



SPOT

Leiostomus xanthurus

Life History and Habitat Needs

Geographic Range

Spot occur in estuarine and coastal waters along the U.S. Atlantic coast from the Gulf of Maine to Florida, but are most abundant from the Chesapeake Bay to South Carolina.

Movement/Migration

Spot migrate seasonally between estuarine and coastal waters. In the spring, spot enter bays and estuaries, where they remain until late summer or fall. In fall, spot move offshore to spawn and escape decreasing water temperatures. Spot also migrate north-south, spending summer in the northern portion of their range and moving south in the fall.

Spawning

Spot spawn offshore during fall and spring. In the South Atlantic, spawning occurs from October to March and peaks in December and January. Spawning starts later in the Mid-Atlantic, but generally occurs in late fall to early spring. Ripe adults gather off beaches just before spawning activity begins. Adults then initiate the southward migration before or as spawning occurs. Juvenile spot recruit to estuarine nursery habitats from February through June to low salinity brackish water and will move to higher salinity waters in the lower portions of estuaries as they grow and mature.

Habitat Use

Spot eggs are pelagic. Spot larvae are transported into low salinity tidal creeks where they develop into juveniles. Juvenile spot can tolerate waters with dissolved oxygen concentrations as low as 1.3 to 5.4 mg l⁻¹, but prefer waters with dissolved oxygen concentrations exceeding 5.0 mg l⁻¹. As juveniles grow, they disperse to deeper waters with higher salinities. From Delaware south to Florida, primary nursery habitat includes low salinity bays and tidal marsh creeks with mud and detrital bottoms. Juvenile spot are also found in eelgrass beds in the Chesapeake Bay and North Carolina, however, by late spring juveniles are often much more abundant in tidal creeks than in seagrass habitats. Adult spot occur in a wide range of salinities from less than 1 ppt up to 60 ppt. Spot are tolerant of a wide range of temperatures (1-37°C), however, extended periods of low temperatures can cause mortality. Spot are largely demersal and feed on benthic macrophytes but since they occur mostly in shallow estuarine habitats they utilize the entire water column, particularly around vertical structure. Other variables that may influence habitat selection include sediment type; average summer water temperatures; salinity and minimum dissolved oxygen; and water depth at mean high water.

Threats to Habitat

- Habitat alteration (e.g., wetlands converted to agricultural use, bulkheads, proliferation of docks and marinas)
- Dredging and dredge spoil placement
- Destructive or unregulated practices in silviculture, agriculture, or coastal development that contribute to increased turbidity
- Recreational boating
- Point and nonpoint source pollution
- Sewage treatment and disposal
- Ocean dumping of sewage sludge
- Hydrological modifications (ditching and channelization)

ASMFC Fish Habitats of Concern

Estuaries are important nursery grounds for spot.

Recommendations to Improve Habitat Quality

- Provide comments on projects involving water withdrawal (e.g., power plants, irrigation, water supply projects) to ensure that impingement, entrainment, and/or modification of flow and salinity regimes will not adversely impact on spot stocks. Develop water use and flow regime guidelines that are protective of spot spawning and nursery areas.
- Provide comments on projects that would modify or impact estuarine wetlands that include seagrass beds, marsh grass habitats and intertidal mudflats and reef structures.
- Identify hydropower dams that pose significant threats to maintaining adequate freshwater flows to spot nursery and spawning areas and target them for appropriate recommendations during relicensing.
- Prohibit the use of any fishing gear having a negative impact on spot habitat within HAPCs (e.g., trawling in spawning areas or primary nursery areas should be prohibited).
- Develop permitting conditions and planning considerations to avoid or mitigate adverse impacts to habitat areas of particular concern (e.g., dredging windows to reduce impacts to locations of eggs and spawning activity).
- Coordinate development and implementation of nonpoint source pollution control plans.
- Review adequacy of water quality standards to protect all life-stages of spot.

Habitat Research Needs

- Identify habitat requirements for all life history stages of spot.
- Map, characterize, and quantify important nursery areas and carry out monitoring programs in major nursery areas.
- Quantify the impact of habitat loss and degradation on spot populations.
- Investigate minimum and maximum tolerances for parameters such as dissolved oxygen, temperature, and salinity.
- Determine the impacts of any dredging activity (i.e. for beach re-nourishment) on all life history stages of spot.

Additional Information

Spot are managed by the ASMFC under the Omnibus Amendment to the Interstate Fishery Management Plan for Spanish Mackerel, Spot, and Spotted Seatrout (2012) and Addendum I (2014). The FMP and related documents are available on the ASMFC website at www.asmfc.org or by contacting the ASMFC Habitat Program Coordinator at 703.842.0740.

