



specific regulation on technical measures<sup>5</sup> as well as in other EU regulations transposing rules adopted in RFMOs.

Specific objectives concerning protection of habitats and of species are also set in environmental legislation. The Habitats Directive<sup>6</sup> sets out requirements to protect habitats that are in danger of disappearance in their natural range, that have a small natural range, or present outstanding examples, of ecological characteristics. Habitats should be stable or increasing in range and area, with necessary structure and functions having assured continuity, and having typical species on favourable conservation status. This latter point means species should be maintaining themselves on a long-term basis, with a natural range that is not being reduced nor likely to be reduced, and existing in a sufficiently large habitat to maintain their populations. Similar proscriptions apply to birds through the Birds Directive<sup>7</sup>.

The Marine Strategy Framework Directive (MSFD)<sup>8</sup> covers wider aspects of marine environmental management, but includes five provisions of direct relevance to fisheries management:

- the maintenance of biological diversity,
- the mitigation of the introduction of non-indigenous species,
- the exploitation of commercial stocks within safe biological limits,
- the maintenance of all elements of marine food webs at normal abundance and diversity and,
- the maintenance of sea-floor integrity at a level that ensures the structure and function of benthic and other ecosystems are safeguarded.

Other MSFD obligations cover inter alia limiting the introduction of energy including underwater noise to levels that do not adversely affect the



principles have been developed in the context of regional plans for fisheries taking place in the different sea basins.

$F_{msy}$

consistent with not losing more than 5% in yield with respect to the long-term yield that is expected when fishing at the central value.

To facilitate the transition to more selective fishing techniques (and as a result avoid unwanted catches and hence discards) some tolerances have been built in to the landing obligation, such that quantities of a by-catch species may be counted against the quotas of a target species (up to 9%, and only for species inside safe biological limits).

An overall discarding tolerance of up to 5% may be allowed, including where scientific evidence supports this, in order to cater for cases where unavoidable bycatches are made.

Specific additional by-catch quotas have been made available, within the overall constraint of the  $F_{msy}$  target.

Specific technical measures have been adopted in order to facilitate compliance with  $F_{msy}$  in cases where different changes in fishing mortality are needed for different stocks. Furthermore, substantial spatial limitations, with respect to minimum distances from the coast and/or minimum operational depths have been stipulated for several mixed fisheries with mobile gears.

Overall, however, this area remains technically and practically difficult and the work area is under constant development.

### 3.2.2. *Multispecies Fisheries*

There are as yet few occasions where EU fisheries management has involved active choices to favour the yield from a predator or a prey species according to scientific advice on multispecies

basis of scientific advice or evidence it is necessary to avoid serious harm to a stock caused by intra- or inter-

<sup>11</sup>. In practice, such provisions have rarely been used.

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<sup>11</sup> Article 4b of Regulation (EU) 2016/1139 of the European Parliament and of the Council of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2187/2005 and repealing Council Regulation (EC) No 1098/2007. OJ L191, 15.7.2016, p.1.

In scientific advice by the International Council for the Exploration of the Sea (ICES) periodic reassessments are made of predation mortality between commercial species, and of changes in growth due to possible competition effects. New estimates are introduced into scientific advice in order to re-estimate MSY targets according to progressive ecosystem changes. ICES is currently



States and Regional Coordination Groups for data collection to develop common methodologies and regional sampling plans.

Reasons for imposing such closures include:

- The protection of deep-sea resources that are highly vulnerable to fishing (e.g. orange roughy)
- The protection of deep-sea corals and other sensitive habitats
- The protection of areas of high marine biodiversity
- The protection of juvenile commercial fish (e.g. plaice)
- The protection of sandeel that provide food for nesting seabirds
- The avoidance of bycatches of mammals and seabirds (driftnet ban)
- Improving species-selectivity of fishing (e.g. placement of 35mm-spacing escapement grid or 120mm square-mesh panel in 80mm trawl gear used to target Nephrops in the North Sea with reduced by-catches of small cod, haddock and whiting)
- Improving conservatio



being that the vessel should comply with RFMO rules and EU law governing fisheries in the high seas.

#### 4.5 Measures to protect sensitive species

The Habitats Directive<sup>24</sup> requires Member States to prohibit the deliberate capture, killing or disturbance of listed sensitive species (Annex IV). This list includes Baltic ringed seal, Mediterranean monk seal, five species of sea turtle, numerous species of rare fish including sturgeons, whitefish, and all cetacean species. Similar provisions concerning birds are set out in the Birds Directive<sup>25</sup>.

Specific provisions are also set out in Regulation 2019/1241<sup>26</sup>. Articles 10 and 11 of this regulation prohibit the catching, retention on board, transshipment or landing of sensitive fish or shellfish and of marine mammals, reptiles or seabirds set out in named lists (Annexes II and IV to Habitats Directive). A regionalised process has been adopted to identify and implement locally-appropriate technical solutions. In addition, in order to deter harbour porpoises from being caught in static fishing nets in certain high-risk areas Regulation 2019/1241 requires that vessels use acoustic

To protect seabirds, Member States are required to use bird-scaring lines, to set long-lines at night, and to use weighted lines where reported incidental catches of seabirds constitute a serious threat to conservation.

Furthermore,<sup>27</sup> a retention ban and release alive policy applies for shark and ray species which are included in Annex II to the Protocol to the Barcelona Convention concerning specially protected areas and biological diversity in the Mediterranean.

#### 4.6 Complementary measures by Member States

Management of the marine environment within territorial seas is a primary responsibility of Member States. In this zone, numerous marine protected areas have been adopted with various

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<sup>24</sup> See FN 6 above.

<sup>25</sup> See FN 7 above.

<sup>26</sup> See FN 14 above.

<sup>27</sup> Regulation (EU) No 1343/2011 of the European Parliament and of the Council of 13 December 2011 on certain provisions for fishing in the GFCM (General Fisheries Commission for the Mediterranean) Agreement (Regulation (EU) 2015/2102) and Regulation (EU) 2019/982.

levels of intensity of management intervention. Together with areas protected under EU fisheries Regulations, some 10.8% of EU sea area had been designated by 2016.

Networks of MPAs as area based management tools are perceived as a one of the possible tools to safeguard good environmental status of biodiversity in EU marine waters in line with the Natura 2000 network. The coverage by high seas MPA networks promoted by the European Regional Seas Conventions has increased substantially in recent years, making significant progress towards global targets. A broad array of science needs and priorities together with clear attainable and measurable objectives are necessary to establish ecologically coherent MPA networks.

#### 4.7. Financial Support

<sup>28</sup> provides co-funding for the reduction of the impact of fisheries on the marine environment and for the protection and restoration of aquatic biodiversity and ecosystems, among many other funding headings. From this fund the total available EU funding for sustainable development of fisheries, aquaculture and fisheries areas, marketing and processing related measures and to technical assistance to Member States (including -funding has been used, for example, to support pilot projects to mitigate

Significant ecosystem changes are being recorded due to the spread of invasive species from the Red Sea into the Mediterranean Sea through the Suez Canal, possibly exacerbated by warming of the Mediterranean Sea as part of global warming.

#### 6. Further development of ecosystem considerations

The EU is currently working on assessment of seabed disturbance, ecosystem structure and function including food webs, and assessment of biological diversity with a view to fixing targets that define good environmental status for these parameters, together with programmes of measures to reach those targets. This work is currently under development at the scientific and policy levels.

Enhancing the implementation of the obligation in the UN Convention on the Law of the Sea to assess the potential effects of activities<sup>31</sup> through Environmental Impact Assessments (EIA) can also help to enhance the protection of the marine environment and ecosystems including fisheries resources. In this regard, the EU has adopted rules<sup>32</sup> with regard to projects that are likely to have significant effects, including on the marine environment.

#### 7. Fisheries in the wider context

In the wider context, it is pertinent to note that fisheries, while a major user of maritime resources and maritime space, is not the only significant user as there other users such as maritime transport, offshore energy or aquaculture. In order to address and to forestall potential conflicts for use of maritime space, the EU has adopted a requirement through a Directive<sup>33</sup> for Member States to establish marine spatial use plans taking into account economic, social and environmental aspects to support sustainable growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses. This Directive establishes, as one of its objectives, that maritime spatial planning has to integrate economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant activities and uses. Such maritime spatial plans should also be developed taking into account stakeholder consultations,

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<sup>31</sup> UNCLOS Art

transboundary cooperation with other states and be organised on the basis of best available data. Some Member States have already finished their plans and are now implementing their maritime spatial planning.

## 8. Conclusion and Future Policy Development

An ecosystem-based approach to fisheries management has proven to be a complex topic. Our focus to date has been on reducing fishing mortality to  $F_{msy}$  levels as an important contribution to reducing negative effects of fishing on ecosystems, complemented with the prohibition of the most damaging types of fishing gear and practices. Spatially-structured manETd tu6as ha-3(ve)4( )-10(be)4

ecosystem as well as take into account wider (political) considerations related to impacts on dependent species (such as predator/prey species) which may be of different importance to different countries.

### Annex

#### Some examples of research projects relating to vulnerable marine ecosystems

- ecosystems in relation with fishing gears on the NEAFC Hatton Bank, with the collaboration of EU Member States research vessels.
- Since 2005, in the NAFO area, an international project (Project NERIEDA) has been carried out with Canadian, Russian and EU Member States participation to study the identification and distribution of benthic invertebrates and the effects of fishing activities, mainly, over deep-sea corals, sea pens and sponge fields. As the result of these studies 13 areas were closed in NAFO.
- Between 2007 and 2010, in the South West Atlantic, in international waters off the Patagonian platform, (Division FAO 41), Spain, through the ATLANTIS project, mapped and identified sensitive habitats and possible interactions with fisheries in the defined area between 42 ° S and 48 ° S latitude, and longitudinally between the western boundary 60 ° 55 ' W and the eastern boundary of 57 ° 20 'W.
- In 2009 and 2009, a multidisciplinary campaign was carried out on the seamounts of the Walvis Ridge off the coast of Namibia by the Spanish Institute of Oceanography and the National Marine Information and Research Centre (Namibia).
- During the 2nd semester of 2020, as part of the Horizon 2020 project iAtlantic, a scientific campaign led by an EU Member State, was planned to take in place (although this has since been postponed due to the COVID-19 pandemic), including activities in Cape Verde waters and also in international waters under SEAFO competence (Mirabilis campaign). This campaign is an