

STATE  
THREATENED

## Swamp Darter

(*Etheostoma fusiforme*)



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### Description

Darters are a diverse and colorful group of fish in eastern North America, but only one, the swamp darter, extends its range as far north as Maine. The swamp darter is one of Maine's smallest freshwater fish, with a maximum length of about two inches. It has a slender, compressed body and small, blunt head, and is cryptically colored brown-olive with dark brown speckles on the body and fins. The tail is marked by four dark spots in a vertical row at the base. The lateral line (horizontal line along the side) arches upward toward the head, and ends below the front of the dorsal (upper) fin. Two dark bars extend from the eye, one forward and the other downward. The maxillary bone (upper jawbone) extends to beneath the front third of the eye. The entire body, cheeks, and gill coverings are covered with scales. The two dorsal fins are contiguous with no space between them. There are 8-12 spines on the front dorsal fin and 9-12 soft rays on the rear dorsal fin. The tail fin is square with rounded corners. The anal

fin originates directly beneath the third soft ray of the second dorsal fin. Pelvic fins are pointed, with the third ray longer than the others. The pectoral (side) fins are paddle-shaped.

### Range and Habitat

The swamp darter is associated with Atlantic coastal lowlands from extreme

southern Maine south to Louisiana, north along the Mississippi River drainage into Kentucky and southeastern Missouri, and up the Red River drainage to southeastern Oklahoma. The subspecies in Maine is *Etheostoma fusiforme fusiforme*, which ranges south to North Carolina. In Maine, the swamp darter is known from only three locations in southern York County: the York River, Great Works River, and Neddick River drainages. Within these drainages, MDIFW biologists have documented the species in Chase's Pond, Folly Pond, Chicks Brook, Boulter Pond, and Hooper's Brook.

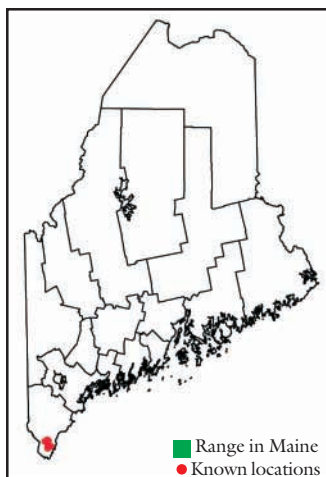
The swamp darter inhabits weedy, freshwater swamps, ponds, and slow-moving streams. It is usually associated with muddy bottoms that have a layer of detritus, and plenty of aquatic vegetation. Occasionally, the swamp darter is found over open sandy bottoms. Swamp darters can tolerate low oxygen levels and acidic conditions.

### Life History and Ecology

Little is known about the ecology of this species. The swamp darter lives in the lower parts of the water column, and thus has little competition from other small fish. Food consists of small invertebrates including fly larvae, small crustaceans (amphipods, copepods), and worms. Swamp darters generally live only one year. Spawning likely occurs from late April to June, with northern populations spawning later in the season. Eggs are deposited on the leaves of aquatic vegetation. Swamp darters are food for herons and larger fish.

### Threats

Because the swamp darter is at the northern limit of its range in Maine, it is susceptible to cold



temperatures beyond its tolerance levels. The region of southern Maine where the swamp darter occurs is under heavy developmental pressure. Although the swamp darter is tolerant of some level of acidification and eutrophication, changes in the upland landscape could influence the chemistry of the water and the vegetation to an extent that the darter could not survive. Introduced predatory fish will eat swamp darters and alter aquatic communities.

Populations of this species are probably relatively small and fragmented, but individuals should be expected to occur throughout the river drainages wherever suitable habitat exists. However, the three river drainages inhabited by the swamp darter have been altered by dams, and fish passage is restricted. Thus, it will be difficult for this species to disperse to new sites or to recolonize sites where it has been extirpated.

### Conservation and Management

The swamp darter is listed as threatened in Maine because of its extremely limited distribution in the state, human alterations to its habitat, and its location at the northern extent of its range in southern Maine. No active management or conservation strategies have been developed for this species. The swamp darter is a hardy species able to tolerate a variety of water conditions. It is listed as threatened in New York, where some wetlands have been protected for its benefit on Long Island. Much of its habitat in Maine is under watershed protection from the York and Kittery Water Districts. Surveys are needed in Maine to better document its distribution. Monitoring is also needed to track species populations.

#### Recommendations:

- ✓ Prior to land development or forest harvesting near waterways with swamp darters, consult with a biologist from MDIFW or the Maine Natural Areas Program to assist with planning.
- ✓ Municipalities should follow Shoreland Zoning standards and strive to maintain areas adjacent to waterways providing habitat for threatened and endangered species in a low-density, rural setting. Identify these areas in comprehensive plans, and consider protecting waterways and a 250-foot upland buffer as Resource Protection Districts.
- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ To preserve water quality and river functions, maintain contiguous, forested riparian habitats at

least 250 (preferably 600) feet from waterways providing habitat for threatened and endangered species.

- ✓ Avoid placing roads, houses, yards, and other developments within 250 feet of waterways providing habitat for threatened and endangered species.
- ✓ When projects are proposed within 250 feet of waterways providing habitat for endangered or threatened species, adhere to forestry Best Management Practices (handbook available from the Maine Forest Service, SHS #22, Augusta, ME 04333) and Maine Erosion and Sediment Control Recommendations (available from the Maine Department of Environmental Protection, SHS #17, Augusta, ME 04333).
- ✓ Avoid stream alteration projects (water withdrawals, dredging, rip-rap, channelization, pipeline crossings, dams) that would alter flow or remove natural stream features such as riffles and pools. Do not remove large woody debris, an important habitat component.
- ✓ Avoid the use of broad-spectrum pesticides within ¼ mile of waterways providing habitat for threatened and endangered species.
- ✓ To maintain or improve water quality, conduct thorough reviews of dam and wastewater discharge proposals. Avoid land uses that would contribute to non-point sources of pollution.
- ✓ It is illegal to introduce fish species. Introductions could alter aquatic invertebrate communities and introduce new competitors, predators, or disease. 🐛