

Master project (examensarbete) in Ecology (30-60 credits)

Study on cost-effective sampling of Baltic cod stomachs for the purpose of multispecies modelling

The paradigm shift from single species to ecosystem based fisheries management (EBFM) requires a broader, mechanistic and more in-depth understanding of marine ecosystems. Multispecies models able to account for trophic interactions and the effect of environmental variability on populations are an essential tool to move towards an EBFM. To account for predator-prey interactions in age-size structured population dynamic models high quality information on predator consumption, prey preference and trophodynamics are essential. Stomach data provide fundamental information on predators' diet, but their collection has been generally limited which is considered one of the limiting factors for the implementation of multispecies models for the purposes of fisheries advice within the context of EBFM.

The Baltic Sea has been one of the fortunate exceptions. Here, stomachs of cod, the main predatory fish in the system, have been collected for decades. This dataset is important not only for the implementation of advanced multispecies models for EBFM in the Baltic, but also because it can serve as a benchmark to design future stomach sampling programs for the Baltic and other ecosystems.

This master project aims to explore the spatial and temporal correlation among the cod stomachs and the implications of sampling design and sample size for the estimation of the main processes linked to the implementation of multispecies models. The analyses are expected to yield alternative strategies of stomach sampling in Baltic cod and highlight cost-effective sampling schemes which sampling intensity appropriately quantifies cod predation on clupeids in the Baltic and beyond.

Requirements: good skills in spoken and written English, basic statistical skills and familiarity with R programming (ability to write simple own functions).

Work location: Lysekil

Contacts: Valerio Bartolino valerio.bartolino@slu.se
Nuno Prista nuno.prista@slu.se

phone +46761268049

phone +46725450676

