Project Title

Restoration of native oysters in Ireland

Project Description

Brown crab settlement: many species settle into shell substrate including brown crab, lobster, spider crabs, other bivalves. Biodiversity benefits from provision of structured habitat.

The native European flat oyster is depleted throughout its former European range. Ireland still has a number of extant populations some of which are commercially fished but production and productivity is much reduced compared to historic levels.

Oysters, in addition to being commercially valuable and a significant potential source of income for coastal fishing communities, provide valuable ecosystem services such as carbon sequestration, maintenance of water quality and provision of structural habitat that may support high biodiversity. Oyster populations are exposed to a number of site-specific pressures, which may limit the scope for restoration unless the pressures are mitigated or intervention measures are developed. Disease, declining quality of freshwater inputs to estuaries supporting oysters, fishing pressure, competition with introduced species of oysters and low productivity due to low spawning stocks and in some cases unfavourable environmental conditions for larval settlement operate to varying degrees to limit productivity.

The restoration project aims to identify the site-specific issues that constrain the productivity of oysters and to introduce adaptive intervention measures to offset these constraints where possible.

The project will obtain baseline information on distribution, abundance, size structure and biomass of oysters in a number of sites. This will involve working with oyster co-operatives, fishermen and other interested stakeholders to map the current distributions. Significant issues constraining restoration are already known in 2 areas where the project will focus.

In Galway Bay increased freshwater inflows can change the salinity regime and increase siltation resulting in a shift in the distribution of suitable habitat for oysters. Ocean modelling in combination with experimental data on response of native oysters to a range of salinities will identify the distribution of suitable salinities for oysters in inner Galway Bay. Similarly, survey observations and modelling will identify areas receiving silt from freshwater and which are likely to be unsuitable for oysters. Habitat availability may be a key constraint for larval settlement. Field experiments and trials will be used to identify how provision of clean settlement substrates may enhance spat settlement and determine the best method for provision of this substrate. Re-distribution of spawning stock may be necessary to increase retention of larvae in the system or to increase fertilisation rates. This can be done by integrating oyster farmers into the project to hold small quantities of native oysters at high density distributed throughout the Bay.

In Lough Swilly there is competition between native oyster and introduced Pacific oyster which has naturalised in the Lough. Mitigation programmes to remove Pacific oyster from areas of the Lough and to relocate native oyster to protected areas during this removal programme will be developed.

Cultch stacks: settlement trials 3 different types of shell (settlement substrate) configured in stacks of trays were set up at a number of locations. Settlement of native oyster is quantified per kg of shell substrate

Partners

Cuan Beo, Oyster Co-operatives..

Duration

The project has a 3 year duration and runs between 2018 and 2020.

Project Outputs

- Survey data and maps on distribution and abundance of native oysters
- Reports on laboratory and field experiments on response of native oyster to salinity and settlement substrates
- Report on the prevalence of Bonamia in Galway Bay oysters
- Particle (larvae) tracking model output in Galway Bay
- Engagement of stakeholders in survey data collection
- Protocols for native oyster restoration
- Establishment of MPAs for native oyster to enhance productivity and spill over effects

Expected Benefit

- Improved or scope for improved ecosystem service provision from oysters
- Increased productivity of oyster populations and known on benefits to local oyster fishermen and oyster farmers.

Further details available on www.emff.marine.ie

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