TWO DECADES OF OCEANOGRAPHIC AND CATCH DATA COLLECTION USING FISHING VESSELS TO MODEL THE SPATIO-TEMPORAL DISTRIBUTION OF SMALL PELAGICS IN THE ADRIATIC SEA: PRELIMINARY RESULTS

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Introduction

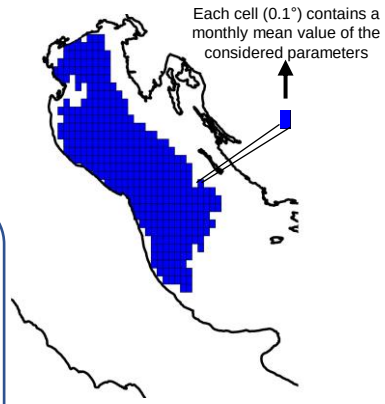
- Small pelagics, in particular **European anchovy** (*Engraulis encrasicolus*) are among the main fishery resources of the Adriatic Sea, and their **spatio-temporal distribution** is largely influenced by **environmental** and **anthropogenic drivers**.
- However, it is difficult to obtain information on these parameters with the same **resolution** as for the catch data usually acquired through fishery-dependent methods.
- We used a **Ships Of OPportunity** (**SOOP**) approach to:
  - evaluate the **contribution** of various potential **drivers** to **anchovy distribution**.
  - demonstrate the **potential** of **SOOP** to **advance** the investigation of population dynamics.

Material & Methods

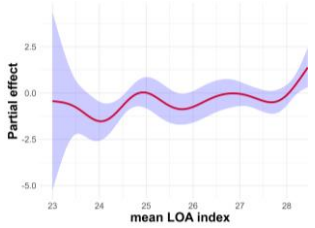
- The **SOOP** approach was possible thanks to the ***AdriFOOS*** infrastructure (and the previous ***FOS*** *program*), which allowed to retrieve 20 years (**2003-2023**) of geo-referenced catch data coupled with environmental data collected through oceanographic sensors mounted on the fishing gears.
- We modelled anchovy Catch Per Unit Effort (**CPUE**) using a Generalized Additive Model (**GAM**):

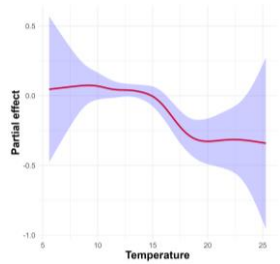
f(sqrt(**mean Anchovy CPUE**)) ~ *s*(**mean Temperature**) + *s*(**mean Depth**) + *s*(**mean haul duration**) + *s*(**Gt Tonnage index**) + *s*(**LOA index**) + s(**Power index**) + *s*(**Year**, by= **Season**) + *s*(**Month**)+ *s*(**longitude** , **latitude**) + *offset*(*log*(summed haul duration)

*Environmental parameters
*Vessels' characteristics
*Spatio-temporal parameters



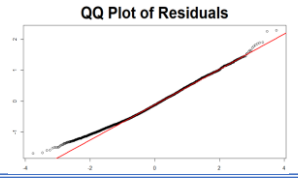
Preliminary results



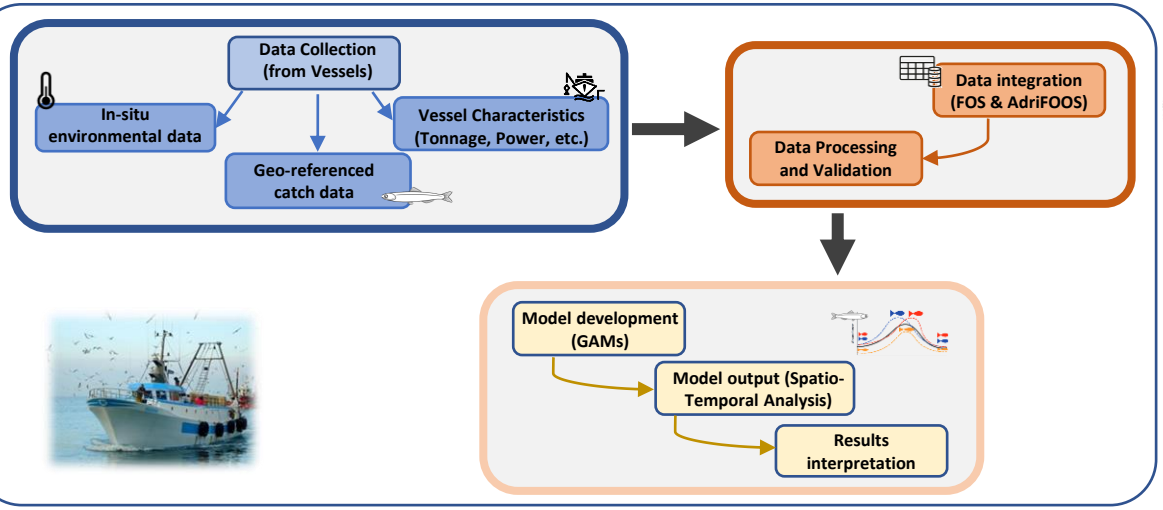


- Preliminary analysis confirms that the considered **environmental parameters**, **vessels' characteristics**, and **spatio-temporal parameters** are all significantly affecting anchovy CPUE.

	Deviance Explained (%)	AIC
Selected model	61.6%	47938.59



In a nutshell



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Discussion and future perspectives

- The **data** obtained through the **SOOP approach** provided long **time series** that resulted **highly informative** in characterizing the drivers of Adriatic's anchovy distribution
- The **GAM** resulted a **good first method** to describe **anchovy's dynamics** with the data in use.
- Next steps include more explicit conclusions regarding Adriatic's anchovy distribution, and the **extension** of similar methods to **other species** (e.g., European sardine)