

The Wild Oysters Project: Biosecurity Measures Plan

Introduction

Background

The European flat oyster (*Ostrea edulis*) or native oyster once formed extensive beds in European seas. Oysters are 'ecosystem engineers' and reefs contribute substantially to biodiversity and provide protection and nursery grounds for juvenile fish and other species. Native oysters are filter feeders, cleaning waterways by removing impurities such as nitrogen. In the mid-20th century populations across Europe suffered a collapse from pressures of overfishing, pollution, disease and invasive species. The loss of this habitat has not only affected the health of marine ecosystems but also coastal communities. Oysters have been a staple food since pre-Roman times and were once the subsistence food of London. Over 700 million oysters were consumed in London alone in 1864, but 100 years later total landings for England fell to just 3 million oysters. Wild native oyster stocks have declined by over 95% in the UK and native oyster beds are now one of the most threatened marine habitats in Europe.

Project description

The Wild Oysters Project will create three rehabilitation hubs across the UK in England, Wales and Scotland to recover native oyster populations and the services they provide. At each site, the project will engage, enthuse and mobilise coastal community groups, schools and businesses to take part in the restoration and be guided by a Working Group comprised of local stakeholders. Each local restoration hub will provide a model for community restoration and use best practice from established projects including Blue Marine's Solent Oyster Restoration Project and the Essex Native Oyster Restoration Initiative.

Key activities at each of the sites will include:

1. Oyster nurseries: In order to increase the number of breeding oysters within the site, oysters will be placed at high densities in cages that are hung from existing marina pontoons, below the surface of the water. Forty-eight nurseries will be installed within two marinas at each site with the view to rolling out to further marinas. Marina pontoons allow easy access to oysters and will form the basis of Wild Oysters community outreach programme.
2. Seabed restoration: Oysters need a substrate of old shells or stones to anchor themselves and successfully grow. Due to hundreds of years of exploitation, the vast majority of existing oyster reef habitat has been destroyed. To help re-establish wild oyster beds, areas of seabed will be restored within each site. These restoration sites will be monitored annually.

The need for a Biosecurity Measures Plan

The Wild Oysters Project intends to restore oysters in each of the seabed locations through two activities:

1. Translocation of native oysters to create broodstock reserves;
2. Targeted introduction of 'cultch' (shells and gravels) to promote oyster settlement.

Restoration of native oysters through these methods carries inherent risks that must be considered seriously when planning and undertaking activities. The main risks posed by these activities are through the translocation of infectious shellfish diseases and the introduction of Invasive Non-Indigenous Species (INIS).

The Wild Oysters Project recognises these two risks as major threats to biodiversity worldwide as well as locally at restoration sites. However, with appropriate biosecurity measures in place it is possible to restore native oysters safely and effectively.

This Biosecurity Measures Plan (BMP) has been developed in order to ensure all aspects of the project adhere to highest possible biosecurity standards. The BMP will also ensure that all aspects of the project adhere to national international regulation listed here:

Aquatic animal health:

- The Aquatic Animal Health (England and Wales) Regulations 2009 which implement Council Directive 2006/88/EC (as amended) on animal health requirements for Aquatic animals and products thereof and the prevention and control of certain diseases in aquatic animals in Scotland.

Invasive non-native species:

- EU Directive 92/43/EC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive 1992)
- Wildlife and Countryside Act 1981 (England and Wales)
- Natural Environment and Rural Communities Act 2006 (England and Wales)

Guiding principals

The Wild Oysters Project Biosecurity Measures Plan is underpinned with a number of guiding principles to ensure all risks are minimised, these principles are; the Health status of Donor sites, and Biosecurity of Cultch.

Health status of Donor sites

The movement of live native oysters poses potential risks, as outlined in the section above. In order to reduce these risks, there are several criteria that the donor site (where oysters are being translocated from) must fulfil and a number of checks that need to be made prior to translocation.

Donor sites:

Donor sites must fulfil the following criteria:

- All donor sites must be of equal or higher health status (with regards to notifiable shellfish diseases) than receiving sites.
- Donor sites must not have high-risk invasive species present that are not present at the receiving site.
- Where possible, donor populations will come from within the same body of water as the restoration site.
- All donor sites to be agreed with the Fish Health Inspectorate prior to deployment.

The decision tree for deployment of oysters is provided in Annex 1.

Biosecurity of Cultch

The placement of large amounts of cultch poses significant biosecurity risk, however it is possible for these to be removed through best practice. Cultch will need to be certified as bio-secure prior to deployment.

Marine sources of cultch:

Cultch that has been sourced from the marine environment will need to be weathered to ensure that it is clean from any biological material that may pose a biosecurity risk.

Cultch will be weathered for a minimum of six months. During this time cultch will be turned to ensure that all cultch is exposed to UV and allow biological material to degrade. Cultch may, if possible, be cleaned to remove epibionts and any remaining flesh.

Before deployment, sub-samples of cultch will be taken and analysed to ensure all cultch is free from live biological material.

Clean and fluvial sources of cultch

Some sources of cultch can be safely used without the need for weathering as they do not pose a biosecurity risk. These include fluvial sources of cultch such as gravels and shells that have previously been treated heat treated, such as cockle shell aggregates.

The decision tree for deployment of cultch is provided in Annex 2.

Biosecurity risk assessment

Risk assessment

The following table assesses the full risks posed by the project and the proposed mitigation to reduce the risks:

	Identified Risk	Probability (high/med./low)	Impact	Risk Limitation Measure
1	Infectious agent transferred by movement of live shellfish onto site	High	High	Before introducing any shellfish discuss the condition and provenance of the stocks with the supplier. If there are any doubts do not introduce the shellfish.
	As above			Review of the disease status and provenance of donor stock to ensure they are free from notifiable disease.
	As above			Visit the site of any proposed source of shellfish where possible to inspect the stock visually for any signs of disease/biosecurity measures carried out on donor site.
	As above			Do not accept batches of shellfish onto the site if they are showing signs of any infection or unaccounted mortality.
	As above			Batches of shellfish from different sites are to be kept separate from each other where possible.
	As above			Examine the stock on a regular basis. Stock health to be noted and records kept for inspection by relevant FHI. Remove mortalities (from nurseries) when they occur and dispose of in a way that does not increase the risk of spread of infection to other stock – disposed of on site where mortalities occur. Mortalities in each batch recorded and records kept.
	As above			Be aware of diseases that have serious implications for the operation and reputation of the business. For listed disease in <i>O.edulis</i> , they are susceptible to <i>Bonamia ostreae</i> and <i>Marteilia refringens</i> .

	As above			Record all shellfish movements to allow proper traceability onto and off site – these will be recorded in the prescribed format in the relevant FHI movement book.
	As above			If suspicion of ill health/disease withhold shellfish from sale/purchase until condition is diagnosed/cured
	Import of shellfish from abroad	High	High	1. Be aware of the provenance of the stock when buying from any supplier. 2. Assess the potential quality of the shellfish by checking the supplier is operating to good biosecurity measures. 3. Do not hesitate to ask for details of fish health surveillance programmes and disease records for the supplying site. 4. All imported stock should be correctly health certified where appropriate. 5. Always contact competent authority at least 5 working days in advance of imports from any new supplier – this enables the relevant Fish Health Inspectorate to help identify any possible problems with the intended shipment.
2	Invasive Non-Native Species (INNS) transferred onto site by movement of shellfish	High	High	Be aware of INNS present at source sites for oysters and whether they differ from those present at site of translocation
	As above			Check all oysters for the presence of INNS on surface of shell. Ensure all oysters are cleaned and have all biota removed from the surface at source site.

	As above			Make sure all equipment being used at both sites is cleaned at source site and dried to ensure any INNS are destroyed.
3	Infectious Agent transferred to or from the site via water or equipment	Medium	High	Equipment used to transfer shellfish to be specific for each holding unit or be disinfected after use.
	As above			Equipment and containers used to hold or transfer shellfish between sites to be disinfected prior to and after use.
4	Change in environmental conditions	High	High	Monitor conditions and do not transfer or grade shellfish at periods likely to be stressful.
	As above			Record details of observations in work diary and use these to inform future decisions.
5	Awareness of current disease designations	N/A	N/A	Keep up to date with current disease designations and conditions set out within them.

Monitoring the Plan

Stock health inspection	
Mortality levels in each batch or zone	Mortalities removed and recorded in work diary.
Results of health inspections	Keep all documents from competent authority in region we are working in, private consultants reports etc.
Shellfish movements on and off site	Record in movement books.
Shellfish movements within the site	Record details of grading or where batches are combined.
Disposal of waste	Responsible waste and (where appropriate) effluent water disposal.

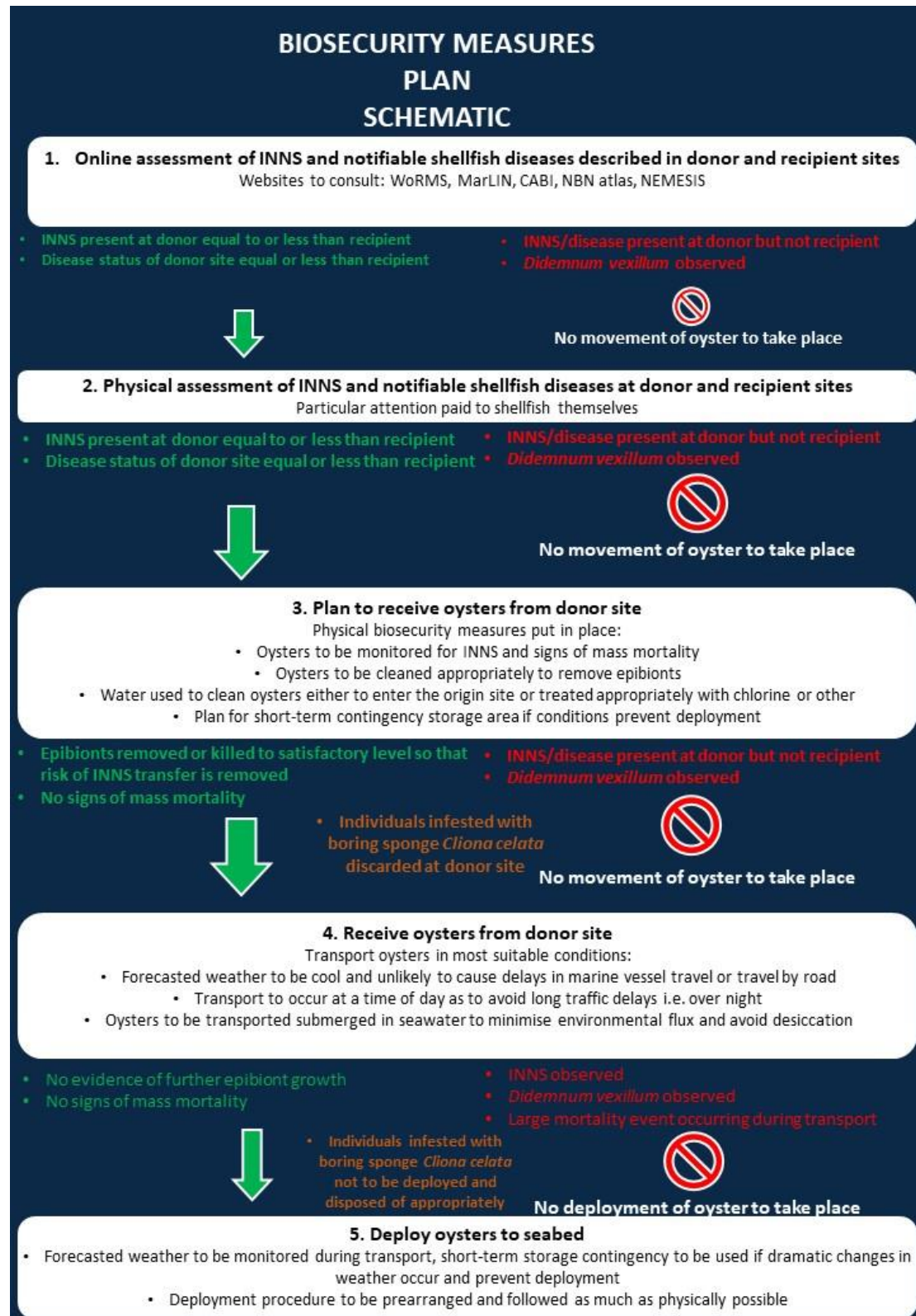
Actions to Take in the Event of Clinical Disease

Record	Action to Take
Inform Cefas	Inform competent authority in region you are working in.
Continuing unexplained mortality	Inform competent authority in region you are working in to arrange for disease screening.
Need to dispose of dead shellfish	Identify a suitable and legal way to dispose of waste from the site, try to avoid long-term storage of this material.

Annex

Annex 1.

Decision Trees for movement of oysters



Annex 2.

Decision tree for deployment of cultch

