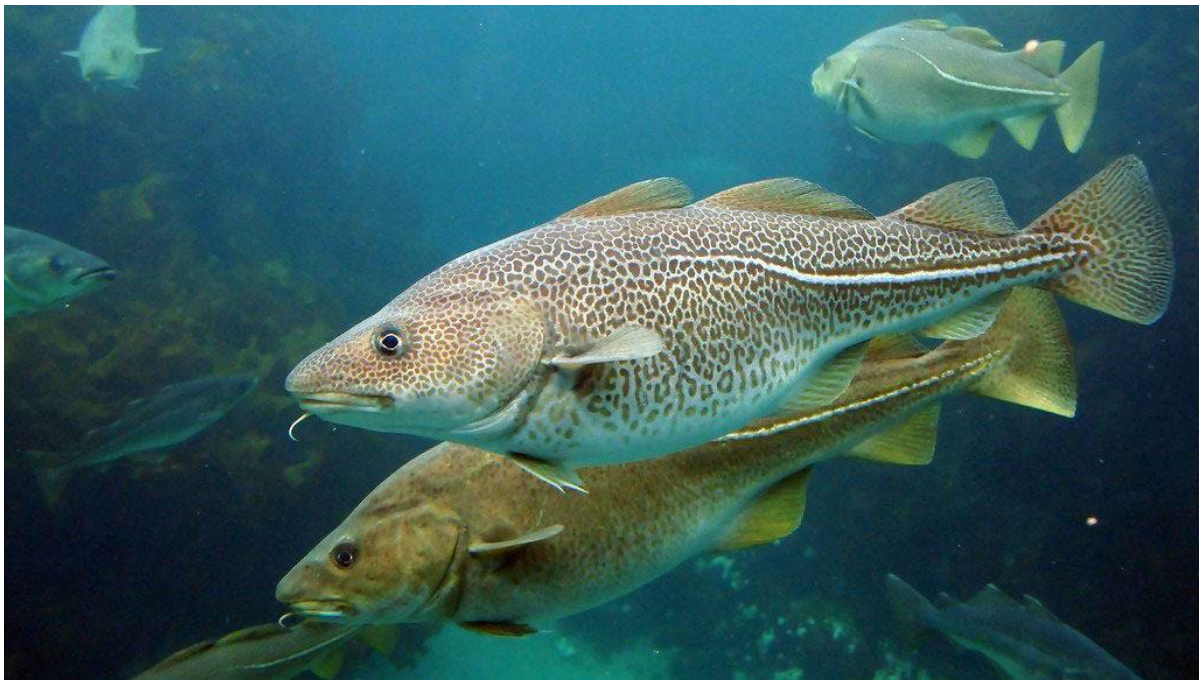
Are you interested in the Eastern Baltic cod Ecology, Evolution, immunity and microbiome?



We are offering two exciting Msc thesis:

Scientific background

Eastern Baltic cod population differ in body size and condition and the causes of such differences are unknown. Immunity seems to play an important role and parasites and other environmental factors directly shape immune genetic variation. Additionally, microbiome changes with environmental condition. Investigating the interplay between the microbiome and immune genes under changing environmental conditions could help disentangle differences in body size and condition between two distinct Eastern Baltic cod populations.

1. Population genomics and immune gene variation

Project goal: inferring population structure and detecting evolutionary signatures of selection in immune-related genes.

2. The role of microbiome in hypoxia

Project goal: The primary aim of the study was to investigate the effect of prolonged mild hypoxia on activity of cod, using accelerometers on the fish. This type of tag logs activity in three dimensions. The fish were kept at either normoxia or mild hypoxia (4.9 mgO2/L) for 6 weeks (12C, 20 PSU).

This is a unique opportunity to:

• Gain hands-on experience in bioinformatics and evolutionary data analysis
• Apply cutting-edge methods in molecular ecology and conservation genomics
• Contribute to globally relevant research on the evolutionary processes shaping immune systems and microbiome in wild fish populations

We are seeking a motivated student with a strong interest in molecular ecology, conservation biology, and evolutionary genomics. Prior experience in bioinformatics is not required, but would be considered an advantage.

📩 If interested, please contact:
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Start date: Flexible, immediately if it desired

Place: EBC Uppsala universitet

Project length: 30- 60hp