Biological and socioeconomic impacts of the implementation of selectivity measures for demersal fisheries in the West Med

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1. **Biological impact of selectivity measures**
    - ICATMAR sampling
    - Selectivity experiments

2. **Socioeconomic impact of selectivity measures**
    - Potential impact in fleet revenues
    - STEFC results

3. **Selectivity as a compensation mechanism**
    - Potential equivalent reduction in fishing days
    - Selectivity implementation in Spain

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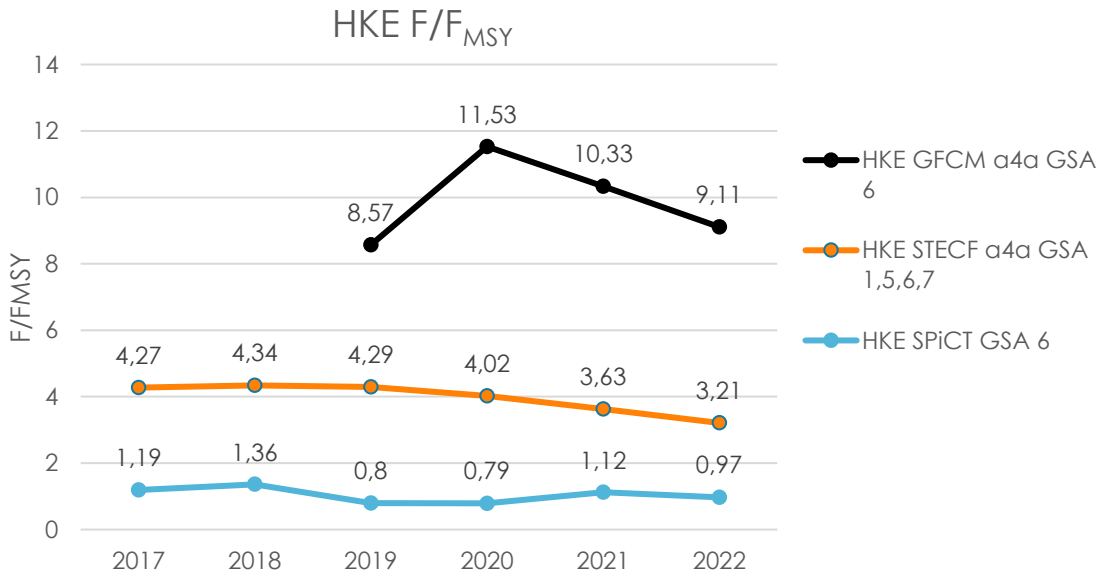
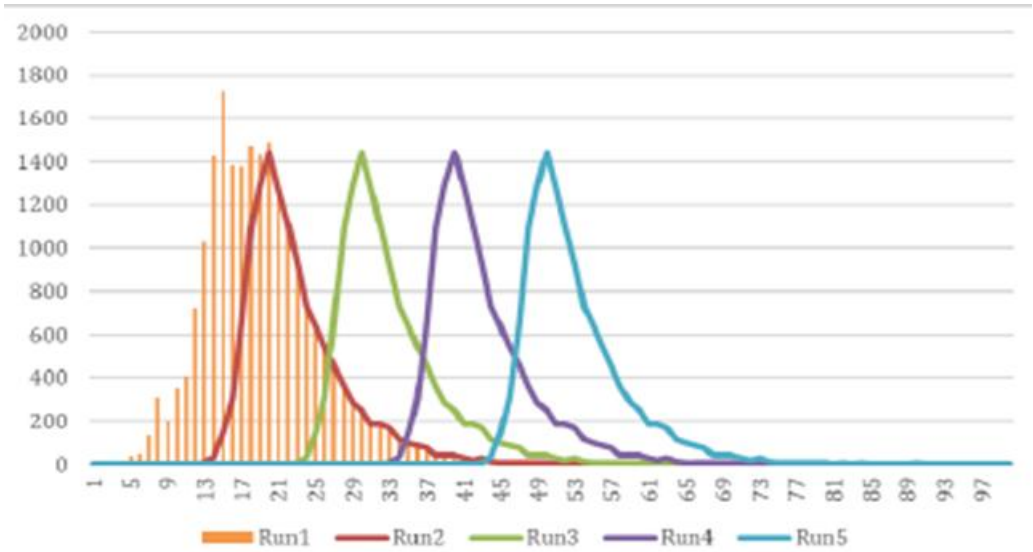
Fisheries management proposals

Revising stock assessment methods



Hake population structure simulations



Need for benchmark

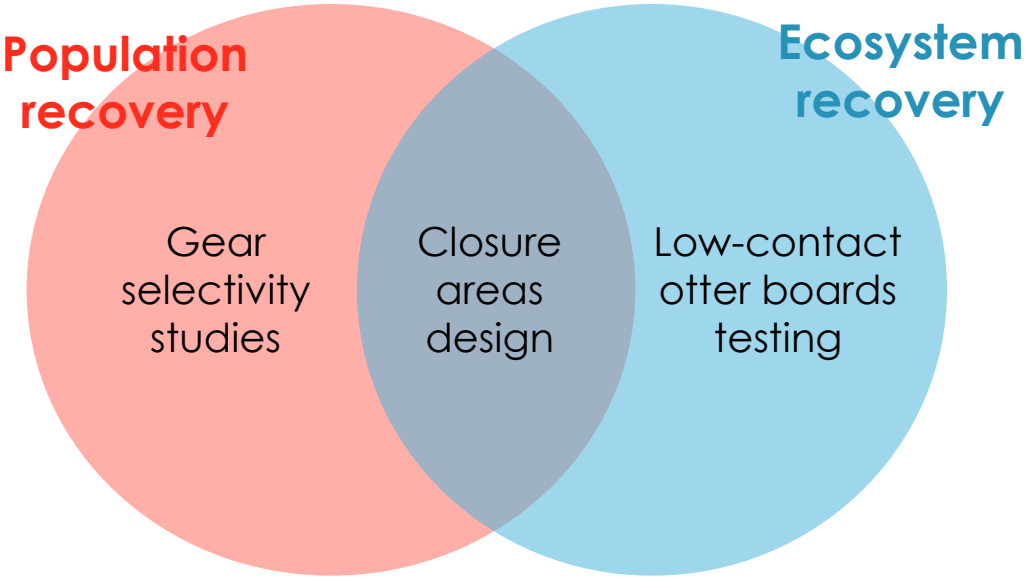
Fisheries management proposals

Simulation excercise of reduction of fishing days to reach FMSY for European hake by 2025

Scenarios / Fishing segments		< 12	12 < X < 18	18 < X < 24	> 24
Status quo (2020)	Year	152	181	193	201
(1) 30% effort reduction	2021	136	163	174	181
	2022	126	150	161	168
	2023	117	139	149	155
	2024	108	129	137	143
	2025	100	119	127	133
(2) Effort reduction to achieve F_{MSY} for hake	2021	121	145	154	161
	2022	97	116	123	129
	2023	78	93	99	103
	2024	62	74	79	82
	2025	50	59	63	66

ICATMAR 20-07

Exploring alternative management measures



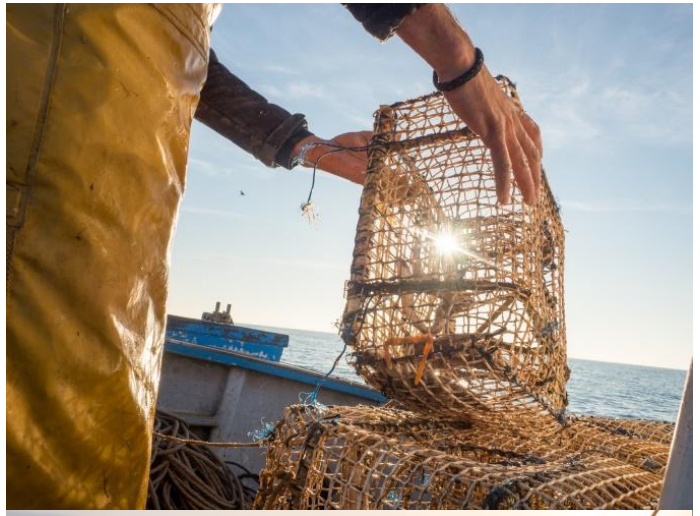
Biological impact of selectivity measures

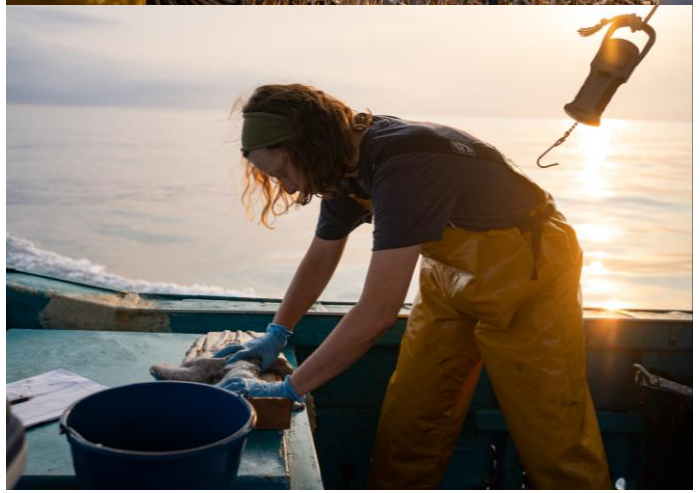
Commercial fisheries monitoring

Bottom-trawling

Purse seine

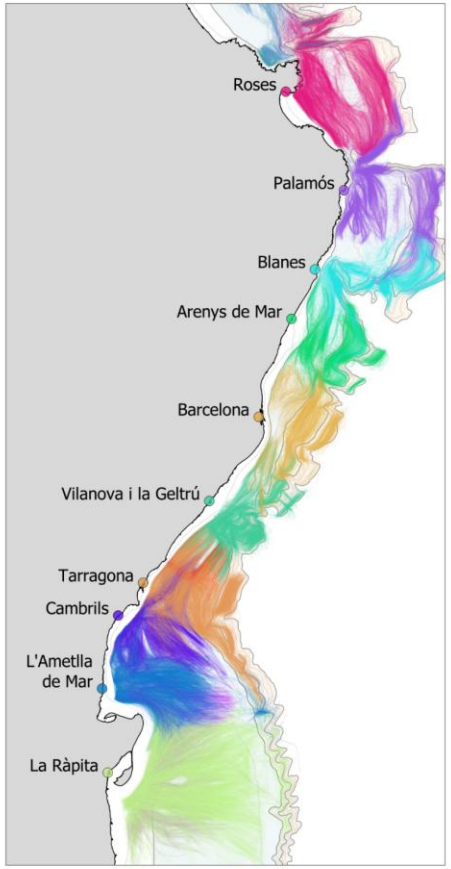
Small-scale fisheries



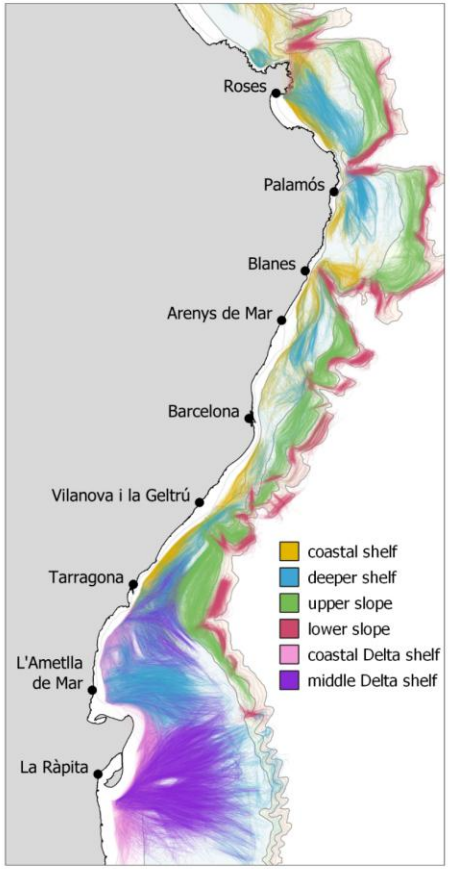


ICATMAR bottom-trawling sampling

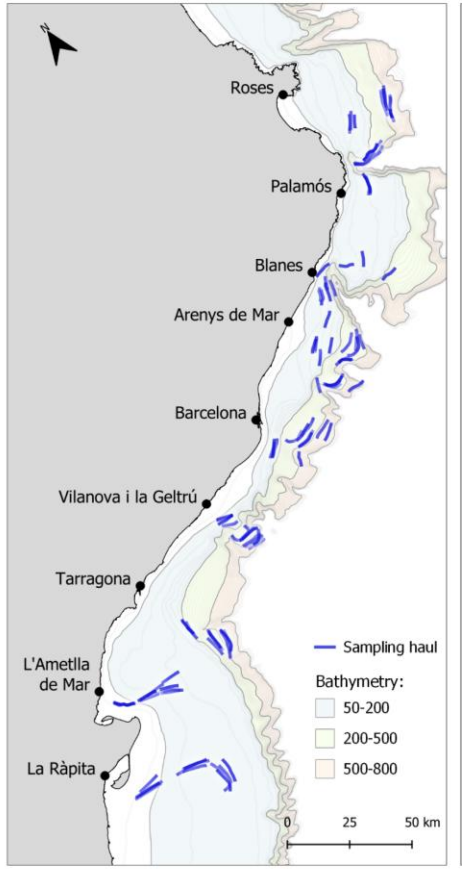
Local fisheries



Métiers



Bottom-trawling

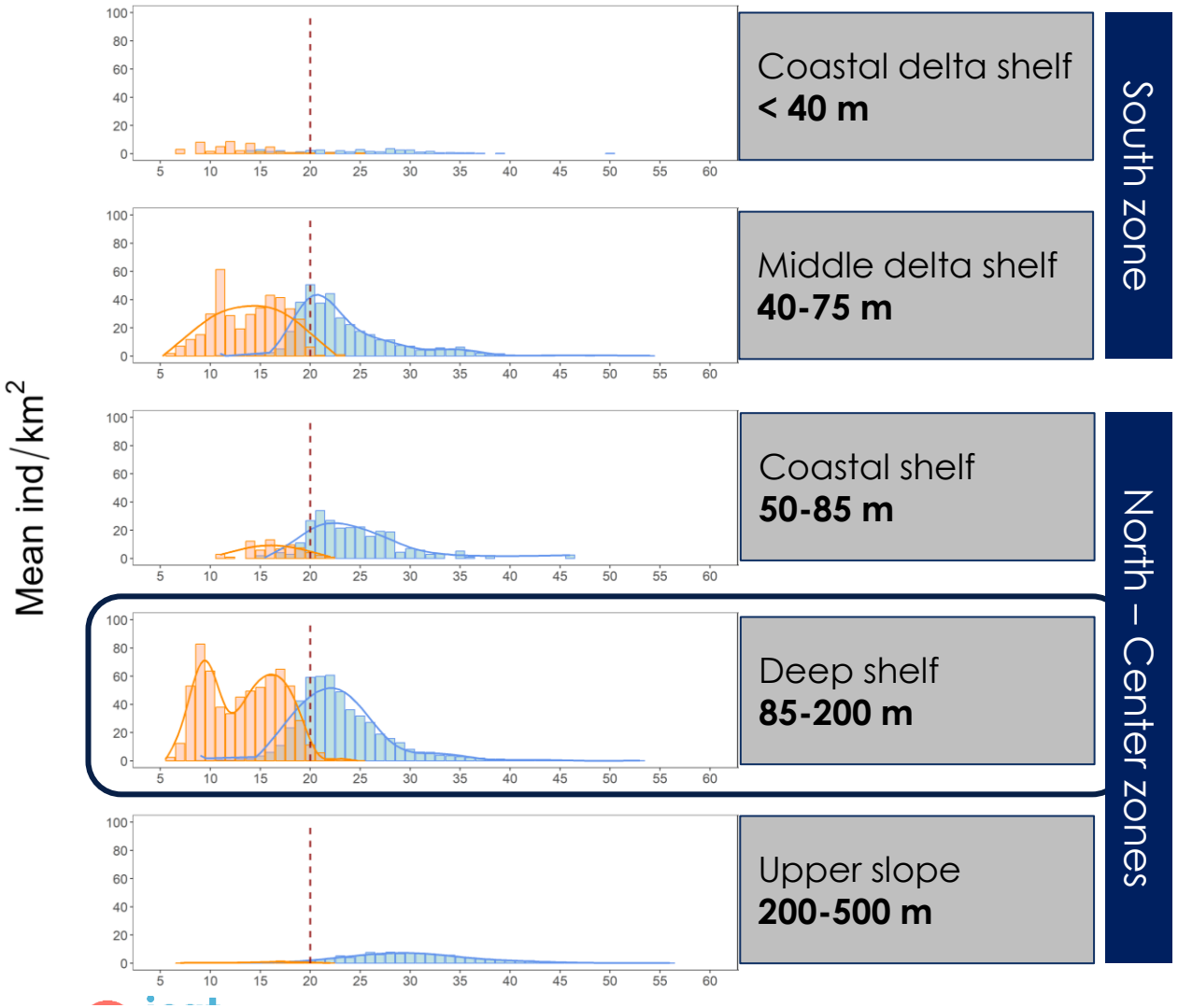


- Daily max: 12h
- Trawling activity: ~7h
- Weekdays

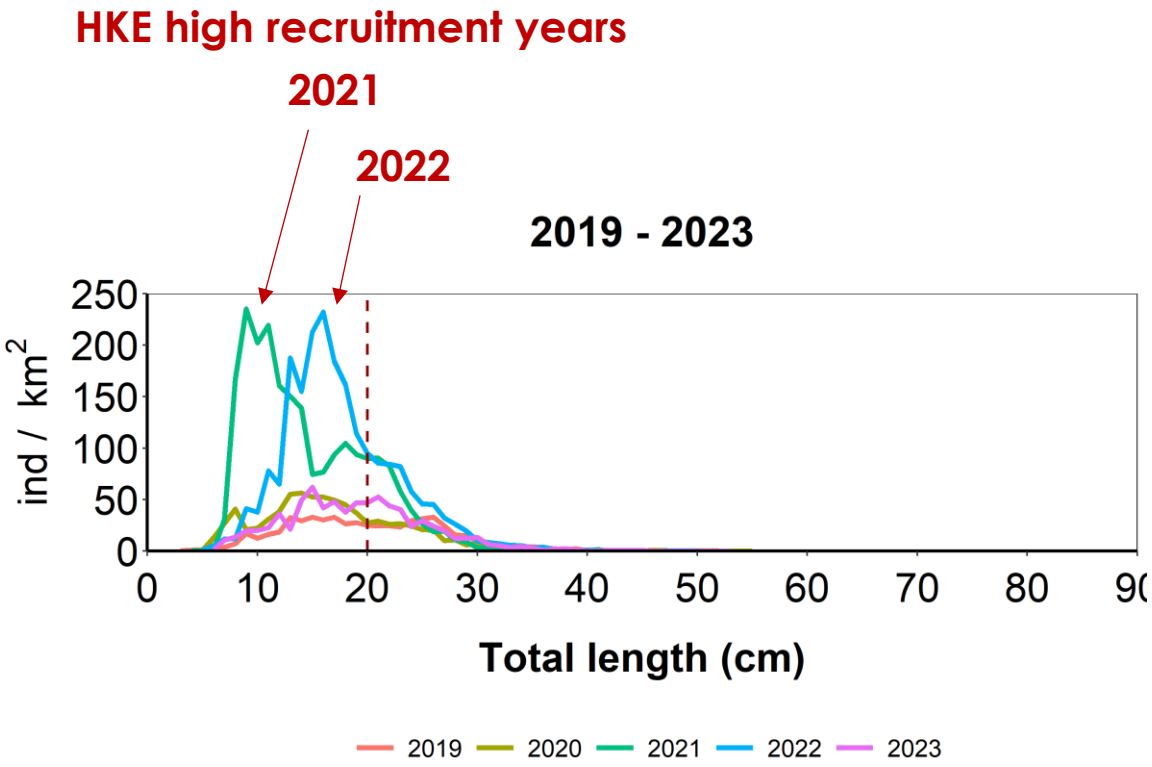
ICATMAR sampling NGSA 6

***Merluccius merluccius*, codend 40S**

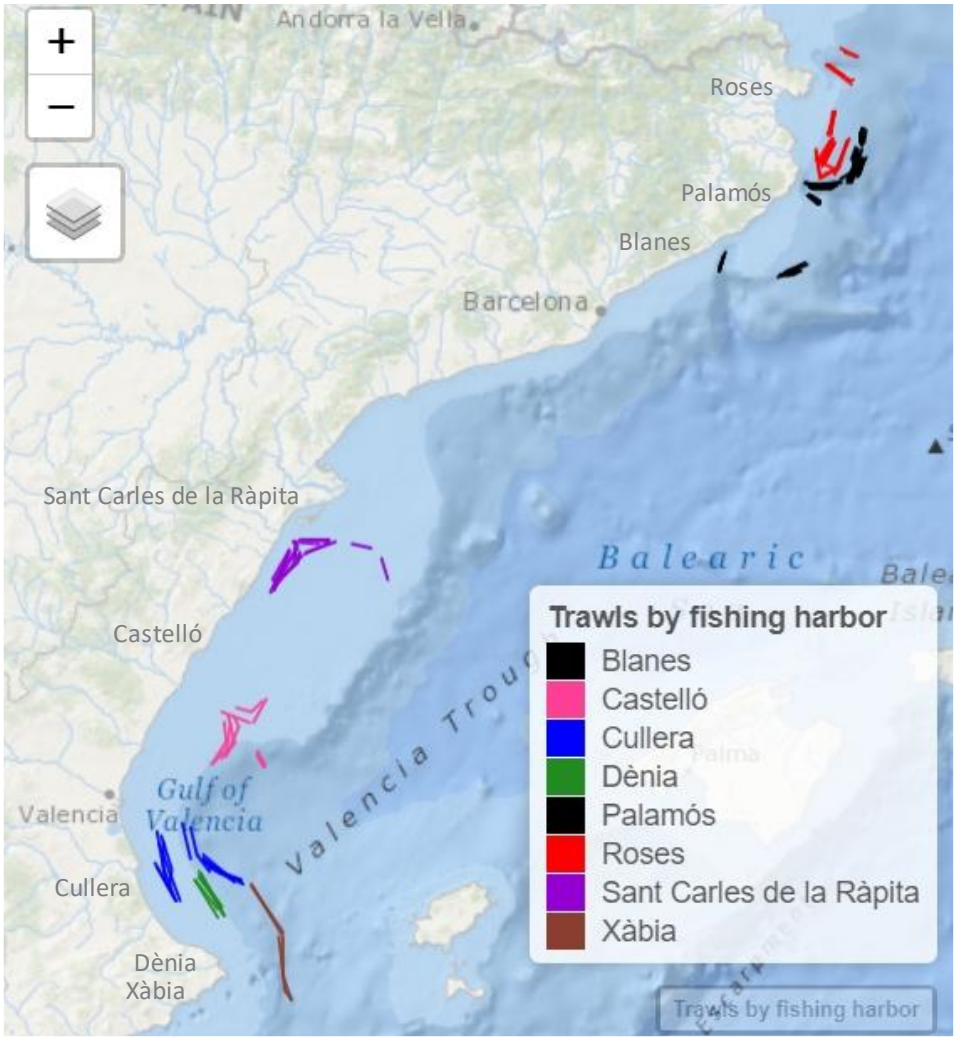
2019-2023 N GSA 6 Catch data



HKE ICATMAR sampling
Catch data



Selectivity experiments (GSA6)



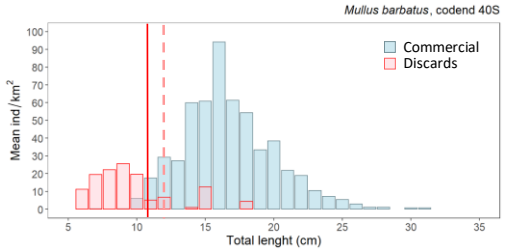
Bahamon et al. 2024

	DAY 1 Commercial gear	DAYS 2-4 Experimental gear
commercial + discarded — **Codend**	40 mm SM	45 mm SM (coastal) 50 mm SM (deep-sea)
escapees — **Cover**	16 mm	16 mm

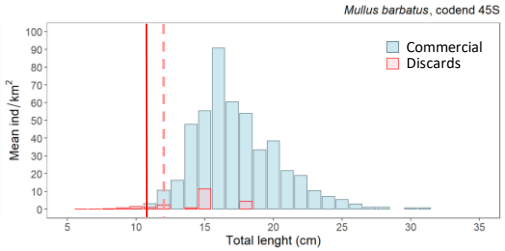
156 valid hauls
243 species identified

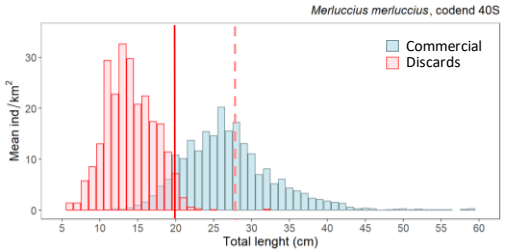
Selectivity experiments

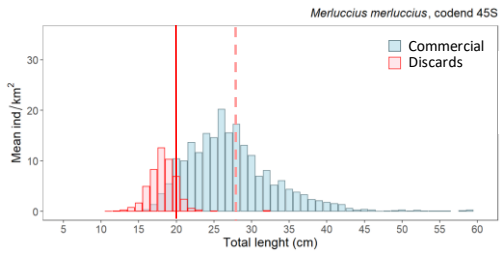
40 mm

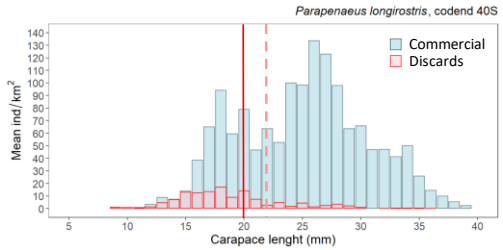


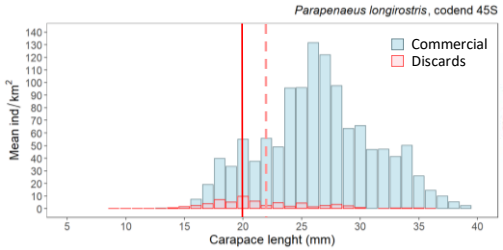
45 mm

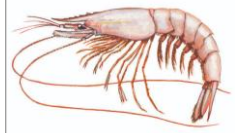


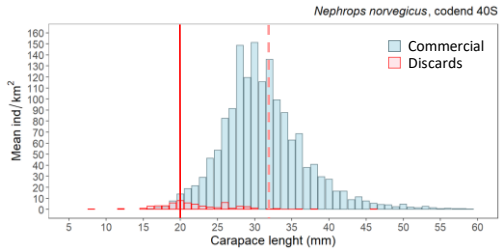


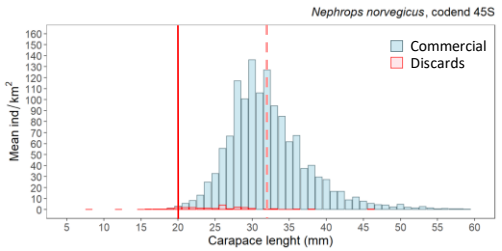




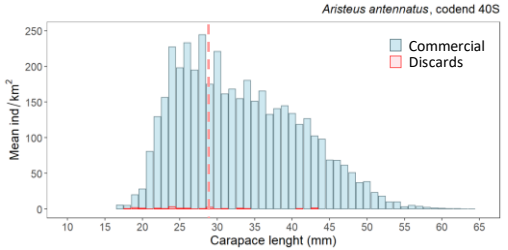




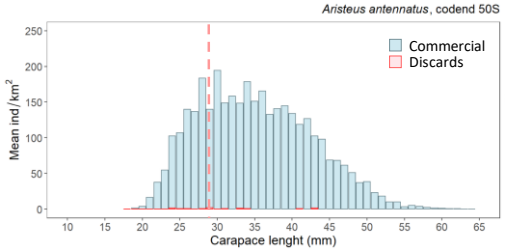




40 mm



50 mm



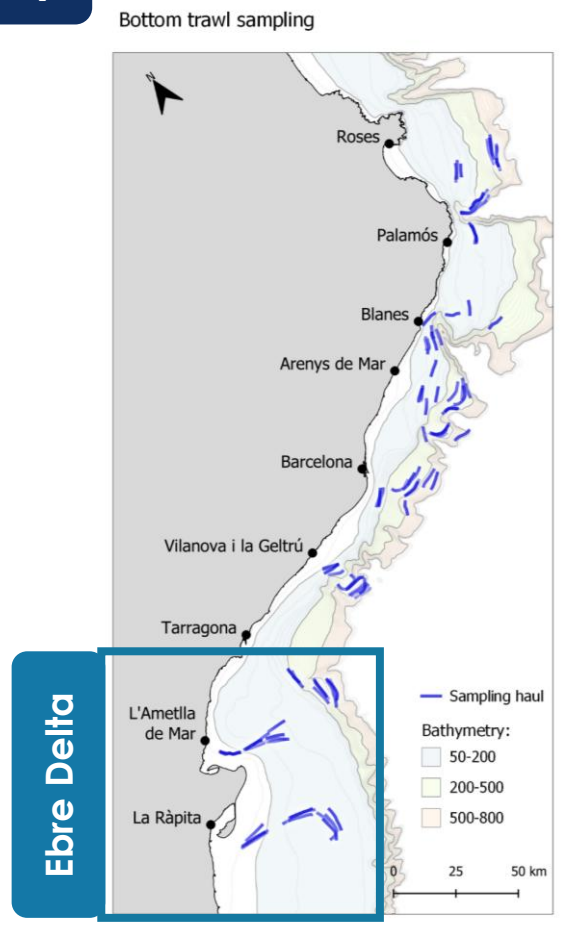
MCRS for each species

Average of length at first maturity (L50)

Socioeconomic impact of selectivity measures

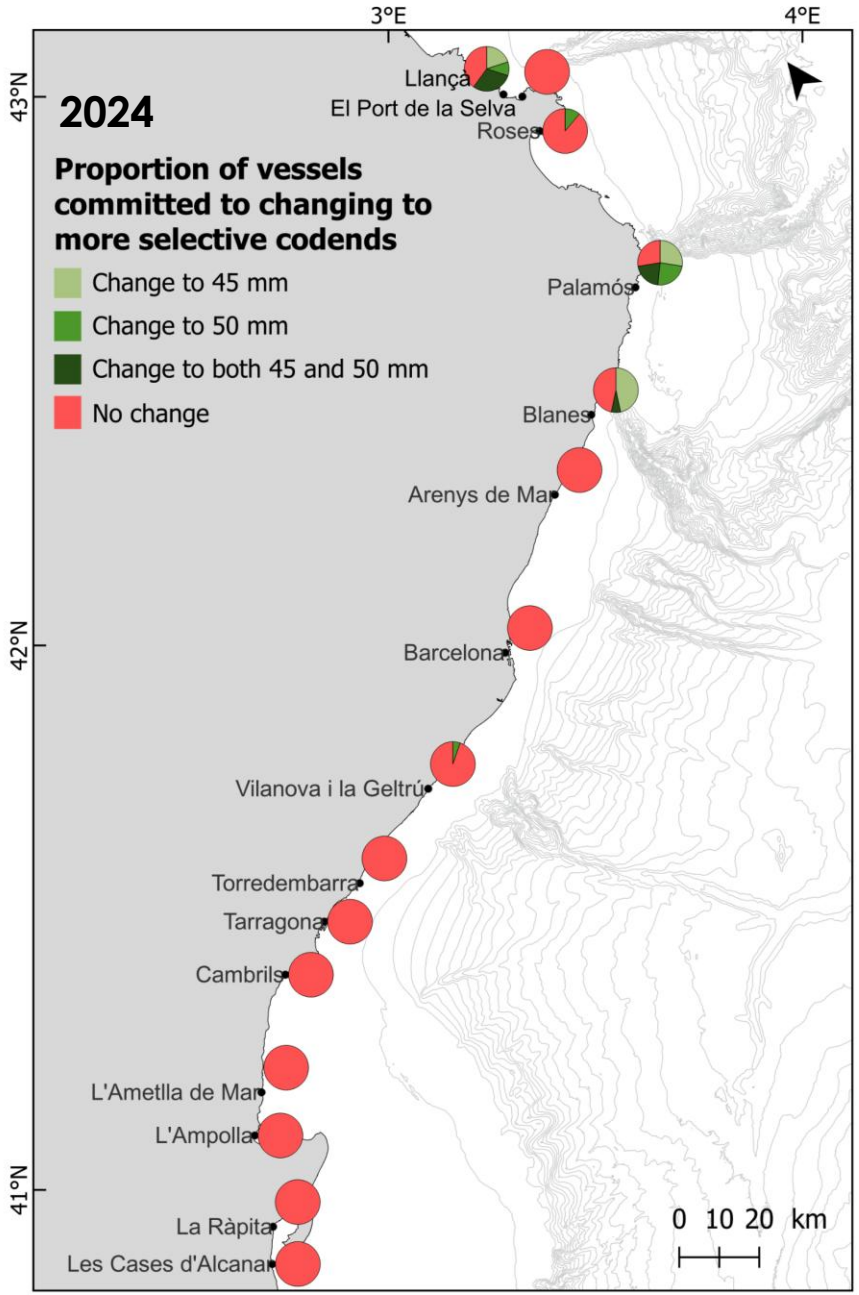
Potential impact on fleet revenues

	Species accounting for 80% of the revenues	Reduction due to selectivity	
		% kg	% €
Northern GSA 6	With reference to 2023 **OTB** landings	**3.1%**	**4.5%**
	With reference to 2023 **entire fleet** landings	**1%**	**4.5%**
Wide Shelf (Ebre Delta)	With reference to 2023 **OTB** landings	**2.3%**	**2.5%**
	With reference to 2023 **entire fleet** landings	**1.5%**	**1.5%**



STEFC_PLEN_24_03: Economic consequences of 45 or 50 mm SM implementation expected to be **slightly detrimental during the first year, then compensated after the next two years**

Selectivity as a compensation mechanism



- Selectivity as a compensation mechanism needs more firm regulation to ensure implementation
- MAP is centered around **reduction of fishing effort in days**
- Need for **equivalence of effect of selectivity** in marine populations in terms of fishing effort reduction

ICATMAR Length frequency data (2019-2023)

+

Landings data

Rising method (ICATMAR 24-06) GSA 6N

Selectivity vectors (Bahamon et al. 2024)

Total number individuals caught per year
Current mesh size

40 SM 

40 SM 

Total number individuals caught per year
Increasing mesh size

45 SM 

50 SM 

Ind. current mesh size
–
Ind. increased mesh size
=
Potential reduction in individuals

Reduction in individuals / catch ratio
=
Potential equivalent reduction in days

Landings data

Total number days fished per year

Catch ratio
(individuals caught / days fished)

Proposed selectivity measure	ICATMAR Quantification Equivalent fishing effort reduction	EU Compensation proposal
 45SM (coastal fisheries)	**24%** of current fishing days	**9.3% → 30%** fishing days
 50SM (deep-water fisheries)	**22%** of current fishing days	**15.4% → 50%** fishing days

Selectivity implementation in Spain

- Selectivity strongly enforced as a **compensation mechanism** (necessary to increase fishing opportunities, in days)
- Spanish government **subsidizing the change** to 45 and 50 mm square mesh codend (3 last meters of codend)
- Maximum subsidy of **1000€ per vessel**
- **Higher (or total) implementation expected** in 2025

Conclusions

- The selectivity measure is highly effective from a biological point of view
- Low economic losses to be diminished in the short-mid term
- The selectivity measure has been translated into fishing days to be used as a compensation mechanism

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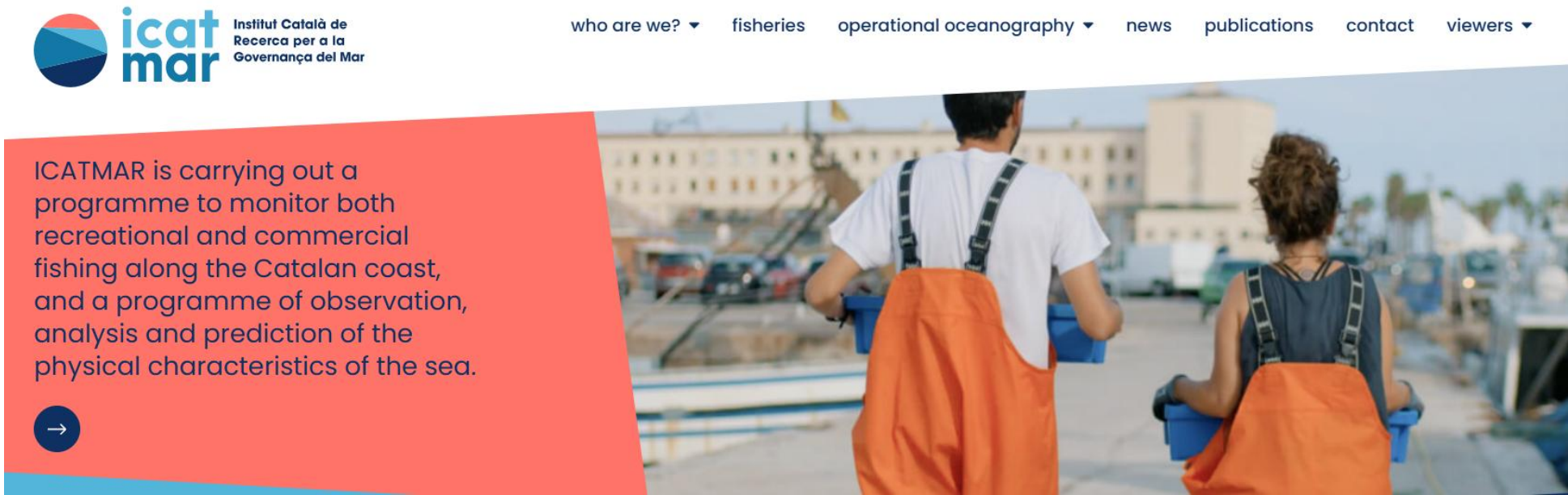

Thank you

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