

Title: Seasonal and annual variations in the distribution of zooplankton in the Irish Sea

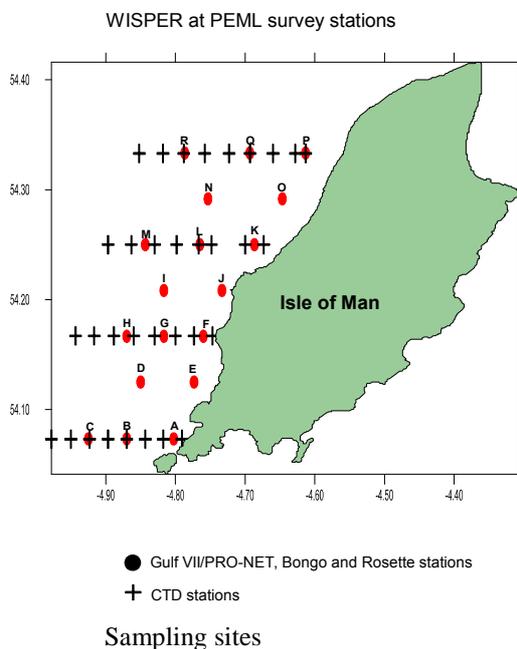
Study Programme: Fishery Biology

Type of study: Data desk study

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RV Roagan (sampling vessel)



Gulf VII high-speed sampler



Oithona

Temora

Project description:

An understanding of the distribution of zooplankton and the temporal and spatial factors that control their distribution are important for understanding the ecology of marine ecosystems and fish larvae dynamics in particular. The zooplankton distribution and abundance are often

associated with variations in physical and biological environmental factors such as temperature, salinity, water stratification, chlorophyll a concentrations etc.

A series of plankton tows were made with a Gulf VII high speed plankton sampler between 1996 and 2003 covering 18 stations to the west of the Isle of Man in the central Irish Sea. At each station there are accompanying CTD (depth profiles of temperature, salinity and chlorophyll a fluorescence) data. All the zooplankton samples have been identified to species.

The area sampled to the west of the Isle of Man encompasses waters influenced by coastal processes and relatively offshore areas. Part of the area is seasonal stratified, primarily due to the presence of tidal fronts, stratification caused by the thermal regime rather than driven by salinity. The Irish Sea is also subject to occasional incursions of Atlantic water either from the north (North channel) or the south (St Georges channel) resulting in a shift in the dominance of one of two *Calanus* species (*C. finmarchicus* or *C. helgolandicus*).

The project will utilise the available data to investigate the factors that influence the abundance and spatial distribution of zooplankton under a variety of environmental conditions.

Background knowledge: plankton ecology, statistical analyses

Skills to be acquired during Masters work: Statistical analyses of ecological data (biology and physical characteristics).

Further information: Data will be provided for the analyses.

References

- Nicholas, K. 1995 *Secondary production of coastal plankton communities in the western Irish Sea*.
- Nash, R.D.M. & Geffen, A.J. 2004. Seasonal and interannual variation in abundance of *Calanus finmarchicus* (Gunnerus) and *Calanus helgolandicus* (Claus) in inshore waters (west coast of the Isle of Man) in the central Irish Sea. *Journal of Plankton Research* **26**: 265-273.
- Lee, O., Nash, R.D.M. & Danilowicz, B. 2005. Small-scale spatiotemporal variability in ichthyoplankton and zooplankton distribution in relation to a tidal-mixing front in the northwestern Irish Sea. *ICES Journal of Marine Science* **62**: 1021-1036.