Pacific oyster, *Magallana gigas*

**Overview**

Short description of *Magallana gigas*, Pacific oyster

Variable and irregular in appearance. Off-white to yellow or bluish grey in colour, often with deep purple patches. Grows up to 30 cm in length with a teardrop shape and rough shell. The right valve is deeply cupped with six or seven bold ribs; the left valve is flat or slightly convex.

**Description of *Magallana gigas*, Pacific oyster status in GB**

Farmed at several locations around the GB coast and estuaries. Escapees have established populations in various locations in the south of England.

**Habitat summary: *Magallana gigas*, Pacific oyster**

Lives permanently attached to any hard substrate in intertidal and shallow subtidal zones of estuaries and coastal waters. In muddy or sandy areas Pacific oysters will settle on small rocks, shells or other oysters and can create reefs by cementing their shells to each other, forming dense layers.

**Overview table**

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<th>Environment</th>
<th>Marine</th>
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<tr>
<td>Species status</td>
<td>Non-Native</td>
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<tr>
<td>Native range</td>
<td>Kazan-retto, Ogasawara-shoto</td>
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<tr>
<td>Functional type</td>
<td>Filter-feeder</td>
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<tr>
<td>Status in England</td>
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<td>Status in Scotland</td>
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<td>Status in Wales</td>
<td>Non-Native</td>
</tr>
<tr>
<td>Location of first record</td>
<td>River Blackwater, Essex</td>
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<td>Date of first record</td>
<td>1926</td>
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</tbody>
</table>

**Invasion history: *Magallana gigas*, Pacific oyster**

**Origin**

Native to Japan and North-East Asia.

**First Record**

Pacific oysters were deliberately introduced to GB from Canada during the 1960s for commercial purposes. The first record from the wild was 1965.

**Pathway and Method**

Imported into GB from Canada for commercial aquaculture. Natural spatfall now occurs in several GB sites. Some spat settlement in the southwest of England may have come from French stock, with possible vectors including transport by current systems, discarded food waste, transport on ship’s hulls and intentional (illegal) introductions.

**Species Status**

Farmed populations occur throughout England, Scotland, Wales and Ireland, and are widespread in Europe. It was initially presumed that temperatures in GB waters would not be suitable for Pacific oysters to successfully spread, settle and spawn in GB.
waters, but escapees have established feral populations in south-east and south-west England and Wales. There are extensive beds of naturally recruited Pacific oysters in some southern estuaries of England and sparse settlements are known from the north coast of Wales near Conwy.

**Ecology & Habitat: Magallana gigas, Pacific oyster**

**Dispersal Mechanisms**
Pacific oyster larvae are planktonic for three to four weeks, during which period they are dispersed by tidal currents; larvae are documented to travel up to 1000 km on ocean currents although such distances are unlikely in GB waters. Dispersal of larvae may allow new populations to colonise areas too cold for successful reproduction.

**Reproduction**
Pacific oysters change sex during life, most commonly maturing first as males before subsequently transforming into females. Spawning is temperature dependant and breeding occurs during summer months at temperatures of around 18 °C. Each individual may release 50 to 60 million eggs up to a maximum of 100 million eggs although juvenile mortality is high. Fertilisation takes place externally and larvae are planktonic for three to four weeks before settling; the lower shell valves are cemented onto hard substrate.

**Known Predators/Herbivores**
Pacific oyster larvae are consumed by filter feeding animals. Juveniles are eaten by a variety of species including worms, snails, starfish, fishes, birds and crabs. Adults are less vulnerable to predation, but may be preyed upon by birds, starfish and large crustaceans.

**Resistant Stages**
None known.

**Habitat Occupied in GB**
Pacific oysters inhabit intertidal and shallow subtidal estuarine and coastal waters, settling on hard substrate. Where rocky substrate is scarce the oysters settle on any available hard substrate including rocks and other shells, and can form dense reefs by cementing their shells to each other.

**Distribution: Magallana gigas, Pacific oyster**
Native range Japan and Northeast Asia. In GB the Pacific oyster is farmed at several locations around GB coasts and estuaries. Escapees have established populations in estuaries in the south-west and south-east of England, and sparse settlements are known from the north coast of Wales near Conwy.

**Impacts: Magallana gigas, Pacific oyster**

**Environmental Impact**
In North America the Pacific oyster is known to settle in dense aggregations, excluding other intertidal species. In the Dutch Wadden Sea and more recently in the GB the oysters have started to form reefs consisting of dense layers which can alter the natural state of the ecosystem, posing a potential threat to native species and altering habitats, some of which are protected under European law. In the Wadden Sea it has been suggested that these reefs could cause major shifts in benthic filter feeding populations, which could have detrimental knock-on effects on bird populations.

**Health and Social Impact**
The sharp oyster shells pose a hazard to humans; the formation of reefs on mudflats may render the intertidal zone unsuitable for human leisure activities.

**Economic Impact**
The Pacific oyster is presently the most widely grown bivalve in aquaculture around the world. In 2006 1400 tonnes were produced in the GB. However, where oysters establish wild populations economic losses may occur through the loss of mussel and other bivalve fisheries.

**References & Links: Magallana gigas, Pacific oyster**

**Identification**

**Biology, ecology, spread, vectors**

**Management and impact**


**General**