



MEDAC - FG Strait of Sicily

FH55 Grand Hotel Palatino - Via Cavour 213/m, Roma

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Updating the state of the demersal stocks in the Strait of Sicily

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The management of the demersal stocks in the Strait of Sicily



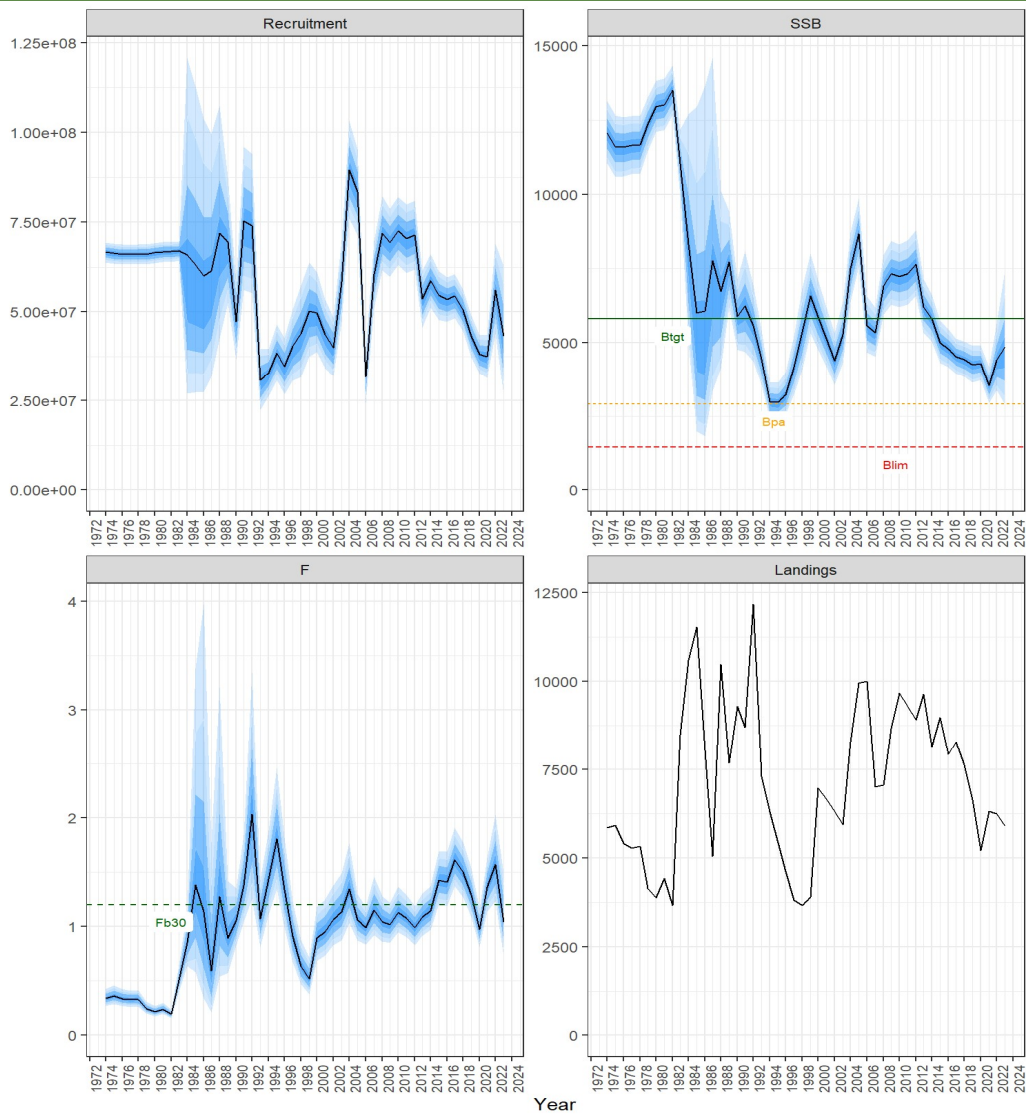
The **demersal fisheries** in the Strait of Sicily is regulated by the **Rec. GFCM/45/2022/4**, having as main target Hake and Deep water rose shrimp, and the EU reg. 195/2023; 219/2024 adopting a **multiannual management plan (MAP)** for bottom trawl fisheries exploiting demersal stocks in the GSA from 12 to 16.

This MAP applies to **bottom trawlers above 10 m LOA** and aims to:

- apply the **precautionary approach** to fisheries management;
- ensure that exploitation levels of key stocks are at the **maximum sustainable yield (MSY)** within **31st December 2030**;
- prevent increase in **fishing capacity effort** in relation to year 2021;
- protect **essential fish habitats (EFHs)** important for the key stocks in the area;
- contribute to elimination of **discards**, by avoiding and reducing unwanted catches, and by ensuring that all catches are landed;

The MAP consists of two phases:

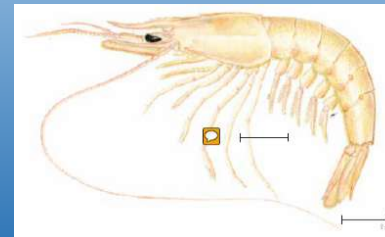
- during the first three years (**transitional phase, 2023-2025**), **effort and catch limits** and **spatial-temporal based measures** will be applied;
- from 2026 onwards, the SAC will **assess the state of stocks** and **update annual measures** and catch limits in line with achieving **Fmsy** and abundances at sea within **safe biological limits**.



The Deep water rose shrimp is the main target species of bottom trawling in the Strait of Sicily with a catch of 5829 t in 2023

**SSB/B_{MSY}=0.84, F/F_{MSY}=0.87,
MSY=9021± t188; SSB_{MSY} = 5800; F_{MSY} = 0.84**

	2019	2020	2021	2022	2023
F_{current}	1.29	0.97	1.36	1.57	1.04
F_{current}/F_{MSY}	1.29	0.97	1.36	1.57	0.87
SSB (tonnes)	4246	4293	3537	4415	4858
SSB/SSB_{MSY}	0.73	0.74	0.61	0.76	0.84



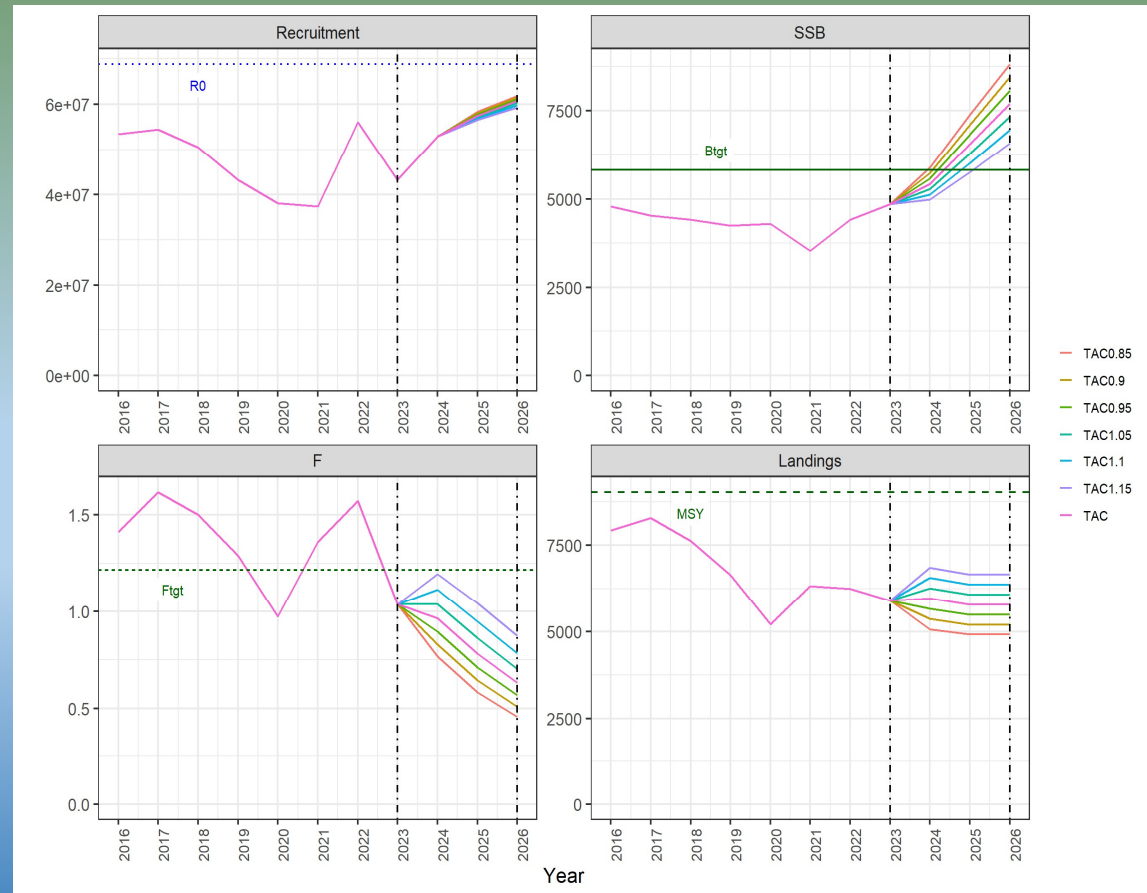
(by Falsone et al., 2024)

The main management measures...the controlled access to fisheries, and the limit of fishing effort and catch

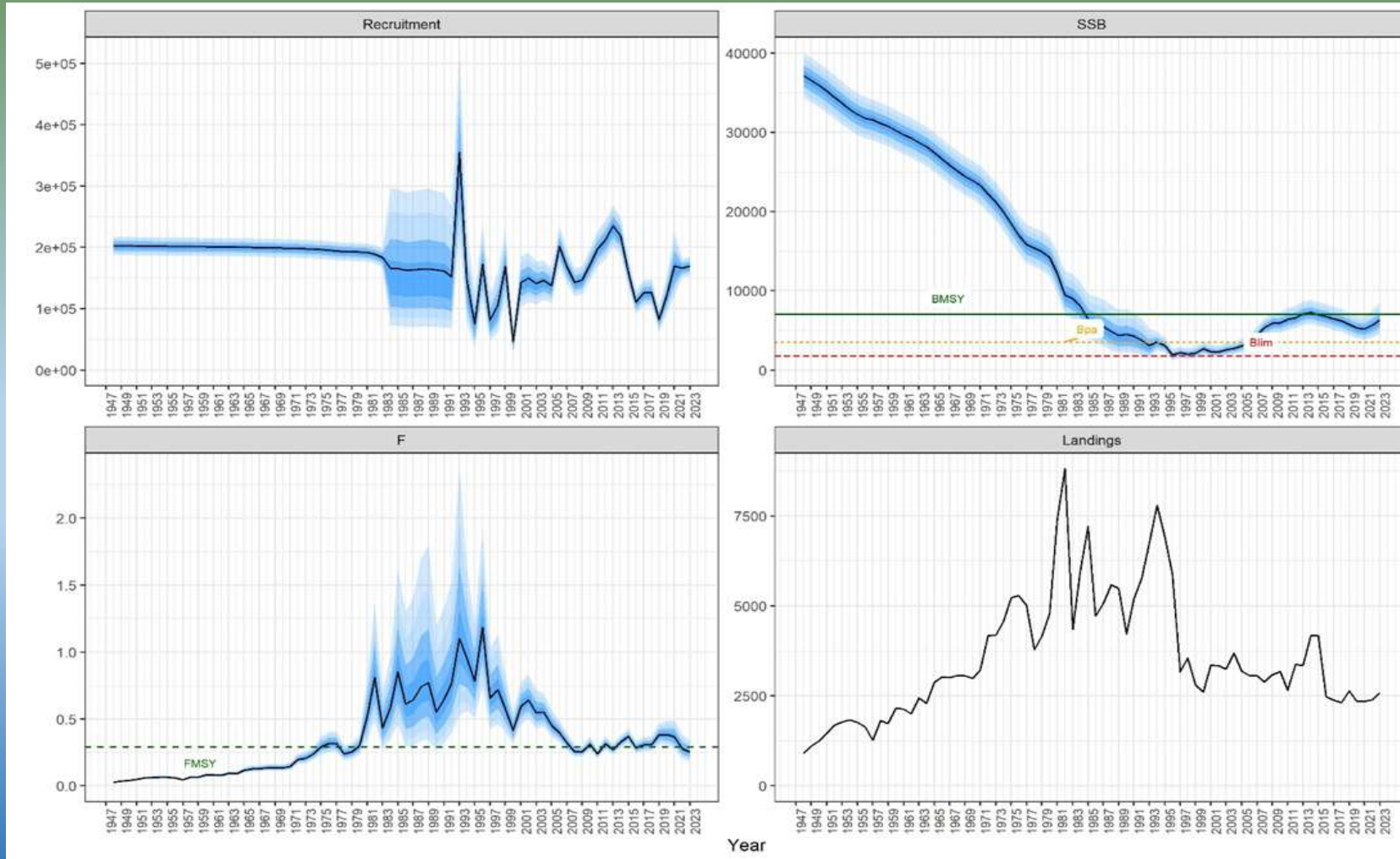
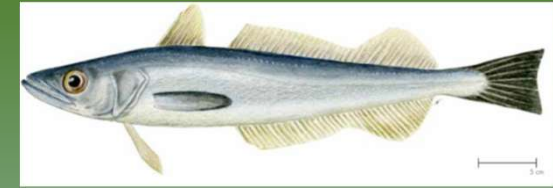
Short-medium term prevision of stock dynamics and yield under different management scenarios

Country	Segments	Fishing days	%
CYP	T12	51	0.07
ITA	T07	90	0.12
ITA	T10	188	0.26
ITA	T11	19366	26.42
ITA	T12	3657	4.99
MLT	T11	338	0.46
MLT	T12	165	0.23
TUN	T11	25994	35.47
TUN	T12	23443	31.99
Total	all segments	73292	100.00

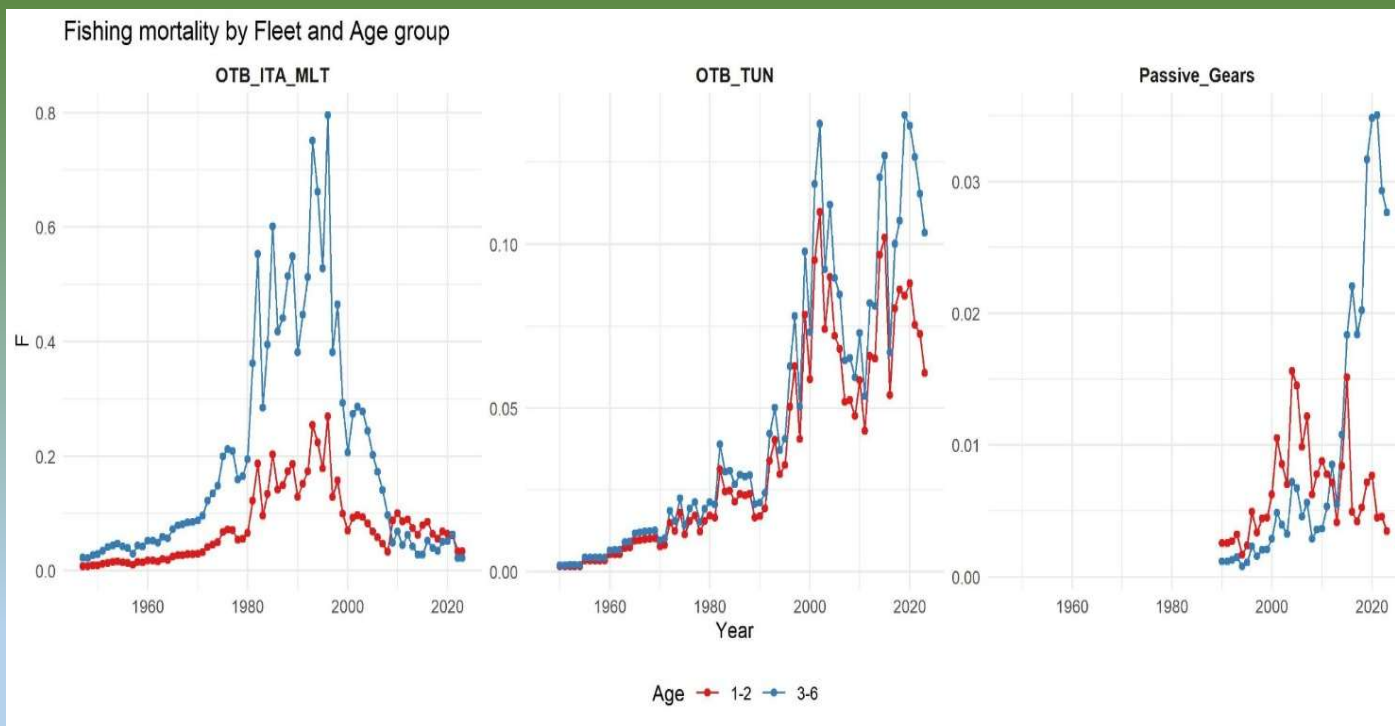
EU 2023	EU 2024	EU 2025	TUN 2023	TUN 2024	TUN 2025
2154	2090	2026	3993	3874	3757



The case of hake...the main bycatch of the deep water rose shrimp fisheries with a yield of 2579 t in 2023...



(by Falsone et al., 2024)



The trends of fishing mortality by age groups are shown (in red for ages 1-2 and in blue for ages 3-6) for all three fleets.

	2019	2020	2021	2022	2023
$F_{current}$	0.50	0.36	0.27	0.25	0.25
$F_{current}/F_{MSY}$	1.72	1.24	0.90	0.87	0.87
SSB (tonnes)	4744	4885	5894	6186	6323
SSB/SSB_{MSY}	0.68	0.70	0.84	0.88	0.90

The improving of the stock status of hake in the Strait of Sicily

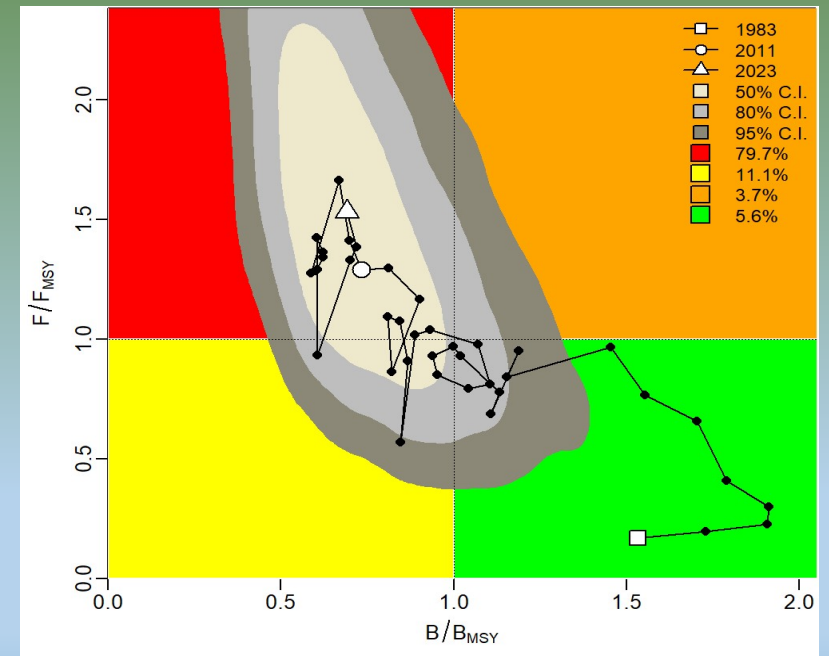
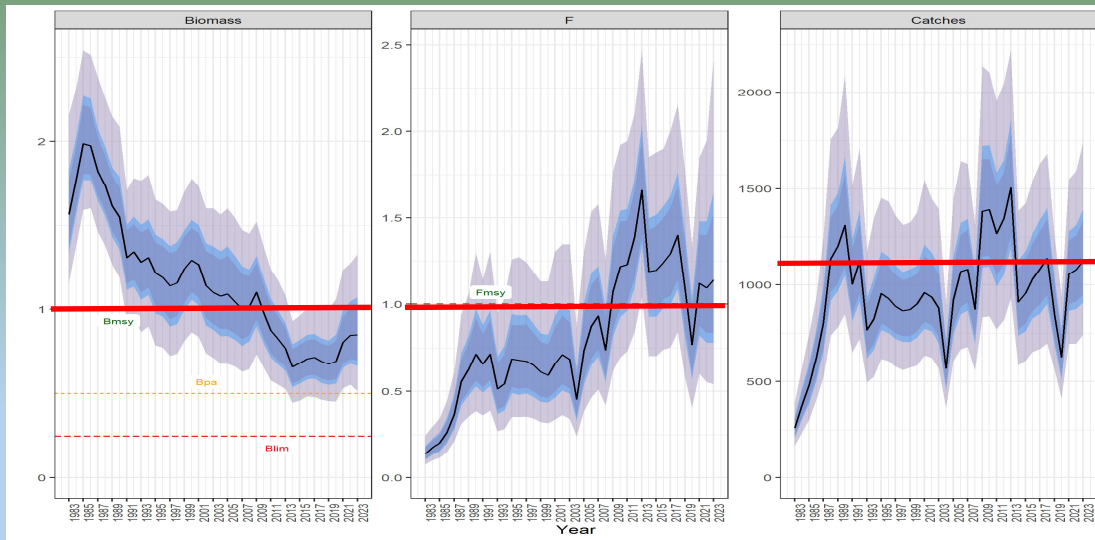
(by Falsone et al., 2024)



$B/B_{MSY} = 0.90,$
 $F/F_{MSY} = 0.87,$
 $MSY = 3814 \pm t180;$
 $B_{MSY} = 7021;$
 $F_{MSY} = 0.29$

Stochastic forecast conducted applying different fishing catch options

... the case of deep water red shrimps in the Strait of Sicily... a mainly Italian fishery with a production of about 885 t in 2023...



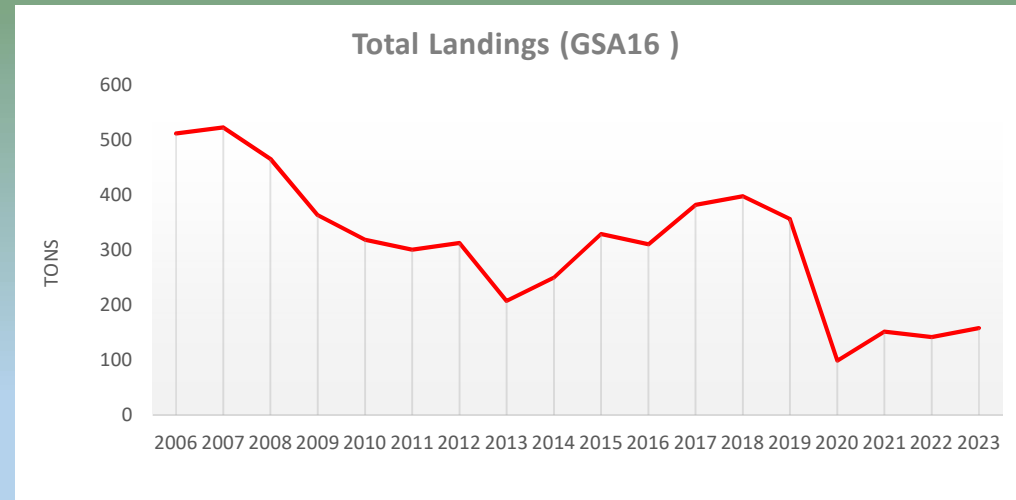
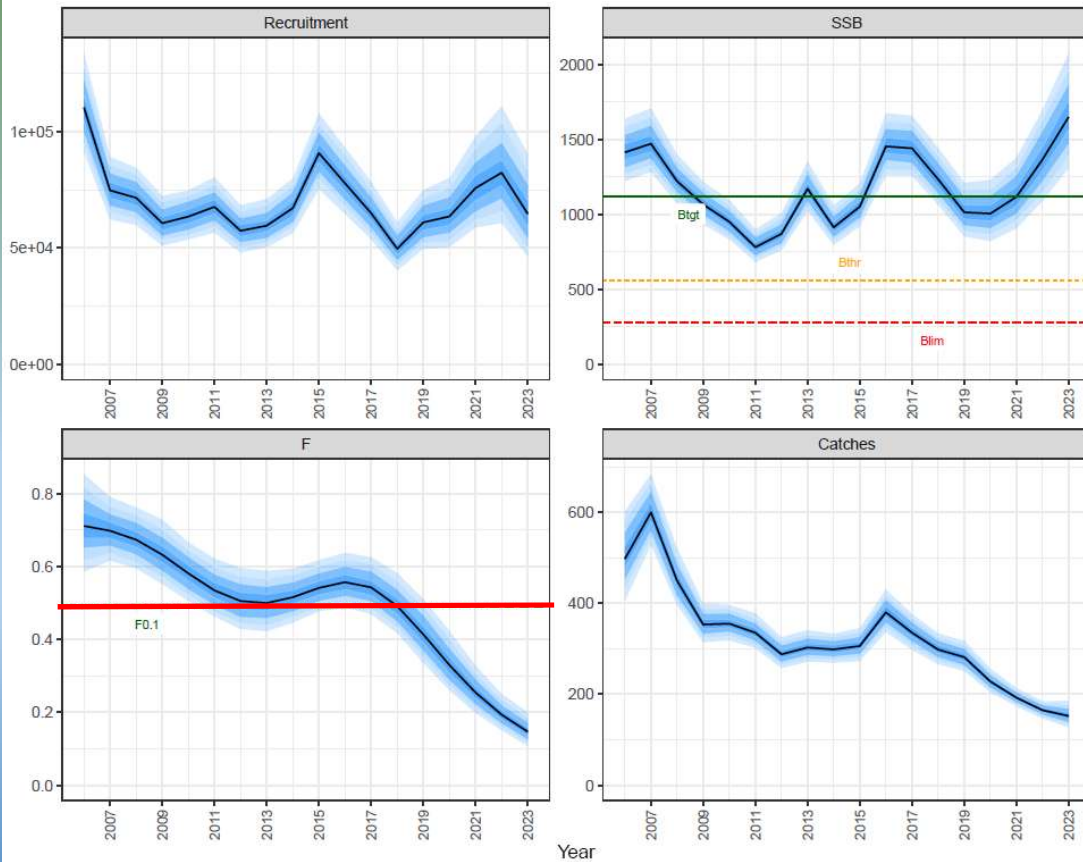
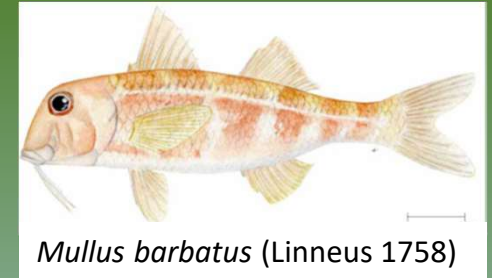
$B/B_{MSY}=0.85$, $F/F_{MSY}=1.13$, $MSY=1125\text{ t} \pm 120\text{ t}$



This is an almost **single-species fishery**, so a combination of **individual catch quotas** together with **technical measures** that reduce the **catch of juveniles** to increase Y/R should be a particularly appropriate management strategy

(by Scannella et al., 2024)

An example of sustainable Italian fishing...the case of red mullet in GSA 16...a production of about 160 t in 2023...

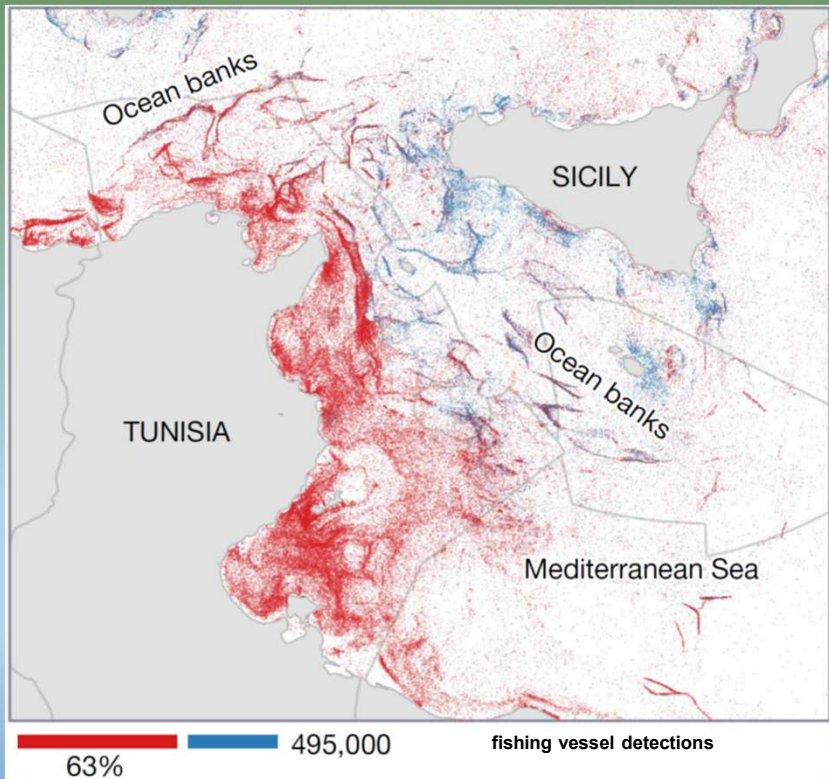


Red mullet off the southern coast of Sicily (GSA 16) has been fished sustainably since 2018....

- Nurseries within 3 miles protected from trawling;
- Reduction of bottom trawling targeting fish and cephalopods;
- Autumn fishing closures suitable to avoid catching juveniles.

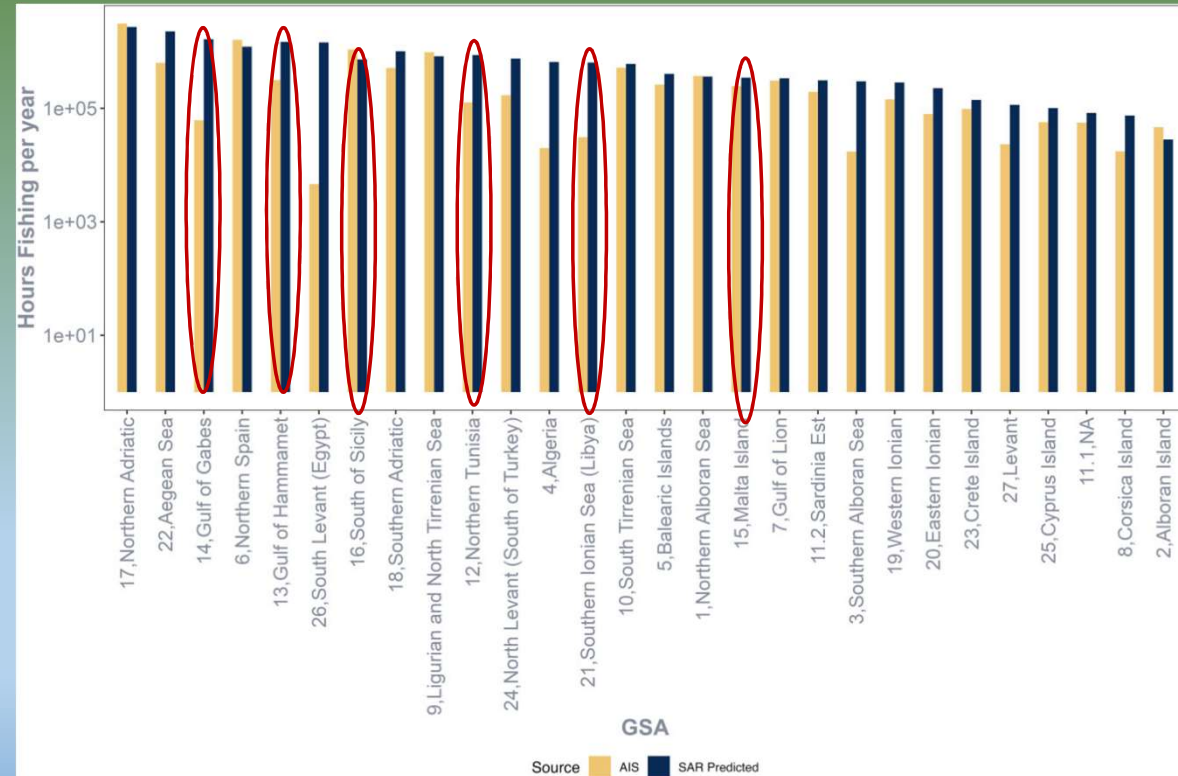
$B/B_{F0.1}=1.475$, $F/F_{0.1}=0.15$, $F_{0.1}=0.49$ (by Scannella et al., 2024)

The spatial distribution of trawlers fishing effort in the SoS by AIS and SAR (2017-2021)



Synthetic Aperture Radar (**SAR; in red**) and Automatic Identification System (**AIS; in blue**) surveys of **fishing vessels**.

(by Paolo et al., 2024)



Bar plot of the predicted (SAR-based) and observed (AIS-based) fishing activity, as hours fishing (left y-axis). The number of hours of fishing represented in Log 10 scale.

(by Marsaglia et al., 2024)

...the Resolution GFCM/47/2024/1 on a roadmap for providing potential additional measures for the long-term management plan for demersal fisheries in the Strait of Sicily...

The roadmap's objectives to be reached between 2025 and 2026:

- To investigate the **different sources of fishing mortality** of European hake (i.e. **trawling vs. SSF**);
- To investigate **the impacts** of the different types of gear on the **size structure** of European hake, and
- To propose the **different potential measures** available to ensure the **sustainable exploitation of European hake and other key species**, such as deep-water rose shrimp, **including FRAs and technical and market measures for the protection of juveniles.**

The **roadmap** should be focused to obtain information for:

a) **managing types of gear other than trawls and understanding their contribution to European hake mortality, by:**

- **enhancing data collection for SSF;**
- **estimating the partial impacts of SSF by gear type;**
- **involving stakeholders in the discussions on data collection and management from the beginning (e.g. through the SSF Forum and with the support of the Friends of SSF platform);**

b) **addressing technical measures related to differential exploitation of specific size classes of European hake, including:**

- **awareness-raising among consumers on purchasing and responsible consumption of European hake and avoiding the purchase of specimens under the legal size;**

c) **addressing spatial measures to manage fishing effort, by:**

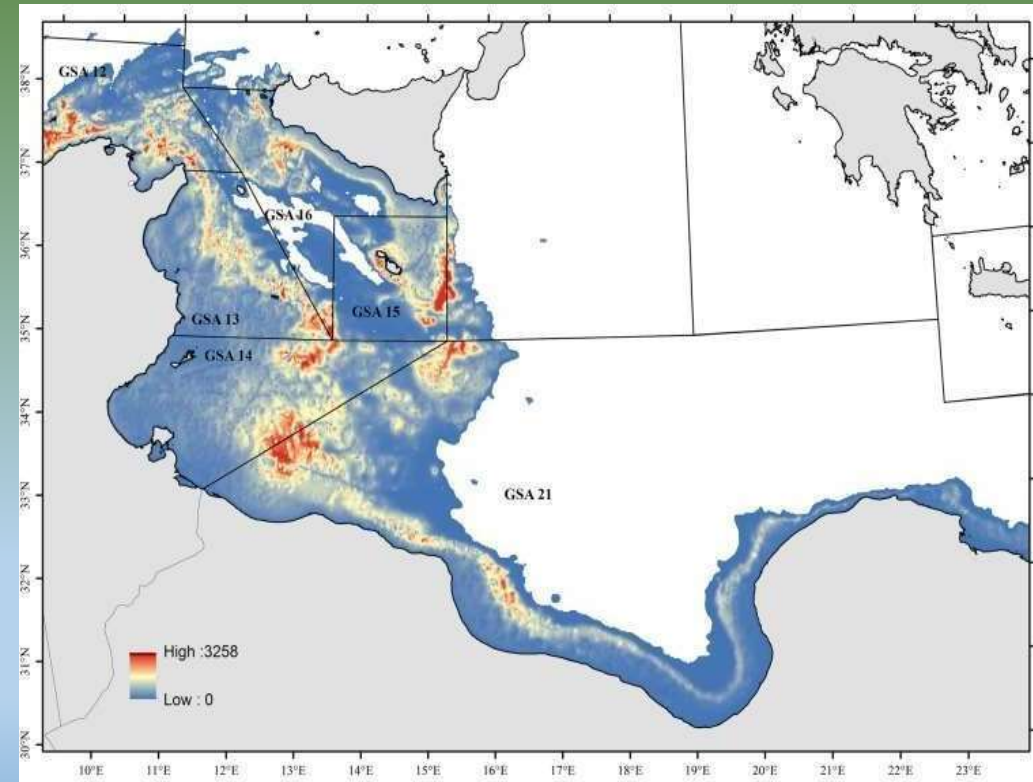
- **identifying additional FRAs in the SoS, as well as spawner aggregations potentially targeted by SSF;**
- **confirming the effectiveness of currently established FRAs in the SoS;**
- **understanding the incidence of SSF in existing FRAs.**

Expanding monitoring to small-scale fisheries for European hake by data collection and *analysis*

- Fleet specialization, by identifying the fisheries in which European hake is targeted or bycaught, monitoring the gear/métier used
- Expanding biological samplings of European hake caught by the fleets, in particular SSF, consistently covering all quarters in the year, as far as possible
- Gathering information via LEK on recreational fisheries targeting European hake adults in order to identify possible management measures
- *Including expected outcomes from commercial SSF, such as length–frequency distributions by sex, gear/métier, GSA, quarter, and maturity stages, in the data to be used in European hake stock assessments*
- *Indicative whole catch for recreational fisheries*
- *Identifying temporal measures, for example the management of fishing effort on European hake spawners*
- *On the basis of the achieved outcomes of the roadmap, evaluating the possibility of including the SSF fleet into the management plan for demersal fisheries in the Strait of Sicily, including proposals for capacity-building.*

Nursery areas by data collection and *analysis*

- Trawl surveys conducted by each CPC following the MEDITS protocol with the support of the GFCM Secretariat
- Tailored questionnaires on local ecological knowledge (LEK)
- *Spatial analysis for nursery identification and essential fish habitat (EFH) hotspots*
- *Spatial analysis of fishing effort using a variety of methods in close cooperation with CPCs*
- *Local ecological knowledge analyses in close cooperation with CPCs*



(by Garofalo et al., 2018)

The new information for establishing new FRAs in the southern side of the SoS should evaluate by the SAC at the latest in 2026.

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