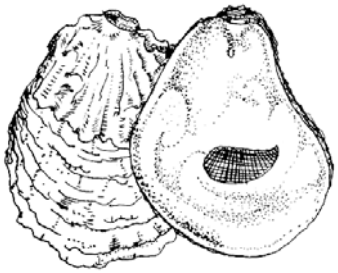
Eastern oyster, *Crassostrea virginica*



Eastern oysters occur from the Gulf of St. Lawrence, Canada, through the Gulf of Mexico to the Bay of Campeche, Mexico, and into the West Indies. They exist in every major bay system within their range but are not evenly distributed among or within bays. Two genetic stocks occur in Florida, an Atlantic coast stock that occurs from Maine south to Key Biscayne, and a gulf stock that occurs from the Florida gulf coast to Corpus Christi, Texas (Buroker 1983). The availability of clean, firm substrate sites for attachment limits the distribution of eastern oyster. Eastern oysters filter-feed for planktonic organisms and detritus. They are prey to protozoans, anemones, coelenterates, helminths, mollusks, crustaceans, and fish (Berrigan *et al.* 1991). In the Gulf of Mexico, eastern oysters typically reach about 3 inches long in 18–24 months and 5.9 inches long in 5 or 6 years. They can apparently live up to 25–30 years and reach a maximum size of 11.8 inches (Martin 1987). Eastern oysters are protandrous hermaphrodites, but can become alternate hermaphrodites after an initial male state; they can even alternate sex within a spawning season (Galtsoff 1964). Maturity is reached in as little as 4 weeks after settling. Spawning is initiated and maintained when water temperatures reach about 20 ºC and salinities remain higher than 10 parts per thousand.

Most of Florida's production of eastern oysters occurs on the gulf coast (97% of the landings by weight), primarily in the Panhandle and Big Bend regions (Fig. 1). Atlantic coast landings are made mostly in St. Johns, Volusia, Brevard and St. Lucie Counties. In 2005, the total statewide landings of eastern oysters were 1,451,202 pounds. The 2005 total landings were 32% lower than the average landings in the previous five years (2000–2004) and were 45% lower than the historical average landings during1982–2005 (Fig. 2). Atlantic coast landings have historically been very small relative to the statewide total; only about 39,000 pounds were landed in 2005 (Fig. 2). Gulf landings averaged about 5 million pounds during 1982–1985. Since then, landings have dropped by over 60%, bottoming out at 1.4 million pounds in 1996 and then increasing to about 2.6 million pounds in 2001 before dropping back to 1.4 million pounds in 2005. The sharp decline in landings after 1985 can be attributed to hurricane Elena's destruction of productive beds and the prolonged drought during 1987–1989 (Berrigan *et al.* 1991).

Commercial catch rates on the Atlantic coast dropped suddenly in 1996 but have been fairly steady at just below 40 pounds per trip during the period 1997-2005 (Fig. 3). Standardized commercial catch-per-trip estimates on the gulf coast increased between 1992 and 1994 and have remained since at near historically high levels through 2005 (Fig. 4). Resource monitoring by the Department of Agriculture also indicated increases in 1999 and 2000 (Berrigan 2000).

The Gulf States Marine Fisheries Commission has developed a regional management plan for the eastern oyster fishery. Oyster production in Florida is partially managed by strategic construction of culch reefs. Specific management recommendations in the Gulf States Fishery

Commission's fishery management plan include the following: increased culch planting; restoration of freshwater flows; encouragement of aquaculture and replanting; size, gear, season, and area restrictions; limited access; and quota and bag limits (Berrigan *et al.* 1991). Recently, Lenihan and Micheli (2000) showed that clam harvesting from intertidal oyster reefs did not negatively impact the production of oysters on those reefs.

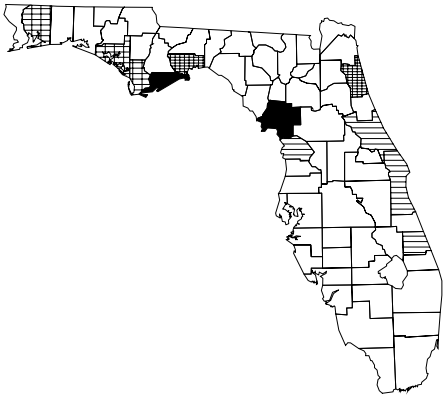


Figure 1. Geographic distribution of commercial landings of eastern oyster during 2005

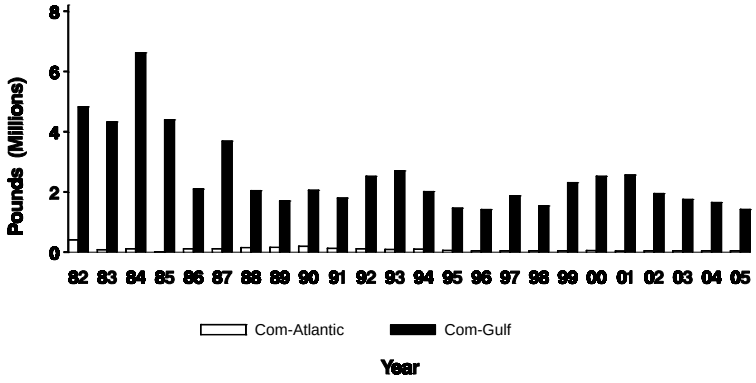


Figure 2. Total annual commercial landings of eastern oyster on the Atlantic and gulf coasts of Florida, 1982–2005

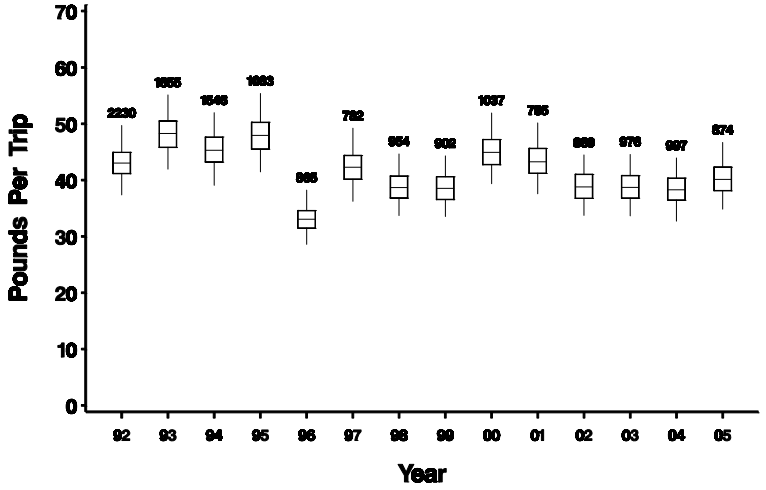


Figure 3. Annual standardized commercial catch rates (pounds) for eastern oyster on the Atlantic coast of Florida, 1992–2005

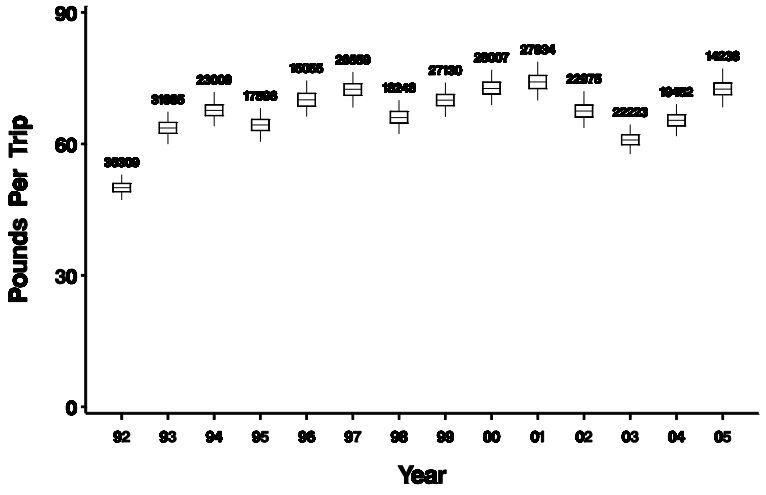


Figure 4. Annual standardized commercial catch rates (pounds) for eastern oyster on the gulf coast of Florida, 1992–2005