Common Name: **Thorny Skate**
Scientific Name: *Amblyraja radiata*
Area of Concern: West Greenland, Hudson Bay, Atlantic coast of Labrador, east and south coasts of Newfoundland, Grand Banks, Gulf of St. Lawrence and outer coast of Nova Scotia, to the Gulf of Maine, and westward and southward along the continental shelf to New York; may stray to South Carolina (Bigelow and Schroeder 1953).
Year First Listed as a "Species of Concern": 2004


(photo credit: Marine Biological

Species Description:

Life history: The thorny skate is one of seven species of skates that occur off the northeastern coast of North America from Labrador to South Carolina. This species is characterized by a row of 11-19 large thorns running down the midline of the back and tail (Bigelow and Schroeder 1953). Thorny skate may reach lengths of over 1000 mm TL, but maximum size varies over its range. Northeast Fisheries Science Center (NEFSC) bottom trawl surveys indicate that thorny skate are most abundant in the Gulf of Maine and Georges Bank offshore strata regions, with very few fish caught in inshore, Southern New England, or Mid-Atlantic regions.

According to Collette and MacPhee (2002), females deposit a single fertilized egg capsule which ranges in size from 48 to 96 mm in length and 34 to 77 mm in width. While females with fully formed egg capsules are captured year round, the percentage of mature females with capsules is highest during the summer (Collette and MacPhee (2002).

Thorny skate feed on benthic invertebrates and fish. Larger thorny skate (>600 mm TL) feed primarily on squid and fish such as herring, redfish, sculpins, wolffish, mackerel, sand lance and flatfish, while smaller skates (200-600 mm TL) feed mostly on polychaetes, euphausiids, and decapods (Collette and MacPhee, 2002).

Habitat: Thorny skates are found over a wide variety of substrates including sand, broken shell, gravel, pebbles and soft mud and are primarily found at depths of 18-1200 m (Collette and MacPhee, 2002).

Rationale for "Species of Concern" Listing:

Demographic and Diversity Concerns:

NEFSC survey indices for thorny skate have declined over the last 30 years. Peak abundance and biomass from NEFSC spring and autumn surveys were during the early 1970s (NEFSC 2000). The Skate SAFE Report (2001) states that NEFSC 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.

The median length of thorny skate in NEFSC survey catches has ranged from 31 cm in the 1988 autumn survey to 63 cm in the 1971 autumn survey. There has been a downward trend in median length of survey catch through most of the survey time series, but median length has been recently increasing in autumn surveys, and is currently 40-50 cm (NEFMC 2001).

Currently, there are insufficient data on age and growth to determine fishing mortality rates. Three-year averages of indices are used to evaluate the current status with respect to the proposed SFA biomass reference points. The 1997-1999 NEFSC autumn survey average is 0.66 kg/tow, below both the proposed SFA biomass target of 4.41 kg/tow and threshold of 2.20 kg/tow, indicating an overfished condition (NEFMC 2001).

Factors for Decline:

The principal commercial fishing method used to catch skates is otter trawling. Skates are frequently taken as bycatch during ground fishing operations and discarded. Recreational and foreign landings are insignificant. Thorny skate is not a preferred species for use in the skate wing fishery, and the distribution of this species only slightly overlaps with the geographic area of the most significant portion of the fisheries for skate wings and bait.

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Thorny skates are tough-skinned making them difficult to put through a skinning machine. Vessels targeting skates are primarily from southern New England ports and are targeting a combination of little skates and juvenile winter skates (NEFMC 2002).

The Record of Decision for the northeast skate complex FMP was signed on July 28, 2003. The FMP applies to federal waters from Maine to Cape Hatteras, North Carolina and includes the following measures: requires landing permits for all vessels, operators, and dealers engaged in any aspect of the skate fishery; a requirement to report skate landings by individual species and skate discard by general categories (large/small); a prohibition on possession of barndoor, thorny and a partial ban on smooth skate in the Gulf of Maine (GOM) as defined by GOM Regulated Mesh Area Boundary; overfishing definitions for each of the seven species in the Northern skate complex; a rebuilding program for overfished skate species; a baseline of management measures in other fisheries that benefit skate; and a process for reviewing changes to the baseline of management measures in other fisheries that benefit skates.

Status Reviews/Research Completed or Underway:

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact Ms. Marta Nammack, NMFS, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, x180, Marta.Nammack@noaa.gov; or Kimberly Damon-Randall, NMFS, Northeast Region, One Blackburn Drive, Gloucester, MA 01930-2295, (978) 281-9328, x6535, Kimberly.Damon-Randall@noaa.gov.

References:

Bigelow, H.B., and W.C. Schroeder. 1953. Fishes of the Gulf of Maine. Fish. Bull., U.S. Fish. Wildl. Serv. 74(53).

Collette, B.B. and G. Klein-MacPhee. 2002. Fishes of the Gulf of Maine. Smithsonian Institution Press. Washington and London. 748 pages.

New England Fishery Management Council. 2002. Draft Fishery Management Plan (FMP) for the Northeast Skate Complex: Including a Draft Environmental Impact Statement and a Preliminary Regulatory Economic Evaluation. 385p.

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