers/buyers in identifying the five regulated Atlantic tuna species (bluefin, bigeye, yellowfin, skipjack, and albacore), as well as the three unregulated Atlantic tuna species (blackfin tuna, little tunny, and bonito). The Atlantic tuna fisheries occur in all waters of the Eastern United States, from the Northeast (Gulf of Maine) to the Mid-Atlantic, Southeast, Caribbean, and Gulf of Mexico regions. As of October 1999, there were nearly 23,000 permitted vessels that participate throughout the year in the tuna fisheries. These vessels are managed under the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and the Atlantic Tunas Convention Act (ATCA), which provides authority to implement international agreements reached by the International Convention for the Conservation of Atlantic Tunas (ICCAT)).

The status of a fishery resource describes the relative condition of a population as compared to the long term potential yield that a particular species may provide. The current status of Atlantic tunas are as follows: bluefin, bigeye, and albacore tuna are considered overfished, and yellowfin, and skipjack are considered fully-fished. Management measures are in place to sustain or rebuild these populations. All users play a role in this effort by complying with regulatory measures. Identifying and understanding the species for which one is fishing is a first step towards sound conservation. Proper identification of tuna species is essential in order to prevent landings which exceed current regulations.

Some species of tuna (particularly juveniles) are difficult to identify, and it is often difficult to identify a tuna using only one physical feature. The best identification technique is to distinguish two or more features of the fish, such as pectoral fin length and gill raker count, and identify the species through the process of elimination.

Blackfin tuna

Thunnus atlanticus



Distinctive Characteristics

Finlets are uniformly dusky with only a trace of yellow, not bright lemon yellow like other tunas, and may have white edges. The 1st dorsal fin is dusky; 2nd dorsal and anal fins also dusky with a silvery lustre. The back of the fish is bluish-black, with the sides silvery-grey, and the belly milky white. Some have light vertical stripes on sides which alternate with light spots on lower flanks.

Gill rakers are fewer in number than in other species of *Thunnus*, with 19-25 on the first gill arch. A small swimbladder is present. The ventral surface of the liver is without striations, and the right lobe is longer than the left and center lobes.

Size

Maximum: 40 inches Common: 28 inches
Current IGFA all tackle record 42 pounds 8 ounces

Distribution and Behavior

Blackfin are found in the tropical and warm temperate waters of the western Atlantic. The range of this species extends from Brazil to Cape Cod, including the Caribbean and the Gulf of Mexico. Blackfin often feed near the surface, and they frequently form large mixed schools with skipjack.

The blackfin's spawning grounds are believed to be well offshore. Off Florida the spawning season extends from April to November with a peak in May, while in the Gulf of Mexico it lasts from June to September.

USING THE GUIDE

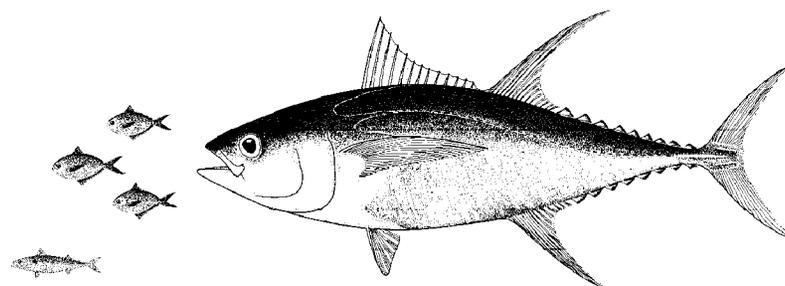
(1) **Body Parts and Measurements Used in Identifying Tuna** illustrates the general external and internal physical characteristics that fishers can refer to when identifying tuna.

(2) **Observations to Help Identify Tunas** describes the physical characteristics used to distinguish the various species from one another.

(3) **Reference Key to Atlantic Tunas** characterizes, in table format, anatomical features that may be used to identify tuna.

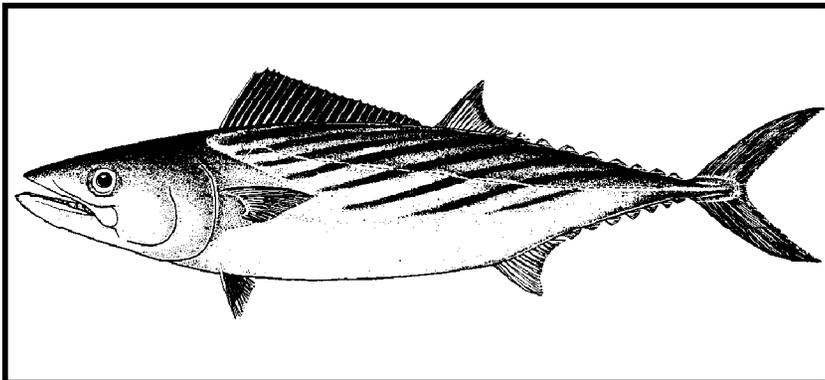
(4) **List of Species** provides a picture of each species with common and scientific names, distinctive characteristics used to identify the species, maximum and common sizes (in inches), and a brief description of general distribution and behavior. All lengths given in this guide, unless otherwise indicated, refer to total straight fork length.

Please carry this guide with you, aboard your vessel, when fishing for large pelagic species (you never know when you might need it). If you have questions concerning this guide or Atlantic tuna regulations, refer to the list of NMFS employees found at the back of the pamphlet.



Bonito

Sarda sarda



Distinctive Characteristics

Bonito can be distinguished from other tunas by the **presence of seven or more (often 9-12) oblique dark stripes on the dorsal side of the fish**. The back of the fish is steel-blue or blue-green and the flanks and belly are silvery to whitish. The body is entirely covered with scales, which are very small except in the pectoral region.

Bonito have large conical teeth on both the upper and lower jaw. No swimbladder is present, and there are 16-24 gill rakers on the first gill arch. The pectoral fins are very short, and there are 20-23 fin rays on the 1st dorsal fin. The right and left lobes of the liver are elongate, while the center lobe is short.

Size

Maximum: 36 inches Common: 25 inches
Current IGFA all tackle record 18 pounds 4 ounces

Distribution and Behavior

Bonito are common in tropical and temperate waters of the Atlantic from Argentina to Nova Scotia, and from South Africa to Norway, but they are rare in the Caribbean and Gulf of Mexico. Known to skip or leap over the surface of the water when in pursuit of prey. Found in schools 15-20 miles offshore, but are also found close to shore.

Bonito reach sexual maturity at about 16 inches in length and spawn in the western Atlantic in June and July. Spawning usually takes place close to shore, in warm coastal waters.

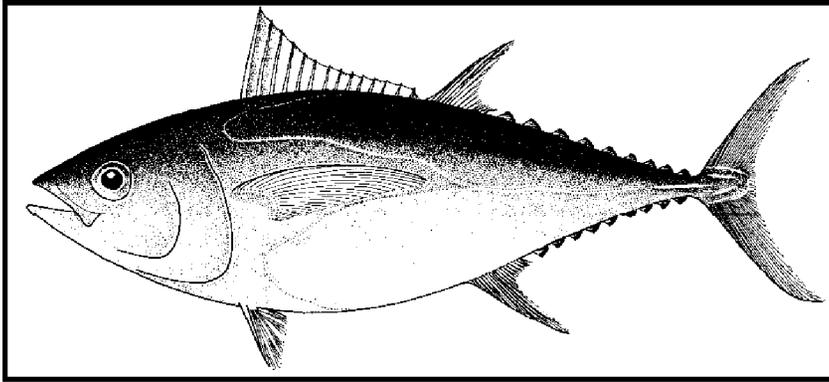
OBSERVATIONS TO HELP IDENTIFY TUNAS

- 1) Look at the fins. If the **pectoral fin**, when held flush to the side of the tuna's body, ends well before the origin of the second dorsal fin, it is probably a bluefin tuna. If the pectoral fin extends to or past the origin of the second dorsal fin, then it is likely either a bigeye or yellowfin. A tuna with extremely long pectoral fins, extending beyond the origin of the anal fin, is most likely an albacore. A tuna over forty pounds with extremely long **anal and second dorsal fins** is most likely a yellowfin.
- 2) Count the **gill rakers** on the first gill arch and observe the **liver** for its shape and presence of striations. This information, combined with fin shape and size, should permit correct identification of the species.
- 3) Headed and gutted yellowfin tuna have a distinct, white fleshy round node (like a fleshy cord) that runs along the top of the body cavity from front to rear. This is absent in bigeye and bluefin.
- 4) Headed and gutted bluefin tuna have a distinct pocket that can be felt by running your hand along the inside of the body cavity underneath the insertion of the pectoral fin. Yellowfin and bigeye tuna do not have this indentation in their body cavity.

CURVED FORK LENGTH MEASUREMENT

Total curved fork length is the sole criterion for determining the size class of whole (head on) Atlantic tunas for regulatory purposes. Curved fork length means a measurement of the length of a tuna taken in a line tracing the contour of the body from the tip of the upper jaw to the fork of the tail, which abuts the upper side of the pectoral fin and the upper side of the caudal keel. **THE MEASURING TAPE MUST PASS OVER (AND TOUCH) THE PECTORAL FIN AND THE CAUDAL KEEL.**

Bigeye tuna
Thunnus obesus



Distinctive Characteristics

Stocky body and large eye characterize the species. The pectoral fin reaches the 2nd dorsal fin. The margin of the ventral surface of the liver is striated; the center lobe of the liver is larger than the other two lobes. A swimbladder is present, and there are 23-31 gill rakers on the first gill arch.

The 1st dorsal fin is deep yellow, and the 2nd dorsal and anal fins are brownish or yellowish with narrow black edges. The finlets are yellow with dark edges. Generally no markings on body, but in live specimens a lateral iridescent blue band runs along sides. Bigeye found in U.S. waters usually exceed 100 pounds.

Size

Maximum: 90 inches Common: 16 to 67 inches
Current IGFA all tackle record 375 pounds 8 ounces

Distribution and Behavior

Bigeye are found in the warm temperate waters of the Atlantic, Pacific, and Indian oceans. In the Atlantic, they range from Southern Nova Scotia to Brazil. Commonly found in schools that run in deep waters during the day. Bigeye, yellowfin, and skipjack are known to occasionally school together at the surface, especially in warm waters.

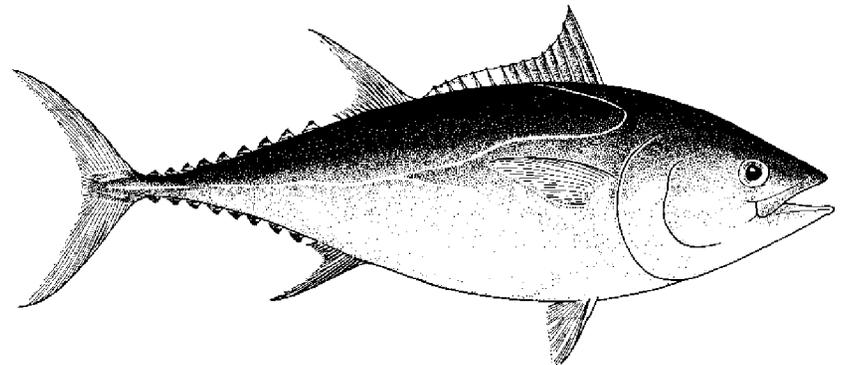
Bigeye tuna reach sexual maturity at about 40-50 inches in length. Mature bigeye spawn at least twice a year, with spawning occurring throughout the year in tropical waters, and peaking during summer months.

TO ATLANTIC TUNAS

Bottom Surface of Liver	Pectoral Fin Length	Finlets	Length (fork length) and Weight Maximum
STRIATED	VERY SHORT: DOES NOT REACH ORIGIN OF SECOND DORSAL FIN	YELLOW, OFTEN WITH NARROW BLACK MARGIN	120 + inches 1000 + pounds
WITHOUT STRIATIONS	EXTENDS BEYOND ORIGIN OF SECOND DORSAL FIN	LEMON YELLOW WITH A VERY NARROW BLACK MARGIN	80 inches 400 pounds
STRIATED MARGIN	REACHES ORIGIN OF SECOND DORSAL FIN	YELLOW WITH BLACK MARGIN	90 inches 450 pounds
STRIATED	EXTENDS BEYOND ANAL FIN	DORSAL: YELLOWISH ANAL: SILVER OR DUSKY	50 inches 90 pounds
WITHOUT STRIATIONS	VERY SHORT	DUSKY	36 inches 20 pounds
WITHOUT STRIATIONS	VERY SHORT AND BROAD	DUSKY	40 inches 40 pounds
WITHOUT STRIATIONS	REACHES ORIGIN OF SECOND DORSAL FIN	UNIFORMLY DUSKY WITH WHITE MARGINS	40 inches 40 pounds
WITHOUT STRIATIONS	SHORT AND BROAD	DUSKY	40 inches 35 pounds

REFERENCES

- Collette, B. B. and C. E. Nauen, 1983. Scombrids of the World. Food and Agriculture Organization of the United Nations, Rome, Italy.
- Gibbs, R. H. and B. B. Collette, 1966. Comparative Anatomy and Systematics of the Tunas, Genus Thunnus. Fishery Bulletin 66(1).
- International Game Fish Association, 1995. 1995 World Record Game Fishes. International Game Fish Association, Pompano Beach, Florida.
- National Marine Fisheries Service, 1999. Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks. National Oceanic and Atmospheric Administration, Silver Spring, MD.
- Smith, C. F. and E. Hasbrouck, 1988. A Guide to Identifying Tuna in New York Area Waters. Cornell Cooperative Extension of Suffolk County, Marine Program, Riverhead, New York.



ATLANTIC TUNAS PERMIT PROGRAM

All owners/operators of vessels (commercial, charter/headboat, or recreational) harvesting regulated Atlantic tunas (bluefin, bigeye, yellowfin, skipjack, and albacore) and all fish dealers and importers must obtain an Atlantic Tunas Permit.

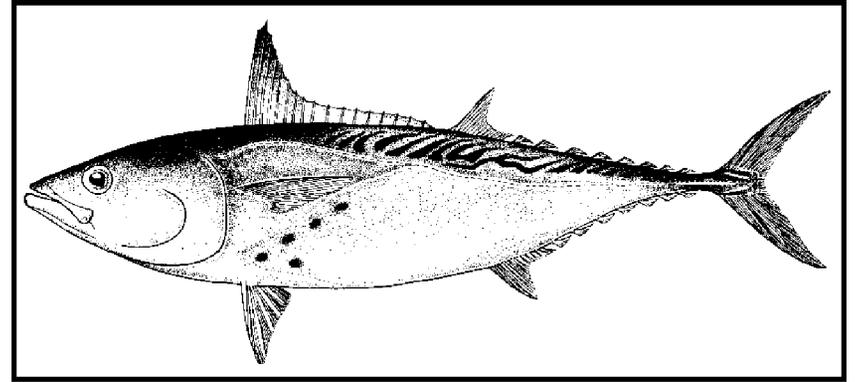
Atlantic tunas permits are issued in seven categories. The commercial categories are: General, Charter/Headboat, Harpoon Boat, Purse Seine, Longline, and Trap. The Angling category is the recreational category. Only one category may be assigned to a vessel.

Atlantic tunas may be sold only by fishers permitted in commercial categories and may be sold only to permitted dealers. Atlantic tunas taken recreationally or by persons aboard Angling Category vessels may not be sold.

NMFS maintains an Automated Permitting System to apply for and renew Atlantic tunas permits. Vessel owners may renew or obtain an initial (new) permit by using the internet at: www.nmfspermits.com or by phoning toll-free (888) 862-8862. As the fishing year is now June through May, permits issued in 2000 will be valid from the date of issuance through May 31, 2001. Permits will then be renewable on an annual, fishing year basis.

Note: Permit applications may take up to 30 days to process, and change of permit category may be made only once per year, and must be made prior to May 15 to take effect for the beginning of the fishing year, June 1.

Little tunny *Euthynnus alletteratus*



Distinctive Characteristics

The little tunny is distinguished by a **scattering of dark spots, usually 4-5, resembling fingerprints between the pectoral and ventral fins**. This species also has wavy markings found on the back above the lateral line, located within a well marked border that never extends further forward than the middle of the first dorsal fin.

The pectoral and ventral fins are short and broad, and the two dorsal fins are separated at the base by a small interspace. The teeth are small and conical. No swimbladder is present. There are 37-43 gill rakers on the first gill arch.

Size

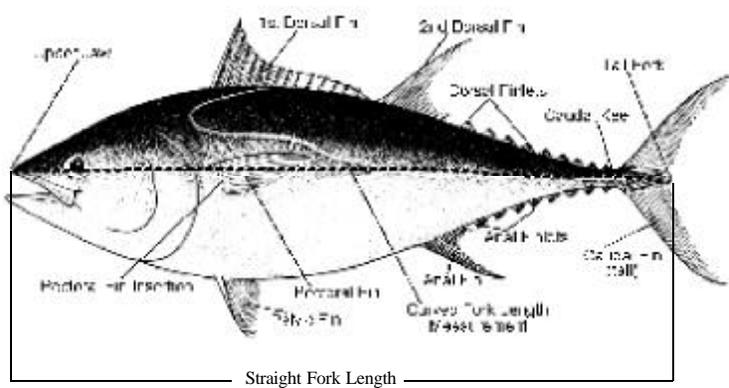
Maximum: 40 inches Common: 25 inches
Current IGFA all tackle record 35 pounds 2 ounces

Distribution and Behavior

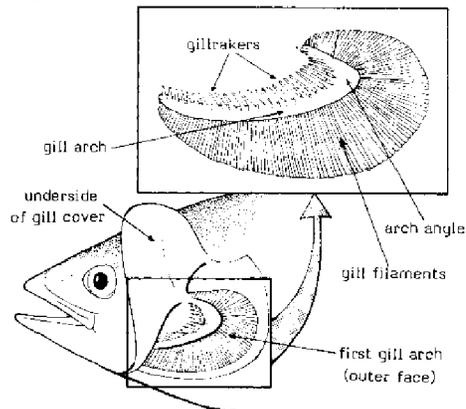
Little tunny are common in the tropical and warm temperate waters of the Atlantic from New England to Brazil in the west, and from Great Britain to South Africa in the east. They are not as migratory as other tuna species, and can be found regularly in inshore waters, as well as offshore. Usually found in large schools.

Little tunny reach sexual maturity at approximately 15 inches in length. Spawning occurs from about April to November in both the western and eastern Atlantic.

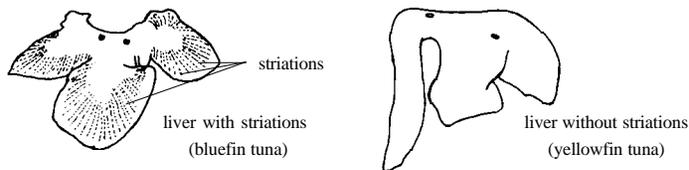
BODY PARTS AND MEASUREMENTS USED IN IDENTIFYING TUNA



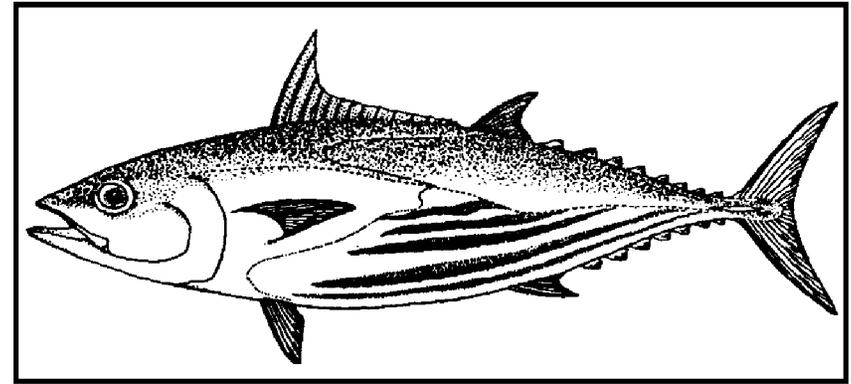
Gill rakers - the stiff pointed structures that extend from the first gill arch towards the mouth. Counts of gill rakers are given as the number on the first gill arch.



Liver Striations - The ventral surface of the liver of 3 species of Atlantic tunas bears prominent striations (lines or ridges). These striations are blood vessels involved in a counter-current heat exchanger system that enables these species to maintain warm body temperatures.



Skipjack tuna *Katsuwonus pelamis*



Distinctive Characteristics

Skipjack can be distinguished from other tunas by the **presence of stripes on the belly**. Usually 4-6 prominent, dark longitudinal stripes from the lower belly and sides toward the tail. The top of the fish is a dark purplish-blue, and the lower flanks and belly are silvery.

The pectoral and ventral fins are short, and the two dorsal fins are separated at the base by a small interspace. The teeth are small and conical. No swimbladder is present. There are 53-63 gill rakers on the first gill arch, more than any other tuna.

Size

Maximum: 40 inches Common: 16 to 28 inches
Current IGFA all tackle record 41 pounds 14 ounces

Distribution and Behavior

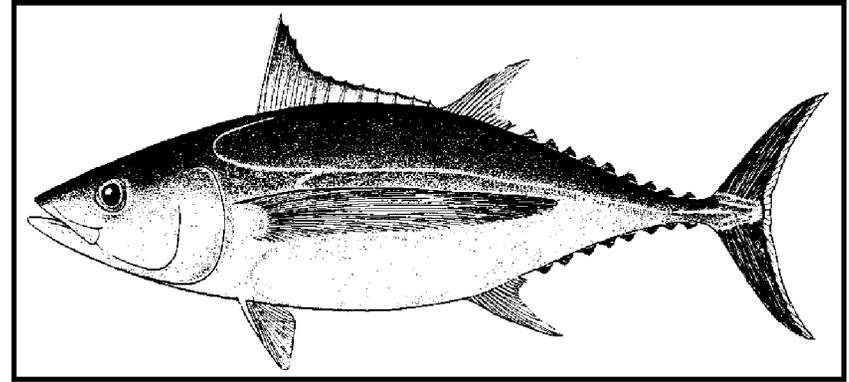
An oceanic species, found worldwide in tropical and subtropical waters. Skipjack are common throughout the tropical Atlantic, and can be found as far north as Massachusetts in summer, and as far south as Brazil. Often schools with blackfin in the western Atlantic, with school size reaching 50,000 individuals.

Skipjack tuna reach sexual maturity at about 18 to 20 inches in length. Spawning occurs in spurts throughout the year in tropical waters, and from spring to early fall in subtropical waters with the spawning season becoming shorter with increased distance from the equator.

REFERENCE KEY

SPECIES	Gill Rakers on First Gill Arch	Markings on Lower Body	Markings on Upper Body	Trailing Edge of Caudal Fin
Bluefin	34 - 43	GRAY SPOTS AND BANDS, SOMETIMES RESEMBLES TREEBARK	NONE	NOT WHITE
Yellowfin	26 - 35	CHAINS (20+) OF WHITE STREAKS AND SPOTS	YELLOW-GOLD BAND ON SIDES, FADING AT DEATH	NOT WHITE
Bigeye	23 - 31	NONE	NONE	NOT WHITE
Albacore	25 - 32	NONE	NONE	WHITE
Bonito	16 - 23	NONE	OBLIQUE DARK STRIPES - SEVEN OR MORE	NOT WHITE
Skipjack	53 - 63	4 - 6 DARK LONGITUDINAL STRIPES ON BELLY	NONE	NOT WHITE
Blackfin	19-25	ALTERNATING BARS AND SPOTS, LIGHT IN COLOR	NONE	NOT WHITE
Little tunny	37-43	CHEST SPOTS	WAVY LINES ON BACK	NOT WHITE

Albacore *Thunnus alalunga*



Distinctive Characteristics

Albacore can be distinguished from other tunas by a **long pectoral fin that may reach to a point beyond the anal fin**. The pectoral fin in juvenile albacore may be similar to that of yellowfin or bigeye. A swimbladder is present, but is poorly developed and not evident in individuals smaller than about 20 inches in length. The liver is striated on the ventral surface, and there are 25-32 gill rakers on the first gill arch.

Albacore lack any stripes or spots on the lower flanks and belly. The tail fin has a thin white trailing edge. There is no yellow on the main fins, but the dorsal finlets are yellowish. The anal finlets are silvery or dusky.

Size

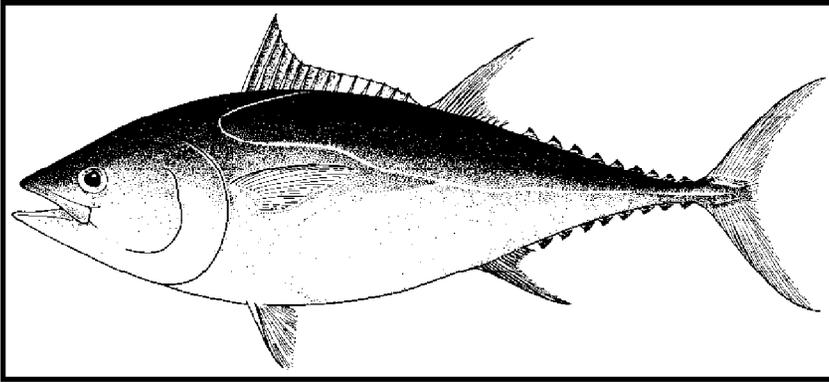
Maximum: 50 inches Common: 16 to 43 inches
Current IGFA all tackle record 88 pounds 2 ounces

Distribution and Behavior

A temperate species, found worldwide in tropical and warm temperate seas. While albacore usually remain in tropical or warm waters, they do make migrations into colder waters as far north as New England. In the Atlantic, larger size classes (31 to 50 inches) are associated with cooler water bodies, while smaller individuals tend to occur in warmer waters.

Albacore reach sexual maturity at about 37 inches in length, and spawn during June-July in the sub-tropical western areas of both hemispheres and throughout the Mediterranean Sea.

Bluefin tuna
Thunnus thynnus



Distinctive Characteristics

Bluefin have a fusiform body, compressed and stocky in front. **The pectoral fin does not reach the origin of the 2nd dorsal fin.** The height of the 2nd dorsal fin is greater than that of the 1st dorsal fin. The liver is striated on the ventral surface, and a swimbladder is present. There are 34-43 gill rakers on the first gill arch.

The back and upper sides are dark blue to black with a gray or green iridescence. The lower sides are silvery, marked with gray spots and bands. The 2nd dorsal fin is reddish-brown, and the anal fin is dusky with some yellow. The finlets are yellow, edged with black. The caudal keel is black at the adult stage, but is semi-transparent when immature.

Size

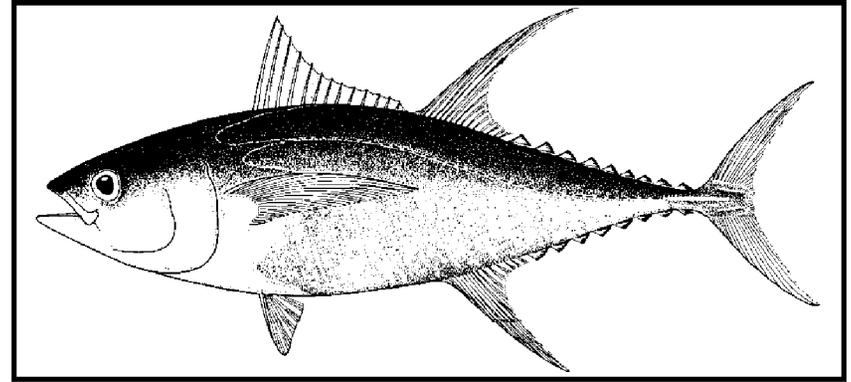
Maximum: over 120 inches Common: 16 to 79 inches
Current IGFA all tackle record 1,496 pounds.

Distribution and Behavior

Bluefin are widely distributed throughout the Atlantic. They are found in the western Atlantic along Labrador and Newfoundland, southward to Tobago, Trinidad, Venezuela, and the Brazilian Coast. Distribution in east Atlantic extends as far north as Norway and Iceland, and as far south as northern West Africa. Also exists in the Mediterranean Sea.

Western Atlantic bluefin tuna are sexually mature at approximately age 8 (80 inches Curved Fork Length). Eastern Atlantic bluefin are sexually mature at about age 5 (60 inches CFL). Atlantic bluefin tuna spawn in the Gulf of Mexico (April - June) and in the Mediterranean Sea (June - July).

Yellowfin tuna
Thunnus albacares



Distinctive Characteristics

Fusiform body, more slender than that of bluefin or bigeye. Small eyes and head, **longer 2nd dorsal and anal fins than any other tuna** (which get longer with age). The liver is without striations on the ventral surface, and a swimbladder is present. There are 26-35 gill rakers on the first gill arch. The pectoral fins usually reach beyond the origin of the 2nd dorsal fin but not beyond the end of its base.

Yellowfin have a dark blue back with a yellow lateral band on the upper sides. The lower sides and belly are silvery-gray, often with chains of white vertical lines and spots. The 2nd dorsal and anal fins are yellow, and the finlets are yellow with a narrow black margin.

Size

Maximum: 80 inches Common: 16 to 67 inches
Current IGFA all tackle record 388 pounds 12 ounces.

Distribution and Behavior

A warm-water species, yellowfin is the most tropical species of tuna, and is abundant in tropical waters throughout the Atlantic. Young are known to form large schools near surface. Adults inhabit fairly deep water but also live near the surface. Yellowfin are often found mixed with other species, especially skipjack and bigeye.

Yellowfin are sexually mature when they reach a length of approximately 40 inches, and spawning occurs throughout the year in the core areas of distribution (between 15° N and 15° S Latitude), including the Gulf of Mexico, with peaks occurring in summer months.
