

## **Mackerel - the jack of all foraging strategy trades?**

Mackerel is increasing its range of distribution and becoming more abundant and important for the ecosystem in the Norwegian Sea. Fisheries managers need to know if the mackerel stock will decimate the plankton community, and several questions need to be answered to understand the effect of mackerel in the Norwegian Sea: What are the diet preferences of mackerel? How should mackerel adaptively change its foraging mode between filter-feeding and particulate feeding in different prey mixtures relevant to the Norwegian Sea?



This is important for management and harvesting strategies to understand the effects mackerel has on the plankton. Another related question is the role of mackerel as a predator on fish larvae, and consequently the effect the large mackerel stock can have on recruitment success of other fish stocks.

**Method:** The Master project involves mechanistic modelling of the foraging process of mackerel, including visual particulate feeding and filter feeding, and then using this to predict the optimal foraging mode under different prey mixtures. The van Deurs (2015) model can be adapted for mackerel, and in addition try to model the mechanics of filterfeeding in mackerel (Crowder 1985). The modelling is not very demanding, but an interest in computing and quantitative analysis is needed.

**Research environment:** The master student will be a member of the Theoretical Ecology Group <http://bio.uib.no/te/> and associated with the NFR-project EcoNorSe at Institute of marine research <http://econorse.imr.no/>.

**Supervisor:** [Øyvind Fiksen](#)

### **Literature**

Papers from our research group, see [here](#). Van Deurs & al (2015), Bachiller & Irigoien 2013, Bachiller & al 2016, Shelby & al 1994, Crowder, LB. [Optimal foraging and feeding mode shifts in fishes](#) (1985)