

## American Oyster

Virginia Oyster, Atlantic Oyster,  
Eastern Oyster, Common Oyster

Phylum Mollusca  
Class Bivalvia  
Family Ostreidae



Photo by R. DeFelice

### DESCRIPTION

Oysters are sedentary with their lower valve firmly cemented to hard objects. Their flattened, distorted shells are extremely variable in shape. The shells of *Crassostrea virginica* are typically broadly oval and thick, and grow to about 10-15 cm in length. The lower valve is convex and upper valve flat, usually with concentric ridges and lines. Exterior color is dirty white to gray. The interior is bright white with a deep purple or red-brown muscle scar (from Kay 1979).

### HABITAT

Oysters favor estuaries and embayments with low salinities and are intolerant of prolonged exposure to fresh water or marine conditions. They are found in shallow water of tidal to subtidal depth of fairly constant turbidity and salinity, but are able to withstand a wide range of temperatures. Oysters usually colonize in beds. Competition for space is an important source of mortality. Uncrowded, oysters can live to be 20 years old.

### DISTRIBUTION

#### HAWAIIAN ISLANDS

Throughout the main islands in estuarine areas

#### NATIVE RANGE

Gulf of St. Lawrence to Brazil

### PRESENT DISTRIBUTION

Gulf of St. Lawrence to Brazil, British Columbia, and Hawaiian Islands

### MECHANISM OF INTRODUCTION

Intentional, for commercial oyster fishery. First plantings in 1866 in Pearl Harbor.

### IMPACT

Fouling organism. Ecological impact in Hawaiian Islands unstudied. Before a die-off in the early 1970s, these oyster formed extensive dense beds in the estuarine areas of Pearl Harbor which undoubtedly affected the native benthic communities there.

### ECOLOGY

#### Feeding

Bivalves are suspension feeders. Water is moved through an incurrent siphon into the mantle cavity by cilia on the ctenidia (gills). Water passes over the ctenidia, food particles are extracted by the cilia, and water is expelled through an exhalent siphon.

#### Reproduction

These bivalves are gonochoristic (having separate male and female individuals), fertilization is external, and the developing larvae (veliger) settle to the bottom after a time in the plankton. The first spawning usually occurs when the oyster is around two years of age.

## REMARKS

*Crassostrea virginica* remains established in Pearl Harbor (Coles et al., 1999), as a result of what is widely regarded as large plantings made in 1866. The history of plantings of this oyster in Hawaii are given by Kay (1979), and it is reported that there were 150,000 square yards of *C. virginica* beds in Pearl Harbor, with an estimated 35 million oysters.

In the early 1970s, *C. virginica* is recorded as having suffered extensive mortalities in Pearl Harbor. In July, 1972 it was reported that 34 million oysters were killed in West Loch, Pearl Harbor (Anonymous, 1972). Three reasons for this mortality have been suggested by various authors; disease, pollution, and sedimentation.

*Crassostrea virginica* apparently recovered over the next quarter century and is now common in West Loch, Pearl Harbor. Whether the population now in Pearl Harbor resulted from the original 1866 planting or from the later plantings in the 1920s is not known. Also now present in Pearl Harbor is the introduced Australian oyster *Saccostrea cucullata*.

## REFERENCES

- Anonymous. 1972. Pearl Harbor oyster kill! Hawaiian Shell News. 20(8): 2.
- Coles, S.L., R.C. DeFelice, L.G. Eldredge and J.T. Carlton. 1999. Historical and recent introductions of nonindigenous marine species into Pearl Harbor, Oahu, Hawaiian Islands. Marine Biology. 135: 147-158.
- Kay, E.A. 1979. Hawaiian Marine Shells. Reef and Shore Fauna of Hawaii, Section 4: Mollusca. B.P. Bishop Mus. Spec. Pub. 64(4), 653 pp.