

Crassostrea gigas



Taxon	Family / Order / Class / Phylum
<i>Crassostrea gigas</i> (Thunberg, 1793)	Ostreidae / Ostreoida / Bivalvia / Mollusca

COMMON NAMES (English only)

Pacific oyster
Pacific giant oyster
Pacific cupped oyster

SYNONYMS

Crassostrea angulata (Lamarck, 1819) [Menzel, 1974]

SHORT DESCRIPTION

The Pacific oyster is a filter-feeder consuming phytoplankton and detritus in coastal brackish and marine waters. The two elongated valves are variable in shape and size with wild settling individuals cemented by one valve to a firm substrate. The left valve tends to be slightly convex and the right valve cup-shaped. The shells show irregular radial folds. Shells are usually 80-200 mm in length. The largest individual found in the Wadden Sea was 310 mm, although larger specimens have been reported elsewhere.



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Crassostrea gigas in cultivation in Cork Harbour, Ireland

Photo: Dan Minchin

BIOLOGY/ECOLOGY

Dispersal mechanisms

Pelagic larvae are dispersed by water currents.

Reproduction

Oysters have separate sexes with external fertilisation. Spawning normally takes place at temperatures of 18 - 26°C within a range of salinities of 20-35 psu. Each individual may release as much as 100 million eggs. Larvae settle after 11 to 30 days, at a shell length of ~290 µm, on hard surfaces to which they become cemented. They mature after 1 year and may live up to 10 years.

Known predators/herbivores

Larvae are consumed by filter feeding biota and by cnidarians. Juveniles are eaten by a wide range of species including the flatworm *Pseudostylochus ostreophagus*, decapods, predatory snails, sea stars and fishes. This oyster is host to a wide range of pests and parasites including *Haplosporidium nelsoni* causing MSX disease.

Resistant stages (seeds, spores etc.)

No resistant stages, but adults can survive several days in air under damp and cool conditions.

HABITAT

Native (EUNIS codes)

A1: Littoral rock and other hard substrata, A3: Sublittoral rock and other hard substrata. Littoral zone, lower intertidal to subtidal.

Habitat occupied in invaded range (EUNIS codes)

A1: Littoral rock and other hard substrata, A3: Sublittoral rock and other hard substrata. Littoral zone (~3 m depth) on hard substrates in areas with low to moderate wave exposure, may occur to 40m. Often found cemented to artificial hard substrates in ports and marinas.

Habitat requirements

Euryhaline (12-42 psu, optimum range 20-30 psu) and tolerant of a wide temperature (3 – 35 °C) and pH range (6 – 9.2). May survive in water with oxygen concentrations down to 2.9 µg/l.

DISTRIBUTION

Native Range

NW Pacific

Known Introduced Range

First arrived in Portugal as *C. angulata* from ~16th century and subsequently in the 1960s and 1970s. Presently occurs on all European Atlantic coasts, the Mediterranean and the Black sea.

Trend

In northern Europe wild settlements now occur where before their populations were sustained by hatchery production.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in sea
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INTRODUCTION PATHWAY

Deliberate introduction of wild stock from Japan to France in the 1960s for cultivation, and from Canada to Britain through quarantine. It has been recorded attached to ships' hulls and in ballast water. It is a widely cultivated oyster in more than 40 countries throughout the world.

IMPACT

Ecosystem Impact

Pacific oysters directly introduced from the wild have been a source of several cryptic diseases, oyster pests and other species. Extensive settlements can lead to competition with native biota for both food and space. Recent recruitment in the southern North Sea, resulting from increases in summer temperatures, has led to habitat changes. There are some concerns for mussel cultivation due to heavy settlement and fast growth, with competition for food and space. In North America it has been found to hybridise with *C. virginica*, however, few survive to metamorphosis.

Health and Social Impact

Regular monitoring of cultivated oysters is necessary as toxic algal blooms can render oysters unmarketable. Uncontrolled harvests of oysters contaminated by microbiota can lead to diseases in humans. In tourist areas wild settlements fouling ladders can lacerate bathers' feet.

Economic Impact

A cultivated and fished species responsible for the main biomass of mollusc production in Europe.

MANAGEMENT

Prevention

Unknown.

Mechanical

Unknown.

Chemical

Unknown.

Biological

Although specific pests, parasites and diseases have had impacts on production, an effective biological control agent has not been identified.

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