

THE NATIONAL MARINE FISHERIES SERVICE -
PROACTIVE CONSERVATION PROGRAM

Species of Concern in the Northeast Region
(Maine through Virginia)



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Preface

Some of the data in the species' fact sheets may appear somewhat dated as stock assessments are not performed on an annual basis for all species. However, every effort was made to ensure that the fact sheets are comprised of the most current data available. The maps contained within the fact sheets are designed to provide general distribution patterns and are not intended to reflect all recorded occurrences of the species. The format for this booklet has been designed to allow users to easily update the contents as the information changes for a species or as a species is either added to or removed from the Species of Concern List. New and revised fact sheets will be available on the Northeast Region's web site (www.nero.noaa.gov) by linking to the Protected Resources Division page. If you would like to receive notifications of these postings, please contact Kim Damon-Randall at Kimberly.Damon-Randall@noaa.gov or (978) 281-9328 x6535.

Acknowledgments

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<p>What is a "Species of Concern?"</p> <p>A "Species of Concern" is a species or vertebrate population for which there is concern or great uncertainty about its status. Species of Concern are not listed under the Endangered Species Act (ESA) and are not protected by the ESA. As resources permit, the National Marine Fisheries Service (NOAA Fisheries) conducts a review of the status of each Species of Concern to determine if it warrants listing as an endangered or threatened species under the ESA. NOAA Fisheries believes it is important to highlight species for which listing may be warranted so that Federal and state agencies, Native American tribes, and the private sector are aware of which species could benefit from proactive conservation efforts.</p>	<p>What are the criteria for identifying and designating "Species of Concern?"</p> <ul style="list-style-type: none"> •Demographic and diversity vulnerability <ul style="list-style-type: none"> •Abundance and productivity: <ul style="list-style-type: none"> •magnitude of decline – combination of recent rate of decline and historical extent of decline •natural rarity – species known only from a small number of specimens or that occurs infrequently and in small numbers due to ecological or evolutionary factors •endemism – species or population that is native to a particular place and is only found there •Distribution: <ul style="list-style-type: none"> •population connectivity – level of reproductive exchange among related populations •limited geographic range – found in a limited area •endemism – species or population that is native to a particular place and is only found there •Life-history characteristics: <ul style="list-style-type: none"> •vulnerable life-history strategies – e.g., low fecundity, late age at maturity, slow growth rates •resilience to environmental variability and catastrophes •loss of unique life-history traits •Threats <ul style="list-style-type: none"> •Extraction – permanently removes the species from its habitat •Habitat degradation and loss – destruction, modification, or loss a species' habitat that could result in a lower carrying capacity •Disease and predation – can influence the abundance and productivity of a species or population •Other natural or man-made factors for decline – include, but are not limited to, ocean conditions and poor hatchery practices
<p>What are the goals of the "Species of Concern" Program?</p> <ul style="list-style-type: none"> • To increase public awareness about these species; • To identify those species potentially at risk and in need of protective measures before listing under the ESA becomes necessary; • To identify data deficiencies and uncertainties associated with the status of the species; • To work cooperatively with regional co-managers and interest groups to obtain the information necessary to evaluate species status and threats; • To identify conservation opportunities; and, • To work with Federal and state agencies, Native American tribes, and the public in acting proactively to conserve the species. 	

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Why are most former candidate species now "Species of Concern?"

Under the ESA, a candidate species is one that is being considered for listing as an endangered or threatened species. Most former candidate species had uncertain biological status and threats, but were not actively being considered for listing under the ESA. In fact, some former candidate species had undergone an ESA biological status review determining that listing was "not warranted", but significant concerns or uncertainties remained regarding their extinction risk and/or threats.

To better reflect the purposes of the list that NOAA Fisheries maintains, these species are now considered "Species of Concern." Only those species that are being actively considered for ESA listing are now called "Candidate Species." NOAA Fisheries' definition of Candidate Species is now a species for which NOAA Fisheries has initiated a status review as a result of a petition and a positive ninety-day finding. Neither status carries any procedural or substantive protections under the ESA.

For more information on the Species of Concern Program in the Northeast Region contact:

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What are the Species at Risk Act (SARA), the IUCN Red List, and the American Fisheries Society (AFS) list of marine fish at risk of extinction?

SARA is the Canadian equivalent to the ESA. Species are listed as:

- Extinct - a species that no longer exists
- Extirpated – a species no longer existing in the wild in Canada but occurring elsewhere
- Endangered – a species facing imminent extirpation or extinction
- Threatened – a species likely to become endangered if limiting factors are not reduced
- Species of special concern – a species that is particularly sensitive to human activities or natural events but is not an endangered or threatened species.

For more information on SARA go to: www.speciesatrisk.gc.ca/default_e.cfm

The World Conservation Union (IUCN) maintains a list of species at risk known as the Red List. Under the Red List, species considered to be threatened are classified as:

- Critically endangered – a taxon facing an extremely high risk of extinction in the wild in the immediate future
- Endangered – a taxon which is not critically endangered but is facing a very high risk of extinction in the wild in the near future
- Vulnerable - a taxon that is facing a high risk of extinction in the wild in the medium-term future

Classifications are based on quantitative criteria, which assess extinction risk. For more information on the Red List go to: www.redlist.org/.

AFS recognizes the following categories of risk:

- Endangered – high risk of extinction in the wild in the immediate future (years)
- Threatened – not endangered but facing risk of extinction in the near future (decades)
- Vulnerable – not endangered or threatened severely but at possible risk of falling into one of these categories in the near future
- Conservation dependent – reduced but stabilized or recovering under a continuing conservation plan

For more information go to: www.fisheries.org.

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Atlantic halibut
(Hippoglossus hippoglossus)
Species of Concern Designation
Area of concern:

Labrador to southern New England.

Year first designated as a species of concern: 2004

Vulnerable life-history characteristics:

- Long lived species
- Very large species which is slow to mature
- Average age at maturity is approximately 10 years

Application of SOC criteria:

- Significant magnitude of decline since the turn of the century.
- Several life-history characteristics make this species vulnerable to overharvest.
- Spawning may no longer take place in the Gulf of Maine. As such, the U.S. population in the Gulf of Maine may be relying on the Canadian population for recruitment.
- The species is threatened by extraction due to mortality associated with bycatch.
- Halibut are eaten by seals, Greenland sharks, spiny dogfish, and goosefish.

Rationale for designation:

This species was heavily overfished in the 19th century and continues to be taken as bycatch mainly in groundfish fisheries. While it is included in the Multispecies FMP, there are currently no bycatch reduction measures in place for Atlantic halibut. Bycatch is a significant concern as the majority of halibut taken in fishing operations and discarded do not survive.



photo by Marine Biological Laboratory

Quick Facts:
Description and range:

One of the largest fish found in the Gulf of Maine. However, large fish are rare with full-grown females now averaging 45.5 to 68 kg while males tend to be smaller. In the northwest Atlantic, distribution is from Labrador to southern New England.

Status:

- NOAA Fisheries spring and autumn trawl survey data show that biomass within the Gulf of Maine and Georges Bank remains very low;
- Indices have fluctuated considerably since the 1960s, and overall have declined;
- During both spring and autumn surveys, mean number per tow has been higher than mean weight per tow, which indicates a decrease in the size of halibut;
- Almost all halibut caught in the NEFSC trawl surveys from 1988-1998 were juveniles.
- Swept-area biomass indices in spring 2001 and 2002 were 544 mt and 425 mt, respectively, with a 5-year average of 312 mt in 2001. The autumn index in 2000 was 123 mt with a 5-year average of 232 mt in 2001.

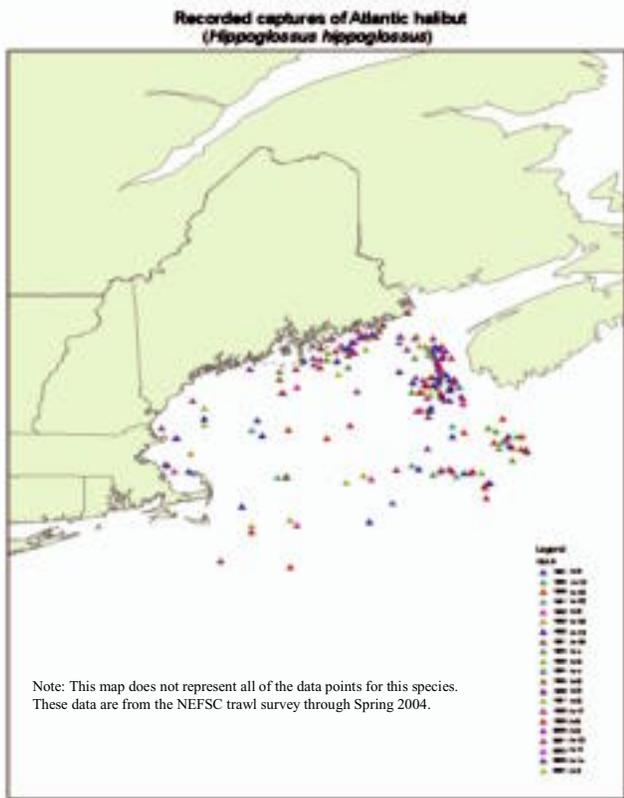
Domestic regulations:

- Currently included in the Northeast Multispecies Fishery Management Plan
- No directed fishing mortality is permitted ($F = 0$) until the stock is rebuilt
- One fish per trip bag limit with a minimum size of 36 inches (91.4 cm).

Threats:

- Overfishing
- Bycatch

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Quick Facts continued:

Other designations:

Listed by the American Fisheries Society as threatened in the U.S., vulnerable in the Canadian Maritimes, and not at risk on the Grand Banks. This species is listed as endangered on the IUCN Red List. In April 2003, Atlantic halibut were listed as group 1 (highest priority) candidates under SARA. Under SARA, candidate species are those species suspected of being in some category of risk of extinction or extirpation at the national level, before being examined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) during the status assessment process.

Data deficiencies:

- Very little information on the biology of northwest Atlantic stocks including stocks from U.S. waters.
- Information about the location of spawning events is needed. There is very little information on the egg and larval stages of this species due to difficulty in capturing early life stages.
- Data on the migratory patterns of juveniles is lacking.
- Information on habitat types utilized by halibut is necessary for defining essential fish habitat for this species.
- Data on genetic differentiation of the stocks are insufficient to identify potentially distinct populations.

Potential measures to reduce negative impacts:

- Implement time/area closures to prevent bycatch mortality.

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Atlantic salmon
(Salmo salar)
Species of Concern Designation
Area of concern:

Other populations within the range of the listed Gulf of Maine Distinct Population Segment (DPS).

Year first designated as a species of concern: 2000

Vulnerable life-history characteristics:

- Anadromous species that requires free-flowing rivers with cool water.
- Sensitive to changes in water quality and temperature.
- Critically low returns make the species vulnerable to environmental fluctuations or catastrophes.

Application of SOC Criteria:

- Significant magnitude of decline due to overharvest, habitat degradation and loss, predation, and disease.
- By 1865, Atlantic salmon populations were extirpated in southern New England rivers; thereby, limiting the species' geographic range.
- Continued commercial fishing in Greenland poses an ongoing threat.
- Existing aquaculture practices pose ecological and genetic risks.

Rationale for designation:

The construction of dams in many river systems has had a significant adverse impact on Atlantic salmon by impeding upstream adult migrations, impeding downstream smolt migrations, increasing predation, impounding spawning and rearing habitat, altering water chemistry parameters, increasing water temperature, and altering flow regimes. Also, historically, this species was overfished both commercially and recreationally.


Quick Facts:
Description and range:

Anadromous Atlantic salmon in recent years have averaged approximately 57 cm for fish that spent one year at sea, 75 cm for fish that spent two years at sea, and 88 cm for fish that were at sea for three years. The Gulf of Maine DPS extends from the Kennebec River north to, but not including, the St. Croix River. Fish from eight rivers within the Gulf of Maine DPS have been listed as endangered. Other populations within the range of this DPS were identified as Species of Concern.

Status:

- The Gulf of Maine populations represent the southernmost extent of the range of wild Atlantic salmon which historically extended to the Housatonic River in Connecticut;
- The species began to disappear from U.S. rivers 150 years ago and currently, only remnant populations occur in a limited number of rivers in Maine.

Domestic regulations:

- In 2000, NOAA Fisheries and the Fish and Wildlife Service listed fish from 8 rivers within the Gulf of Maine DPS as endangered.

Threats:

- Overfishing; degradation, loss, or inaccessibility of historic habitat; and disease from hatchery reared fish.

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Atlantic sturgeon
(Acipenser oxyrinchus oxyrinchus)
Species of Concern Designation

Area of concern: East Coast of North America.

Year first designated as a species of concern: 1988

Vulnerable life-history characteristics:

- Long lived species
- Large species which is slow to mature
- Average age at maturity varies with latitude and sex. For females, age at maturity ranges from 7-19 years in the southern portion of its range to 30 years in the northern portion of the range. For males, the range is from 5-13 years to 22-34 years, respectively.
- Specialized habitat requirements

Application of SOC Criteria:

- Specialized habitat requirements
- Limited access to historic spawning sites
- Significant magnitude of decline since the late 1800s due to overharvest and habitat loss and degradation
- Bycatch continues to severely impact this species and accurate reporting of bycatch is not occurring

Rationale for designation:

Since the 1800's, sturgeon have been captured for their eggs (caviar) and flesh (smoked). Sturgeon were extensively overfished as fisheries existed in every major river along the Atlantic coast. Currently, there is no legal fishery for this species and retention of Atlantic sturgeon caught as bycatch is prohibited. Habitat degradation and limited access to historical spawning sites have also significantly impacted this species.



photo credit: Kraft et al. 2003

Quick Facts:
Description and range:

Characterized by a narrow, upturned snout and five lines of bony plates, or scutes, running lengthwise along the body. May attain a length of 4.3 m (14 ft) and can exceed 362.9 kg (800 lbs). Hamilton Inlet in Labrador, Canada to the St. Johns River, Florida.

Status:

- Historically present in 34 rivers from Maine to Florida. Currently, found in 32 rivers from Maine to Georgia with spawning thought to be occurring in at least 14 of these rivers;
- Spawning stock abundance in the Hudson River is estimated at less than 2,000 animals, which is less than 15% of the abundance reported for the late 1800's;
- Abundance of subadults in the Delaware Estuary appears to be declining. Scarce in the Chesapeake Bay system. Relative abundance of juveniles in Arbermarle Sound, North Carolina appears to be increasing. In other systems in the Southeast, sturgeon remain in low numbers.

Domestic Regulations:

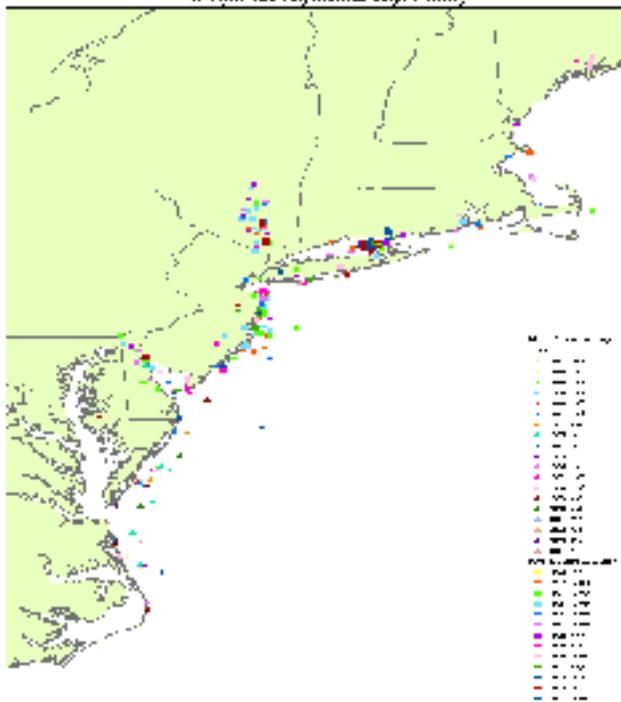
- Included in an Atlantic States Marine Fisheries Commission Interstate Fishery Management Plan.
- Fishing moratorium in place since 1998.

Threats:

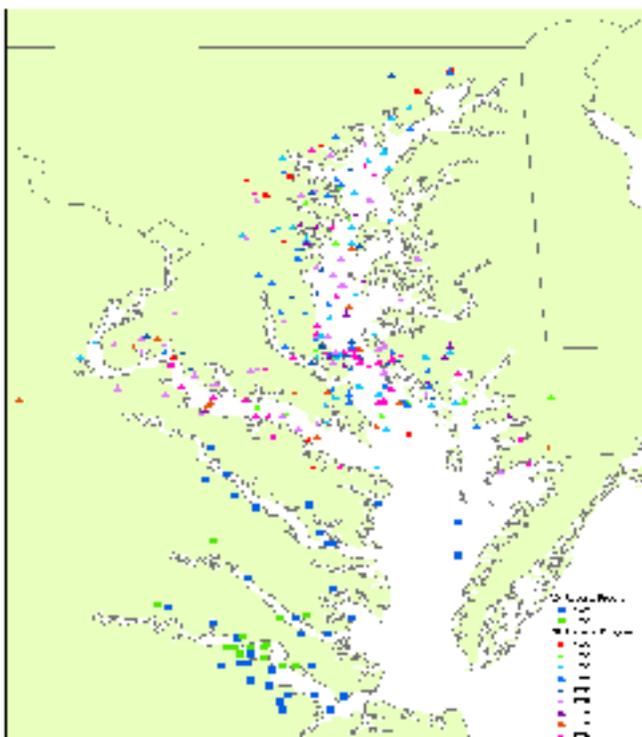
- Bycatch (significant issue in gillnet fisheries such as shad, monkfish, and dogfish)
- Habitat loss and degradation

- Proactive Conservation Program -

Recorded captures of Atlantic sturgeon
(*Acipenser oxyrinchus desopteri*)



Mid-Atlantic Sturgeon captures through the MD and VA Recored Programs



Quick Facts continued:

Other designations:

Listed by the American Fisheries Society as endangered in northern Canadian Rivers, the Saint Lawrence, Renobscot, Piscataqua/Great Bay estuary, Merrimack, Taunton, Connecticut, Thames, Housatonic, Chesapeake Bay system, Winyah Bay rivers, Santee, Cooper, Port Royal Sound rivers, Ogeechee, and Satilla rivers; threatened in the St. Johns, Kennebec Complex, NC rivers, Ashepoo, Combahee, Edisto, and Savannah rivers; and conservation dependent in the Hudson, Delaware, and Altamaha rivers. Listed as threatened on the IUCN Red List and as a species of special concern under SARA.

Data deficiencies:

- Population estimates for several of the individual riverine systems
- Location of spawning grounds in most river systems
- Number of fish taken as bycatch and associated survival rates in ocean, coastal, and riverine fisheries
- Effects of contaminants/poor water quality on all life stages

Potential measures to reduce negative impacts:

- Time/area closures for fisheries that take sturgeon as bycatch
- Prohibition on use of anchored gillnets in areas known to contain large numbers of sturgeon
- Time/area management for dredging, blasting, construction, and other in water work

*An updated status review is being conducted by NOAA Fisheries in collaboration with ASMFC and the U.S. Fish and Wildlife Service to determine if listing under the ESA is warranted.

- Proactive Conservation Program -

Atlantic wolffish
(Anarhichas lupus)
Species of Concern Designation
Area of concern:

Georges Bank and western Gulf of Maine.

Year first designated as a species of concern: 2004

Vulnerable life-history characteristics:

- Long lived species
- Slow to mature
- Average age at maturity is generally between 8 and 10 years at lengths of 43 to 67 cm TL.
- Specialized habitat requirements
- Site fidelity
- Inshore nesting habitat

Application of SOC Criteria:

- Specialized habitat requirements as this species prefers rocky outcroppings for shelter, nesting, and spawning
- Limited adult migrations and restricted dispersal of larvae from hatching locations limits the resilience of individual populations to survive environmental variability and catastrophes
- Significant magnitude of decline since the late 1980s as a result of bycatch mortality and habitat loss and degradation

Rationale for designation:

This species is taken primarily as bycatch in trawl fisheries. It has been determined that the stock is overexploited and depleted. This species is distributed over rocky outcroppings and seaweed beds. As such, the degradation and loss of their habitat through the use of otter trawls and dredges has significantly impacted the stock.



Photo credit: Vjekoslav Ticina

Quick Facts:
Description and range:

May reach lengths of 150 cm and weights of 18 kg. Grayish-green, black or reddish body with 10-15 transverse, dark bars extended to the dorsal fin. In the northwest Atlantic, distributed from southern Labrador to Cape Cod and rarely to New Jersey. Generally solitary, inhabiting rocky bottoms though sometimes found over sand/mud.

Status:

- 1997-1999 NOAA Fisheries biomass indices were less than 0.2 kg/tow, which is the lowest in the survey time series at about 8% of the 1968-1988 average;
- Declines since the late 1980s indicate that biomass has been substantially reduced;
- West of the Scotian Shelf, highest abundance appears to be in southwestern portion of the Gulf of Maine;
- Stock remains overexploited and severely depleted.

Domestic regulations:

- None

Threats:

- Bycatch primarily in groundfish fisheries
- Degradation/loss of habitat



- Proactive Conservation Program -

Recorded captures of Atlantic wolffish
(*Anarhichas lupus*)

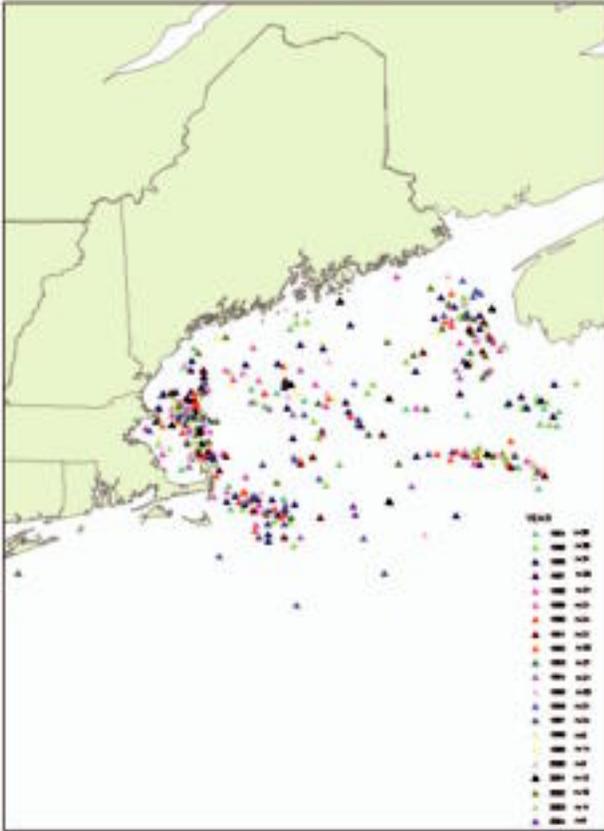


Photo by K. Ekeli

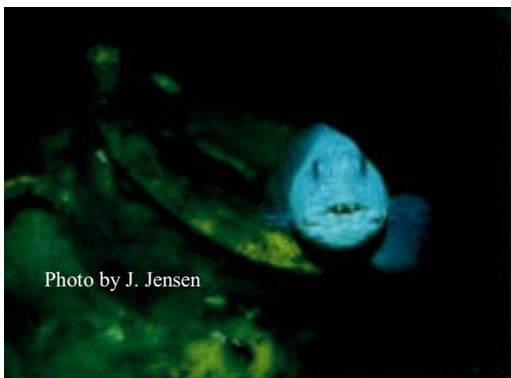


Photo by J. Jensen

Quick Facts continued:

Other designations:

In November 2000, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the species as "Special Concern." This species is listed on schedule 1 for listing under SARA.

Data deficiencies:

- Seasonal distribution
- Existence of discrete geographical populations with distinct and varying life histories
- Extent of bycatch and associated mortality
- Spawning behavior and habitat
- Extent of predation on vulnerable populations

Potential measures to reduce negative impacts:

- Time/area closures for fisheries that take wolffish as bycatch
- Implement total allowable catch limits
- Initiate efforts to restore habitat

- Proactive Conservation Program -

Barndoor skate
(Raja laevis)
Species of Concern Designation
Area of concern:

Newfoundland to Cape Hatteras, North Carolina.

Year first designated as a species of concern: 1999

Vulnerable life-history characteristics:

- Low to very low productivity
- Slow growth rates
- Late age at maturity
- Relatively long lived species

Application of SOC Criteria:

- Biomass of large skates has steadily declined since the mid-1980s
- Since 1990, the abundance of barndoor skate has increased slightly on Georges Bank, the western Scotian shelf, and in southern New England; however, the 1999 NEFSC autumn survey biomass index was less than 5% of the peak observed in 1963.

Rationale for designation:

In 1999, NOAA Fisheries received a petition to list this species as threatened or endangered under the ESA. In 2002, after completing a status review, NOAA Fisheries concluded that listing was not warranted at the time. However, due to remaining uncertainties and concerns over the status and population structure of this species, NOAA Fisheries retained barndoor skate on its list of candidate species (67 FR 61055).


Quick Facts:
Description and range:

The largest skate in the northwest Atlantic ranging in size from 20-136 cm (7.9-53.5 in). Disk brown with small, dark spots, pointed snout, tail with three rows of spines.

Southwestern Grand Banks and southern Gulf of St. Lawrence south to northeast Florida and to the banks of Newfoundland. Most commonly found in the Gulf of Maine and in Southern New England.

Status:

- Based on the autumn trawl survey data, the updated biomass index for barndoor skate from 2002-2004 is 0.88 kg/tow. This is above the threshold of 0.81 kg/tow; as such, this species is no longer considered overfished.
- This three-year average is an increase of 40.7% over the 2001-2003 average (0.62 kg/tow); therefore, overfishing is not occurring.

Domestic regulations:

- Included in the Northeast Skate Complex Fishery Management Plan.
- Ban on possession (no directed fishery) in the EEZ portion of the skate management unit.

Threats:

- Potential illegal landings as a result of misidentification, misrepresentation of catch and/or misreporting
- Bycatch
- Potential inbreeding

- Proactive Conservation Program -

Recorded captures of barredoor skate
(*Raja laevis*)

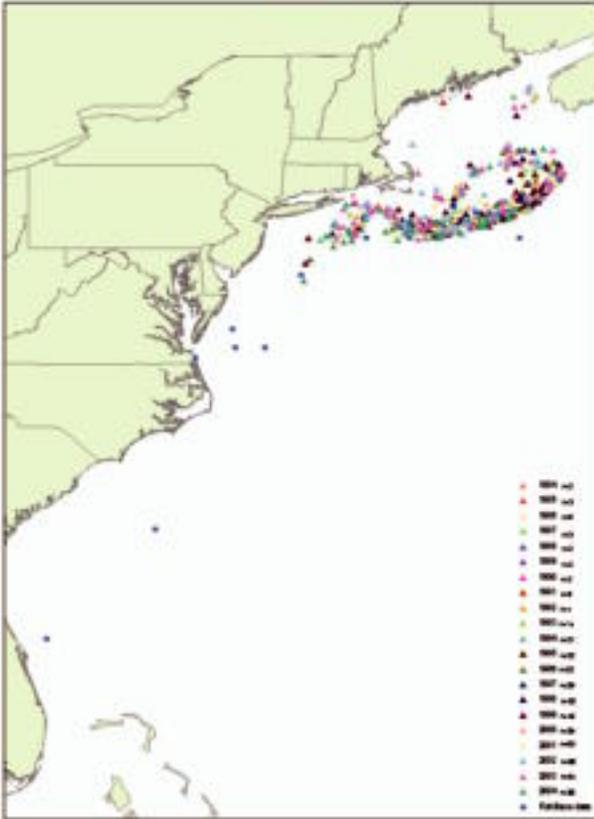


Photo by D. Flescher

Quick Facts continued:

Other designations:

Listed by AFS as vulnerable.

Data deficiencies:

- General life history characteristics
- Stock structure
- Trophic interactions between skate species in the complex and between skates and other groundfish
- Investigate effects of environmental fluctuations on species distribution and range

Potential measures to reduce negative impacts:

- Time/area closures for fisheries that take skate as bycatch
- Investigate bycatch reduction measures

- Proactive Conservation Program -

Cusk
(Brosme brosme)
Species of Concern Designation

Area of concern: Throughout the Gulf of Maine.

Year first designated as a species of concern: 2004

Vulnerable life-history characteristics:

- Very restricted spatial distribution
- Slow growth rates
- Late age at maturity

Application of SOC Criteria:

- Biomass has been declining for over four decades
- The ratio of commercial landings to the autumn research survey index has been increasing since 1986, which implies increased exploitation
- This species is distributed in a small area which straddles the U.S. and Canadian border, and as the adults are sedentary and solitary, this species is particularly vulnerable to environmental fluctuations and catastrophes
- Fish from the Scotian Shelf are being taken in a smaller area, and there has been an order of magnitude change in the spatial distribution of this species from 1970 to 2001.

Rationale for designation:

Exploitation for this species has increased since the mid- 1980s. Landings have declined to record lows. This species is slow growing and late to mature. Nothing is known regarding the stock structure in the Gulf of Maine.



photo by Norwegian Seafood Export Council

Quick Facts:
Description and range:

Slender fish with a large mouth, blunt snout, and chin barbel. Single dorsal fin extends from the nape of the neck to the caudal fin. Anal fin similar to dorsal but only about two-thirds the length. Small cycloid scales cover the entire head and trunk. Color varies, most likely conforming to the bottom type. Found primarily in moderately deep water over hard substrates from New Jersey to the Strait of Belle Isle and the Grand Banks of Newfoundland.

Status:

- NEFSC autumn bottom trawl survey biomass index has fluctuated, but a declining trend has been evident since the late 1960s.
- Mean length has declined from 62 cm during 1964-1987 to 50 cm from 1988-1998.
- Landings were relatively stable at 1700 mt per year in the late 1960s and early 1970s but have declined to record lows. Total U.S. landings have continued to decline and were 180.3 mt in 2001, 149.3 mt in 2002, and 103.8 mt in 2003.

Domestic regulations:

- The fishery is not presently managed.

Threats:

- Overfishing
- Habitat degradation
- Bycatch (particularly in bottom trawls and long lines)

- Proactive Conservation Program -

Recorded captures of cusk
(*Brosmus brosme*)

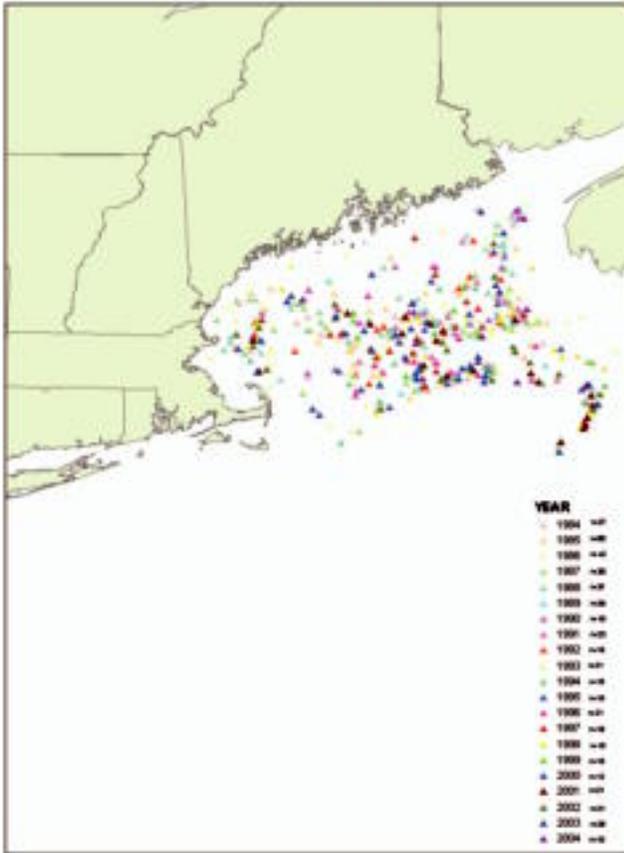


Photo by D. Flescher

Quick Facts continued:

Other designations:

In 2003, after completing a comprehensive assessment and status report, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed the species as threatened. This species is not yet scheduled for listing under SARA.

Data deficiencies:

- General life history characteristics including nursery areas for juveniles and spawning areas for adults
- Stock structure

Potential measures to reduce negative impacts:

- Time/area closures for fisheries that take cusk as bycatch
- Investigate bycatch reduction measures



- Proactive Conservation Program -

Dusky shark
(Carcharhinus obscurus)
Species of Concern Designation

Area of concern: Western Atlantic, Gulf of Mexico, and South Atlantic

Year first designated as a species of concern: 1997

Vulnerable life-history characteristics:

- Very low reproductive rates
- Slow growth rates
- Late age at maturity

Application of SOC Criteria:

- Biomass has been declining for over three decades
- This species is slow growing, and males and females mature at approximately 17 years
- They are viviparous producing approximately only ten young per litter
- Gestation is unknown but suspected to be between 16 and 24 months.

Rationale for designation:

This species was identified as being overfished in 1993 and again in the latest Report to Congress. Since 1998, it has been a prohibited species in both commercial and recreational fisheries. However, the Marine Recreational Fisheries Statistics Survey reports that 4,625 dusky sharks were harvested in 1999, 5,269 in 2001, 962 in 2002, and 2,647 in 2003. As such, recreational fishing pressure continues to be a threat to this species. NOAA Fisheries funded a status survey in 2001 and determined that this species should remain on the Species of Concern list until additional data have been collected.



Photograph by John E. Randall at www.fishbase.org

Quick Facts:
Description and range:

Large, fairly slender shark with a low inter-dorsal ridge. The first dorsal fin originates over or near the free rear tips of the pectoral fins. The color is bronzy gray to blue gray above with white ventrally. In the western Atlantic, it extends from southern New England to the Caribbean and Gulf of Mexico to southern Brazil. Prefers warm temperate to tropical waters. Occurs from the surf zone to well offshore, and from the surface to depths of 400 m.

Status:

- Currently, population in the northwestern Atlantic and Gulf of Mexico is probably at 15-20% of its mid-1970s abundance.
- Recent demographic analyses in the western Atlantic have generated estimates of the annual rate of population increase of 2.8% and 5.57%.
- Considered overfished.

Domestic regulations:

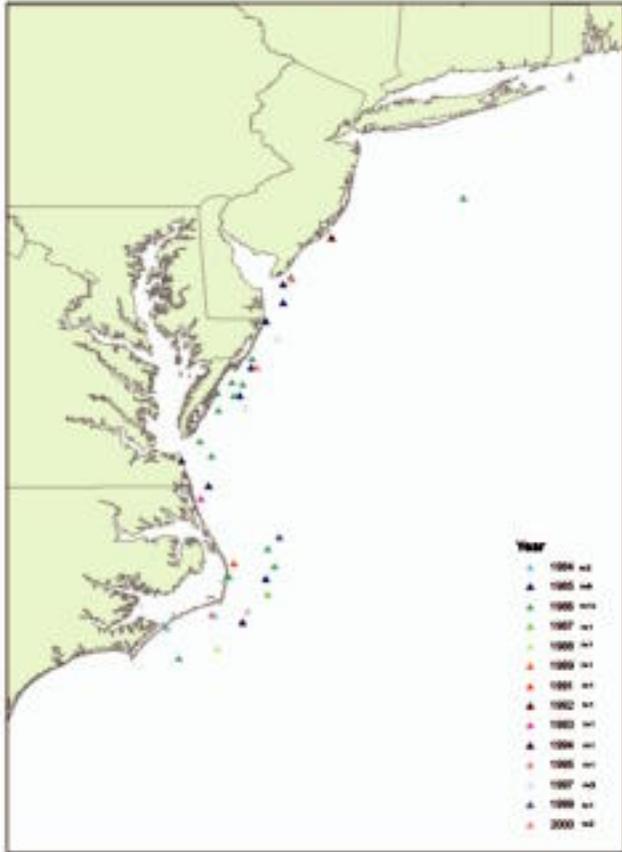
- Included in the Fishery Management Plan (FMP) for Atlantic Tunas, Swordfish, and Sharks.
- Since 1998, it is a prohibited species (meaning that possession is prohibited in commercial or recreational fisheries).
- In 2005, a time/area closure off North Carolina will be implemented to protect, in part, juvenile dusky sharks.

Threats:

- Overfishing
- Bycatch (particularly high in long line fisheries)
- Recreational fishing pressure

- Proactive Conservation Program -

Recorded captures of dusky shark
(*Carcharhinus obscurus*)



Quick Facts continued:

Other designations:

Listed by AFS as vulnerable in the western Atlantic and eastern Pacific. Listed as lower risk/near threatened by IUCN except in the Northwestern Atlantic and Gulf of Mexico where the species is listed as vulnerable.

Data deficiencies:

- Information on the reproduction cycle for this species is lacking
- Stock structure

Potential measures to reduce negative impacts:

- Time/area closures for fisheries that take dusky sharks as bycatch
- Investigate bycatch reduction measures



- Proactive Conservation Program -

Rainbow smelt
(Osmerus mordax)
Species of Concern Designation:
Area of concern:

Eastern North America from Labrador to New Jersey

Year first designated as a species of concern:

2004

Vulnerable life-history characteristics:

- Anadromous species that requires access to historical spawning grounds in fast flowing freshwater systems
- Obstructions in spawning migrations may result in areas where the bottom is densely carpeted with eggs, which leads to heavy egg mortality due to fungal infections. Also, if the obstructions are located sufficiently downstream, saltwater intrusion may be fatal to the smelt eggs.

Application of SOC Criteria:

- Landings have decreased significantly
- Spawning habitat has been degraded and restricted
- Some populations are infected by the piscine erythrocytic necrosis, which is a viral disease while others have been documented with epidermal tumors
- Historical distribution is believed to have been truncated significantly.

Rationale for designation:

Commercial landings have decreased significantly over the last four decades. Structural impediments to and chronic degradation of spawning habitat may be factors in the declining trends of this species. Many inland, land-locked populations are also declining, which may be a result of acid precipitation.

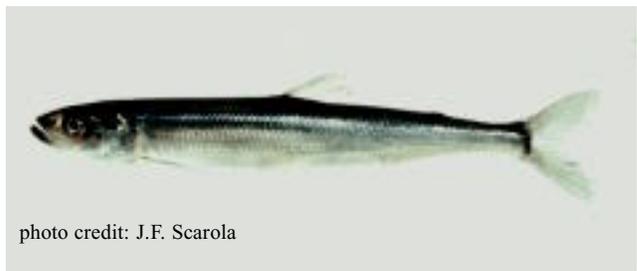


photo credit: J.F. Scarola

Quick Facts:
Description and range:

Small, slender, elongated fish averaging 6-8 inches in length. Generally silver with pale green back and iridescent purple, blue, and pink on the sides. Sea dwelling populations are anadromous. Some landlocked populations exist in northeastern and central U.S. Found in rivers and coastal areas of eastern North America from Labrador to New Jersey and on the west coast from Vancouver Island around Alaska to the Arctic Ocean.

Status:

- Commercial landings peaked in 1966 at 162.8 mt. Landings declined over the next 22 years with a low in 1988 of 1.3 mt. In the early 1990s, landings increased slightly to a high of 27.1 mt in 1992. However, landings averaged only 0.14 mt since 1998. In 2001, total U.S. landings were 0.1 mt. There are no commercial landings data available for 2002 or 2003.
- Massachusetts Bay fisheries have recently declined. During the last 15-20 years there has been a region wide trend in declining smelt populations.

Domestic regulations:

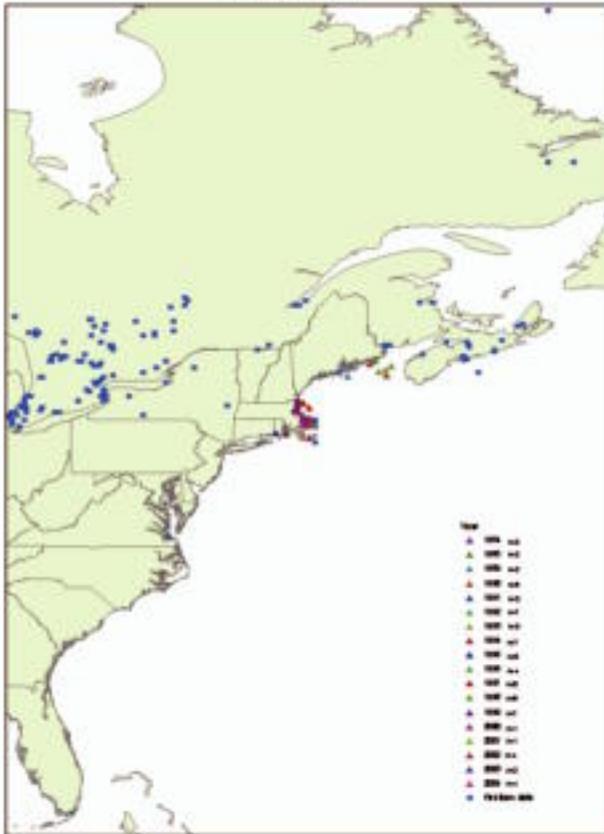
- In Massachusetts, the fishery is closed by regulation from March 15th to June 15th to protect spawning fish.

Threats:

- Habitat degradation
- Existence of structural impediments to spawning habitat
- Recreational and commercial fishing pressure

- Proactive Conservation Program -

Recorded captures of rainbow smelt
(*Osmerus mordax*)



Picture by the National Park Service

Quick Facts continued:

Other designations:

None

Data deficiencies:

- Life history information on this species when it is found in the marine environment is lacking
- Stock structure and possible existence of distinct population segments
- Effects of declining water quality and increased acid rain on sensitive life stages

Potential measures to reduce negative impacts:

- Restore access to historical spawning habitat
- Reduce pressure on stocks from recreational fisheries.

- Proactive Conservation Program -

Sand tiger shark
(Odontaspis taurus)
Species of Concern Designation:**Area of concern:**

Western Atlantic - South Atlantic, Gulf of Mexico, Caribbean

Year first designated as a species of concern: 1997

Vulnerable life-history characteristics:

- Aggregate during the mating season
- Very low productivity
- Slow growth rates
- Late age at maturity
- Exhibit oophagy (embryonic cannibalism)

Application of SOC Criteria:

- Western Atlantic populations declined by approximately 90% from overfishing in the 1980s through mid-1990s
- Species aggregates during the mating season in coastal areas, which makes it particularly vulnerable to fishing mortality, environmental fluctuations and catastrophes
- Slow growing species that is late to mature and produces few young

Rationale for designation:

The fins of this species are used for the Oriental sharkfin trade. Sand tigers are very susceptible to fishery exploitation because they aggregate in large numbers during the mating season at particular coastal spots. The aggregations have been targeted in the past by fisheries. In addition, the juvenile sand tiger sharks are commonly found in estuaries of the eastern U.S. that are susceptible to runoff and pollution. Sibling cannibalism is another factor that makes this species vulnerable, since it limits the litter size to one or two pups. The low fecundity, in combination with other life history characteristics, makes this species extremely vulnerable to overfishing.

**Quick Facts:****Description and range:**

Characterized by two dorsal fins of similar size; short, asymmetric caudal fin; 5 medium gill slits in front of pectoral-fin bases; lack of gill rakers; very short snout; and small eyes without nictating membranes. Light grey-brown above in color, whiter below with yellow/yellowish blotches. Common in shoal waters at Woods Hole and Nantucket during the summer and fall. Have also been sighted off Cape Cod, in Massachusetts Bay, near Cape Ann, Casco Bay and the mouth of the Bay of Fundy.

Status:

- In 1998 and 1999, 38,791 and 6,401 lbs, respectively, were landed in the commercial fishery prior to the ban on possession.
- The Stock Assessment and Fishery Evaluation for Atlantic Highly Migratory Species 2002 report indicates that large coastal sharks are overfished and that overfishing is occurring. Conducting a species-specific stock assessment was identified in this report as a high priority research need.
- In 2001, 3 sand tiger sharks were caught and released off the Florida East Coast, 148 were caught off North Carolina of which 1 was killed while the other 147 were tagged and released.

Domestic regulations:

- Included in the Highly Migratory Species Fishery Management Plan, under which possession is prohibited.

Threats:

- Bycatch

- Proactive Conservation Program -

Sand tiger shark general distribution



Quick Facts continued:

Other designations:

AFS listed the western Atlantic stock as vulnerable. Also listed by IUCN as vulnerable.

Data deficiencies:

- Length of reproductive cycle is speculated to be 2 years, but this has not been conclusively determined
- Status of the current stock is unknown
- Magnitude of bycatch is not known

Potential measures to reduce negative impacts:

- Time/area closures to prevent bycatch
- Investigate bycatch reduction measures



- Proactive Conservation Program -

Thorny skate
(*Amblyraja radiata*)
Species of Concern Designation:
Area of concern:

West Greenland, Hudson Bay, and Eastern Coast of North America to New York (some may stray as far south as South Carolina)

Year first designated as a species of concern: 2004

Vulnerable life-history characteristics:

- Low to very low productivity
- Slow growth rates
- Late age at maturity

Application of SOC Criteria:

- 85-90% decline since 1970
- Abundance on the Grand Banks was reported at a historic low level in 2003
- Slow growing species that is late to mature and produces few young
- Greater than 80% of the thorny skate biomass is believed to be concentrated on the southwestern part of the Grand Banks leaving them particularly vulnerable to environmental fluctuations and catastrophes

Rationale for designation:

This species is frequently taken as bycatch in groundfishing operations. Thorny skate represented approximately 95% of the skates taken in commercial catches prior to the ban on possession. Indices of abundance have declined significantly over the last three decades. While biomass has remained relatively constant at low levels since 1996, the spatial dynamics have not. The species appears to be concentrated on the southwestern portion of the Grand Banks, which makes it vulnerable to fishing pressure, environmental changes, and catastrophic events.



photo credit: Marine Biological Laboratory

Quick Facts:
Description and range:

Characterized by a row of 11-19 large thorns running down the midline of the back and tail. May attain lengths of over 100 cm, but maximum size varies over its range. Labrador to New York with strays as far south as South Carolina.

Status:

- Indices of thorny skate abundance have declined steadily since the late 1970s, reaching historically low values in 1998 and 1999, which are only 10-15% of the peak observed in the 1970s;
- There has been a downward trend in median length of NOAA Fisheries survey catch through most of the survey time series, but has been recently increasing in autumn surveys, and is currently 40-50 cm;
- The 2002-2004 autumn survey average is 0.63 kg/tow, below both the proposed biomass target of 4.41 kg/tow and threshold of 2.20 kg/tow, indicating an overfished condition. Biomass indices are at or near record lows.

Domestic regulations:

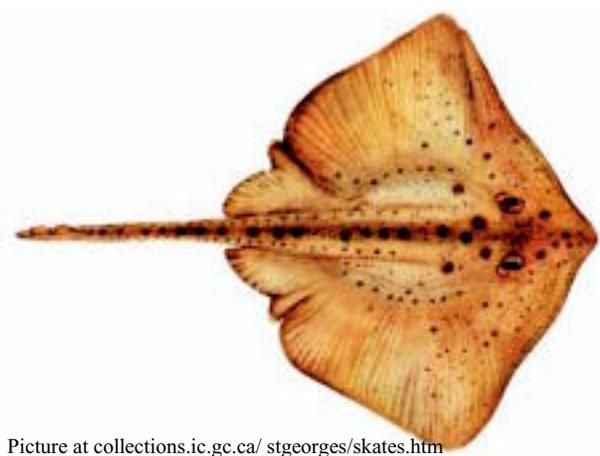
- Included in the Northeast Skate Complex Fishery Management Plan, under which possession is prohibited.

Threats:

- Bycatch (particularly in groundfish fishery)
- Overfishing
- Small quota permitted in Canada

- Proactive Conservation Program -

Recorded captures of thorny skate
(*Amblyraja radiata*)



Picture at collections.ic.gc.ca/stgeorges/skates.htm

Quick Facts continued:

Other designations:

Listed by AFS as vulnerable in the U.S. In June 2004, at the IUCN Shark Specialist group assessment workshop, top skate scientists proposed this species for listing as critically endangered in the U.S. (New England waters) and vulnerable in Canada. If this proposal is accepted by the global Shark Specialist Group, the classifications will qualify both populations for the Red List.

Data deficiencies:

- Level of mortality associated with bycatch in commercial fisheries is unknown
- Stock structure and possible existence of distinct population segments
- Effects of declining water quality and increased acid rain on sensitive life stages

Potential measures to reduce negative impacts:

- Time/area closures to prevent bycatch
- Investigate bycatch reduction measures



- Proactive Conservation Program -

White marlin (*Tetrapturus albidus*)

Species of Concern Designation:

Area of concern: Western Atlantic.

Year first designated as a species of concern: 2002

Vulnerable life-history characteristics:

- Low productivity
- The species preys heavily on Atlantic bluefish and squid, both of which have been determined to be overfished

Application of SOC Criteria:

- Estimated relative biomass is declining

Rationale for designation:

This species is caught mostly as bycatch in the longline industry for tuna and swordfish. In 2002, NOAA Fisheries conducted a status review and determined that listing under the ESA was not warranted. However, because the information for the status review did indicate that the population had declined, NOAA Fisheries placed the species on the list of candidate species. The status of this species will be re-evaluated in 2007. A stock assessment is scheduled for 2005.



Photograph by Seined Chow at www.fishbase.org

Quick Facts:

Description and range:

Large, elongated fish with a prolonged upper jaw that forms a spear which is round in cross-section. Two dorsal fins: the first is long and low posteriorly, the second is small. Dark blue to chocolate-brown in color dorsally, brownish-silvery-white laterally, and silvery white ventrally. Do not usually have bars or spots on the body, but the dorsal fin membrane is usually covered with blue-black small black spots. Found in offshore waters throughout the tropical and temperate Atlantic Ocean and adjacent seas. Unlike blue marlin and sailfish, white marlin occur only in the Atlantic Ocean.

Status:

- The estimated relative biomass (B2001/Bmsy) of Atlantic white marlin is approximately 12 percent of Bmsy (range 0.06 - 0.25) and is believed to be declining.
- The estimated fishing mortality rate (F2000/Fmsy) is approximately 8.28 (range 4.5 - 15.8).
- In recent years, the stock has declined by an average of six percent a year.
- Stock is overfished and overfishing is occurring.

Domestic regulations:

- Managed through the International Convention for the Conservation of Atlantic Tuna (ICCAT).
- Amendment One to the Atlantic Billfish FMP prohibits commercial possession and provides for minimum size limits for recreational fishing.
- Mandatory recreational reporting and recreational quota proposed in 2004.

Threats:

- Bycatch
- Recreational fishing pressure

- Proactive Conservation Program -

Recorded captures of white marlin (*Tetrapturus albidus*)



Quick Facts continued:

Other designations:

None

Data deficiencies:

- Little is known about the age, growth, and reproductive biology of this species
- No quantitative estimates of population parameters for this species exist
- Magnitude of bycatch is not known

Potential measures to reduce negative impacts:

- Time/area closures to prevent bycatch
- Investigate bycatch reduction measures



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