



Z2: The ecological role of gelatinous zooplankton predators. Vertical distribution, feeding and trophic interactions

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Aims:

1. Define the vertical distribution of gelatinous zooplankton in relation to hydrography, light and biotic properties of the environment.
2. Describe the swimming mode and feeding behaviour of gelatinous zooplankton; quantify swimming speed and vertical migration of dominant species.
3. Determine prey selection and predation rate in relation to available prey.
4. Quantifying the weight-specific (carbon-based) respiration rate of dominant species.



Hypotheses:

1. *Gelatinous zooplankton are major predators in pelagic food webs near the Mid-Atlantic-Ridge.*
2. *The predation efficiency of a given species is defined by its external morphology and swimming behaviour.*
3. *Each species of gelatinous predator occupies a unique trophic niche*
4. *Mesopelagic species have lower metabolic rates than epipelagic species at similar temperature.*

Strategy: In situ investigations, using an ROV with adequate instruments and samplers.

Technology:

- **Remotely Operated Vehicle** (ROV "Aglantha")
- **Video and Still Cameras** (Blue/White high sensitive video camera, low/red light video camera, and high-resolution digital still camera)
- **Sampling devices** (Suction sampler and detritus samplers mounted on the ROV)
- **UVP** (Underwater Video Profiler)
- **Fibre-optic oxygen probes** (Developed by PreSens Precision Sensing GmbH, Germany, and Anderaa, in Norway).

Deliverables:

- New information on **vertical distribution, swimming mode and feeding behaviour** of gelatinous zooplankton
- Unique *in situ* data on **predation rate, prey selection and respiration rate** of dominant species
- **New discoveries and descriptions** of gelatinous species
- **Papers** published in high-ranking science journals; **Popular presentations** raising the public awareness of the variety, beauty and roles of gelatinous zooplankton (website, press, magazines, books, exhibitions, school network)

Schedule: Develop and test equipment for submersible applications during cruises on R/V Håkon Mosby and R/V Seward Johnson in 2003; MAR-ECO field investigation in 2004; Data preparation and write-up results 2004 - 2008.

Commitments: ROV "Aglantha", labour and other costs

Additional needs: Suction sampler, detritus samplers, high sensitive video camera/still photo, UVP.

Proposals accepted: Norwegian Research Council, EU FP5 (prof. Båmstedt).

Partners: Jenny Purcell (USA), Fransesc Pages (Spain).