



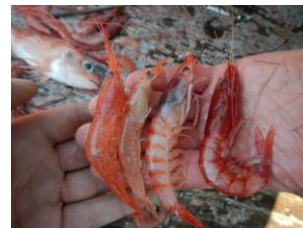
# Presentation of deep-water red shrimp fisheries: spatial management and catch limits



Presentation by G. Triantaphyllidis

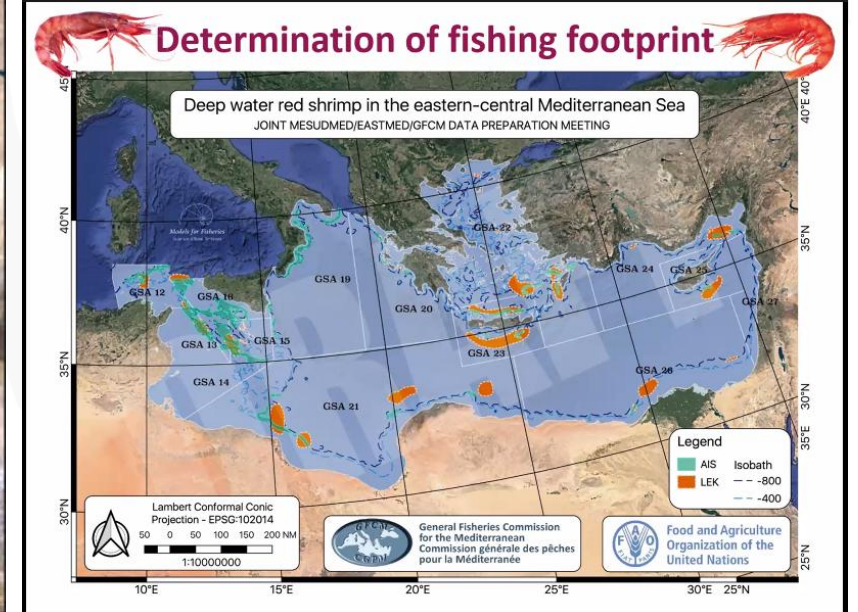
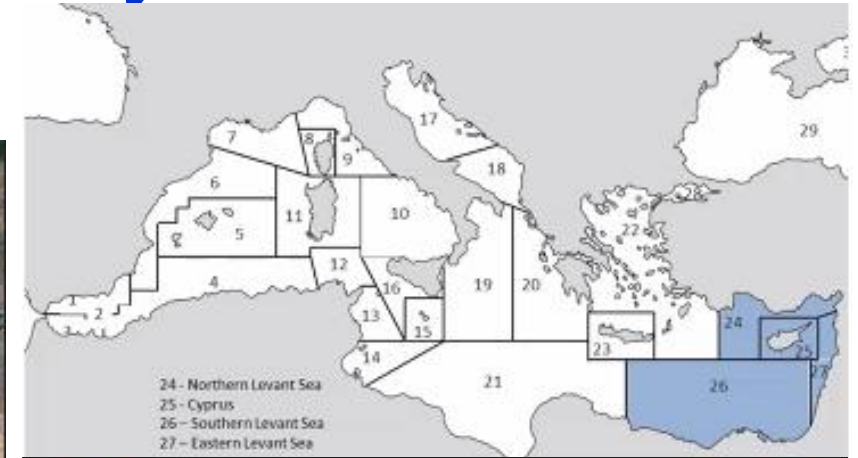


Co-founded by the European Union





# Deep-water red shrimps exploited by trawlers in the Eastern Mediterranean



Source: Otero, M., Mytilineou, C. (Ed.). Deep-sea Atlas of the Eastern Mediterranean Sea. 2022. IUCN-HCMR DeepEastMed Project. Publisher, IUCN Gland, Malaga. (VII+371pp.)  
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# Management of eastern Mediterranean deep-water red shrimp fisheries

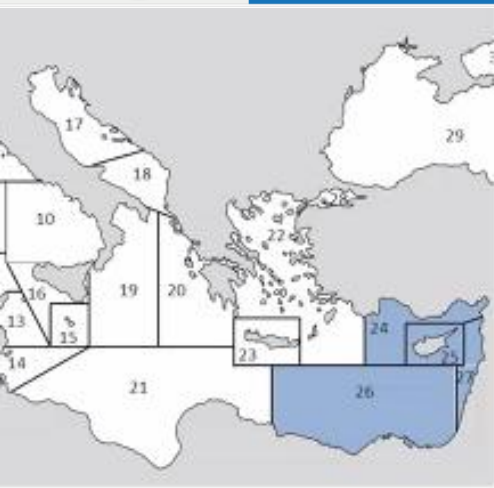
Eastern Mediterranean GSAs 22-27

CATEGORY	GFCM Recommendation
<b>Trawl fisheries in the Levant Sea</b>	GFCM/45/2022/7 on a multiannual management plan for sustainable demersal trawl fisheries targeting giant red shrimp and blue and red shrimp in the Levant Sea (geographical subareas 24 to 27), repealing Recommendation GFCM/42/2018/3

- The Committee reviewed the status of deep-water red shrimp stocks in the Strait of Sicily and the Ionian Sea, noting with concern the **enduring and sometimes worsening overexploitation status of both blue and red shrimp and giant red shrimp stocks.**

- The Committee welcomed the new stock assessments in GSA 24, which had produced qualitative advice for the two deep-water red shrimp species, and encouraged continuing to enhance data collection activities in the Levant Sea towards providing quantitative advice for these species in the future.

- In light of the importance of achieving sustainable deep-water red shrimp fisheries for the region, in line with the management plan, the Committee suggested working closely with the Compliance Committee (CoC) to evaluate the consumption of catch limits and take steps towards identifying and deterring potential IUU activities, including by <sup>3</sup> collecting information on the origin of catches.



## Forty-seventh session of the Commission

FAO headquarters, Rome, Italy, 4–8 November 2024

## FINAL REPORT

## ENGLISH

(reference language)

The Commission noted that stocks of deep-water red shrimps (*Aristeus antennatus* and *Aristaeomorpha foliacea*) in the Strait of Sicily and the Ionian Sea remained overexploited, recommending a reduction in fishing mortality and close monitoring of stock status.

It welcomed new stock assessments in GSA 24, which provided qualitative advice for both species. While praising efforts underway in many contracting parties and cooperating non-contracting parties (CPCs) to improve data, the Commission urged enhanced data collection in the eastern-central Mediterranean, focusing on catch and effort to achieve quantitative assessments for all stocks and improve management advice. Additionally, the Commission encouraged the Scientific Advisory Committee on Fisheries (SAC) and the Compliance Committee (CoC) to work together towards evaluating the consumption of catch limits and identify potential IUU activities, including by collecting information on the origin of catches.

# GFCM WORKPLAN FOR 2024–2026

Scientific Advisory Committee on Fisheries and Working Group on the Black Sea (Fisheries)

## Regional issues

### Stock assessment

- Organise relevant data preparation and benchmark sessions for blue and red shrimp and giant red shrimp in GSAs 19–21 during the 2025–2026 intersession (Appendix 24/A).

### Eastern-central Mediterranean

#### Deep-water red shrimp fisheries

- a) Finalize the work** underway on filling in all missing information on the **fishing footprint** and the identification of **essential fish habitats** and their overlap with VMEs, as well as on the **collection of additional data** towards underpinning **future** potential long-term **measures**.
- b) Clarify** the consumption of **catch limits** under Recommendations GFCM/45/2022/5, GFCM/45/2022/6 and GFCM/45/2022/7.

**Scientific Advisory Committee on Fisheries (SAC)**

**Subregional Committee for the Eastern Mediterranean (SRC-EM)**

FAO Headquarters, Rome, Italy, 22–25 April 2024

**Report**

The Subregional Committee for the Eastern Mediterranean (SRC-EM) met to address, among other things, specific issues emanating from the decisions on a multiannual management plan for the sustainable exploitation of deep-water red shrimp in the Levant Sea. This session included the presentation and discussion of work related to deep-water red shrimp fisheries in the Levant Sea, including a summary and analysis of information received by the GFCM Secretariat, as well as presentations from experts of any scientific work carried out towards the identification of essential fish habitat (EFH) and fishing grounds.



## The 6<sup>th</sup> meeting of the Subregional Committee for the eastern Mediterranean (SRC-EM) of the GFCM held in Rome, Italy, in hybrid modality on 22–25 May 2024

The aims of the meeting (among others) were to compile relevant information on the status of eastern Mediterranean fisheries and provide advice to the Scientific Advisory Committee on Fisheries (SAC), in particular in relation to deep-water red shrimp (*Aristaeomorpha foliacea* and *Aristeus antennatus*) fisheries in the Levant sea and prepare a draft workplan to address priority issues for the SAC.

The SRC-EM formulated draft advice on issues related to fisheries in the subregion, including the monitoring of eastern Mediterranean fisheries, the identification of conservation priority areas hosting essential fish habitats and/or vulnerable marine ecosystems, standardized scientific monitoring plans for fisheries restricted areas as well as a summary of the status of the stocks, the assessment and management of deep-water red shrimp in the Levant sea, small-scale fisheries and demersal fisheries, round sardinella fisheries and a pilot project on non-indigenous species. The workplan for 2024–2026 was discussed and agreed.

The SRC-EM reviewed topics of relevance for the subregion, including regional fishing capacity as well as setting a minimum conservation reference size for deep water red shrimp stocks in the Levant Sea. The SRC-EM also reviewed technical issues related to spatial management, including fisheries restricted areas and standardized scientific monitoring plans for FRAs, and started of a reflection on goals and needs for better incorporating stakeholder views in the GFCM fisheries advisory process.

## The 6<sup>th</sup> meeting of the Subregional Committee for the eastern Mediterranean (SRC-EM) of the GFCM held in Rome, Italy, in hybrid modality on 22–25 May 2024

The SRC acknowledged improved timeliness and completeness of DWRS data (2023–2025) and urged CPCs to continue for better future evaluations. It also noted Israel's DWRS data submission without catch limits and welcomed their development plan.

The SRC acknowledged improved DWRS data submission (2023–2025) and encouraged CPCs to continue for better future evaluations. It also noted Israel's submission without catch limits and welcomed their development plan.

The SRC highlighted the importance of improving the DWRS fishery's exploitation pattern through spatial and temporal measures. It emphasized the need for more data to identify fishing grounds and their overlap with essential fish habitats. While noting concerns about the socioeconomic impact of the new minimum conservation reference size (GFCM/46/2023/4 - that prohibits retaining on board and landing giant red shrimp and blue and red shrimp in the Levant Sea of less than 25 mm carapace length with possibility of a 5% margin of tolerance for incidental catch of giant red shrimp and blue and red shrimp below the minimum size), the SRC suggested that the fishery's high selectivity minimizes effects on other species. Additional measures to reduce juvenile catches, combined with the new MCRS and existing catch limits, could also increase product value.



# Deep-water red shrimp fisheries in the Levant Sea (GSA 25)

- Status of *Aristeus antennatus* (blue and red shrimp) **possibly sustainably exploited**.
- Status of *Aristeomorpha foliacea* (giant red shrimp) **possibly overexploited**.

The SRC underlined the need to continue improving data collection for the future provision of quantitative advice on the status of these stocks in accordance with the existing recommendation. In this respect, the SRC welcomed the fact that the survey in GSA 25 had been complemented with additional targeted hauls and that the data collection and implementation of measures in GSA 26 had been significantly enhanced. This, together with a future survey in GSA 26, was versed to greatly improve the understanding of the abundance, distribution and biology of the two Deep-Water Red Shrimp (DWRS) species in the area towards, inter alia, quantitative assessments.

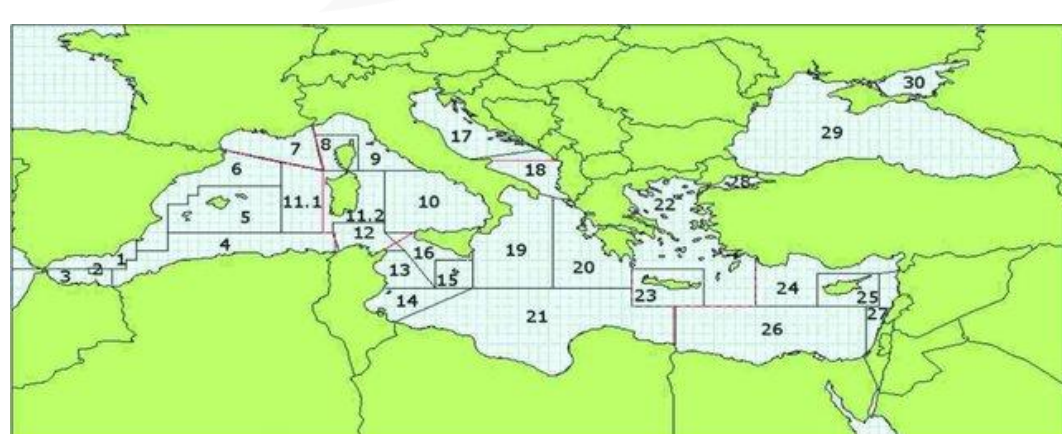
Table 1. Table of advice for eastern Mediterranean demersal species stemming from the WGSAD plenary of December 2023

N	GSA	Species	Method	Current Levels	Reference Points	Quantitative Status	Stock Status	Scientific Advice	% F reduction <sup>15</sup>	WG Comments
<b>EASTERN MEDITERRANEAN</b>										
1	24	<i>Aristaeomorpha foliacea</i> (ARS)	LBB in addition to LB-SPR				Possibly overexploited	Reduce fishing mortality	NA	New assessment
2	24	<i>Aristeus antennatus</i> (ARA)	LB-SPR				Possibly sustainably exploited	Do not increase fishing mortality	NA	New assessment

## Preliminary update on the estimation of fishing effort distribution for the deep-water red shrimp fishery in the eastern-central Mediterranean using AIS analysis Carmen FERRA' VEGA *et al.*

The study maps bottom trawl fishing grounds for deep-water red shrimp in the eastern-central Mediterranean (GSAs 12–16, 18–27) between 400–800 m depth. Using AIS data from 2015–2022, it analyzes deep-water trawling patterns, focusing on fleet description and fishing pressure. Results show that Italian vessels dominate this activity, repeatedly targeting specific fishing grounds in distant areas (GSAs)

Bottom trawlers in GSAs 23 and 25 focus on the deep-water stratum, while in GSA 24, most fishing occurs outside it. Deep-water fishing areas in GSAs 23-25 are limited and narrow. No deep-water trawling was found in GSAs 26 and 27.



## **Some lessons from the history of the red shrimp fisheries in the Mediterranean to improve sustainability of deep-water bottom trawling**

**Fabio FIORENTINO *et al.***

The development of Deep Water Red Shrimp (DWRS) fisheries in the Mediterranean was reviewed to create a sustainable harvest strategy while protecting ecosystems. Two fishery types were studied: a domestic fleet in Italian waters and a distant fleet in international waters. With DWRS trawling increasing, careful management is needed to protect deep-sea habitats.

An effective management approach should be based on three main harvesting measures:

- (i) preventing the uncontrolled growth in number of trawlers,
- (ii) adopting a catch control regime, and
- (iii) identifying a network of deep-water areas designated alternately for fishing and conservation purposes

Some further management measures could be adopted to improve the fishery sustainability:

- iv) shifting from a “permissive” fishing regime, where bottom trawling is permitted unless explicitly prohibited, to a “targeted” approach that allows fishing only in specific areas designated for their low prevalence of Essential Fish Habitats (EFHs) and Vulnerable Marine Ecosystems (VMEs) and high fishery productivity (adoption of encounter protocol when fishing outside the authorized fishing grounds,
- v) Increasing involvement and responsibility of the fishers in the management of harvesting (adoption of catch rate thresholds to avoid local depletion of abundance and a decrease in fishery profitability), and
- vi) improving economic value of available quota reducing the amount of undersized catch (adoption of more selective gears and/or temporal/spatial closure to protect mainly juveniles).



## Conclusions and recommendations

The Subregional Committee for the Eastern Mediterranean (SRC-EM) acknowledged the significant number of new decisions adopted by the forty-sixth annual session of the GFCM. Relevant for the eastern Mediterranean, these included binding recommendations setting a minimum conservation reference size for deep water red shrimp stocks in the Levant Sea:

**Recommendation GFCM/46/2023/4 of General Fisheries Commission for the Mediterranean (“GFCM”) prohibits retaining on board and landing giant red shrimp and blue and red shrimp in the Levant Sea of less than 25 mm carapace length (same as in the Strait of Sicily and in the Ionian Sea).**

In addition, non-binding resolutions were adopted to establish pilot projects for the revision of the deep-water fisheries restricted area in the Mediterranean Sea, and a regional plan of action to monitor and mitigate interactions between fisheries and vulnerable species in the Mediterranean Sea.

# Conclusions and recommendations

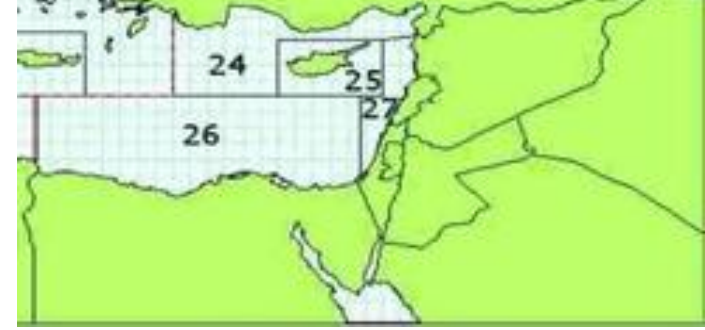
## **Outcomes of other relevant technical activities for the management of fisheries in the eastern Mediterranean**

### ***Spatial management***

In the context of deep-water red shrimp fisheries:

- Continue advancing towards annual quantitative advice on stock status
- Continue expanding the coverage of surveys at sea in the whole subregion
- Finalize the work underway on all missing information on the fishing footprint, identification of essential fish habitats and the overlap with VMEs, as well as on the collection of additional data towards underpinning future potential long-term measures

# Conclusions and recommendations



## Data and information submissions by CPCs

**Recommendation GFCM/45/2022/7 on a multiannual management plan for sustainable demersal trawl fisheries targeting giant red shrimp and blue and red shrimp in the Levant Sea (geographical subareas 24 to 27), repealing Recommendation GFCM/42/2018/3**

Applicable CPCs: EU-Cyprus, Egypt, Israel, EU-Italy, Syria and Türkiye

This recommendation applies to demersal trawlers exploiting deep-water red shrimps in the Levant Sea (GSAs 24-27), eventually extendable to other types of fishing gears and other stocks on the basis of the SAC advice.

The management plan foresees a two-step approach for the achievement of a sustainable fishing levels with a first step in 2023-2025 with catch limits and spatio-temporal measures, including effort and fishing capacity limits at levels of **2014-2017** (or over another period of three consecutive years, provided that the increase does not exceed 50 percent with respect to the 2014--2017 reference period), followed by long-term yearly catch limits from 2026 to 2030.



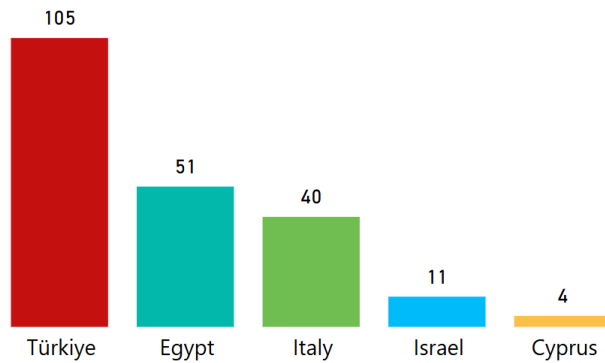
## Authorized vessels fishing giant red shrimp and blue and red shrimp in the Levant Sea

Information on authorized vessels fishing with demersal trawls for Giant red shrimp (*Aristaeomorpha foliacea*) and Blue and red shrimp (*Aristeus antennatus*) in the Levant Sea (GSAs 24 to 27)

Recommendation GFCM/45/2022/7 (En - Fr)

Data browser
**Infographics**
Download (PDF)

**Number of authorized vessels by CPC**

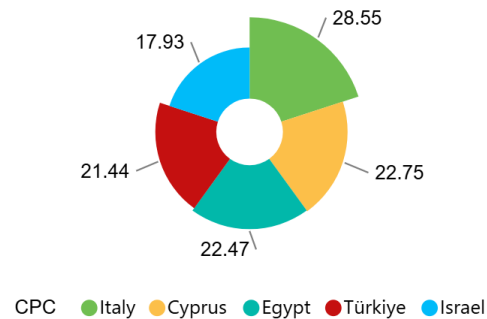


Fleet segment	No. of vessels	Avg capacity (GT)	Avg engine power (kW)
Trawlers (12-24)	138	59,31	375,54
Trawlers (> 24)	73	126,09	447,25

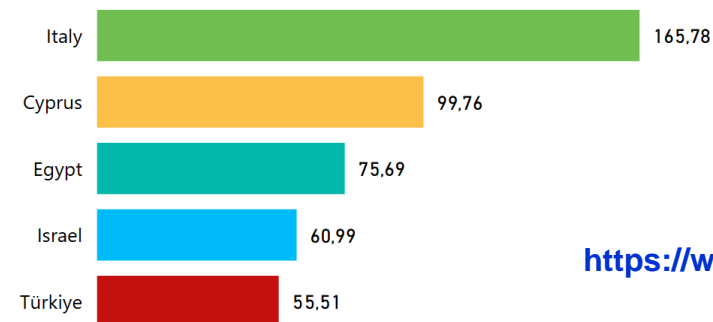
**Engine power average (kW) of authorized vessels by CPC**



**LOA average (metres) of authorized vessels by CPC**



**Capacity average (GT) of authorized vessels by CPC**



<https://www.fao.org/gfcm/data/fleet/levantsea>

# Conclusions and recommendations



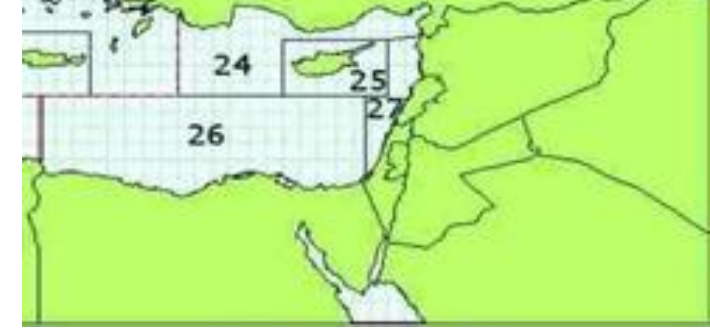
Specie	CPC	Reference year					
		2021	2022	2023	2024	2025	
Aristaeomorpha foliacea (ARS)	European Union	49.83	18.9				Reported catches (tonnes)
				60	58	56	Catch limit (tonnes)
	Türkiye	396.03*					Reported catches (tonnes)
				261	253	246	Catch limit (tonnes)
	Egypt	331.5	462.7				Reported catches (tonnes)
				439	426	413	Catch limit (tonnes)
Aristeus antennatus (ARA)	European Union	10.04	3.85				Reported catches (tonnes)
				16	15	15	Catch limit (tonnes)
	Türkiye	396.03*					Reported catches (tonnes)
				123	119	116	Catch limit (tonnes)
	Egypt	131.5	231.3				Reported catches (tonnes)
				135	131	127	Catch limit (tonnes)

## CATCH LIMITS

The management plan foresees a transitional fishing regime in **2023-2025** with **catch limits** (detailed in annex 1 of the recommendation) for the key species based on the catches reported in **2021**, with reduction of 3% per year.

\*Catches (tonnes) for both species

# Conclusions and recommendations



## *Fishing Capacity*

This management plan aims to maintain fleet capacity and effort at 2014–2017 levels (or another three-year period like 2015–2018, if effort remains within 50% of the reference period). Historic fishing effort data was requested by June 1, 2019, under the repealed GFCM/42/2018/3. CPCs are invited to verify these records, summarized in the table.

Effort - Fishing days*						
CPC	Reference year					
	2014	2015	2016	2017	2018	2019
EU-Cyprus	610	579	743	406	564	40
Türkiye	4 910	6 583	4 645	6 193	2 294	5 658

*\*To be checked by the CPCs*

Number of vessels*						
CPC	Reference year					
	2014	2015	2016	2017	2018	2019
EU-Cyprus				5	6	6
Türkiye	37**	45**	29**	38**	29	

*\*To be checked by the CPCs*

\*\*Other vessels not individually identified non included



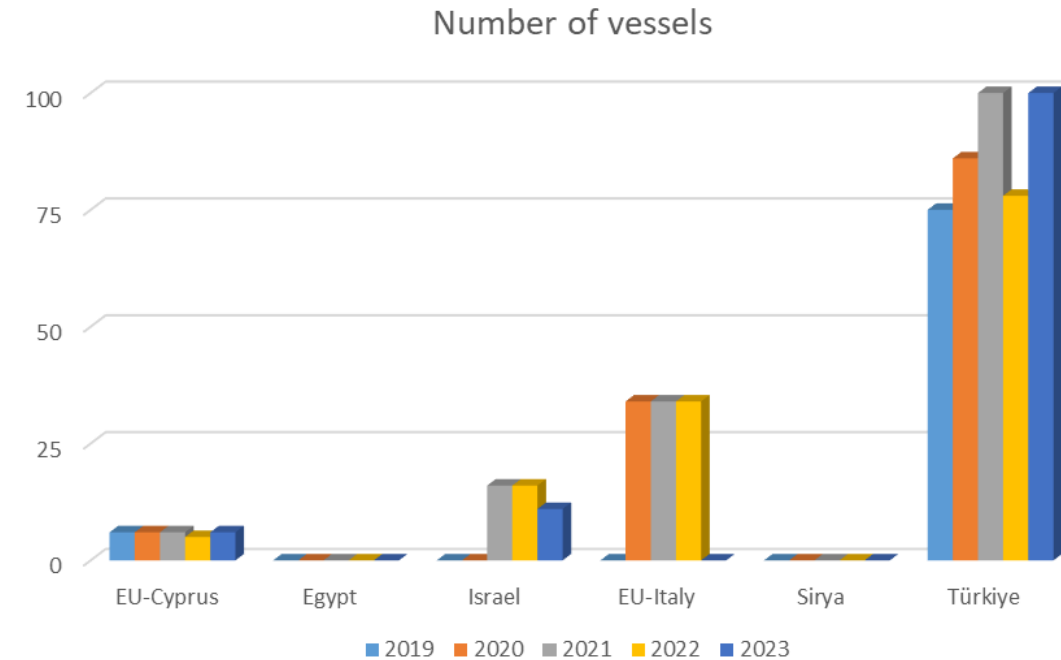
# Conclusions and recommendations



## Fishing Capacity

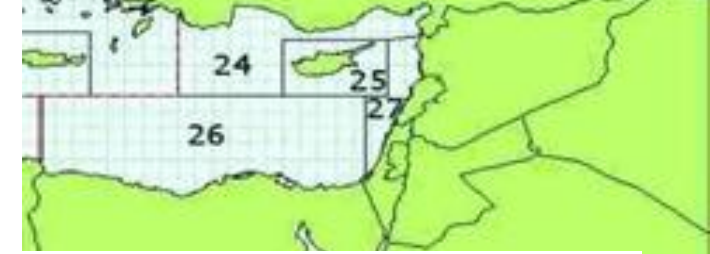
Data on authorized vessels to fish deep-water red shrimps in the Levant Sea is requested on an annual basis and published on the GFCM website<sup>18</sup> following the GFCM data confidentiality policy and procedures. The information available is compiled in the following tables and charts:

Number of vessels						
CPC	Reference year					
	2019	2020	2021	2022	2023	2024
EU-Cyprus	6	6	6	5	6	4
Egypt	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
Israel	Not reported	Not reported	16	16	11	Not reported
EU-Italy	Not reported	34	34	34	Not reported	Not reported
Syria	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported
Türkiye	75	86	100	78	110	Not reported



Number of fishing vessels for deep-water red shrimp fisheries in Levant Sea

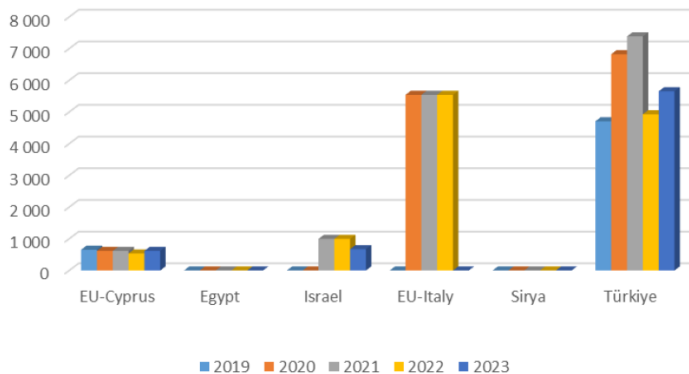
# Conclusions and recommendations



Fishing capacity (GT)					
CPC	Reference year				
	2019	2020	2021	2022	2023
EU-Cyprus	654	618	618	536	618
Egypt	Not reported	Not reported	Not reported	Not reported	Not reported
Israel	Not reported	Not reported	997	997	671
EU-Italy	Not reported	5 542	5 542	5 542	Not reported
Syria	Not reported	Not reported	Not reported	Not reported	Not reported
Türkiye	4 707	6 824	7 387	4 927	5 653

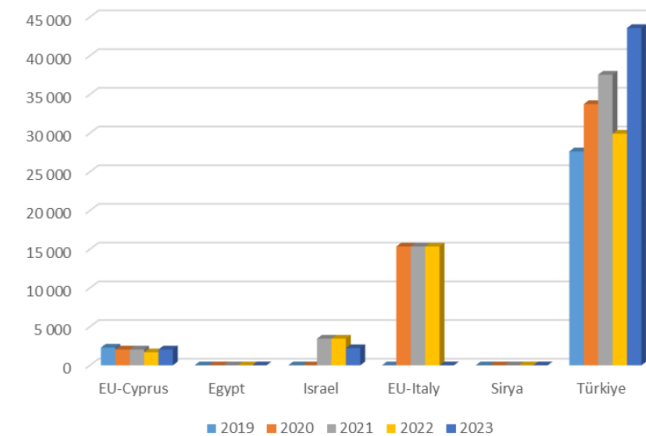
Engine power (kW)					
CPC	Reference year				
	2019	2020	2021	2022	2023
EU-Cyprus	2 284	2 048	2 048	1 675	2 048
Egypt	Not reported	Not reported	Not reported	Not reported	Not reported
Israel	Not reported	Not reported	3 451	3 451	2 216
EU-Italy	Not reported	15 346	15 346	15 346	Not reported
Syria	Not reported	Not reported	Not reported	Not reported	Not reported
Türkiye	27 629	33 741	37 539	29 918	43 569

Fishing capacity (GT)



Fishing capacity (GT) in deep-water red shrimp fisheries in Levant Sea

Engine power (kW)



Engine power (kW) in deep-water red shrimp fisheries in Levant Sea



THANK YOU!

Further information:  
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