Introduction: Reintroduction!

The European flat oyster (*Ostrea edulis* Linnaeus, 1758) is considered a keystone species with special ecological functions in its typical species community and habitat. Due to the fishing pressure as well as to continuing bottom trawling, responsible for the loss of settlement substrate, the functional extinction of European oyster stocks was recorded in the 20th century for the German Bight. A feasibility study (Gercken & Schmidt 2014) revealed chances for the restoration of oyster beds by reintroduction, which would re-establish not only the species but also its characteristic biocenosis and essential ecosystem services.

Recruitment Significance

The sustainable success of restoration and the development of *O. edulis* beds is based on population increase and recruitment rates. In this specific case of a species reintroduction, intensity and variability of recruitment must be observed, analyzed and will be optimized initially. Proposed optimizations for high spat recruitment:

- Viable supply of donor population
- Selection of suitable areas & connectivity
- Assessment of alternative substrates

Donor Population

Objective: Preservation of a high genetic diversity to the population. High suitability and qualification of seed oysters for long-term restoration. Ideal adaptation to future environmental conditions.

Suitable Areas & Connectivity

Objectives: Evaluation of different larval dispersal scenarios by using a German North Sea hydrodynamic model. Relation to factors that condition larval survival, settlement success and genetic variability.