

Isurus oxyrinchus (Shortfin Mako)

Priority 2 Species of Greatest Conservation Need (SGCN)

Class: *Chondrichthyes* (Sharks, Rays, And Skates)

Order: *Lamniformes* (Sharks, Skates, And Rays)

Family: *Lamnidae* (Mackerel Sharks)

General comments:

Maine DMR jurisdiction; circumglobal

No Species Conservation Range Maps Available for Shortfin Mako

SGCN Priority Ranking - Designation Criteria:

Risk of Extirpation:

IUCN Red List Status: **Vulnerable**

State Special Concern or NMFS Species of Concern: NA

Recent Significant Declines: NA

Regional Endemic: NA

High Regional Conservation Priority:

Committee on the Status of Endangered Wildlife in Canada (COSEWIC):

Status: T, Last Examination: 4/1/2006, Change: New, Canada Occurrence: Atlantic Ocean

High Climate Change Vulnerability: NA

Understudied rare taxa: NA

Historical: NA

Culturally Significant: NA

Habitats Assigned to Shortfin Mako:

| Formation Name | Subtidal |
|----------------------|--------------------------------------|
| Macrogroup Name | Subtidal Pelagic (Water Column) |
| Habitat System Name: | Nearshore **Primary Habitat** |
| Habitat System Name: | Offshore **Primary Habitat** |

Stressors Assigned to Shortfin Mako:

| Stressor Priority Level based on Severity and Actionability | | Moderate Severity | High Severity |
|---|----------------------------|-------------------|---------------|
| | Highly Actionable | Medium-High | High |
| | Moderately Actionable | Medium | Medium-High |
| | Actionable with Difficulty | Low | Low |

IUCN Level 1 Threat **Biological Resource Use**

IUCN Level 2 Threat: Fishing and Harvesting of Aquatic Resources

Severity: Severe

Actionability: Moderately actionable

Notes: The mako sharks (like other elasmobranchs) are highly vulnerable to exploitation because of their k-selective life histories (i.e. slow growth rates, late maturity, low fecundity). Because of its flesh this shark is a highly sought after commercial species. Commercial captures are typically made using longlines, stationary gill nets and drift nets. The fins and liver oil are also marketed. In addition, they are a major bycatch component of tuna and swordfish fisheries. As a result, the U.S. National Marine Fisheries Service (NMFS) has included the shortfin mako on their list of managed pelagic sharks. The NMFS has reduced the number of commercial shortfin mako catches allowed per year by 50% in an attempt to counteract its declining numbers. As such, it's important to continue to assess how commercial fisheries are impacting these sharks so practices can continue to be altered to prevent this species from being overexploited.

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IUCN Level 1 Threat Human Intrusions and Disturbance

IUCN Level 2 Threat: Recreational Activities

Severity: Moderate Severity **Actionability:** Moderately actionable

Notes: The recreational fishing industry significantly contributes to the Maine economy, however the impacts of recreational fishing on shark populations is not well studied and is typically difficult to detect. In particular, shortfin makos, due to their aggressiveness when captured, are very popular gamefish. In addition, they are also sought after because of their high quality meat. Currently the number of recreationally captured shortfin mako are tightly regulated in US waters. However, research must be done to accurately assess the impact this fishery may have on makos

IUCN Level 1 Threat Pollution

IUCN Level 2 Threat: Industrial and Military Effluents

Severity: Moderate Severity **Actionability:** Moderately actionable

Notes: Shark species use inshore coastal and estuarine habitats as a safe place for finding food, giving birth and growing up away from predators and competitors. This means that they are vulnerable to negative changes in their habitat. For example, sharks, skates and rays are very susceptible to pollution and environmental contamination. Pollution in the ocean has either filtered from land activities or has been directly deposited into the seas. As apex predators with slow growth, they accumulate all the pollutants and toxins in the environment and bioaccumulating all the toxins of their prey. Chemical pollution, in the form of mercury, DDT, organochlorines, etc., has been documented in several shark populations in close proximity to areas of human populations. This could become a significant threat as we learn more about movement patterns and habitat usages of skates

IUCN Level 1 Threat Climate Change and Severe Weather

IUCN Level 2 Threat: Habitat Shifting or Alteration

Severity: Severe **Actionability:** Actionable with difficulty

Notes: Climate driven increases in ocean temperature are occurring and will have long-term effects on global fisheries. Consequently, the first acclimatizing response to temperature variations in fishes is typically to shift spatial distribution in order to stay within their ideal thermal tolerance range. Particularly it's expected "cold-water" fish species ranges are anticipated to be reduced. Thus, more research is needed to better understand the genetic and physiological sensitivity of skates to climate change. In addition, it will also be important to determine how temperature changes will alter distribution in common prey items. Ocean acidification could also have an impact on eggcase structure/integrity, which could significantly affect the success/recovery of these populations. However, more research is needed

IUCN Level 2 Threat: Temperature Extremes

Severity: Moderate Severity **Actionability:** Actionable with difficulty

Notes: Shift in ocean temperatures will influence how a species moves and travels as well as their food sources; warmer surface waters also affect the distribution of essential nutrients

IUCN Level 1 Threat Other Options

IUCN Level 2 Threat: Lack of knowledge

Severity: Severe **Actionability:** Actionable with difficulty

Notes: In general, there is a significant lack of updated/accurate life history information and movement data for this species (throughout their range and for various life stages). In order to effectively manage this species in the future, a thorough understanding of their basic biology and critical habitats are essential

Species Level Conservation Actions Assigned to Shortfin Mako:

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**Only species specific conservation actions that address high (red) or medium-high (orange) priority stressors are summarized here.*

| Conservation Action | Category: Research | Biological Priority: high | Type: new |
|---|--------------------|---------------------------|-----------|
| Determine the location and timing of important habitat use at different life history stages | | | |

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

| Conservation Action | Category: Research | Biological Priority: high | Type: new |
|---|--------------------|---------------------------|-----------|
| Identify methods to reduce incidental bycatch by recreational anglers | | | |

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

| Conservation Action | Category: Research | Biological Priority: high | Type: new |
|--|--------------------|---------------------------|-----------|
| Develop an improved understanding of discard mortality rates | | | |

Stressor(s) Addressed By This Conservation Action

Fishing and Harvesting of Aquatic Resources

Guild Level Conservation Actions:

This Species is currently not attributed to a guild.

Broad Taxonomic Group Conservation Actions:

Additional relevant conservation actions for this species are assigned within broader taxonomic groups in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-1.

Habitat Based Conservation Actions:

Additional conservation actions that may benefit habitat(s) associated with this species can be found in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-15. Click on the Habitat Grouping of interest to launch a habitat based report summarizing relevant conservation actions and associated SGCN.

The Wildlife Action Plan was developed through a lengthy participatory process with state agencies, targeted conservation partners, and the general public. The Plan is non-regulatory. The species, stressors, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work programs and priorities by state agencies and partners.