



Life History and Habitat Needs

Geographic Range

Weakfish are found along the Atlantic coast from Massachusetts to southern Florida, straying occasionally to Nova Scotia, Canada and into the eastern Gulf of Mexico. They are most abundant from New York to North Carolina.

Movement/Migration

Adults migrate north and south, and onshore/offshore seasonally along the Atlantic coast. Warming of coastal waters in the spring keys migration inshore and northward from the wintering grounds to bays, estuaries, and sounds. Larger fish move inshore first and tend to congregate in the northern part of the range. In northern areas, a greater proportion of adults spend the summer in the ocean than in estuaries. Weakfish form aggregations and move offshore as temperatures decline in the fall. They generally move offshore and southward.

Important wintering grounds for the stock are located on the continental shelf from Chesapeake Bay to Cape Lookout, North Carolina. Some weakfish may remain in inshore waters from North Carolina southward.

Spawning

Weakfish spawn in estuarine and nearshore habitats throughout its range. Principal spawning areas are from North Carolina to Montauk, New York, although extensive spawning and presence of juveniles has been observed in the bays and inlets of Georgia and South Carolina. Spawning occurs after a spring inshore migration. Timing of spawning is variable, beginning as early as March in North Carolina, and as late as May to the north. Mature female weakfish produce large quantities of eggs that are fertilized by mature males as they are released into waters of nearshore and estuarine spawning areas. Females are indeterminate batch spawners, meaning females release their eggs over a period of time rather than all at once. Weakfish show a high degree of natal homing but are currently managed as a single stock. The data available is inadequate and there is enough potential mixing to preclude management of the species as multiple stocks.

Habitat Use

Nursery habitats are those areas in which larval weakfish reside or migrate after hatching until they reach sexual maturity (90% by age 1, 100% by age 2). These areas include nearshore waters as well as bays, estuaries, and sounds to which they are transported by currents or in which they hatch. Juvenile weakfish inhabit the deeper waters of bays, estuaries, and sounds, including their tributary rivers. They also use the nearshore Atlantic Ocean as a nursery area. Juveniles are associated with sand or sand/seagrass bottom. Adult weakfish reside in both estuarine and nearshore Atlantic Ocean habitats. In the Chesapeake Bay, weakfish are important top carnivores, feeding along the edges of eelgrass habitats as well as other edge habitats such as along channel edges, rock, and oyster reefs.



Threats to Habitat

- Intense coastal development
- Dredging and filling activities that have limited shallow water nursery habitat
- Water quality degradation resulting from point and non-point source discharges contributing, in some estuarine areas, to oxygen depletion and the creation of large masses of anoxic waters during summer months
- Intensive conversion of coastal wetlands to agricultural areas has contributed to functional loss of weakfish nursery area habitat.
- Alteration of freshwater flows and discharge patterns to spawning, nursery, and adult habitats in rivers and estuaries
- Power plant cooling facilities by causing entrainment and impingement

ASMFC Habitat Areas of Particular Concern

Important habitats for weakfish include nursery and spawning areas distributed along the coast from Maine through Florida. Spawning sites include coastal bays, sounds, and the nearshore Atlantic Ocean. Nursery areas include the upper and lower portions of the rivers and their associated bays and estuaries. While disturbance to a nursery area will affect the overall coastal weakfish population it would be expected to have the greatest impact on the specific sub-population and the local fisheries that depend on it.

Recommendations to Improve Habitat Quality

- Provide for restoration and maintenance of important habitat by promoting identification and conservation of habitat essential for the long-term stability in the weakfish population
- Clearly define restrictions for projects in spawning and overwintering areas and develop policies to limit projects seasonally or spatially
- Scrutinize projects involving water withdrawal from nursery habitats (e.g., power plants, irrigation, water supply projects) to minimize adverse impacts from impingement/entrainment, modification of flow, and temperature and salinity regime changes due to water removal

Habitat Research Needs

- Conduct acoustic surveys to delineate weakfish spawning habitat locations and environmental preferences (temperature, depth, substrate, etc.) and enable quantification of spawning habitat
- Compile existing data on larval and juvenile distribution from existing databases in order to obtain preliminary indications of spawning and nursery habitat location and extent
- Better document the impact of power plants and other water intakes on larval, post larval, and juvenile weakfish mortality in spawning and nursery areas, and calculate the resultant impact to adult stock size
- Determine movement and migration routes, rates, and habitat use by tagging fish, and analyzing spawner-recruit relationship and environmental influences on year-class strength.

Additional Information

Weakfish are managed under Amendment 4 to the Interstate Fishery Management Plan for Weakfish (2002) and its associated Addenda (I-IV), which can be found on the ASMFC website at www.asmfc.org or by contacting the ASMFC Habitat Program Coordinator at 703.842.0740.