

General advice

- Draw up a business plan and consult independent financial advisors.

- Identify your market(s) from the outset.

- How likely are you to receive planning permission from the competent agency? Consult local aquaculture development plans, where they exist, and speak to the staff involved in granting licenses.

- Is the local infrastructure (roads, piers etc) adequate to support your proposal, or will you have to construct them?

- Can a Crown Estate lease be secured? Consult them.

- A Several Fishery Order will be required to safeguard stocks on seabed plots.

- What conservation value/interest does the site have? What about the surrounding area? Consult the nature conservation agencies, statutory (English Nature, Countryside Council for Wales, Scottish Natural Heritage, Environment and Heritage (Northern Ireland) and voluntary, for the area.

- Is there likely to be any hazard to navigation or transport? Consult the Maritime & Coastguard Agency and the Department of Transport.

- Are local inhabitants or other user groups of the marine environment likely to object? Can objections be overcome through dialogue or design modifications? Consult them early on.

- Does the proposition require grant aid or other assistance and how likely is it to be awarded? Consult the agencies administering grant and other business assistance in the area from the start.

- Generally, avoid areas close to boatyards, marinas, industrial developments or large urban areas.

This minimises the risks from pollutants or other anthropogenic inputs. Potential inputs from land-based farming activity, both arable and livestock, in the locality or within the water catchment should be investigated.

- Evaluate the potential risk (disease, nutrient input, therapeutic use, predator displacement, controls on stock movement/sales following from disease events on other sites etc) from other marine aquaculture activity in the vicinity.

- How secure is the site? What is the risk from interference or other unwanted human activity? Can the site be secured if required?

- Try and establish whether the area has a shellfish cultivation or harvesting waters classification from the local Environmental Health office or equivalent.

- Try and establish whether the site has a history of algal biotoxin (PSP, DSP, ASP etc) accumulation or harmful algal blooms ('red tides'), although past track record is a poor predictor of future performance.

- What potential predators, competitors or fouling organisms are likely to be encountered?

- There are strict regulations controlling the movement of molluscan shellfish around the UK. This is to prevent the spread of oyster diseases that principally affect the native oyster stocks. In general, hatchery seed is certified disease-free, but part-grown stock requires investigation before shipment. Check with the Centre for Environment, Fisheries and Aquaculture Sciences (CEFAS), Scottish Executive Environment and Rural Affairs Department (SEERAD) or Department for Agriculture and Rural Development (DARD) in Northern Ireland for the latest position.

- Once the business is operational, the site must be registered. Consult CEFAS, SEERAD or DARD as appropriate.

Further advice

- For further advice on any aspect of native oyster cultivation please contact the aquaculture advisor for your area.

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Alternatively, please visit our website at www.seafish.org/sea for more information. The website also contains details of the CD-ROM based resources produced by Seafish. There is a specific Hyperbook, which combines in-depth information regarding the culture of this species together with an economic modelling tool for business planning purposes. In addition, there is a more general Guide to commercial bivalve molluscs with information on aspects of cultivation, harvesting, the fishery, depuration and distribution for all species.



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This leaflet is intended to offer a summary of the methods used to cultivate native or flat oysters in the UK. More detailed information about specific aspects of the business may be found in Seafish publications, technical publications from other agencies and books. Prospective cultivators are advised to consult these in addition to this sheet. Preliminary business planning assistance can be found in the associated Seafish economic model and 'Hyperbook' publications.



Native oyster



Site selection

- Seawater temperatures above 8 – 9°C for much of the year are preferable for fastest growth.
- Salinity generally above 30 ‰.
- Areas sheltered from extreme wave action or strong tidal flows.
- Tidal flow of 1 – 2 knots (50 - 100 cm sec⁻¹) optimal, although less is acceptable.



- The longer the period of immersion the better the growth rate, although some exposure is required to promote shell hardness before harvest. Generally, the stock may just be submerged at extreme low water spring tides.

- Avoid areas where the waters carry a very high silt burden, it can cause smothering.

- Avoid areas where poor water exchange may result in oxygen depletion, particularly during warm weather. This can weaken or kill the stock.

- If exposed to the air during periods of cold winds and/or air temperatures close to or below freezing the oysters can die.

Cultivation techniques

- Native oysters are usually grown on the seabed or occasionally on 'mats' laid on very soft substrates. The seabed plots are often known as 'parcs'. Alternatively, they may be grown successfully, particularly when small, in plastic mesh bags secured to metal trestles at the extreme edge of the inter-tidal zone. Wire-mesh 'trays' are also available. This method mirrors that used for Pacific oyster culture.

- Seed or 'spat' oysters may be purchased from a few dedicated hatcheries. They are available in a variety of size grades, usually from 4 – 30 mm shell length. The size grade quoted by suppliers generally refers to the size of mesh used to sort the oyster seed (3 – 14 mm mesh). The prices are higher than those charged for Pacific oyster spat.

- Part-grown or 'half-ware' oysters may also be fished from the wild under licence. This stock is then relayed on to submerged on-growing beds and reared to harvest size.

Dredging for native oysters



Native oyster spat

- As the oysters grow, the size of the mesh in the bags is increased progressively. Oyster seed between 4 – 8 mm shell-length is generally placed in 2 mm mesh bags. At 8 – 15 mm shell-length 4 mm mesh is used. From 15 – 25 mm shell-length the bag is usually of 7 – 8 mm mesh and above 25 mm shell-length 14 mm mesh is used. At this size they may be transferred to the seabed. However, if they are retained in bags through to final harvest, the mesh will generally be 18 – 25 mm or larger. As a general rule try and use the largest mesh that will still retain all the stock. This promotes good water flow and optimises growth.

- The density of the stock within the bags is also reduced progressively as the animals grow. The dimensions of the bags varies between suppliers, but as a general guide stocking densities are approximately: up to 15 mm, 1000 m⁻²; > 25 mm, 500 m⁻²; > 50 mm, 250 m⁻². Optimal stocking densities for best growth vary from site to site and must be determined by trials.

- Whilst they are in bags, turn them and gently redistribute the oysters every 2 - 4 weeks (spring tides) during the

summer growing season. Less intensive cultivation, ie using lower stocking densities, reduces the need to turn the bags as space for normal growth is not limited. During the winter, it may be un-necessary to disturb the stock, but they should be monitored in any event.

- Monitor the stock, thin, remove dead shells and transfer to larger mesh bags as required.

- Remove any predators and fouling from the bags.

- The optimal size for transfer to seabed plots will vary depending upon the predator profile of the area. In general they will be larger than 25 – 30 mm shell length.

- Seabed plots must be monitored and managed to remove predators such as starfish.

- Before harvest, stock that has been grown continually submerged may be moved in to the low inter-tidal zone to 'harden off'.

Native oyster in a bag cultivation



Harvest

- Native oysters are traditionally only harvested when there is an 'r' in the month ie from September to April. This avoids the periods when they are spawning and meat quality is at its lowest.

- Harvest the stock when they attain suitable size for your market. This can be from 75 g upwards. It can take 3 – 4 years to first harvest, depending on the location.

- If the stock is in bags, they are removed from the trestles and transported to the harvesting shed. The stock is removed from the bags, washed (to remove mud, fouling etc) and the animals are separated as necessary before grading.

- Seabed cultivated stocks are traditionally harvested by a variety of bottom dredges. Some growers may hand-gather the stock by diving or by net to enhance quality. Once at the harvest plant they are treated in the same way as bag-grown stock.

- The stock is sorted in to different grades - this is usually by weight. It can be done automatically or by hand.



Grading oysters by weight

- Depuration can take place before or after grading. This can be done in-house or contracted out and may be required by the buyer even if the stock is from category A waters. See the Seafish depuration leaflets for further advice.

- Pack the stock in to suitable containers for transport to market. This can vary from polystyrene fish boxes (for bulk) to decorative wooden punnets (point-of-sale display).

- Transport to market in chilled containers or cover the stock with a very light ice covering, as appropriate.

Marketing

- Native oysters command a premium on the market.

- Oysters are usually sold live in-shell. A variety of processed and value-added products are being developed, either by growers or by their customers.

- UK markets are relatively small, but demand from export markets remains strong.

Equipment

- At increased production levels mechanisation will be needed. Equipment that may be needed includes tractors and trailers, small boats or quad bikes.

- Additional equipment may include storage and dispatch facilities, a depuration facility, weighing and grading machine, packing system, stock handling system.

- An oyster farmer will also need an assortment of smaller pieces of equipment and safety clothing in addition to the more specialised items. Examples of the equipment required include First Aid kit, lifejackets/buoyancy aids, especially when working from small boats, signal flares for boat work, pressure washer, gloves, knives, communication equipment (mobile phone or VHF radio).