Overview

Authorship

Model Objective

Mapping and interpolation

Target output: Spatially continuous habitat abundance and suitability

Focal Taxon

*Gadus morhua, Clupea harengus*

Location

Baltic Sea including Kattegat and Skagerrak (marginal sea in the North Atlantic Ocean)

Scale of Analysis

Spatial Extent: 8.987842732, 30.020670933, 53.916436241, 60.777755197 (xmin, xmax, ymin, ymax)

Spatial Resolution: 0.06412448 (~ 6km2)

Temporal Extent: 2001-2020

Temporal Resolution: Monthly

Boundary: Polygon

Biodiversity Data

Observation Type: Field survey

Response Data Type: Presence/absence, counts, abundance

Predictors

Climatic, oceanographic, habitat

Hypotheses

Benthic and pelagic environemntal factors should eb strongest predictos of demersal and pelagic species, respectively.

Assumptions

Model assumptions:

Algorithms

Techniques: Generalized linear models (GLMs), Generalized boosted regression models (GBMs)

Model complexity: GLM

Model averaging: NA

Workflow

Modelling: Trained species abundance models (SAMs) and species distribution models (SDMs) onto both species across the Baltic Sea regions. Predictions from each model were evaluated using random train-test splits at multiple proportions.

Software

Software: R versions 4.2.1 (R Core Team, 2022); packages ‘dismo’ (Hijmans, Phillips, Leathwick, & Elith, 2017), ‘raster’ (Hijmans, 2020), ‘ape’ (Paradis & Schliep, 2019), ‘PresenceAbsence’ (Freeman & Moisen, 2008), ‘verification’ (NCAR, 2015)