

## Sailfin Molly

*Poecilia latipinna*

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### DESCRIPTION

#### Taxonomy and Basic Description

The sailfin molly, *Poecilia latipinna*, (Lesueur 1821) belongs to the family Poeciliidae, the livebearers. Other members of this group include the Eastern mosquitofish (*Gambusia holbrooki*), the guppy (*Poecilia reticulata*), mollies (*Poecilia* spp.) and the platys and swordfishes (*Xiphophorus* spp.); the latter two groups are common in the aquarium trade. The sailfin molly readily interbreeds with the black molly, *Poecilia sphenops*, a common aquarium fish native to Mexico and Central America (Shipp 1986).



The sailfin molly is a small species, seldom exceeding 12.5 cm (5 inches) in length (Robins and Ray 1986); however it can attain lengths of 15 cm (6 inches) (Rohde et al. 1994). The sailfin molly is sexually dimorphic; males have a longer, higher sail-like dorsal fin that lies close to the fish and that can be extended like a sail. Females have a smaller rounded dorsal fin (Boschung and Mayden 2004). Both sexes have a small head and are a light gray to olive along the sides and lighter on the belly. The body is laterally compressed with five rows of spots on the side that may appear as stripes (Page and Burr 1991). The caudal peduncle is deep in both sexes (Boschung and Mayden 2004). Breeding males turn more greenish and frequently have iridescent aqua and orange accents on the tail. Mature females are more heavy-bodied than are males, particularly those with distended belly containing developing young (Boschung and Mayden 2004).

Mature males can also be distinguished by the presence of a gonopodium, a modification of the anal fin into a rod like copulatory organ that is used for internal fertilization (Page and Burr 1991; Rohde et al. 1994; Boschung and Mayden 2004). Males use their enlarged, colorful dorsal fins in courtship display (Boschung and Mayden 2004). Females give birth to up to 141 young (Rohde et al. 1994), but usual brood size is 6 to 36 individuals; the number of young increases with the size of the mother (Boschung and Mayden 2004). Young receive no parental care and mollies grow and reach sexual maturity quickly, generally living for only one or two years (Rohde et al. 1994). Sailfin mollies grow faster in brackish water than in freshwater (Travis et al. 1989; Trexler and Travis 1990). In adult populations, females are usually much more abundant than are males, presumably because males are more vulnerable to predation (Snelson and Wetherington 1980).

The sailfin molly is an omnivorous herbivore, feeding mainly on algae, although they will also consume small invertebrates, including mosquito larvae (Rohde et al. 1994). Like the Eastern mosquitofish, the sailfin molly has been noted as a possible control species for mosquito

populations (FLMNH 2005). The sailfin is at the lower end of the food web and serves as food for insects, fishes, reptiles, amphibians and mammals (FLMNH 2005). In open systems, the sailfin molly is consumed by many larger fishes; in closed pools, ditches, ponds and impoundments the sailfin molly provides food for wading birds. Sailfin mollies thrive best in organically enriched, isolated pools or ditches where there are few other fish species and where there is sufficient vegetation to provide cover from other predators (Minckley 1973; J.W. McCord, SCDNR, pers. obs.).

## **Status**

According to Warren et al. (2000), the sailfin molly is stable throughout its range. However, almost no data exists on the abundance and distribution of this species in South Carolina. McGovern and Wenner (1990) report this species in low numbers in samples from impoundments where salinity ranged from 0 to 31.9 ppt (parts per thousand). It can be abundant in specialized habitats, such as brackish pools, ditches, impoundments and ponds. Because of its tolerance to low dissolved oxygen, the sailfin molly has the potential as an indicator species to show impacts from pollution as shown by acute toxicity to pesticides and other chemicals. The absence of this species from its preferred habitats should indicate a major concern for pollution at levels at which most other aquatic species would also be intolerant. It could also serve as a natural control mechanism for larval mosquitoes.

## **POPULATION DISTRIBUTION AND SIZE**

In the wild, the sailfin molly is considered a temperate species ranging from Cape Fear, North Carolina in the Atlantic to Veracruz, Mexico in the Gulf of Mexico (Page and Burr 1991; Rohde et al. 1994). Non-indigenous populations are also present in the western United States and in other countries (Rohde et al. 1994). According to Rohde et al. (1994), the sailfin molly is restricted primarily to cordgrass (*Spartina* spp.) marshes in the Carolinas but occurs further inland in states like Florida, Louisiana and Texas. In Florida, it inhabits brackish habitats but also occurs in coastal freshwaters in calm, shallow, heavily vegetated ponds, sloughs, ditches and stream margins (Rohde et al. 1994). It is apparently distributed throughout the coastal zone of South Carolina in suitable, primarily brackish, habitats. It is apparently uncommon or absent inland of the coastal zone (Rohde et al. 1994).

There are no estimates of size or trend of the population in South Carolina; only through directed surveys can such basic information be obtained. Since this is primarily a brackish species, individual population segments may occur along the coast. The extent of genetic isolation can only be determined by genetics studies.

## **HABITAT AND NATURAL COMMUNITY REQUIREMENTS**

The sailfin molly is an extremely tolerant species, which appears to be extremely prolific and adaptable. It can live in fresh as well as saltwater and is tolerant of salinities as high as 87 ppt (Sublette et al. 1990) although it seems to prefer slightly brackish waters of less than 10 ppt (Boschung and Mayden 2004). This species is tolerant of poor water quality and can withstand very low dissolved oxygen levels by using its flattened head and superior mouth to draw oxygen

rich water from the surface film (Felly and Daniels 1992; Timmerman and Chapman 2004). The sailfin molly is mainly found in shallow coastal estuaries, streams, ponds and ditches, associated with heavy vegetation (Page and Burr 1991; Rohde et al. 1994; Boschung and Mayden 2004). In Charleston County, this species can be abundant in coastal impoundments, pools, ponds and ditches of low salinity that are isolated from, but adjacent to, open tidal systems, but that may receive occasional input of saltwater from large flood tides (J.W. McCord, SCDNR, pers. obs.). The sailfin molly frequently occurs with the Eastern mosquitofish in such habitats where these small fishes are provided protection by a general absence of larger, predatory fishes. The sailfin molly has been observed in single-species fish populations in isolated or seasonal brackish pools on hammock islands surrounded by high-salinity marshlands (J.W. McCord, SCDNR, pers. obs.). Like the Eastern mosquitofish, the sailfin molly disappears from seasonal pools during periods of drought, but frequently mysteriously decolonizes such habitats when water is available (J.W. McCord, SCDNR, pers. obs.).

Isolated brackish wetlands are particularly important for this species and other small fishes such as the marsh killifish (*Fondles confluentis*) and rainwater killifish (*Luciana parka*) and for reptiles, amphibians and wading birds; such habitats warrant protection.

## CHALLENGES

Since isolated pools, ponds, impoundments and ditches adjacent to estuarine and brackish marshes are a preferred habitat for the sailfin molly, land development, particularly draining or filling of wetlands, can profoundly and negatively impact this species.

Both point source and nonpoint source pollution, such as pesticides and other chemicals, could eliminate populations in isolated wetlands such as ponds, pools and ditches.

## CONSERVATION ACCOMPLISHMENTS

There are currently no known conservation accomplishments for the sailfin molly.

## CONSERVATION RECOMMENDATIONS

- Determine the distribution of the sailfin molly through surveys of brackish marshlands in the tidal portions of all of South Carolina's river basins.
- Determine genetic relationships in potentially isolated populations of sailfin mollies along the coast.
- Conduct toxicity tests for likely pollutants in the coastal zone to determine tolerance by the sailfin molly.
- Determine the value of this species as a biological control on mosquito larvae.
- Develop a management plan for the sailfin molly once population and distribution information is obtained.

## MEASURES OF SUCCESS

Only after trends in populations along the coast are established can surveys yield information indicative of successful protection of this species.

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