

Introduction

American eel are an important resource from both a biodiversity and human use perspective. Eel, in all its life stages, serve as an important prey species for many fish, aquatic mammals and fish eating birds. And, while fisheries are at a fraction of what they were historically, eel continue to support valuable commercial, recreational and subsistence fisheries coastwide.

American eel are a particularly challenging species to conserve and manage on a coastwide basis for a number of reasons. Throughout its lifespan from multiple juvenile life stages through adulthood, American eel will have inhabited and traversed a wide range of habitats from inland riverine systems through estuaries and far out into the Atlantic Ocean. During this journey, they have also moved through a myriad of jurisdictions and management authorities from inland and coastal states to the federal government.

From a biological perspective, there is a lot that is still not known about the species. Information on abundance and status of all life stages, as well as habitat requirements are very limited. The life history of the species, such as slow age of maturity and a tendency of certain life stages to aggregate, can also make this species particularly vulnerable to overharvest.

Life History

American eel are a catadromous fish species, spending most of their life in freshwater or estuarine environments, but return to the ocean to reproduce. Adult eel migrate to spawning grounds located in the Sargasso Sea, a large portion of the western Atlantic Ocean east of the Bahamas and south of Bermuda. The Gulf Stream then transports and disperses fertilized eggs and larval eel, called leptocephali, along the entire U.S. East Coast (Florida to Maine).

American eel are known to exhibit a multitude of life stages including leptocephali, glass eel, elver, yellow eel, and silver eel stages. Leptocephali metamorphose into glass eel, or transparent eel, as they migrate toward land and freshwater bodies. The elver life stage occurs when the glass eel move into brackish or freshwater and become pigmented. Usually by the age of two, elvers make the transition into the yellow eel stage. Yellow eel inhabit bays, estuaries, rivers, streams, lakes, and ponds where they feed primarily on invertebrates and smaller fish. Sexual maturity of yellow eel can occur any time between eight and 24 years of age according to data in the Mid-Atlantic region. When yellow eel reach sexual maturity, they begin a downstream migration toward the Sargasso Sea spawning grounds. During this migration, yellow eel metamorphose into the adult silver eel phase. The yellow eel undergoes several physiological changes during this transformation, including (1) a color change from yellow/green to



American Eel
Anguilla Rostrata

Family: Anguillidae

Common Names: American eel, silver eel, yellow eel, freshwater eel, elver (young)

Uses: American eel are eaten fresh or smoked; young of the year are often exported to Asian markets for aquaculture purposes

Identifying Features: Elongate, snakelike body, which is circular in the cross section anteriorly and then compressed posteriorly; small scales are deeply embedded in the skin; color is variable depending on the life stage and age of the eel concerned

metallic, bronze-black sheen; (2) body fattening; (3) skin thickening; (4) enlargement of the eye and change in visual pigment; (5) increased length of capillaries in the rete of the swim bladder; and (6) digestive tract degeneration. Adult silver eel are believed to spawn in the Sargasso Sea during winter and early spring.

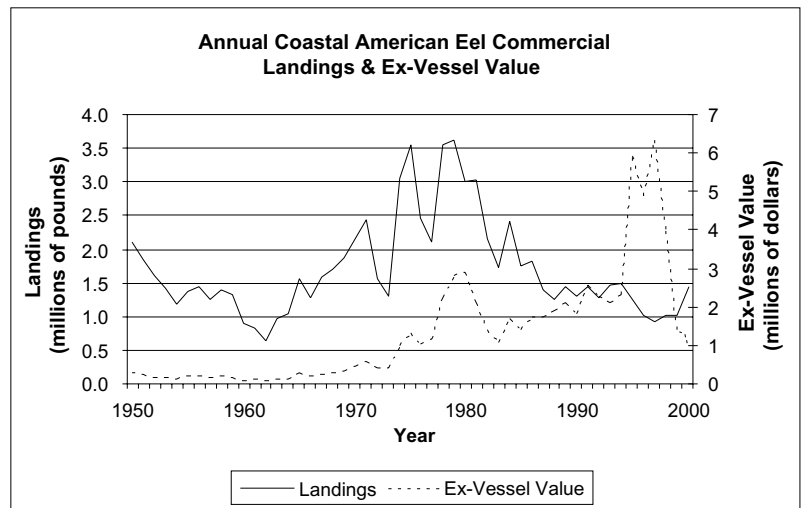


Commercial & Recreational Fisheries

Since the early 17th century, Native American tribes have harvested eel for the purposes of food and cultural sustenance. Today, commercial and recreational fisheries for American eel are seasonal, but economically important by providing both direct and indirect employment. Such employment includes gear manufacturing, food processing, and shipping. Commercial landings of American eel fluctuate widely, as the fisheries are market driven. Since the fishery's peak in the mid-1970s at 3.5 million pounds, commercial landings have declined. The lowest harvest (between 1970 and 1998) was 913,251 pounds, which occurred in 1997. 1.4 million pounds were commercially landed in 2000. Recreational data concerning eel harvests may also indicate a decline in abundance. According to the National Marine Fisheries Service's Marine Recreational Fisheries Statistics Survey, recreational harvest in 2000 was 3,351 eel, which was a significant decrease from the peak of 106,988 eel in 1982.

Atlantic Coastal Management

The Atlantic States Marine Fisheries Commission adopted the Fishery Management Plan (FMP) for American Eel in November of 1999. The plan focuses on data collection to further our understanding of American eel biology, behavior, habitat requirements, and the fisheries themselves. Specifically, the FMP requires states to perform an annual young-of-the-year survey by selecting a location in which to deploy gear over a six-week time period. The information gained from this survey, along with fishery dependent and independent data, will be submitted to the Commission on an annual basis for review. In addition, the plan specifies that states will maintain their existing commercial fishery regulations, unless opting for more conservative regulations. Recreational fisheries management measures require states and/or jurisdictions to establish uniform possession limits including a minimum six-inch size limit and possession of no more than 50 eels per person for bait purposes during fishing, including crew members involved in party/charter (for-hire) employment. Identification and protection of existing eel habitat, as well as restoration of historic habitat, is also addressed in the FMP through recommendations concerning upstream and downstream passage and habitat monitoring.



Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division. Estimated ex-vessel value is reported in nominal terms and has not been corrected for inflation.