The Ecology of Poole Harbour
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16. Marine Fisheries of Poole Harbour

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Poole Harbour is the location of a range of fishing and aquaculture activities which are worth approximately £2 million per year to the local economy. The majority of fisheries activity is controlled by the Southern Sea Fisheries District; most of the harbour lies within the boundaries of a Regulated Fishery Order. The Environment Agency is responsible for the eels fishery and any salmonid issues. The aquaculture beds produce oysters, mussels, cockles and clams from the designated Several Order, whilst mullet, cockles and clams comprise the majority of the fishery catches. The harbour is also important to recreational fishers, Flounder being the most important catch.

Introduction

Poole Harbour supports a diversity of fisheries which are managed with legislation implemented through the Environment Agency (eels and salmonids) and Southern Sea Fisheries District (SSFD) (all other marine fisheries). Fishing effort in the harbour varies with (amongst other things) fishing season, weather and the first sale price of catch. This chapter concentrates on the fisheries managed by SSFD.

The Southern Sea Fisheries District is one of 12 Sea Fisheries Districts which regulate fisheries along the coasts of England and Wales out to 6 nm. The formation of Local Sea Fisheries Committees was originally authorized by the Sea Fisheries Regulation Act of 1888 and the Southern District was instituted by a Board of Trade Order on 7 June 1893. Although the original Act was replaced by a new Sea Fisheries Regulation Act in 1966, the responsibility for managing and policing the coastal fisheries remained unchanged. In 1993, the Southern District was considerably enlarged when the limits were extended from 3 miles to 6 miles seaward of baselines and in 1995, under the Environment Act, Committees were given additional powers to safeguard the marine environment.

As the statutory authority responsible for managing and policing the coastal fisheries, the Committee is empowered to make by-laws controlling fishing including size limits, gear restrictions and seasonal limits. By-laws may also be made to protect the marine environment. The Committee's officers are also empowered to enforce a wide range of both national and EU fisheries legislation within the Southern District and these powers apply on land within the boundaries of those local authorities which contribute to the Committee's finances.

The Committee administers the Poole Fishery Order which is a hybrid Order combining a Regulated and Several Fishery (Figure 1), and has been in force since 1915. The Committee receives income from licence and lease fees which are recharged to cover the policing of these fisheries. The Several Fishery facilitates shellfish aquaculture within Poole Harbour with the SSFD leasing harbour seabed from the Crown Estate Commissioners and sub-leasing to shellfish farmers to grow oysters, clams, cockles and mussels. The Regulated Fishery covers most of the harbour and provides the regulatory framework within which commercial fisheries for oysters, mussels and clams are managed.

Fishing activity is monitored by District Fishery Officers in the harbour throughout the year. Random checks are carried out at sea and on landing locations, to ascertain whether or not the catches fished fall within the guidelines of the relevant legislation. The types of vessels inspected include both hobby and licensed fishermen. Prosecutions conducted against people removing clams from the fishery out of season have resulted in guilty verdicts.

There are approximately 98 under 10 m licensed fishing boats moored within Poole Harbour. Some of these boats fish out of the harbour as far as Mid English Channel shellfish grounds. Thirty-one of those boats hold a clam licence which allows them to fish for clams, mainly the Manila Clam *Tapes philippinarum*, within the Regulated Fishery.

Some of the methods used to fish have potentially negative impacts on important plant and animal life within the harbour. The harbour carries many conservation designations that include a Special Protection Area (SPA), a candidate Special Areas of Conservation (cSAC), a RAMSAR Site and also SSSI sites. Of particular value are eel-grass (*Zostra marina)* beds (which have been mapped), the presence of Seahorses (*Hippocampus ramulosus)*, reported as having been caught in mullet nets and returned unharmed and the general intertidal invertebrate communities that provide food for wintering birds.

Fishing and aquaculture within the harbour

Several Fishery – aquaculture

The leased aquaculture beds (Figure 2) have been worked for over 50 years. The area currently under lease is approximately 182 ha and oysters, cockles, mussels and clams (Manila and Palourdes) are the species farmed. The amount of shellfish laid down on these plots is recorded as well as the amounts of shellfish harvested.

Approximately 100 tonnes of seed Edible Cockle *Cerastoderma edule* have been laid on the Several grounds each year. In the region of 2 million individual Manila Clams *Tapes philippinarum* and 2 million individual Pacific Oysters *Crassostrea gigas* are also laid each year within the Several grounds. Approximately 800–1000 tonnes of seed mussel *Mytilus edulis* are grown within the Several Fisheries at any one time. The value of landings from these beds is in excess of £1 million per year.

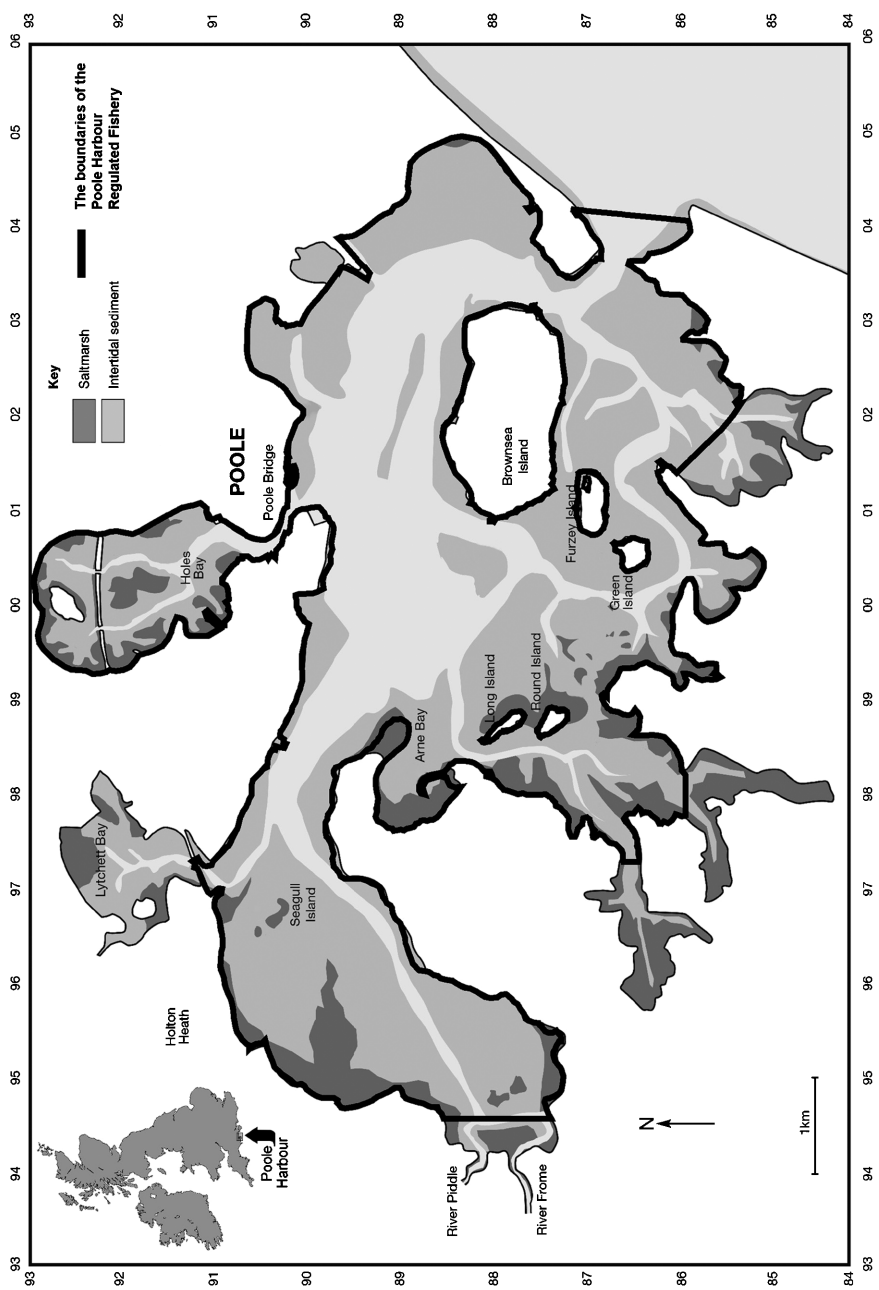

Figure 1 Area of the harbour within the Poole Fishery Order.

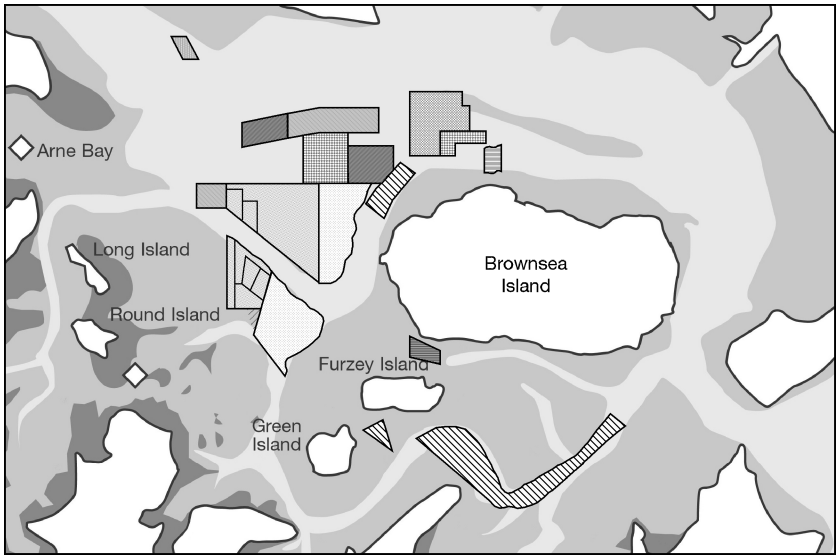

Figure 2 Area of the harbour reserved for aquaculture. Shading and hatching denotes different leaseholders.

Regulated Fishery for the Manila Clam *Tapes philippinarum*

The Manila Clam *Tapes philippinarum* is a Pacific species which was introduced to the harbour in 1989 by Othniel Shellfisheries. It was not expected to reproduce successfully but by 1992, it was obvious that the cultivated clams (sourced from a hatchery) had spawned and the spat has successfully settled and grown to a marketable size outside the aquaculture beds. This fishery is now operated within the Poole Order and 31 licences have been issued. From late October to early January, clams are removed from the fishery using a hand-held dredge or scoop which is towed along the seabed by a small under 10 m fishing vessel. The maximum size of the scoop is 460 mm wide x 300 mm high x 460 mm deep, with teeth on the front edge to a depth of 90 mm. By-laws are in place to govern the overall size of the dredge and its mesh. Gear regulations are designed to minimize disturbance and allow young spat and infauna to go through the mesh of the dredge. Fishers are obliged to sort their catch immediately it is landed on the boat and so all under minimum landing size clams and by-catch are returned to the water within minutes of arrival at the surface.

Modifications have been introduced over the years by way of water jets attached to the front entrance of the scoop to allow the mud to be moved through the basket with less physical effort (pump-scoop) (Figure 3). Ongoing investigations into the impacts of this type of fishing gear on the infaunal communities and the sediments in which they live are documented elsewhere (Jensen *et al.*, chapter 13; Cesar, 2003).

Figure 3 A pump-scoop used in the Poole clam fishery.

Approximately 300 tonnes of Manila Clams have been removed from the Regulated Fishery in the years 2001 and 2002. Areas of the harbour outside the Regulated Fishery which support clams have yielded approximately 50–100 tonnes over the same time. The clam fishery is a valuable resource to the fishers of Poole as first sale price can reach £5 per kg. Enforcement of fishing regulations is currently a major problem as the high prices that clams fetch are attracting poachers from both within and outside the fishing community. The value of landings is in excess of £1 million annually.

To support the fishery management effort in creating a sustainable, environmentally responsible fishery regular surveys are carried out to: (i) establish the density and size frequency distribution of the clams in three fishing areas; and (ii) provide data on the size and variety of the infaunal communities in both fished and unfished (or at worst lightly fished) areas of the harbour. In 2003, a Ph.D. study was completed (Grisley, 2003), which described the reproductive ecology of the naturalized Manila Clam

population. Data from this have already influenced fishery decision-making in the harbour.

Cockle *Cerastoderma edule* fishery

Cockles are harvested between 1 May and 31 January each year. The method used to remove the cockles from the fishery has changed recently so that now most commercial fishermen use a trailed pump-dredge. The type of dredge has altered little over time but the pumped water spray at the mouth of the dredge (to flush sediment out of the dredge) was introduced in 2002. This technique is thought to be unique to Poole Harbour and should not be confused with hydraulic or suction dredges used in fisheries elsewhere. Cockles are subject to various restrictions through by-laws including a minimum landing size of 23.8 mm, a closed season from 1 February to 30 April, and restrictions on the type of gear and method of fishing. However, cockles are not included in the licensing of fishing section of the Poole Fishery Order, therefore, the SSFD cannot issue licences for the cockle fishery.

As cockle fishing effort increased with the use of pump technology and the ensuing noise problem from the engine-driven pumps (now minimized following the issue of noise abatement notices), environmental concerns were raised by English Nature and RSPB about the impact of this fishing technique on the sediment granulometry and invertebrate communities of the cockle beds. Infauna and sediments were monitored over the summer of 2003 (Parker, 2003) and these results reported by Parker and Pinn (see chapter 17).

In contrast to the efficiency of the boat-based cockle fishery, there is an artisanal, hand-raking fishery that harvests cockles (and clams in some parts) on the sandier littoral areas of the harbour, especially Whitley Lake. Collecting cockles in this fashion for a ‘feed for the family’ has been a harbour tradition for generations. The cockle population has been sufficiently robust in some areas such as Whitley Lake to support both artisanal hand pickers and efficient pump-dredge fishers.

American Hardshell Clams (*Mercenaria mercenaria*)

This species of clam was fished in Southampton Water in the 1970s until the mid-1980s after being introduced from America in the 1920s–30s. The main market was abroad and Hardshell Clams were laid up on the seabed in Poole (and other places) while waiting for shipment. While they were laid on the seabed, the clams reproduced and their spat settled and survived. This species has been found in the harbour ever since. They are not found in great numbers but hold a great commercial value and are subject to a minimum landing size of 6.3 cm. They can also be found in the Solent Regulated Fishery where they have a closed season from 1 November to the last day in February in the following year both days inclusive.

European Oysters (*Ostrea edulis*)

Oysters are naturally occurring within the harbour. They were laid down as seed on some of the Several shellfish beds some years ago and oysters from the Solent fishery were relaid to grow on for a year before harvest, but stocks were reduced significantly by an outbreak of bonamia in the 1980s. Oysters have been farmed since then but never in such densities and bonamia is still present in the harbour.

Grey Mullet (*Chelon labrosus*)

The netting for Grey Mullet is unique to this area with the use of a traditional Poole canoe and a ring net laid in a decreasing circular pattern. The net is hand-hauled over the transom of the canoe and the fish taken out as the net is recovered. This type of netting takes place from March through to November with approximately five commercial fishermen and five hobby fishermen carrying out this practice. Grey Mullet is subject to a (by-law) minimum landing size of 30 cm.

Flounder (*Platichthys flesus*)

Trawling in the harbour has taken place for many generations with small trawls fitted on under 10 m boats to catch the Flounder. This species is the focus of much recreational angling effort within the harbour and is said to be one of the biggest Flounder fisheries in the UK. This fishery is a magnet for anglers from October to January during the Flounder season. Flounders are subject to a (by-law) minimum landing size of 27 cm.

Bass (*Dicentrarchus labrax*)

Bass is targeted in the same way as Grey Mullet except the Bass fishery has a closed season covering a majority of the harbour. This is a Bass Nursery Area (National Legislation: SI 1990 No. 1156) and is closed to the removal of any Bass by any vessel from 1 May to the 31 October of each year. The prohibition on Bass fishing in the nursery area does not apply to fishing from shore. Bass are subject to a minimum landing size of 36 cm and this applies to both commercial fishermen and anglers.

Lesser Sand-eel (*Ammodytes tobianus*)

Sand-eel netting takes place on a few of the sub-littoral sand banks to the south of the Middle Ship Channel. This type of fishing activity is carried out during the spring and summer months and is important to the fishery as it supports the commercial and recreational rod anglers by providing bait for the fishing of Bass outside the nursery area.

The Sand-eel is fished using a trawl net with a small mesh size. A by-catch is allowed dependent on the mesh size of the net.

Prawns

There is a prawn fishery but it does not have a great commercial importance, although some expansion of effort is thought to be possible given the stocks. The prawn fishery is closed from 1 January to 31 July of each year by a by-law that is specific to Poole Harbour.

Eels

Taken mainly in fyke nets and controlled by the Environment Agency, eel fishing in the harbour is of local importance. The current main regulatory issue is the importance of fitting Otter guards to the nets to prevent Otters from entering to eat the eels and then drowning as they cannot get out of the complex nets.

Charter fishing boats

The charter fleet is one of the biggest in the UK with 35 boats in total. The fleet works within the constraints of the harbour during bad weather. This type of activity attracts recreational anglers to the area from all over Britain.

Angling clubs and associations

There are approximately eight sea angling clubs in the Poole area alone. Members of these and other local clubs from neighbouring towns and villages use the shoreline to carry out sport fishing. The Flounder fishery is one of the largest attractions for anglers around Britain (see above).

Bait dragging

Poole Harbour supports a number of boats that harvest ragworm from areas of the harbour using a unique two pronged ‘dredge’, which is dragged over the seabed removing the worms from the upper layers of the seabed. The ragworm is sold as bait for recreational anglers. Agreements between the ‘bait draggers’ and other fishing interests in the harbour minimize ‘use of seabed’ conflicts. Bait dragging is unique to Poole Harbour and lies outside the fishing regulations that are in force.

Summary

Poole Harbour is an important aquaculture and fishery resource. It provides sheltered moorings for the fishing fleet and a productive environment for fishers in poor weather conditions, giving access to (depending on season) finfish and bivalve fisheries. The seabed of the harbour supports a significant bivalve aquaculture industry for oysters, mussels, Manila Clams, Palourdes and cockles.

This chapter is intended to be informative but should not be used as a definitive statement of current regulations.

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