



Photo credit: Florida Fish and Wildlife Commission.

KEY INFORMATION

Areas of Concern

Western Atlantic: Texas, Louisiana, Mississippi, Alabama, Florida.

Year Identified as "Species of Concern"
1991

Factors for Decline

- Habitat alteration
- Dredging
- Marsh erosion

Conservation Designations

IUCN: Not Evaluated

American Fisheries Society: Threatened in Florida, Vulnerable elsewhere

Species of Greatest Conservation Need:
FL, LA, MS.

Brief Species Description:

The saltmarsh topminnow is **endemic** to **brackish** water areas from Galveston Bay, Texas to Escambia Bay in the western panhandle of Florida (Figure 1, Gilbert 1992). Distribution is sporadic across the range. It has been reported that individuals can be found in the Perdido, Escambia, and East Bays of Florida. It is one of the smallest members of the topminnow/killifish family (Fundulidae), seldom exceeding 1.75 inches (40-45 mm) TL, with most individuals in scientific collections ranging from 1 to 1.4 inches (25 to 35 mm) TL. They have little color in life; there is cross-hatching on the back and sides that may be gray-green or fainter and 12 to 30 dark round spots are often arranged in rows along the midside of the body from above the pectoral fin to the base of the caudal fin. There is little sexual **dimorphism** beyond longer median fin length in males, a lemon-yellow color that develops on male anal fins, and a sheath on the anterior base of the anal fin of mature females that is used to help position oocytes during spawning (Thompson 1980, 1999). Females become larger than males (males 50 mm, females 60 mm SL).

Saltmarsh topminnows live in **estuaries**, coastal salt marshes and back water sloughs including shallow tidal meanders of *Spartina* marshes. They are tolerant to salinities of 1 to 20 ppt (Thompson 1999). Abundance is highest in *Spartina* and *Juncus* salt marshes with salinity of 1 to 4 ppt in small, shallow tidal meanders (Thompson 1980). Peterson and Turner (1994) used a variety of net types and positions to determine that saltmarsh topminnows belonged to the guild of species

that mostly used the edge (rather than the interior) of a Louisiana saltmarsh adjacent to a tidal creek. This was in contrast to other cyprinodontids that used the marsh interior more. Rozas and Minello (2006) found that saltmarsh topminnows exclusively used marsh edges and were absent from *Vallisneria* and unvegetated areas of Louisiana marshes. Abundance was highest at depths of about 0.5 m, salinities of less than 12 ‰, and temperatures over 20°C from a survey of 82 locations from Biloxi, Mississippi to Mobile, Alabama (Peterson et al. 2003). No information is available on diet or feeding habits. Breeding occurs from March to August in shallow flooded marshes. The smallest male having the reproductive contact organs on the anal fin rays and lateral body scales was 20.9 mm SL (Thompson 1999).

There are no data on fecundity or reproductive behavior (Thompson 1999). Larvae are seen in May and June and juveniles are first seen in July. Few adults survive beyond breeding in their second year of life.



Figure 1. Map of range of saltmarsh topminnow.

Rationale for “Species of Concern” Listing:

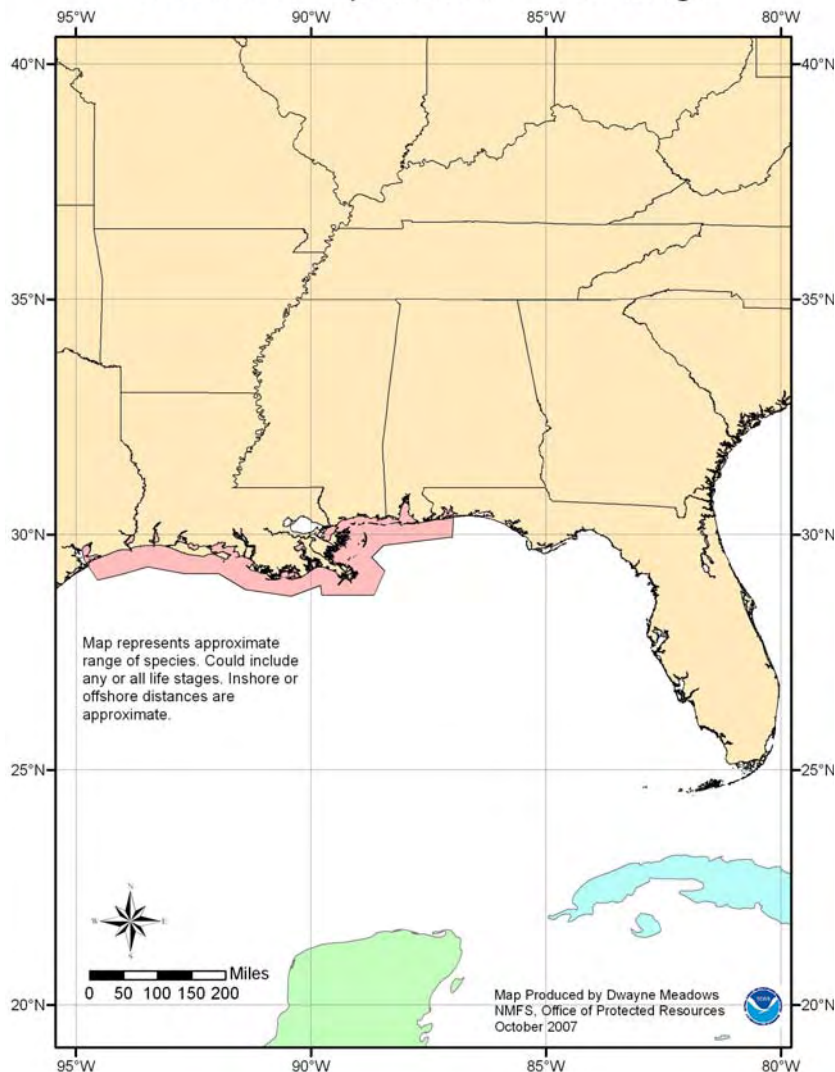
Demographic and Genetic Diversity Concerns:

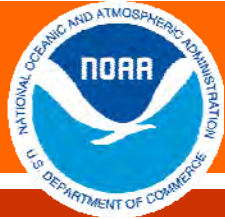
Abundance has likely declined with extensive loss of habitat. The species is generally rare and sample sizes are generally small, though they can be locally common (Gilbert and Relyea 1992). They are more common in the central part of their range and in *Spartina* and *Juncus* salt marshes. Peterson et al. (2003) document the first records of the species from the Pascagoula River watershed. Peterson et al. (2003) suggest that sampling method is important in determining accurate distribution and abundance for this and other salt marsh species.

Factors for Decline:

Habitat alteration, dredging, and marsh erosion are the most serious threats to the saltmarsh topminnow. In the lower Mississippi River delta system, coastal erosion is decreasing their marsh habitat. The conversion of marsh to deeper, open water eliminates important feeding, sheltering, and breeding areas. Erosion of marsh areas on several of Louisiana’s barrier islands has completely eliminated several locations where this species was collected in the past (Thompson 1999). Dock and other bulk-head construction along marsh edges may prevent saltmarsh topminnows from accessing flooded marsh surfaces (Thompson 1999). Hurricanes dating back to at least George (1998) have further reduced available saltmarsh habitat. No assessments have been done since hurricanes Dennis, Katrina, and Rita of 2005. Success of ongoing programs designed to restore coastal marsh to provide habitat for the saltmarsh topminnow has not been determined. Significant genetic mixing of geographically separate populations is not likely (Poss 1999), putting the species genetic diversity at risk.

Saltmarsh Topminnow SOC Range





Species of Concern

NOAA National Marine Fisheries Service

Status Reviews/Research Underway:

In 2006 the Species of Concern Grant program funded the Mississippi Department of Marine Resources \$71,726 for the study: “*Fundulus jenkinsi*, Saltmarsh Topminnow: Conservation Planning and Implementation”.

Data Deficiencies:

Further life history and population ecology studies would help determine the specific diet and microhabitat needs for the species. Sampling in the far eastern and western parts of the species range has not occurred for decades (Thompson 1999). Post-hurricane sampling in Louisiana and Mississippi would be valuable as would long-term monitoring.

Existing Protections and Conservation Actions:

References:

- Gilbert, C., and K. Relyea. 1992. Saltmarsh Topminnow, *Fundulus jenkinsi*. In: Ashton R Jr (ed) Rare and endangered biota of Florida. vol 2. Fishes. University of Florida Press, Gainesville, p. 68-72.
- Peterson, G., and R. Turner. 1994. Estuaries 17:235-262.
- Peterson, M., G. Fulling, and C. Woodley. 2003. Gulf Carib Res 15:51-59.
- Poss, S. 1999. *Fundulus jenkinsi*. Species at risk in the Gulf of Mexico ecosystem. <http://www.ims.usm.edu/~musweb/jenkinsi.htm> (26 March 1999).
- Rozas, L., and T. Minello. 2006. Estuaries and Coasts 29:297-310.
- Thompson, B. 1980. *Fundulus jenkinsi* (Evermann), Saltmarsh topminnow. In: Lee, D., C. Gilbert, C. Hocutt et al. (eds) Atlas of North American freshwater fishes. North Carolina State Museum of Natural History, Raleigh, p 518.
- Thompson, B. 1999. An evaluation of the saltmarsh topminnow, *Fundulus jenkinsi*: Final Report, 20 August 1999 revision. National Marine Fisheries Service, St Petersburg, FL.

Point(s) of contact for questions or further information:

For further information on this Species of Concern, or on the Species of Concern Program in general, please contact NMFS, Office of Protected Resources, 1315 East West Highway, Silver Spring, MD 20910, (301) 713-1401, soc.list@noaa.gov; or <http://www.nmfs.noaa.gov/pr/species/concern/>, Dr. Stephania Bolden, NMFS, Southeast Region, Protected Resources Division, 9721 Executive Center Drive N., St. Petersburg, FL 33702, (727)570-5312, Stephania.Bolden@noaa.gov.