Biology and distribution patterns of some deep-sea teleost fishes

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Outlines for PhD studentship

The study focuses on life history patterns and spatial distributions, and their interaction, for a range of deep-sea demersal teleost fish species. It is basically exploratory and descriptive, filling important gaps in our knowledge.

The study will lead to a PhD degree and are planned finalised during 2007.

Overall aim

- To enhance the knowledge of life history traits and strategies.
- To describe and compare spatial distribution patterns.
- To analyse and discuss relationships between life history strategies and spatial distributions, also in relation to the abiotic and biotic environment.

The area in focus of the study is the mid-Atlantic Ridge and adjacent waters of the North Atlantic.

The study has four main components (Parts 1-4 below), and more specific aims have been formulated for each component.

Fig. Above: the longliner MS Loran, left: *A. rostrata*, right: *Spectrunculus grandis (sp.)*

Fig. Block of *A. rostrata* otoliths ready to be covered with epoxy before being sawed

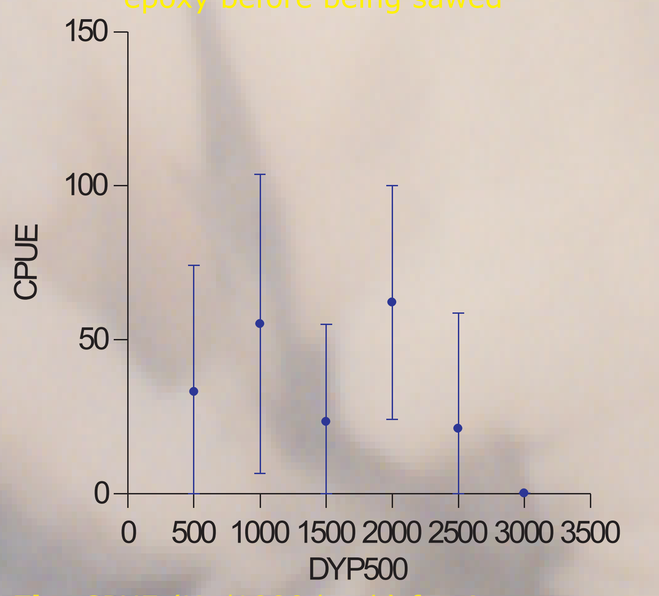

Fig. CPUE (Kg/1000 hook) for *A. rostrata* within different dept strata

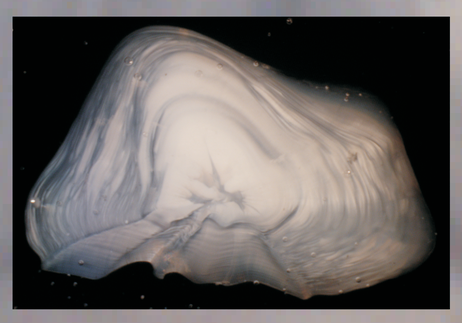

Fig. Image of a prepared slice of *A. rostrata* (above) and *M. berglax* (below) otolith

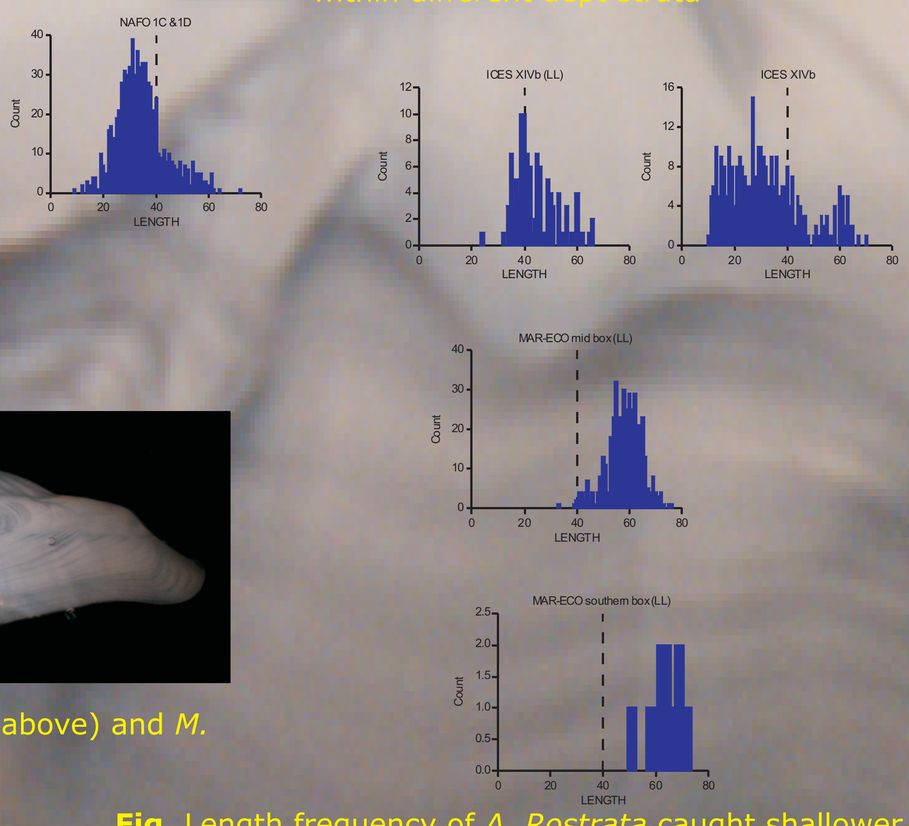

Fig. Length frequency of *A. Rostrata* caught shallower than 2000 m in different areas

Subtasks

Part 1

"Age structure and longevity of teleost fishes of the northern Mid-Atlantic Ridge"

Main species in focus: Antimora (*Antimora rostrata*). Deep-living benthic species.

Roughhead grenadier (*Macrourus berglax*). Sub-arctic benthic species, only found in the northern area of the MAR.

Other species: *Coryphaenoides rupestris, C. armatus, Spectrunculus grandis*.

Part 2

"Growth patterns of teleost fishes associated with the northern Mid-Atlantic Ridge, and analyses of intraspecific spatial variation"

Growth is one of the life history traits of fishes that may show strong spatial variation, primarily reflecting adaptations to varying geographical patterns.

The plan is to include growth in the planed MS for each of the species under Part 1.

Part 3

"Size and age at maturity of teleost fishes along the Mid-Atlantic Ridge, and comparisons with conspecifics in other areas"

The work will be carried out in collaboration with another PhD student, Anne Stene.

Part 4

"Occurrence and Distribution patterns of selected demersal teleost fishes along the Mid-Atlantic Ridge"

The main work will be the description and analysis of the catches from the long liner MS Loran during the MAR-ECO cruise in 2004.

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