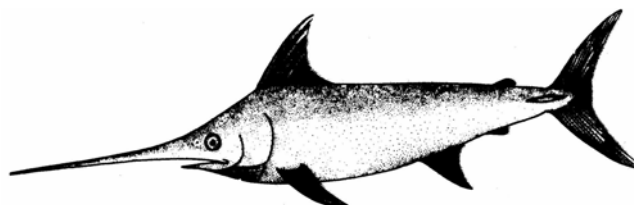


## ATLANTIC SWORDFISH

This information is taken from the 2002 SAFE report and the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks. For more information, please see those documents.

### SPECIES DESCRIPTION

Swordfish (*Xiphias gladius*) are members of the family Xiphiidae and are in the suborder Scombroidei. They are one of the largest and fastest predators in the Atlantic Ocean and can reach a maximum size of 530 kg (1,165 lbs). They are distinguished by a large, flat, smooth bill that grows from the upper jaw.



They are distributed widely in the Atlantic Ocean and Mediterranean Sea, and range from Canada to Argentina on the western side, and from Norway to South Africa on the eastern side. The management units for assessment purposes are a separate Mediterranean group, and North and South Atlantic groups separated at 5°N. This stock separation is supported by recent genetic analyses. However, the precise boundaries between stocks are uncertain, and mixing is expected to be highest at the boundary in the tropical zone. Therefore, there is uncertainty as to whether the management units used correspond exactly to the biological stock units. Hence, it is important to have effective management measures throughout the Atlantic and Mediterranean.

Swordfish feed on a wide variety of prey including groundfish, pelagic fish, deep-water fish, and invertebrates. They are believed to feed throughout the water column. They are typically caught on pelagic longlines at night when they feed in surface waters.

Swordfish spawn in the warm tropical and subtropical waters throughout the year, although seasonality has been reported. They are found in the colder temperate waters during summer months. Young swordfish grow very rapidly, reaching about 140 cm LJFL (lower-jaw fork length) by age 3, but grow slowly thereafter. Females grow faster than males and reach a larger maximum size. Swordfish are difficult to age, but 53% of females are considered mature by age 5, at a length of about 180 cm.

### RECENT STOCK ASSESSMENT RESULTS

Stock assessments for Atlantic swordfish are conducted by the International Commission for the Conservation of Atlantic Tunas (ICCAT). The latest stock assessments in 2000 and 2001, show signs that the North Atlantic stock may be rebuilding. However, ICCAT's Standing Committee for Research and Science (SCRS) cautioned that the North Atlantic recovery plan is very sensitive to any overharvests. If recent overharvests by some countries continue, the stock would likely not have a greater than 50% probability of reaching biomass levels that will support Maximum Sustainable Yield (MSY). In 2000, Japan reported that it had seriously exceeded its North Atlantic swordfish quota for the last few years despite some actions taken to address this compliance problem. Because of concerns for the integrity of the 10 year swordfish rebuilding

program adopted by ICCAT in 1999 and given the recent underharvest by the United States of its North Atlantic swordfish quota, the United States, with the full support of the U.S. longline industry, agreed to assist Japan in addressing its swordfish overharvest. Specifically, a measure was adopted that, among other things, will allow Japan access to 400 mt of unused U.S. quota for 2001 only. ICCAT also continued its efforts to control illegal, unregulated and unreported fishing activities, with an agreement to develop a statistical document program for swordfish. This new program will monitor harvest and trade, and assist in the collection of data. Together, these steps are designed to ensure that total catches do not exceed the TAC established by the 1999 rebuilding program.

Relative to the South Atlantic, the SCRS expressed concern with a pattern of high catches and declining catch per unit effort trends in some of the bycatch fisheries used in 1999 as indicators of swordfish abundance. With the total allowable catch of 14,620 mt that was adopted for 2001, there is a greater than 50% chance of biomass declining to levels slightly below the level that would support MSY. Moreover, unlike past years, no member specific quotas were agreed for this fishery. The SCRS recommended that future catch levels should remain at the 1998 level (i.e., 13,500 mt) in order to keep the stock at about the biomass level that would support MSY.

**Summary Table for the Status of Atlantic Swordfish Stocks.** Source: SCRS, 2001, unless otherwise indicated.

<b>Stock</b> (2 stocks; divided at 5°N. Lat.)	<b>North Atlantic</b>	<b>South Atlantic</b>
<b>Age/size at Maturity</b>	Females: 50% are mature ~ 179 cm lower jaw fork length (LJFL) (5 years) Males: 50% are mature ~ 129 cm LJFL (Arocha, 1997)	
<b>Spawning Sites</b>	Warm tropical and sub-tropical waters (throughout the year)	
<b>Current Relative Biomass Level</b> ( $B_{1999}/B_{MSY}$ )	0.65 (0.51-1.05)	1.10 (0.84-1.40)
<i>Minimum Stock Size Threshold</i>	$0.8B_{MSY}$	$0.8B_{MSY}$
<b>Current Fishing Mortality Rate</b> $F_{1998}/F_{MSY}$	1.34 (0.84-2.05)	0.81 (0.47-2.54)
<i>Maximum Fishing Mortality Threshold</i>	$F_{1998}/F_{MSY} = 1.00$	$F_{1998}/F_{MSY} = 1.00$
<b>Maximum Sustainable Yield</b>	13,370mt (7,625 - 15,900mt)	13,650 mt (5,028 - 19,580 mt)
<b>Current (2000) Yield</b>	11,210 mt	14,340 mt
<b>Current (2000) Replacement Yield</b>	11,720 mt (6,456 - 15,040 mt)	14,800 mt (5,328 - 16,240 mt)
<b>Outlook</b>	Overfished; overfishing continues to occur	Fully fished*; Overfishing probably continues to occur

\*South Atlantic swordfish are not found in the U.S. EEZ and, therefore, not managed under the Magnuson-Stevens Act. The classification of the stock as fully fished is based on the definitions established in the HMS FMP and is for descriptive purposes only.