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COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

**PROPOSAL FOR A REGULATION OF THE EUROPEAN PARLIAMENT AND OF
THE COUNCIL**

**Establishing a multiannual plan for the fisheries exploiting demersal stocks in the
western Mediterranean Sea**

{COM(2018) 115 final} - {SWD(2018) 59 final}

1.6.2 Output/TAC management

$$\tilde{C}_{t+1} = k(\tilde{F}_{a+1,t+1}|\theta_k)$$

$$\tilde{C}_{t+1} = \tilde{C}_{t+1} \exp \epsilon_{\tilde{C}}$$

$$\epsilon_{\tilde{C}} \sim LN(\mu_{\tilde{C}}, \sigma_{\tilde{C}}^2)$$

1.6.3 Technical measures

Technical measures affect the exploitation by imposing a shift in the age structure of the catch. Both gear selectivity and availability can be mimicked using shifts in the age structure of the exploitation. The overall level of exploitation is dealt by the input or output controls and technical measures are seen as a complement.

$$\tilde{S}_{a,t+1} = w(\hat{S}_{a,t}|\theta_w)$$

$$\tilde{S}_{a,t+1} = \tilde{S}_{a,t+1} \exp \epsilon_{\tilde{S}}$$

$$\epsilon_{\tilde{S}} \sim LN(\mu_{\tilde{S}}, \sigma_{\tilde{S}}^2)$$

2. CONDITIONING

Models	<p>G Beverton & Holt or geometric mean</p> <p>J $E_t = \alpha F_t^\beta$ where $\alpha = \dots$ and $beta = 0.7; 1.0$</p> <p>f a4a model with F as a tensor product of thin plate splines</p> <p>\hat{G} geometric mean</p> <p>H h (see section 2.1)</p> <p>K k (see section 2.1)</p> <p>w w (see section 2.1)</p>
Uncertainty	<p>σ_r^2 fit's residuals with auto-correlation or fit's residual</p> <p>μ_c 0</p> <p>σ_c^2 0</p> <p>μ_d 0</p> <p>σ_d^2 empirical (computed from time series of observations)</p> <p>μ_F 0</p> <p>σ_F^2 modelled (computed from time series of estimations)</p> <p>μ_S fixed at 0.01</p> <p>σ_S^2 fixed at 0.1</p>

2.1 Management decision/Harvest control rule

$$h : \tilde{F}_{t+1} = \left(\frac{F_{trg}}{\hat{F}_t} \right)^{1/\delta} \hat{F}_t \exp(\hat{\tau}_t)$$

where

$$\delta = \begin{cases} t_{trg} - t & \text{if } B_{t-1} > B_{ref} \\ 5, 10 & \text{if } B_{t-1} \leq B_{ref} \end{cases}$$

and $\hat{\tau}_t$ is the empirical variance of F_t

2.2 Input/effort management

2.2.1 Intermediate year correction

An alternative h is to include a correction to account for differences between the intermediate year F_t decrease, estimated based on t assessment results, and the \tilde{F}_t which was set on $t - 1$.

$$h : \tilde{F}_{t+1} = \left\{ \left(\frac{F_{trg}}{\hat{F}_t} \right)^{1/\delta} \tilde{F}_t - (\tilde{F}_t - (\tilde{F}_{t-1} \left(\frac{F_{trg}}{\hat{F}_{t-1}} \right)^{1/(\delta+1)})) \right\} \exp(\hat{\tau}_t)$$

This method is appropriate for an effort plan that requires yearly, or periodic, adjustments. The downside is that it reacts to stock assessment results, which may cause instability in the trajectory to the target.

2.2.2 Implementation correction

Another alternative, which corrects \tilde{F}_{t+1} using cumulative knowledge on the deviance between the objective and the perception obtained by stock assessment is:

$$\tilde{F}_{t+1} = \tilde{F}_{t+1} \phi \left(\frac{\tilde{F}_{t:t+1}}{\hat{F}_{t:t+1}} \right)$$

Appropriate for effort plan that sets the effort trajectory in an initial moment and keeps it for a period. During that period data about the deviance between the objectives and the realised fishing mortalities, or effort, are collected and that information is used to correct the trajectory.

2.3 Output/TAC management

$$\tilde{C}_{t+1} = \sum_a = 1^N w_{at} \left(\frac{\tilde{C}_{a,t+1}}{\tilde{C}_{a,t+1} + M_{a,t+1}} \exp(-\tilde{F}_{a,t+1} - M_{a,t+1}) \hat{N}_{a,t+1} \right)$$

$$\hat{N}_{a,t+1} = \hat{N}_{at} \exp(-\bar{F}_{at} - M_{at})$$

$$\bar{F}_{at} = 3^{(t-1)} \sum_t = t - 3^T \hat{F}_t$$

2.4 Technical measures

The code implementation used assumes that the effort which is reduced by the technical measure is relocated, increasing the fishing mortality on the ages not affected by the technical measure. It comes closer to mimic a situation where the bulk of the measures are the implementation of protected areas.

$$\tilde{S}_{a=0,t+1} = \hat{S}_{a=0,t-1} \exp \epsilon_s$$

$$\tilde{S}_{a \neq 0,t+1} = \hat{S}_{a \neq 0,t-1} (\hat{S}_{a \neq 0,t-1} + (\hat{S}_{a=0,t-1} - \tilde{S}_{a=0,t+1})) =$$

ANNEX 5: MAIN ELEMENTS OF THE CFP

The reformed CFP, Regulation (EU) 1380/2013 entered into force on 1 January 2014. Its main elements are:

- (1) **Maximum Sustainable Yield** is the best possible objective for renewable and profitable fisheries, harvesting the maximum amount of fish on a long term basis. The objective of the CFP is to ensure that MSY is achieved by 2020 at the latest. In the Mediterranean less than 10% of assessed stocks are within MSY and there is little sign of improvement. Besides, for many stocks, we have no assessment of MSY.
- (2) **Annual legislation on fixing fishing opportunities:** to fix, based on scientific advice that is consistent with MSY and in accordance with multi-annual plans (where they exist), the amount of fishing (catches and/or effort) for the stocks concerned, and to allocate quotas to the Member States following the so-called relative stability key. In turn, Member States deal with how to distribute their national quotas (catches and/or effort) to their fishermen. Annually fishing opportunities are set for the Baltic, North Sea, Atlantic and deep-sea stock, by Council only, to determine the level of catches, for each stock. The COM outlines its approach for the TAC each spring in a Policy Statement.
- (3) **The landing obligation:** The new CFP includes a landing obligation for all catches of species subject to catch limits (TACs) and, in the Mediterranean, also catches of species which are subject to minimum sizes (only blue-fin tuna and swordfish are under TAC in this sea basin).

The landing obligation comes with a set of potential measures and flexibility instruments to make the transition and timely implementation possible. These include quota flexibilities, exemptions for species that have a high survival rate (i.e. it makes sense to return these fish to the sea if they are likely to survive) and a *de minimis* exemption to cater for unwanted catches that are unavoidable. The plans may also fix conservation reference sizes for fish. These measures should be developed through multi-annual plans, but in the absence of such plans, *discard plans* can be adopted (with duration of maximum three years).

- (4) **EU multi-annual plans:** they contain the framework for management of a stock or a combination of stocks (by fishery). Multi-annual plans are designed to ensure effective management of the fisheries and to bring conservation and management provisions for groups of stocks under plans. Plans contribute to stability and a long-term security for the industry. The elements that shall and that may be included in a multi-annual plan are specified in Article 10. The main elements of plans are:

MSY-related targets (per target stock), deadlines for achieving MSY, and fishing mortality/exploitation ranges that are consistent with MSY (F_{MSY} as a range of values), safeguard provisions if science indicates that stocks are in trouble; specific conservation measures for non-target species, so as to keep them within sustainable boundaries, mechanisms to allow for regionalisation of implementing measures under the plan.

The precise shape and content of multi-annual plans were subject to work by an inter-institutional task force involving the Commission, the European Parliament and the Council in order to provide guidelines on the structure and content of these multi-

annual plans and to solve delicate issues on the sharing of competences among those EU Institutions.

Similarities and differences between multi-annual plans

At present, the only plan adopted since the entry into force of the new CFP in 2014 is the multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea, whereas Commission proposals for a multiannual plan for demersal stocks in the North Sea and a multiannual plan for small pelagic stocks in the Adriatic are still under negotiation by the co-legislators.

All these plans contain the elements listed in Article 10 of the CFP, in particular: MSY by 2020; the fishing mortality targets in the form of F_{MSY} ranges and biomass safeguards for the main targeted stocks; specific conservation measures to be introduced through Regionalisation; provisions linked to the landing obligation; and evaluation of the plan.

The western Mediterranean plan differs from the only yet adopted multi-annual plan in the Baltic Sea in the following elements: (i) recreational fisheries have been included in the western Mediterranean plan due to their importance for demersal stocks; and (ii) control and enforcement aspects have been removed in the western Mediterranean plan given the upcoming revision of the Fisheries Control System.

- (5) **Fleet capacity rules:** these are provisions to support that the fleet capacity of a Member State matches with the fishing opportunities that are allocated to it; fleet overcapacity potentially leads to overfishing. Member States cannot increase the engine power or storage capacity of their fleets. Each Member State is subject to a maximum capacity threshold (in engine power (kW) and in vessel volume (GT)). Nominally, all Member States fleets are under these ceilings; however, in many Member States the effective engine capacity may well outscore the numbers in the CFP. Despite intensified enforcement, this is a persistent and hard-to-tackle issue.

Annually Member States must report on the balance between capacity and fishing opportunities. Historically this has not been linked to targeted actions. For the first time, under the new CFP Member States have to give follow-up to the identification of overcapacity with an action plan to eliminate it, in order to have access to funding for decommissioning of excess vessels. The assessment exercise by Member States on the balance between capacity and fishing opportunities is facilitated by common guidelines developed by the Commission. It includes technical and economic parameters. Member States will have to include in their reports an action plan for the fleet segments with identified imbalance. In the action plan, Member States have to set out the adjustment targets and tools to achieve the balance. The plan has to include a clear time frame for the implementation of the action plan as well.

- (6) **The External Dimension:** The CFP reform enshrines for the first time the external dimension of the CFP (Part VI of the Basic Regulation: Articles 28-31). It calls for strong external action that follows externally the same principles and standards as internally while promoting a level-playing field for EU operators. Under the CFP new international agreements should contribute to long term sustainability worldwide via stronger bilateral relations and tackling global issues such as IUU fishing and fishing overcapacity, uphold and strengthen the global architecture for fisheries governance (UN, FAO, OECD, etc.), contribute towards a more effective functioning of RFMOs, more sustainable Fisheries Agreements and better coherence with other EU policies.

- (7) **Advisory Councils:** The Advisory Councils (ACs) were established since 2004 to advise the Commission on matters related to fisheries management in their respective areas of competence. Ten ACs were established for the Mediterranean Sea, the Black Sea, the Baltic Sea, the North Sea, the North Western Waters, the South Western Waters, Pelagic stocks, the Long Distance Fleet, Aquaculture and Market.

ACs are stakeholders' organisations that bring together the industry (fishing, processing and marketing sectors) and other interest groups, such as environmental and consumers' organisations. They receive an annual grant from the Commission to cover part of their operational costs.

ACs are expected to expand their play in the regionalised CFP and are to be consulted by Member States when preparing joint recommendations on conservation measures.

- (8) **Regionalisation:** Another important innovation introduced by the Basic Regulation (Article 18) is 'Regionalisation'. The Basic Regulation enables Regionalisation for a number of instruments and measures: multi-annual plans, discard plans, establishment of fish stock recovery areas and conservation measures for compliance with obligations under EU Environmental legislation. Where regionalisation applies, EU member States with a direct management interest may agree to submit joint recommendations for achieving the objectives of the above-mentioned plan or measure. The recommendations have to be compatible with the objectives of the CFP, with the scope and objectives of the measure or plan, and be at least as stringent as measures under EU law. The EU countries have to consult the relevant Advisory Council(s) on the joint recommendations before submitting them to the Commission. If all these conditions are met, the Commission can then adopt a Delegated Act to transform these joint recommendations into EU law applicable to all operators.

The aim of Regionalisation is to increase the involvement of the Member States affected by regulation and thus their ownership of the measures. The Commission's role is to ensure that the adopted measures fulfil the objectives of the Basic Act. Regionalisation thus constitutes an important shift from instrument-based to results-based management.

- (9) **Establishment of fish stock recovery areas:** Under Article 8 of the Basic Regulation, the Union shall endeavour to establish protected areas due to their biological sensitivity, including areas where there is clear evidence of heavy concentrations of fish below minimum conservation reference size and of spawning grounds. In such areas fishing activities may be restricted or prohibited in order to contribute to the conservation of living aquatic resources and marine ecosystems. Member States shall identify, where possible, suitable areas which may form part of a coherent network and shall prepare, where appropriate, joint recommendations (in line with regionalisation) with a view to the Commission submitting a proposal. The Commission may be empowered in a multi-annual plan to establish such biologically sensitive protected areas.

ANNEX 6:
OVERVIEW OF THE NATIONAL MANAGEMENT PLANS
"Synergies and inconsistencies"

The summary table below provides an overview of the main elements of the French, Italian and Spanish national management plans (NMP) regulating demersal fisheries in the western Mediterranean Sea. The synergies and inconsistencies between these plans can be identified.

	French NMP¹	Italian NMP²	Spanish NMP³
Scope	Trawls flying the French flag operating in the Mediterranean Sea	Trawls operating in the GSAs 9, 10 and 11	Trawls, longliners and small scale fisheries flying the Spanish flag operating in the EEZ and high seas
Objectives	Not defined in the NMP	(i) To bring fish stocks within the biological referent points; (ii) To improve Spawning Stock biomass (SSB) of hake, red mullet and giant red shrimp; (iii) To improve the economic condition of the fishing sector; and (iv) To maximise employment opportunities in the sector	(i) To ensure that the reference points for demersal stocks are attained and; (ii) To maintain exploitation levels in a sustainable manner.
Timeframe to reach the objectives	Not defined in the NMP	Not defined in the NMP	At the latest by 2020
Biological reference points	Not defined in the NMP	<p>Biological RP Target RP: Reproductive potential or ESSB/USSB = 0.35 Limit RP: ESSB/USSB = 0.2</p> <p>Economic RP Gross profit per vessel = +58% Added value per employee = +46% from the baseline</p> <p>Social RP Number fishermen = -8% Labour cost per employee = +25% from the baseline</p> <p>Same objectives are provided for GSA 10 and 11 (although the specific values are different).</p>	<p>Proxy F_{MSY} ($F_{0.1}$): Red mullet in GSA5 = 0.33; in GSA6 = 0.17 Striped red mullet in GSA5 = 0.20; in GSA6 = 0.15 Red shrimp in GSA5 = 0.33; in GSA6 = 0.24 Deep-water rose shrimp in GSA5 = 0.31; in GSA6 = 0.30 Norway lobster in GSA5 = 0.30</p>

	French NMP ¹	Italian NMP ²	Spanish NMP ³
Management measures	<ul style="list-style-type: none"> - Fishing authorisation - Fishing effort regime expressed as the total allowable fishing days per year (equal to 14 726 fishing days for the whole trawl fleet). 	<ul style="list-style-type: none"> - Permanent/temporal cessations - Fishing authorisations - Fishing protected areas - MEDREG provisions such as MCRS, minimum mesh sizes, distance from the coast and protected habitats 	<ul style="list-style-type: none"> - Fishing licences - Limitations in the number and technical characteristics of the vessels - Effort limitations, through fishing seasons and permanent cessations - Fishing protected areas and closure periods - MEDREG provisions such as MCRS, distance from the coast and protected habitats
Safeguard measures	Not defined in the NMP	Not defined in the NMP	<ul style="list-style-type: none"> - Adjust fishing effort levels, in terms of number of vessels, tonnage or engine power - Additional technical measures - Additional fishing protected zones or temporal closures
Monitoring	Not defined in the NMP	Monitoring aspects are included	Monitoring aspects are included

Note: it should be taken into account that additional measures (such as fishing protected areas) could have been adopted outside these national management plans.

REFERENCES:

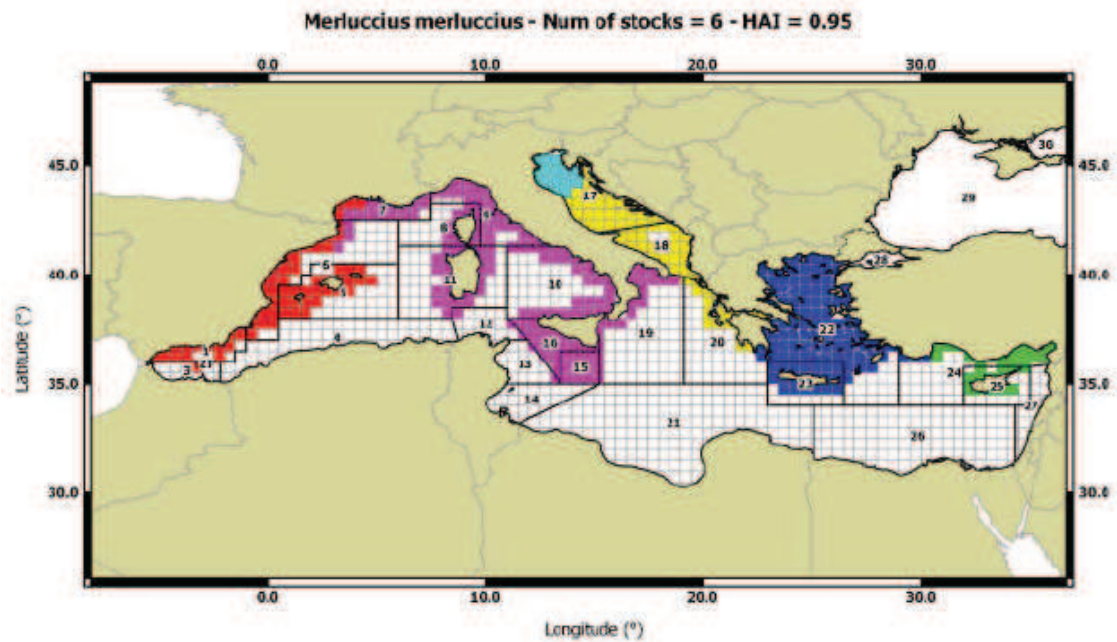
- ¹ [Arrêté](#) du 28 janvier 2013 portant création d'un régime d'effort de pêche pour la pêche professionnelle au chalut en mer Méditerranée par les navires battant pavillon français; NOR: TRAM1240482A, p. 3275-2378.
- ² [Decreto](#) 20 maggio 2011 relativo all'adozione Piani di gestione della flotta a strascico in sostituzione del decreto direttoriale n. 44 del 17 giugno 2010; GU Serie Generale n.154 del 5-7-2011; p. 2.
- ³ [Orden AAA/2808/2012](#), de 21 de diciembre, por la que se establece un Plan de Gestión Integral para la conservación de los recursos pesqueros en el Mediterráneo afectados por las pesquerías realizadas con redes de cerco, redes de arrastre y artes fijos y menores, para el período 2013-2017; No 313, p. 7.

ANNEX 7: TRANSBOUNDARY NATURE OF THE STOCKS

The most scientifically sound stock units and their transboundary nature of 8 demersal species under this initiative is shown below (STOCKMED¹). In all cases, the stocks are distributed beyond the single GFCM-GSAs.

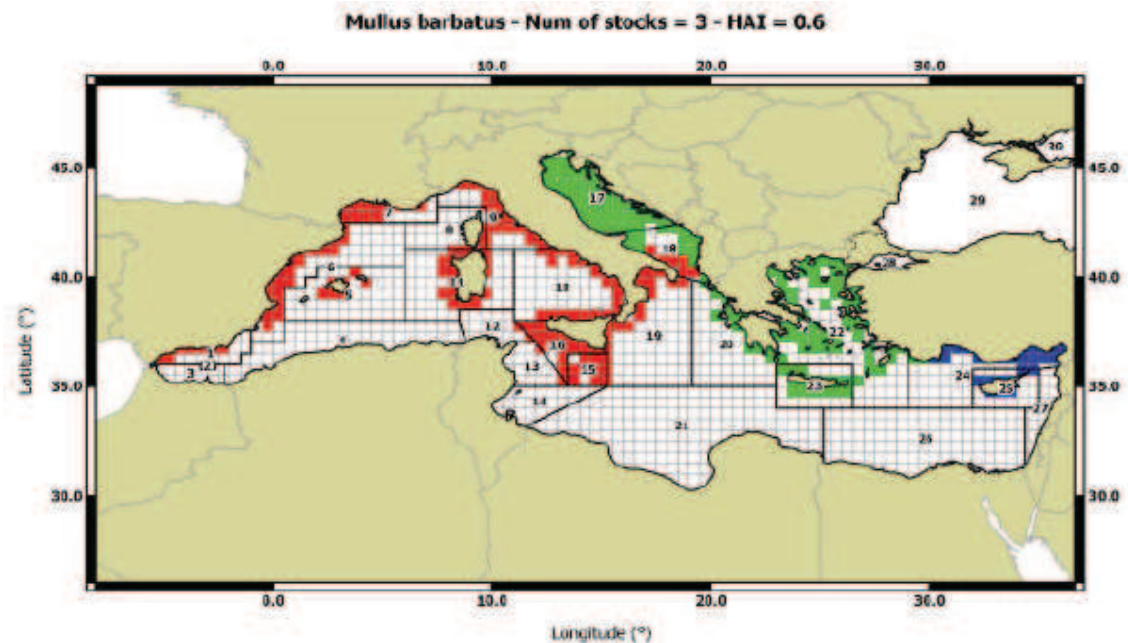
Hake

Merluccius merluccius



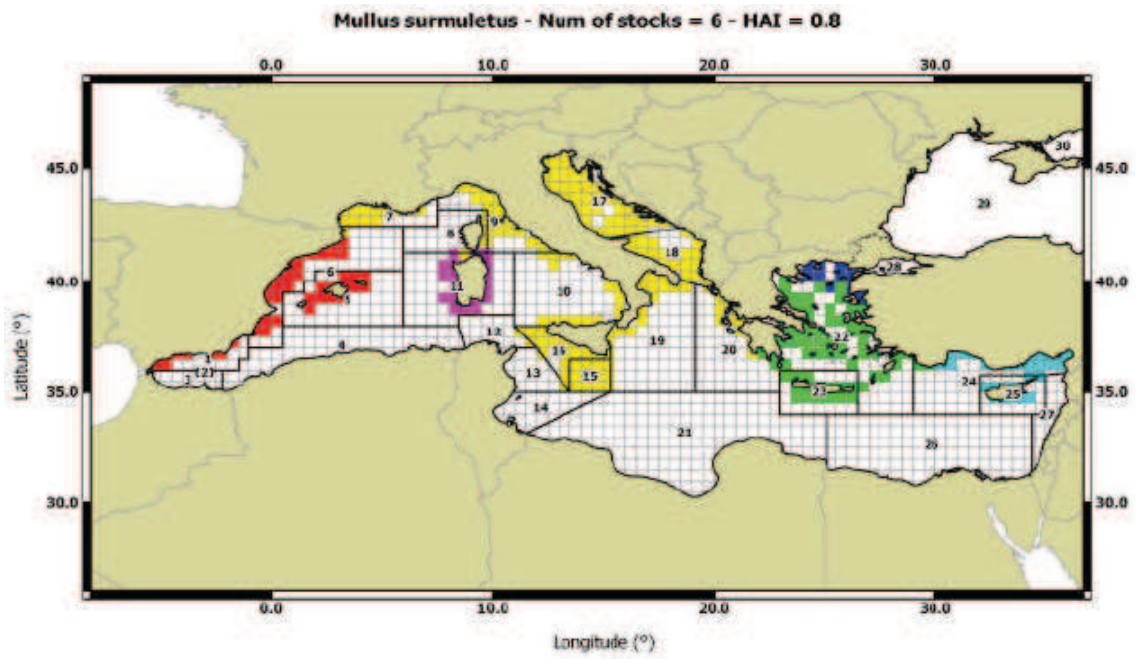
Red mullet

Mullus barbatus

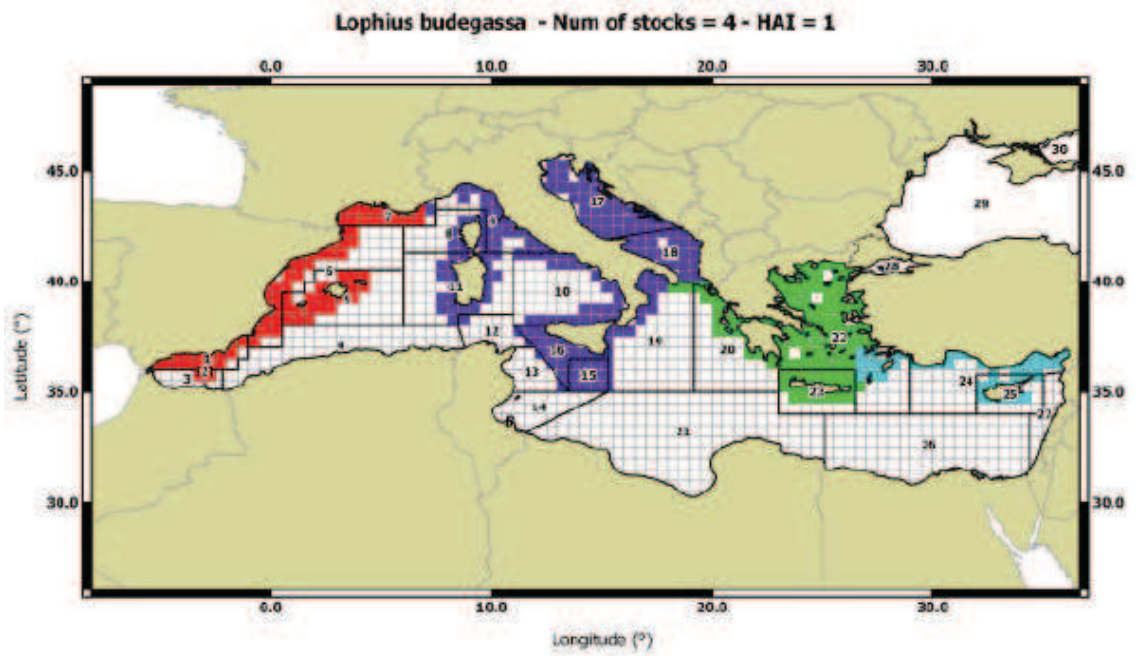


¹ [MAREA\(2014\)](#). Stock units: Identification of distinct biological units (stock units) for different fish and shellfish species and among different GFCM-GSA. STOCKMED Deliverable 03: FINAL REPORT. September 2014, 310 pp.

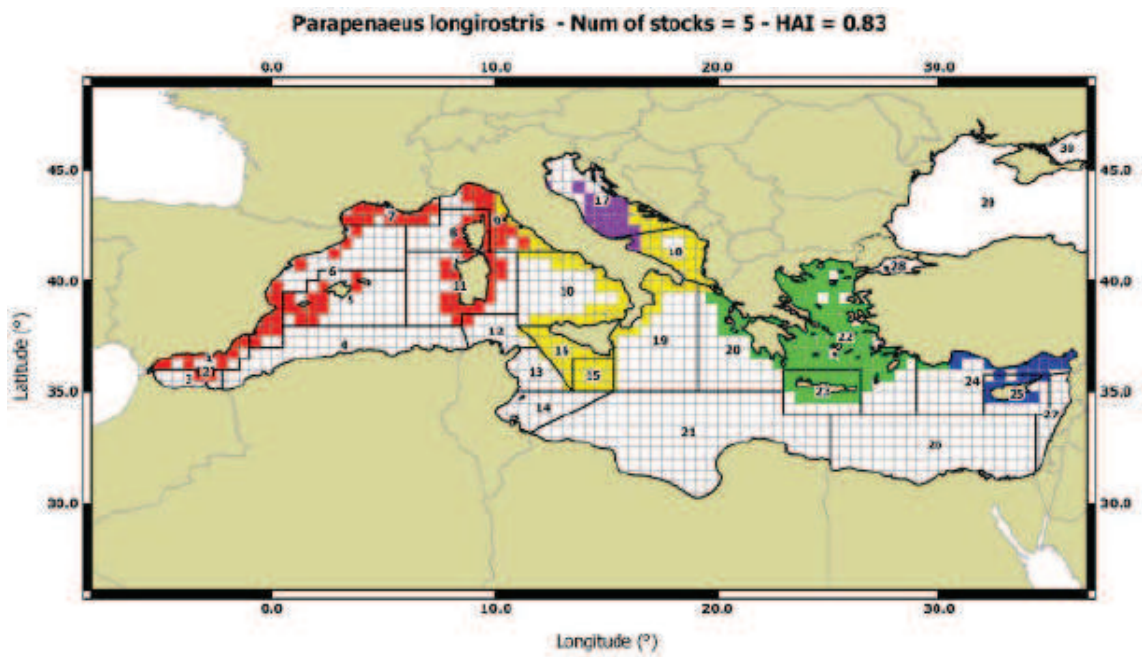
Stripped red mullet
Mullus surmuletus



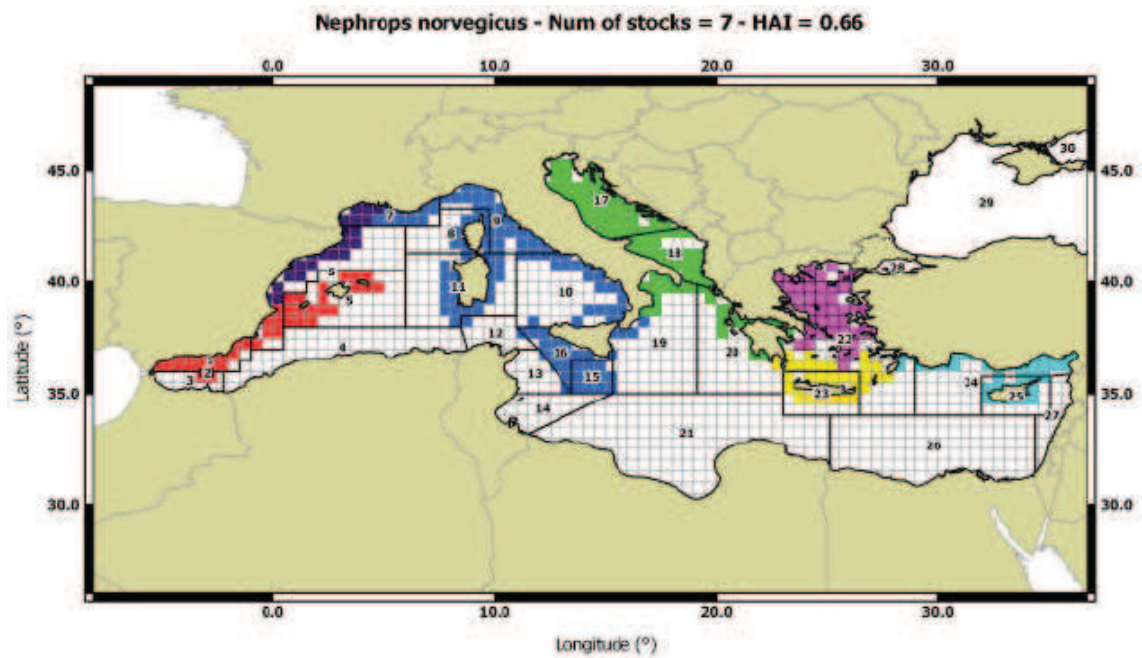
Anglerfish
Lophius budegassa



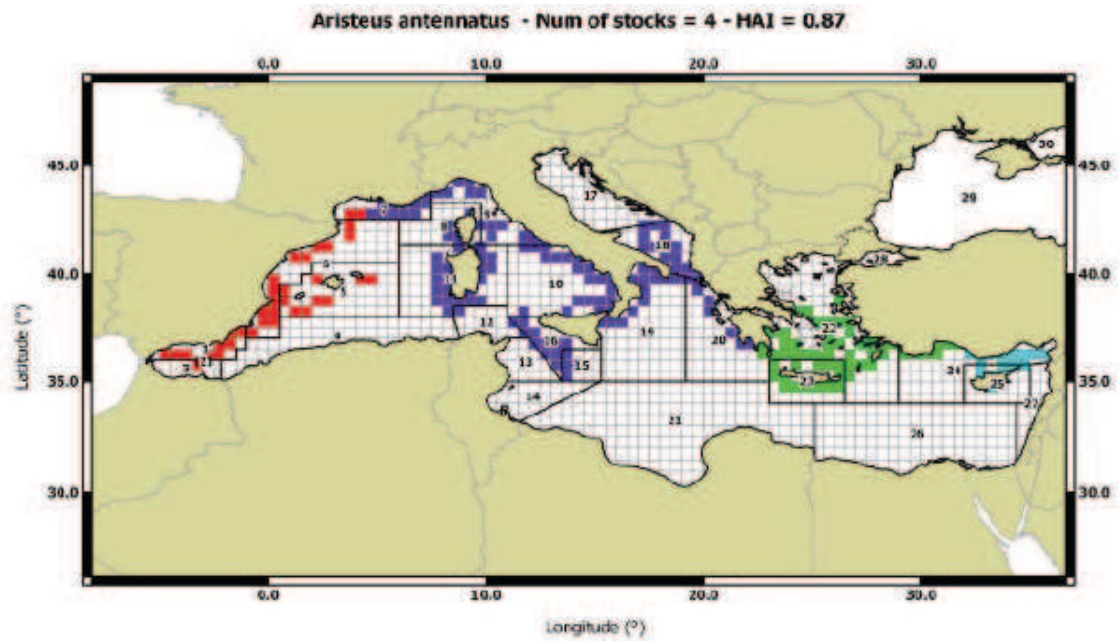
Deep-water rose shrimp
Parapenaeus longirostris



Norway lobster
Nephrops norvegicus



Blue and red shrimp
Aristeus antennatus



Giant red shrimp
Aristaeomorpha foliacea

