

## ATLANTIC BILLFISH

This information is taken from the 2002 SAFE report and the Billfish Fishery Management Plan, Amendment 1. For more information, please see those documents.

### SPECIES DESCRIPTION

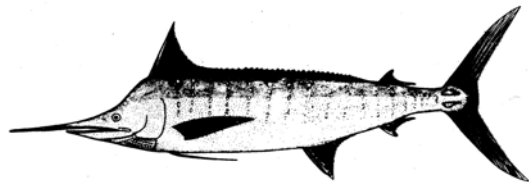
Billfish are classified into the family Istophoridae in the suborder Scombroidei. These fishes are some of the largest and fastest predators in the sea, and are distinguished by a long, round, rough bill (swordfish have a flat, smooth bill). Billfish capture prey fish by swimming through schools while slashing the bill back and forth to stun prey. Spearing fish can also be used for defensive purposes or during territorial encounters.

Billfish move thousands of kilometers annually throughout the world's tropical, subtropical, and temperate oceans and adjacent seas. Blue and white marlin are found throughout tropical and temperate waters of the Atlantic ocean and adjacent seas, and range from Canada to Argentina on the west side, and from the Azores to South Africa on the eastern side. Sailfish and spearfish have a pan-tropical distribution.

As adults and juveniles they feed at the top of the food web on a wide variety of fish and squid and are found predominately in the open ocean near the upper reaches of the water column.

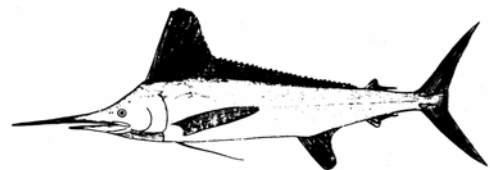
#### Blue Marlin (*Mackaira nigricans*)

Blue marlin are large apex predators with an average weight of about 100-175 kg. Blue marlin have an extensive geographical range, migratory patterns that include trans-Atlantic as well as trans-Equatorial movements, and are generally considered to be a rare and solitary species relative to the schooling scombrids. Blue marlin are considered sexually mature by ages 2-4, spawn in tropical and subtropical waters in the summer and fall, and are found in the colder temperate waters during the summer. Young blue marlin are one of the fastest, if not the fastest growing of all teleosts, reaching from 30-45 kg by age 1. Female blue marlin grow faster and reach a larger maximum size than males.

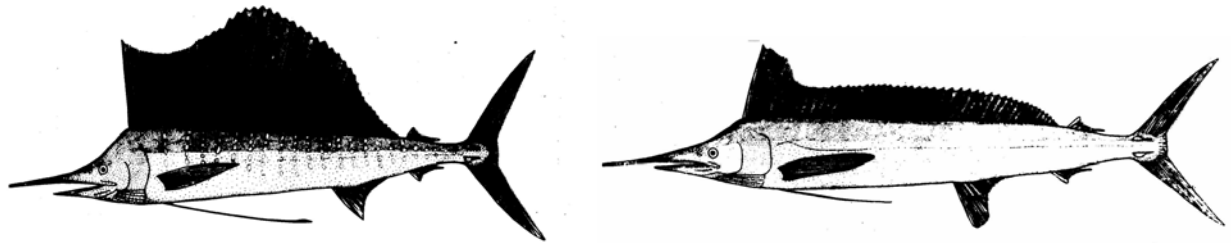


#### White Marlin (*Tetrapturus albidus*)

The average size of white marlin is about 20-30 kg. Although white marlin are generally considered to be a rare and solitary species, they are known to occur in small groups consisting of several individuals. Little is known about the age and growth of white marlin, although they are considered to be very fast growing, as are all the Istiophoridae. Female white marlin grow faster and reach a much larger maximum size than males.



Sailfish (*Istophorus platypterus*) and Spearfish (*Tetrapturus pfluegeri*)



Although sailfish and spearfish are generally considered to be rare and solitary species relative to the schooling scombrids, sailfish are the most common Atlantic Istiophorid and are known to occur along tropical coastal waters in small groups consisting of at least a dozen individuals. Spearfish are generally the rarest Atlantic Istiophorid.

Sailfish spawn in tropical and subtropical waters in the spring through summer. Due to their relative rare abundance in offshore waters, little is known about spearfish life history. Both sailfish and spearfish are considered to be fast growing species compared to other teleosts. Female sailfish grow faster and reach a larger maximum size than males.

### **RECENT STOCK ASSESSMENT RESULTS**

Stock assessments for Atlantic billfish are conducted by the International Commission for the Conservation of Atlantic Tunas (ICCAT). The latest stock assessments for Atlantic blue marlin and Atlantic white marlin were conducted in 2000. ICCAT's Standing Committee for Research and Science (SCRS) suggested that substantial investments in research into the habitat requirements of marlins, as well as the verification of historical catch data, are needed to reduce uncertainties in these assessments.

The assessment for blue marlin was slightly more optimistic than the 1998 assessment; however, productivity is lower than previously estimated. The total Atlantic stock is approximately 40% of  $B_{msy}$  and the current fishing mortality is approximately four times higher than  $F_{msy}$ . Although blue marlin landings in 1999 were reduced by 29% from 1996 levels, these reductions are not sufficient to rebuild the stock. The SCRS recommended that ICCAT take additional steps to reduce the catch of blue marlin as much as possible.

The 2000 assessment for white marlin was more pessimistic. The total Atlantic stock is estimated at less than 15% of  $B_{msy}$ , and current fishing mortality is estimated to be seven times higher than  $F_{msy}$ . Given that the stock is severely depressed, the SCRS concluded that ICCAT should take steps to reduce the catch of white marlin as much as possible. The National Marine Fisheries Service is currently examining the question of whether or not white marlin should be listed as an endangered species under the Endangered Species Act.

Longbill spearfish and sailfish landings have historically been reported together in annual ICCAT landings statistics. The majority of these landings were most likely sailfish; for 1998 the

SCRS reported a 2182 mt catch of sailfish/spearfish, only 17 mt of which was identified as spearfish. The last assessment for West Atlantic sailfish/spearfish was submitted to the SCRS in 1993 and was based on data collected through 1991.

**Summary Table for Atlantic Billfish\***

	<b>Atlantic Blue Marlin</b>	<b>Atlantic White Marlin</b>	<b>West Atlantic Sailfish</b>
<b>Age/size at Maturity</b>	2-4 years Females: 193 cm Males: 175 cm	Unknown Females: 155 cm Males: 140 cm	3 years Females: 157 cm Males: 122 cm
<b>Spawning Sites</b>	Tropical and subtropical waters in the summer and fall	Tropical and subtropical waters in the mid- to late spring	Tropical and subtropical waters in the spring through summer
<b>Current Relative Biomass Level</b>	$B_{2000}/B_{MSY} = 0.4$ (.25-.6)	$B_{2000}/B_{MSY} = 0.15$	$B_{92-96}/B_{MSY} = 0.62$
<i>Minimum Stock Size Threshold</i>	$0.9B_{MSY}$	$0.85B_{MSY}$	$0.75B_{MSY}$
<b>Current Relative Fishing Mortality Rate</b>	$F_{99}/F_{MSY} = 4$ (2.6 - 6)	$F_{99}/F_{MSY} = 7$	$F_{91-95}/F_{MSY} = 1.4$
<i>Maximum Fishing Mortality Threshold</i>	$F_{1995}/F_{MSY} = 1.00$	$F_{1995}/F_{MSY} = 1.00$	$F_{91-95}/F_{MSY} = 1.00$
<b>Maximum Sustainable Yield</b>	2,000 mt (2000-3000 mt)	1,300 mt (900-2000 mt)	700 mt
<b>Current (2000) Yield</b>	3,155 mt	<1999 yield (information is incomplete)	506 mt (information is incomplete)
<b>Current Replacement Yield</b>	~1,200 mt (840 - 1600 mt)	< 1999 yield	~600 mt
<b>Outlook</b>	Overfished; overfishing is occurring	Overfished; overfishing is occurring	Overfished; overfishing is occurring

\*Longbill spearfish are considered Atlantic billfish, but are not included in this table due to the lack of data. The SCRS has yet to complete an assessment of longbill spearfish in the Atlantic and relative biomass and fishing mortality levels are unavailable.