



# **Contribution by **MedReAct** to the public consultation on the multiannual plan for the fisheries exploiting demersal stocks in the Western Mediterranean Sea**

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**MedReAct** is an independent non-profit, non-governmental organisation founded in 2014 to promote actions for the recovery of the Mediterranean marine ecosystems.



# 1. INTRODUCTION

MedReAct welcomes the public consultation on the Multiannual Plan for fisheries exploiting demersal stocks in the Western Mediterranean and the opportunity to provide our views and recommendations to improve the state of demersal fish stocks and of marine ecosystems critical to their recovery.

The heavy fishing exploitation of the Western Mediterranean stocks, targeted by European fishing vessels, is indicative of the role and responsibility of the EU fleets in the depletion of Mediterranean stocks. This can be largely attributed to three main factors:

- > The weak governance and management systems of Mediterranean fisheries;
- > Overcapacity and the lack of compliance; and
- > The multiple derogations to and poor enforcement of Council Regulation (EC) 1967/2006 (MEDREG) that have undermined its conservation objectives, a failure particularly evident in the Western Mediterranean where 93% of assessed demersal stocks are overfished, some at levels largely above  $F_{MSY}$  (e.g. hake in the Gulf of Lyon) and at risk of collapse.

In order to recover fish stocks to levels above  $MSY$  by 2020, the Multiannual Plan for the Western Med (Western Med MAP) will need to introduce bold and urgent rebuilding measures and ensure that the social and economic costs for the fishing sector are mitigated, at least in part, by the European Maritime and Fisheries Fund (EMFF).

According to the Scientific, Technical, and Economic Committee for Fisheries (STECF), compliance with the Common Fisheries Policy would require a strong reduction in fishing effort in the Western Mediterranean demersal fisheries to achieve the  $MSY$  objective by 2020. Management scenarios currently under consideration by the European Commission show that once fishing effort is aligned to  $MSY$ , a rapid increase in biomass of all stocks can be expected even at levels much higher than those observed historically. The EU, France, Italy and Spain should therefore be prepared to accompany such a large fishing effort reduction with social and economic measures that will ease the transition to sustainable fisheries.

The persistent “crisis” of Mediterranean fisheries has impacted the marine food web and fish stock dynamics. The main objectives of the Western Med MAP should be to address decades of overfishing and poor management through a mix of capacity and effort reduction measures and protection of critical marine and fish essential habitats (VMEs) in order to contribute to restoring healthy fish stocks.



## 2. MEDREACT'S PRIORITIES

### 2.1 Securing the recovery of fish stocks

According to the CFP, “Multiannual Plans [...] shall contain conservation measures to restore and maintain fish stocks above levels capable of producing maximum sustainable yield in accordance with Article 2(2)”. Taking into account that only Fishing mortality [F] below FMSY ( $F < FMSY$ ) will lead to biomass levels above BMSY ( $B > BMSY$ ), ranges of allowable F values must be bound at their upper limit by FMSY. In other words, FMSY must be treated as a limit reference point, not as a target.

For mixed fisheries that characterize the Western Mediterranean, FMSY ranges should be derived from the most vulnerable species. It should be noted, though, that experts warn that persistent fishing at the upper limits of the FMSY range across all or most stocks simultaneously (FMSY combined) greatly increases the risk of overfishing and of the CFP objectives not being achieved for the most exploited species by 2020<sup>2</sup>. Rather, they recommend that “large reductions in fishing mortality for stocks that have been subject to high exploitation rates for decades are difficult to achieve with the current paradigm of effort control in the Mediterranean. Instead, re-orienting the exploitation of Mediterranean fish stocks to help meet the policy goals of fishing mortality levels compatible with MSY by 2020 can be achieved with management measures that combine changes in exploitation patterns (i.e. capacity and effort reduction, improved selectivity, etc.) with seasonal or spatial area closures”<sup>3</sup>.

In this context, marine and fish stock recovery areas are considered among the most efficient tools to integrate the ecosystem-based approach into fisheries management and contribute to the recovery of marine ecosystems.

The establishment of fish stock recovery areas as provided for by Article 8 of the CFP<sup>4</sup> empowers the Commission - through the regionalisation procedure - to protect biologically sensitive areas by means of multiannual plans. Options such as extending to a depth of 100-200 metres and more areas closed to trawling, in order to protect nurseries and spawning aggregations of depleted species and Vulnerable Marine Ecosystems (VMEs), should be fully considered and integrated into the Western Med MAP.

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<sup>1</sup> Article 9 of Council Regulation (EC) 1380/2013.

<sup>2</sup> Study on the evaluation of specific management scenarios for the preparation of multiannual management plans in the Mediterranean and the Black Sea. European Commission - Executive Agency for Small and Medium-sized Enterprises, June 2016.

<sup>3</sup> Ibid.

<sup>4</sup> “The Union shall, while taking due account of existing conservation areas, endeavor 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” Art 8.1 Council Regulation (EU) 1380/2013.



However, MAPs should avoid introducing spatial measures that result in a trade-off being made between recovery in the closed areas and increased impact of fishing activities in other areas or on other non-target species. Permanent area closures combined with the equivalent reduction of fishing capacity and effort should be used to reduce fishing mortality, while at the same time providing conservation benefits for vulnerable habitats and species.

## 2.2 Eliminating overfishing

The CFP stipulates that fish stocks should be maintained above MSY beyond 2020. It is therefore crucial that the transition phase ensures that the size and composition of the demersal fisheries is brought back to a level that would not fuel a return to overfishing once stocks are recovered. We present below a snapshot of the impact of demersal fisheries in some Geographical Subareas (GSA) of the Western Mediterranean with related recommendations based on the Commission management scenarios for Mediterranean and Black Sea MAPs. We note that the reference points used in the Commission scenarios are only FMSY upper range and FMSY combined. However, both reference points used exceed the FMSY limit, which may not deliver the CFP objectives.

**We strongly recommend that the Commission presents an additional management scenario based on reference points that respect  $F_{MSY}$  as a limit.**

**GSA 6** | Demersal fisheries in GSA 6 are operated by Spanish vessels. Scientific advice calls for a 90% reduction in fishing effort. The Spanish fleet segment that contributes most to the total landings of demersal species (hake, red mullet, blue whiting, blue and red shrimp, and deep water shrimp) are the Spanish bottom trawlers larger than 18 m (67.5% of landings). All these species are heavily overexploited, with hake and blue and red shrimp at levels ten times higher than FMSY. The Commission management scenarios<sup>5</sup> are based on 20% capacity reduction (prescribed by the Spanish administration in 2013) and 80% on activity reduction (days at sea). However the Commission experts note that “it is necessary to stress that the large effort reduction required (80-90%) cannot be accomplished solely by the prescribed 20% capacity and effort reduction in the current Spanish management plan<sup>6</sup>. Additional large reductions in activity would be necessary, resulting in the apparent paradox of the remaining vessels having to be active a few weeks annually at most.”<sup>7</sup> The situation in GSA 1, 2, 3 and 5 shows a similar overexploitation trend.

**Considering that bottom trawlers take the largest catches and contribute most to the fishing mortality of juveniles, as well as having the most damaging impact on benthic communities, the Western MAP should require additional capacity reduction in this fleet segment as a matter of priority.**

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<sup>5</sup> *Op.cit*

<sup>6</sup> *Plan de Accion de la Flota Pesquera Española – Plan de Accion para la Flota en desequilibrio entre la capacidad pesquera y las oportunidades de pesca. Segreteria General de Pesca. Julio 2015.*

<sup>7</sup> *Op.cit*



Stock status mediterranean species					
Species	GSA	Year	F/F <sub>msy</sub>	Effort modulation	
Blue and red shrimp	1	2013	2.0	0.50	CGPM
Blue and red shrimp	5	2012	4.3	0.77	CGPM
Blue and red shrimp	6	2013	2.0	0.50	CGPM
Deepwater pink shrimp	5	2012	1.2	0.17	CGPM
Deepwater pink shrimp	6	2012	5.5	0.82	CGPM
Deepwater pink shrimp	1,4	2011	2.4	0.58	CGPM
Hake	1	2012	7.4	0.86	CGPM
Hake	5	2013	7.7	0.87	CGPM
Hake	6	2013	7.8	0.87	CGPM
Red mullet	5	2012	6.6	0.85	CGPM
Red mullet	6	2013	1.3	0.23	CGPM
Striped red mullet	5	2013	3.0	0.67	CGPM
Norway lobster	5	2011	3.2	0.69	CGPM
Black-bellied anglerfish	5	2011	6.3	0.84	STECF
Black-bellied anglerfish	6	2011	4.8	0.79	STECF
Blue whiting	1	2011	3.5	0.71	STECF
Blue whiting	6	2013	9.5	0.89	STECF
Deepwater pink shrimp	1	2012	1.7	0.39	STECF
Deepwater pink shrimp	5	2012	1.2	0.19	STECF
Deepwater pink shrimp	6	2012	5.5	0.82	STECF
Hake	1	2012	7.3	0.86	STECF
Hake	6	2013	9.9	0.90	STECF
Norway lobster	1	2011	1.6	0.38	STECF
Norway lobster	5	2011	1.3	0.24	STECF
Norway lobster	6	2013	3.9	0.75	STECF
Octopus	5	2011	1.5	0.32	STECF
Red mullet	5	2012	6.6	0.85	STECF
Red mullet	6	2013	3.3	0.69	STECF
Striped red mullet	5	2012	3.0	0.66	STECF

Source: Diagnostic of the fishery stocks and possible future scenarios: Dorsal. Eduardo Balguerías Guerra. IEO, February 2016.

**GSA 7 |** French bottom trawlers larger than 18 m account for 76% of all landings of demersal species and are almost entirely responsible for the fishing mortality of hake and red mullet. In this area the overexploitation of hake is almost 15 times higher than  $F_{MSY}$ , and 3.2 times higher for red mullet. French and Spanish bottom trawlers have low selectivity on demersal resources, with a large proportion of undersized hake and red mullet catches. Experts advise that even to reach  $F_{MSY}$  upper range current fishing mortality should be reduced by 93% for hake and 63% for red mullet.<sup>8</sup>

<sup>8</sup> *Op. cit.*



The French national plan<sup>9</sup> sets only a reference point for hake which is much higher than  $F_{MSY}$ , and does not give any clear indications of capacity or activity reduction. However, the Commission's management simulations indicate that the number of fishing vessels engaged in demersal fisheries in the GSA 7 should be reduced from 711<sup>10</sup> to 68 by 2020 at the latest. For the Spanish fleet the largest reduction will affect the longliners operating on the continental shelf, which should decrease from 15 vessels to one, a measure that could significantly reduce the impact on large hake spawners, whereas Spanish trawlers larger than 18 m should be reduced from 11 to one. The French fleet will need to absorb the largest downsizing with trawlers reduced from 65<sup>11</sup> to 6 vessels.

**The Western Med MAP should contain prescriptive capacity and effort reduction measures, targeting as a priority the trawling and longline demersal fisheries, and incorporate social and economic measures to help fishing communities absorb the impact of these reductions. In the framework of the Western Med MAP, demersal fisheries should be restricted to well-defined fishing zones that do not host critical marine biodiversity, VMEs, nursery and spawning areas, spawners or juvenile aggregations of depleted species.**

**Bottom trawling in the Fishery Restricted Areas should be permanently closed so as to fully protect these sensitive marine habitats, which had been the original aim of the Fishery Restricted Area (FRA) proposal considered by the GFCM in 2009.**

**GSA 9 |** Demersal fisheries in GSA 9 are operated by the Italian fleet with bottom trawlers larger than 12m accounting for 65% of all landings of demersal species in the area. Of the four assessed stocks (hake, Norway lobster, deep water rose shrimp and red mullet) hake and Norway lobster are the most heavily exploited, requiring a reduction of 6.1% in fishing capacity (e.g. decommissioning by 2017) and of 55% in fishing effort<sup>12</sup>. Several EU and national projects carried out in GSA 9 have highlighted the problem of hake trawl discards. High quantities of hake are routinely discarded, especially in summer and on the fishing grounds located near the main nursery areas.

**Capacity and effort reduction should target those segments of the fleet that are exerting the highest fishing pressure on the stocks rather than being flatly distributed across all of the fleet segments engaged in these fisheries.**

**The large reduction in fishing effort should also take into account the need to protect benthic communities and other vulnerable marine ecosystems (VMEs), and guarantee permanent protection to nursery areas. Temporal closures should be adapted to the occurrence of juveniles and spawning aggregations.**

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<sup>9</sup> Arrêté du 28 février 2013 portant adoption d'un plan de gestion pour la pêche professionnelle au chalut en mer Méditerranée par les navires battant pavillon français.

<sup>10</sup> Number of vessels as of 2014.

<sup>11</sup> Number of French trawlers beyond 12 metres operating in GSA 7 as of 2014.

<sup>12</sup> Op. cit.



**GSA 11** | Although 52% of landings of demersal species in the GSA 11 pertain to the small-scale fishing segment (SSF) of 0-12 m, the fishing mortality of this fleet on the assessed stocks of red shrimp, hake and red mullet is rather limited compared to that of bottom trawlers larger than 12 m (1.9% versus 58%). All three stocks are being exploited unsustainably at levels much higher than  $F_{MSY}$  (fishing mortality is seven times higher for hake). Scientific advice recommends to reduce fishing mortality by 86% or 77 % according to the reference point applied<sup>13</sup> whereas Italy is planning to reduce just 7% of bottom trawlers' gross tonnage by 2017 (based on 2015 values). If scientific advice is promptly followed, experts note that the spawning stock biomass (SSB) of all the three stocks is expected to increase remarkably, especially for hake (> 108% by 2021).

**It would be particularly important for the Western Med MAP to remove fishing mortality on key nursery and spawning grounds in order to establish areas that can act as “reservoirs” and contribute to the rebuilding of depleted stocks.**

**Finally, and as a broader remark, the Western MAP should ensure that fleet segments operating at overcapacity levels are not granted any European Maritime and Fisheries Fund (EMFF) subsidies other than those available under capacity reduction programmes, as stipulated by the reformed CFP.**

### **2.3 Providing fishing access based on social and environmental criteria**

Although the recovery of demersal stocks in the Western Mediterranean is a major challenge, an MAP would offer the opportunity to restructure the demersal fisheries according to social and environmental sustainability criteria, ensuring a more stable future and better prospects in the longer term for fishing communities. This approach was introduced in the reformed CFP through Article 17, which requires that “Access to a fishery should be based on transparent and objective criteria including those of an environmental, social and economic nature. Member States should promote responsible fishing by providing incentives to those operators who fish in the least environmentally damaging way and who provide the greatest benefits for society”. According to the CFP the criteria may include the impact of fishing on the environment, the history of compliance, selective fishing gear or using fishing techniques with reduced environmental impact, such as reduced energy consumption or habitat damage.

The use of such criteria will create positive competition amongst fishers; those who fish in the most environmentally and socially sustainable way would be granted priority fishing access. In the longer term, such an approach would transform EU fisheries. It could be tested in the Western Mediterranean, where fishing access criteria could determine the grid against which the significant capacity and fishing effort reductions required to meet the overarching objective of the CFP would be allocated.

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<sup>13</sup> *FMSY upper of hake which is the most overexploited species or FMSY combined for all three species.*



## **2.4 Improving controls and compliance**

Enforcement and controls are a key element of any stock rebuilding measure. The success of ICCAT's Bluefin Tuna (BFT) recovery plan in the Eastern Atlantic can largely be attributed to the substantial resources and efforts that the EU invested to combat illegal fishing and increase compliance, coupled with the large decrease in capacity of the industrial BFT fisheries.

While the composition and dynamics of demersal fisheries require adaptive control strategies, the same level of political will, commitment and resources that backed the BFT recovery plan should be secured for the Western Med MAP.





### 3. CONSULTATION QUESTIONS AND ANSWERS

#### **Fisheries exploiting demersal stocks in the Western Mediterranean Sea.**

**To what extent do you agree or disagree with the perception of the problem described in the background document (i.e. "high levels of overfishing and limitations of the current management framework")? Are there any other aspects that you consider should be taken into account when defining the problem?**

Assessments carried out by the STECF and by the GFCM unequivocally point to the critical and persistent overexploitation of assessed demersal stocks in the Western Mediterranean, a situation that can be ascribed largely to a “laissez faire” attitude of the national administrations and widespread complacency of control authorities regarding non-compliance.

Furthermore, lack of transparency in fisheries has been historically a severe impediment to public scrutiny, an issue not just in the Mediterranean but all across the EU. The consistent NGO engagement in the CFP reform produced some improvements, but EU fisheries are still far from the level of transparency and accountability found for example across the Atlantic, in Canada or in the US.

Therefore, while we agree with the size and complexity of the problem described by the consultation background document, we also stress that if these deeply rooted limitations are not fully addressed, the failure of the current management could well be replicated in any new management framework.

**To what extent do you agree or disagree that the current management framework (through national management plans) is sufficient to meet the objectives of the CFP (i.e. sustainable exploitation of marine biological resources) in the Western Mediterranean Sea?**

Given the current and historic exploitation status observed across the majority of assessed stocks, there has been a general failure in achieving the conservation objectives laid down in the previous CFP. It should be said, though, that the management structure enacted by the MEDREG through the national plans has an inherent weakness. Since many of the fish stocks are shared stocks, individual national plans cannot intervene on the combined fishing pressures by fleets from different flag states. It has also been noted that “unless changes in (i) geographic scope of existing management plans are expanded at an appropriate regional level so as to cover all fleets exploiting the resources, and; (ii) operational changes to improve the implementation of management plans significantly and; (iii) to align them to



international standards (i.e. formulations of harvest control rules, definition of limit and target reference points for F and SSB, testing of management plan performances through MSE, etc.) then the likelihood of achieving the objectives of the new CFP are very remote<sup>14</sup>. Moreover, the process of amending and implementing the revised national plans will likely require a considerable amount of time that will make it practically impossible to achieve the CFP objectives by 2020.

**To what extent do you agree or disagree that complementing the current management framework with short-term measures such as emergency measures set at national or EU level (e.g. trawling ban, etc.) would be a sufficient solution to meet the objectives of the CFP?**

We believe that emergency measures such as EU trawling bans are urgently needed. Across the Western Mediterranean, demersal fisheries at current unsustainable levels requires quick action from the EU as national management measures have failed to eliminate overexploitation.

The rapid introduction of emergency measures would prevent the further deterioration of fish stocks and the risk of collapse, while at the same time would allow for the definition, negotiation and implementation of an EU multiannual recovery plan.

It should also be noted that emergency measures could contribute to the CFP objective of managing stocks so that they are above levels capable of producing MSY (i.e. above  $B_{MSY}$ ). We wish to reiterate here that FMSY must be treated as a limit reference point, not as a target.

**To what extent do you agree or disagree that amending the current management framework would be a sufficient solution to meet the objectives of the CFP?**

The existing management framework has failed to deliver the objectives of the 2002 CFP and has to be amended, but this alone would not meet the objectives of the reformed CFP. Issues such as the lack of compliance, poor enforcement and weak governance at national and regional levels must be addressed to ensure that the new management framework has a greater chance of success.

**Which amendments to the current management framework do you consider would be most effective?**

The introduction of EU multiannual management plans could represent a significant step forward if fully aligned with the CFP objectives and if integrated with stronger provisions regarding monitoring, enforcement and controls.

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<sup>14</sup> STEFC 49th Plenary meeting report. July 2015.



### **To what extent do you agree or disagree that the current management framework is fully implemented?**

We disagree since a decade after their adoption; the implementation of some key provisions of the MEDREG is still lagging behind, such as the prohibition of fishing with trawl nets, dredges, shore seines or similar nets above coralligenous habitats and maërl or the establishment of fishing protected areas.<sup>15</sup>

### **To what extent do you agree or disagree that an EU multiannual plan for the fisheries exploiting demersal stocks in the Western Mediterranean Sea, which would take into account the interactions between different types of fisheries, would be the best option?**

Under the circumstances described above we believe that emergency measures followed by an EU multiannual plan are the only remaining options to meet the CFP objectives.

### **Which objectives do you consider should be introduced in a possible EU multiannual plan?**

EU multiannual plan objectives must be fully aligned with those prescribed by the reformed CFP, particularly those establishing:

- > The precautionary approach to fisheries management ;
- > Exploitation rates that restore and maintain populations of harvested species above levels which can produce the maximum sustainable yield ( $B > B_{MSY}$ ); and
- > Fish stock recovery and protection areas encompassing nursery and spawning grounds as well as VMEs.

### **Which technical/conservation measures do you consider should be introduced to manage the species included in a possible EU multiannual plan?**

A specific “Control, monitoring and surveillance Action Plan” should be integrated into the Western Med MAP with the following measures:

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<sup>15</sup> See Article 4 (2), Article 6 and Article 7 of Council Regulation (EU) 1967/2006.



- > Establishment of a list of landing ports for species covered by the MAP;
- > Wide inspection coverage during all landings.;
- > Observers on board to monitor compliance with the landing obligation;
- > Establishment of buffer zones around fish recovery areas and satellite tracking of any fishing activity in the those zones;
- > Increased controls at sea and on land and ensure the enforcement of dissuasive sanctions to deter illegal fishing.;
- > A verification mechanism to ensure the application of the EMFF conditionality clause, according to which operators engaged in illegal activities should not have access to EU fisheries subsidies;
- > Revision of the Minimum Conservation References Sizes (MCRS) for demersal species in line with scientific advice and consistent with biological targets;
- > Establishment of seasonal and permanent stock recovery areas to protect nurseries and spawning grounds, as well as VMEs in both coastal and deepwater habitats; and
- > Full enforcement of the MEDREG ban for fishing with trawl nets, dredges, shore seines or similar nets above coralligenous habitats and maerl beds.

### **Which technical measures do you consider should be introduced to facilitate the implementation of the landing obligation?**

Most of the landings of demersal species come from the bottom trawl fleets. The multispecies nature of the bottom trawl fishery is evident if we consider that catches can produce several hundreds of species from different taxonomic groups. Consequently, the proportion of discards is very high, up to 77% of species and 30-40% of the total weight caught<sup>16</sup>.

It is important to emphasise that the ultimate objective of the reformed CFP is to minimise the unnecessary death of species and therefore to reduce fishing mortality. Discards are a waste of natural resources which affect the health of stocks (commercial and non-commercial species) and threaten the long-term economic sustainability of fisheries. Consequently, the main objectives of the landing obligation must be the prevention and minimisation of unwanted catch.

In this context, the principal technical measures to apply are spatial and temporal closures to minimise fishing impact on juveniles and by-catch species, improvements in fishing gear selectivity, as well as exemptions from the landing obligation on the basis of species' high survivability.

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<sup>16</sup> *Op. cit.*



### **Which mitigation measures do you consider should be introduced to minimise short-term economic and social impacts on the fishing fleet and the coastal communities depending on the demersal fisheries?**

One of its most innovative aspects of the reformed CFP is the introduction of fishing access criteria (see point 2.3 above) promoting preferential fishing access to vessels using selective fishing gear or fishing methods that have a reduced environmental impact. If properly implemented this measure could minimise the socio-economic impact of new fishing restrictions for the small-scale, passive gear fleet segment. Whereas the substantial capacity and effort reduction needed in the trawling fleet would require specific job diversification programmes, e.g by supporting:

- > The participation of fishermen in marine research and data collection programmes and in marine litter collection activities;
- > Activities related to traditional products from low-impact fishing; and
- > Restocking projects, such as those on spiny lobster carried out by the University of Cagliari in collaboration with fishing cooperatives of Western Sardinia.<sup>17</sup>

### **Which other technical/conservation measures not yet applied in the Mediterranean Sea do you consider appropriate in view of ensuring sustainable exploitation?**

The technical measures should address one of the most persistent forms of illegal fisheries and ban for example the use of driftnets in the Mediterranean, with the exception of those few used for traditional fishing practices (i.e. the Italian “menaide”) which should be strictly controlled and receive a special authorisation based on the landing declarations of the previous five years.

Despite continuous assertions by government and EU officials that illegal driftnets are no longer a problem in the Mediterranean, Italian NGOs have repeatedly exposed their illegal use by Southern Italian driftnetters. Although this illegal practice targets large pelagic species (tuna and swordfish) and therefore species that are beyond the scope of the Western Med MAP, to achieve the sustainable exploitation of Mediterranean fish stocks, IUU fishing practices must urgently be addressed as a matter of priority, of which the use of illegal driftnetters is one of the most documented, persistent and pervasive cases.

### **Which impacts on the ecosystem do you consider should be taken into account in a possible EU multiannual plan?**

Habitat destruction is considered the main threat for a wide variety of taxonomic groups in the Mediterranean. However, climate change is predicted to become progressively more important due to the inertia of the phenomenon and the risk of exceeding several thresholds. Potential synergies with these additional stressors are still largely unknown<sup>18</sup>.

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<sup>17</sup> See trailer on the restocking of spiny lobster in Western Sardinia: [//youtube.be/vOyZpFo7eos](https://youtube.be/vOyZpFo7eos)

<sup>18</sup> Calvo E, Simó R, Coma R, Ribes M and others (2011) Effects of climate change on Mediterranean marine ecosystems: the case of the Catalan Sea. *Clim Res* 50:1-29.



Global warming and increasing stratification may influence the plankton productivity through reduced nutrient enrichment of the euphotic zone and also the metabolic rates of both low and high trophic level organisms<sup>19</sup>. Those big impacts, together with the increased number of alien species with tropical and subtropical distributions, will lead to major changes in marine ecosystems.

The expansion rate and the relative abundance of alien species in the Mediterranean are already altering the stability and equilibrium of the ecosystem food webs. Alien species that have entered the Mediterranean Sea may potentially replace native species with similar habitat requirements and change the fish fauna<sup>20</sup>.

In the coming years, such changes may take place in a synergistic fashion with existing anthropogenic drivers such as overfishing potentially driving many local stocks to depletion and/or replacement by other species, alien ones included.<sup>21</sup>

While climate change is affecting the future of fisheries and fish stocks, fisheries are contributing to climate change. It has been estimated that each tonne of live-weight landed fish product produces 1.7 tonnes of CO<sub>2</sub><sup>22</sup>.

The use of large amounts of fuel in fisheries results in considerable emissions of greenhouse gases. In commercial fisheries, fuel is used for activities such as onboard processing, refrigeration and freezing, but in general the greatest fuel consumption comes from vessel propulsion. European fishing fleets are major oil consumers amongst the world's fishing fleets, so they are responsible for a substantial part of the global greenhouse gas emissions from fisheries.<sup>23</sup> Western Mediterranean fisheries are no exception, especially if we consider that bottom trawlers have the highest fuel consumption in the demersal fisheries fleet. Fuel use (and consequently the emission of greenhouse gases) varies considerably depending on the fishery. Fishing on depleted fish stocks (such as the ones in the Mediterranean) requires more fuel per kilo of landed fish than fishing on abundant fish stocks. If fish stocks were allowed to recover, less fuel would be needed to catch the same amount of fish. In addition, enhancing fish abundance will allow fish populations to become more resilient to the impacts of climate change. It is therefore important to take into account in the Western Med MAP the impact of fisheries on global warming, as well as possible mitigation measures, for example by removing environmentally harmful fuel subsidies and phasing out fuel tax exemptions for fisheries, while at the same time providing financial and other incentives to promote low-impact fisheries.

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<sup>19</sup> Stergiou KI, Somarakis S, Triantafyllou G, Tsiaras KP, Giannoulaki M, Petihakis G, Machias A, Tsikliras AC (2016) Trends in productivity and biomass yields in the Mediterranean Sea large marine ecosystem during climate change. *Environmental Development* 17 (Suppl. 1): 57-74.

<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*

<sup>22</sup> SAR (2015). *Climate and the Oceans: The carbon footprint of fisheries*. Seas At Risk and North Sea Foundation.

<sup>23</sup> *Ibid.*



**Are there specific measures (such as minimum mesh sizes, minimum conservation reference sizes, permanent or seasonal closures, etc.) that merit increased flexibility under an EU multiannual plan and that could be introduced at a regional level? What would be the most appropriate legal framework for doing so, the technical measures regulation or the possible EU multiannual plan?**

In view of the poor state of stocks and the limited time available to reach the objectives of the CFP we strongly recommend that the Western Med MAP be maintained as the main tool to improve fisheries management and allow for the recovery of over-depleted stocks. In this phase, flexibility should be used in homeopathic doses under close scrutiny by the EC.

**Taking into account your responses and inputs, which management framework do you consider better to manage the demersal fisheries in the Western Mediterranean Sea?**

We support the introduction of a multiannual management plan for demersal fisheries in the Western Med that would include clear objectives and deliverables for:

- > A precautionary and ecosystem-based approach;
- > Stock exploitation levels that restore and maintain populations of harvested species above levels which can produce the Maximum Sustainable Yield by 2020 at the latest;
- > Quantifiable targets such as fishing mortality rates and/or spawning stock biomass that comply with Article 2.2 of the reformed CFP;
- > Timeframes within which to reach quantifiable targets;
- > Safeguards to ensure that quantifiable targets are met, as well as remedial actions, where needed, including for situations where the deteriorating quality of data or non-availability put the sustainability of the stock at risk;
- > Minimisation of unwanted catches;
- > Periodic monitoring and assessment of progress in achieving the objectives of the MAP;
- > Establishment of fish stock recovery areas and the permanent protection of VMEs;
- > Roadmap and timetable for capacity and fishing effort reduction measures;
- > Collection of scientific data;
- > Monitoring and control programmes (Action Plans); and
- > Provisions to ensure participatory processes, transparency and public accountability.

