Electronic Supporting Information

This supports the following:

**Site selection for European native oyster (*Ostrea edulis*) habitat restoration projects: An expert-derived consensus**

**Table S1.** The 96 factors presented to expert participants in the round one Delphi summary.

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| **Category** | **Factor** |
| *Threats to native oyster habitat restoration* | * Absence of extractive practices (e.g. gravel or sand extraction) * Absence of dredging * Protection from destructive fishing methods (through active protection or inaccessibility) * Absence of unregulated harvesting or poaching (through active protection or inaccessibility) * Low pollution levels (TBTs, PAHs, other hydrocarbons and heavy metals. Use of existing legislation can guide the site selection process, e.g. shellfish waters and bathing waters directives) * Minimal sewage outflow within close proximity to the site * Inorganic nutrient concentrations are below harmful threshold (nitrates and phosphates) * Minimum dissolved oxygen concentration * Sedimentation load and dynamics * Absence of OIE/EC listed diseases (*Bonamia ostreae, B. exitiosa, Marteilia refringens, Mikrocytos mackini*, Herpes virus OsHV-1-μVar) * Absence of high impact invasive non-native species * Absence of the American slipper limpet (*Crepidula fornicata*) * Absence of the Pacific oyster (*Crassostrea gigas*) * Absence of the Carpet Sea Squirt (*Didemnum vexillum*) |
| *Project logistics* | * Availability of source oysters (hatchery access and broodstock genetics) * Licencing and regulation * Agreements with government/landowners/marina/windfarm that the area can be used for restoration * Absence of munition deposits * Low intensity of recreational activities (e.g. water sports, boating) * Absence of sub-marine cables * Site accessibility (distance from shore, depth, wave height) * Latitude (impact on day length and winter accessibility) * Low intensity of shipping * Low intensity of anchoring or mooring * Area of site (can it accommodate scaling up and population expansion?) |
| *Abiotic factors* | * Current velocity (low to moderate) * Existence, strength and flushing of tides (low to moderate) * Wave exposure (low to moderate) * Direction of currents * High water residence time (or low water renewal) * Water depth * Low/weak seasonal depth stratification of the water column (thermal) * Water temperature minimum in winter * Water temperature maximum in summer * Summer water temperature conditions provide potential for reproduction (degree days for maturation) * Sunlight (high light levels causing high algal food concentrations can influence the level of settlement) * Prevailing winds (direction of surface currents) * Storm events (low frequency) * Volume of freshwater inputs from rivers and streams * Concentration of inorganic nutrients (nitrates and phosphates) * Salinity minimum * Salinity range * Low/weak seasonal depth stratification of the water column (salinity) * Water acidity (pH range, maximum and minimum) * Substrate suitability for settlement (type, stability, quality and quantity) * Low seabed mobility (e.g. absence of mobile sand waves) * Turbidity (low) * Shear stress (low) |
| *Biotic factors* | * Evidence of historical distribution *Ostrea edulis* at site (may be through oyster fishery records, middens, shells, fossils, anecdotal accounts, or other historical ecology studies) * Site lies within historical range of *O. edulis* (this differs from the factor above in that no physical evidence need be identified as long as the site is within the historical range) * Existing population of *O. edulis* * Population density of existing *O. edulis* * Proximity to nearest *O. edulis* population * Connectivity with naturally occurring larval broodstock * Low levels of harmful algae (may be toxic, smothering or cause blooms) * Absence of biotoxins * Low predator abundance (or high habitat heterogeneity to provide protection) * Balanced food web with predators of predators * Low abundance of species that compete for food * Low abundance of species that compete for settlement area * Low abundance of biofouling organisms (this differs from the factor above in that it includes species which biofoul cages, but not necessarily compete directly with oysters for settlement area on the seafloor) * Potential for biodiversity enhancement of the site * Existing non-oyster habitats not negatively impacted by restoration activities * Proximity of seagrass, saltmarsh and kelp forests (for mutual benefits and integrated management potential) * Local ecological knowledge (e.g. understanding why previous oyster populations went extinct) * Prevalence of high impact Invasive Non-Native Species (INNS) * Prevalence of non-native species * Prevalence of OIE/EC listed diseases (*B. ostreae, B. exitiosa, M. refringens, M. mackini,* Herpes virus OsHV-1-μVar) * Prevalence of pathogens (beyond the OIE/EC list) * Prevalence, density and distribution of the American slipper limpet (*C. fornicata*) * Prevalence, density and distribution of the Pacific oyster (*C. gigas*) * Prevalence, density and distribution of the Carpet Sea Squirt (*D. vexillum*) * Phytoplankton abundance/chlorophyll a * Origin of phytoplankton * Phytoplankton composition * Microzooplankton and mesozooplankton abundance and composition * Bacterioplankton abundance and composition |
| *Socioeconomic factors* | * Cooperation and potential co-location with local oyster fisheries or aquaculture * Willingness of local fishers and aquaculturists to volunteer at the site * Cooperation with (non-oyster) fisheries * Absence of key benthic fisheries target species at the site * Area not essential for livelihoods (e.g. through fishing) * Protected area status (no-take zones and gear restrictions) * Legal designation/status of site requires environmental goals and targets to be met through restoration activity * Site safety concerns (permanently or temporarily creating infrastructure at sea or altering the shoreline may impact safety for users of the area) * Potential for ecosystem service enhancement * Potential for ecosystem service enhancement of relevance to stakeholders * Potential for scientific research * Potential for citizen science research * Boosting local economy and providing job opportunities * Coastal community development and well-being * Education value * Returning heritage value to the area * Potential to develop local partnerships (may be essential in project delivery) * Stakeholder interest and support * Engagement with policy makers and environmental regulators |