

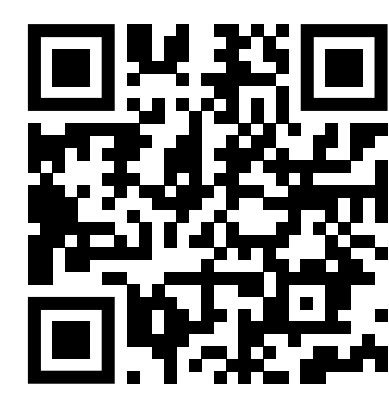


# FAME

A new open science  
Framework for spatio-temporal  
Analysis of Marine Ecosystems

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## ABOUT FAME

FAME develops GLOSSA v2, a modular open-source and FAIR-aligned toolbox for **marine species distribution models** (SDMs), enabling reproducible workflows from data acquisition to modelling and reporting

Designed for both **technical and non-technical users**.

**Accessibility, interoperability, and reproducibility in marine ecological research**



### CHALLENGE

- Complex and fragmented workflows
- High expertise and technical barriers
- Increasing availability of heterogeneous data



### SOLUTION

- GLOSSA v2: modular and user-friendly SDM toolbox
- Supports multiple data types and modelling approaches



### IMPACT

- Reduce technical barriers to marine SDMs
- FAIR science
- Reuse of open marine biodiversity and environmental data

## PROJECT SUMMARY



**Start date:** 1 March 2026



**Duration:** 24 months (Mar 2026 – Feb 2028)



**Coordinator:** ICM-CSIC, Barcelona, Spain



### Partners:

- Institut de Ciències del Mar (ICM-CSIC)
- Universitat Politècnica de València (UPV)
- Ecopath International Initiative (EII)



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## FAME OBJECTIVES

1

DEVELOP MODULAR AND INTEROPERABLE SDM TOOLS

2

ADVANCE STATISTICAL MODELLING FOR COMPLEX AND UNDERUSED DATA TYPES

3

ENSURE REPRODUCIBILITY AND ALIGNMENT WITH FAIR PRINCIPLES

4

APPLY TO REAL-WORLD CASES AND PROMOTE COMMUNITY ENGAGEMENT

## GLOSSA v2

Open-access and modular toolbox for marine SDMs



GLOSSA v2 connects open marine biodiversity and environmental data with reproducible SDM workflows, enabling users to preprocess data, run models, validate outputs, and export FAIR results through user-friendly modules



### MODULAR & SCALABLE

Interoperable tools covering key SDM steps



### FLEXIBLE MODELLING

Multiple modelling options and validation



### USER-FRIENDLY

Accessible interfaces and tutorials



### MULTIPLE DATA TYPES

Support for common and underused data types



### ACCESSIBLE DATA

Access to biodiversity and environmental data



### FAIR & REPRODUCIBLE

Built-in logging, metadata and interoperable outputs

## MULTIPLE DATA TYPES

- Binary (occurrence, presence-only)
- Continuous (biomass, density)
- CoDa (percentages, diet composition)

## USER-FRIENDLY MODULES



### DATA ACQUISITION

- Open access databases
- Upload personal data

### DATA PREPROCESSING

- Data cleaning and harmonization
- Bias correction
- Data standardization
- Pseudo-absences

### MODELLING AND REPORTING

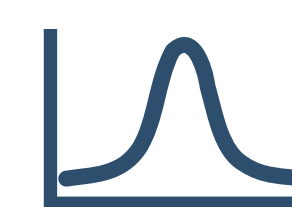
- Parametric, non-parametric and machine learning models.
- Spatio-temporal models
- Model validation and ensembles

## OUTPUTS

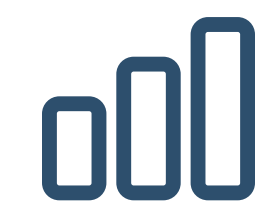
### FAIR OUTPUTS



Projected maps



Relationships with drivers



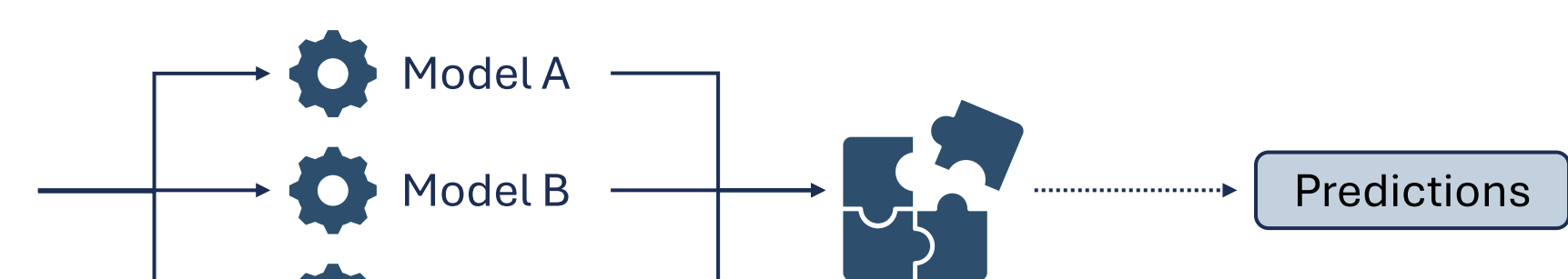
Variable importance



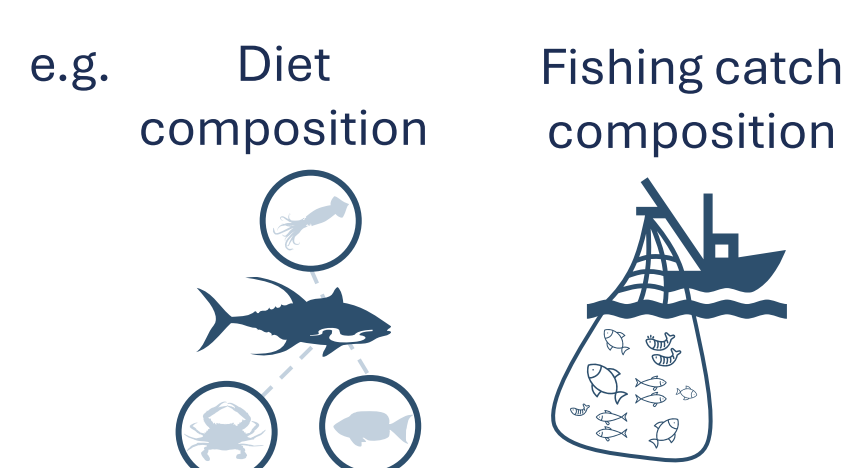
Reports, logs, metadata, and scripts

## ADVANCE STATISTICAL MODELING

### ENSEMBLE MODELLING



### SPATIO-TEMPORAL COMPOSITIONAL DATA



## REAL-WORLD APPLICATIONS

### INVASIVE SPECIES FORECASTING

Predict potential spread using citizen science data



### DIET COMPOSITION MODELLING

Fish diet composition across space and time using CoDa