

# Marine capture fisheries and the post-2020 Global Framework on Biodiversity Conservation: a background brief<sup>1</sup>

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## Introduction

The current CBD broad vision of “*Living in harmony with nature*” where “*By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people*” captures the core challenges of fisheries managers to maintain sustainable fisheries, stop overfishing, and avoid or reduce collateral impact of fishing on biodiversity. The following sections describe briefly: (1) the expected role of fisheries; (2) the status and trends of fisheries and the biodiversity they impact; (3) examples of positive approaches to fisheries management and their outcomes; and (4) key gaps, challenges and needs for future work.

## 1. The role of fisheries

Fisheries contribute to food security, generate economic returns, and support safe and dignified livelihoods, including for vulnerable small-scale communities. Fulfilling this role requires understanding and recognition of: (i) interdependence of healthy ecosystems and sustainable fisheries; (ii) essential contributions of all fisheries, particularly small-scale fisheries (SSFs); (iii) need for cross-sectoral planning and management; (iv) impact of external drivers like climate change and global economic development and trade; and (v) uncertainty about ocean ecosystems functioning and resilience and their links to human well-being. Correspondingly, the role of fisheries policy and adaptive management is to: (i) keep fishing pressure aligned with natural productivity, e.g. at  $F_{MSY}$  or below and stock biomasses at levels capable of producing MSY; (ii) mainstream biodiversity conservation into fishery policies and practices to maintain ecosystem structure and function; and (iii) promote equity in access to fishing opportunities and distribution of costs and benefits.

Although, in many regions of the world, fisheries are not yet delivering these expected outcomes (see Section 2), they already have the strong legal and policy foundation needed to meet the challenges, e.g.: UNCLOS; UN Fish Stock Agreement (UNFSA); Port States Measures Agreement (PSMA); Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, the CBD and the related Strategic Plans, and 5 decades of commitments at UN summits. Implementation is guided by the FAO Code of Conduct for Responsible Fisheries (CCRF), its numerous guidelines (e.g. on the precautionary and ecosystem approaches, MPAs, vulnerable marine ecosystems, and small-scale fisheries) and Plans of Action, particularly to protect vulnerable species and fight against IUU fishing. Effective implementation should deliver the relevant Sustainable Development Goals for 2016-2030 (particularly SDG 14) and the successors to CBD Aichi Targets, particularly Targets 6 and 11 on sustainable fisheries and area-based conservation measures.

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## 2. Status and Trends

Following the features identified in Target 6, and consistent with CBD Technical Series report N° 87 (Garcia and Rice, 2019) where further details and references for each point can be found, the status and trends in the key elements of biodiversity used and impacted by fisheries and on management measures are:

- Sustainably fished stocks. About 70% of assessed target-stocks are sustainably fished (i.e. are capable of producing MSY) and about 30% are overfished (including depleted or collapsed). Overall, overfishing has been growing since 1974, more slowly since the 1990s, is decreasing in some places, but still raising concern overall. High-value species are the more heavily exploited. Numerous stocks are still not regularly monitored and assessed, particularly but not only in SSFs. Successful management in many nations demonstrate the feasibility of sustainable fisheries when appropriate measures are taken (see Section 3).
- Depleted target species require reduced fishing pressure are part of rebuilding plans. The proportion of overfished stocks that are depleted is not consistently assessed. Rebuilding strategies have been successful for a range of stocks, demonstrating feasibility when targeted and stringent measures are taken, but greater uncertainty about rebuilding times and rebuilding of species assemblages. There is great scope for more explicit identification of depleted stocks and generalization of formal rebuilding strategies and plans
- Threatened species. Their number, identified in IUCN (Red List), CITES appendices, or at the national level, is increasing. Collapsed target species may also meet standards for “threatened”. Non-target species taken as by-catch are often discarded and rarely monitored and assessed. Their trends may follow that of jointly exploited target species but could be worse or better, depending of degree of co-occurrence. Global trends are not systematically assessed. Some nations and Regional Fishery Management Organizations (RFMOs) are expanding efforts to reduce bycatches, selectively prioritizing avoidance of depleted, collapsed and threatened species. More systematic efforts are needed.
- Vulnerable ecosystems need protection against Significant Adverse Impacts (SAIs). Adoption of UNGA Resolution 61/105 in 2006 provided an effective incentive to identify habitats and species vulnerable to damage by various types of fishing gears in the deep-sea bottom fisheries in the High Seas and to avoid or adopt protective measures. Most RFMOs have already provided evidence that, since 2006, gear impact assessment, habitat evaluations and protective measures have increased (<http://www.fao.org/in-action/vulnerable-marine-ecosystems/en/>). Similar actions have been reported in EEZs but their extent and the overall change in the footprint and impact of fisheries on vulnerable seabed habitats will only be better known after 2020 when reports of CBD Parties on Targets 6 and 11 will be submitted and analysed at global level.
- All harvested ecosystems should be maintained within Safe Ecological Levels. The adoption of an ecosystem approach to fisheries (EAF) is now widespread among nations and RFMOs, and maintaining the aggregate impact of all fisheries in an area within SEL is an expected outcome. However, although the concept of ecosystem overfishing has been addressed in various ways, there is no general scientific consensus yet on how to quantify SELs and whether the aggregate impact of all fisheries in an area is within such limits. Moreover, activities other than fishing may move ecosystems outside SEL, and integrated assessments of impacts of all uses are rare. Hence reliable global reporting on status on this aspect of sustainable fishing relative to sustainability benchmarks is not possible at this point

In conclusion, Target 6 will be met for some stocks and habitats in some nations, but not globally. The Post-2020 framework will need to consider the unsatisfactory situation and ways to correct it. The Ecosystem Approach to Fisheries (EAF) should: (i) more effectively operationalize the concepts of Significant adverse impacts (SAIs) and SELs; and (ii) the measures known to be effective in increasing fishery sustainability and reducing collateral impact should be generalized. Future target development should be better supported by economic and social analyses, including the equity of fishery and conservation outcomes.

### 3. Examples of positive approaches and outcomes

Progress is being made as the global legal and policy framework described in Section 1 is translated in legislation, policies, plans and management action in many countries and regions. Responsible fisheries give prominence to social, economic and ecological sustainability, mainstreaming biodiversity, covering target and non-target resources and essential or critical habitats, as well as ecosystem structure, function and related services. Governance is also evolving to be more adaptive and stakeholders' empowerment is increasing in local communities, EEZs, seascapes or large marine ecosystems. Collaboration between national, regional and global institutions in charge of fisheries and biodiversity – particularly RFMOs and Regional Seas Organizations (RSOs) is improving in a few regions (e.g. between the Northeast Atlantic Fisheries Commission (NEAFC) and the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) and between the General Fisheries Commission for the Mediterranean (GFCM) and the Barcelona Convention), and expanded coherence is being promoted by the CBD Sustainable Ocean Initiative (SOI; <https://www.cbd.int/soi/>). Globally, consistent evidence of improvements of stock status where appropriate measures have implemented is not available, but, for example, in the EU where stocks are assessed regularly, the number of assessed stocks with biomasses above their Precautionary Reference Points, and therefore being fished sustainably, increased from 27% to 77% in under a decade - 2002-2011 (Garcia et al 2018).

A range of instruments are used and their nature and effectiveness depend on the types of resources, habitats, ecosystems, fisheries, and political and socio-economic systems. These are examined briefly below.

Certification of over 350 fisheries by the Marine Stewardship Council relate to over nine million metric tonnes of catch or 16 % of global commercial fisheries landings. Their management systems have significantly improved in the process.

Long-term management plans with pre-agreed Harvest Control Rules (HCRs) based on long-term objectives, are an effective way of ensuring that fishing opportunities are sustainable. Capacity control to stabilize and reduce fishing pressure is key to sustainable fisheries, stock rebuilding, reduction of biodiversity impact, increased economic viability and, possibly, of food security. User-rights, whether traditional or modern, communal or individual, have been successful in cost-effectively reducing fishing capacity and improving stewardship under a wide range of circumstances.

Co-management with empowered fisheries stakeholders is another effective way to increase sustainability. Together with economic incentives, user rights and good enforcement, it has provided an effective way to maintain fleet viability, compliance, livelihoods and social and political stability at acceptable costs.

The FAO global review and case studies on rebuilding (Garcia et al., 2018; Garcia and Ye, 2018) show that (1) rebuilding is possible; (2) the outcome depends on the species, level of depletion, and the match of measures taken to causes of depletion; (3) fast rebuilding requires drastic cuts in fishing pressure; and (4) there are clear trade-offs between rebuilding speed and socio-economic costs. Weak governance, conflicting priorities for stock recovery, and IUU are serious sources of failure.

The perception of the bycatch problem is changing rapidly, from a waste issue to a biodiversity externality as ecosystem and economic approaches to fisheries management are increasingly adopted. It may change further if there is uptake of size-based approaches to management, or if food security becomes a more dominant consideration in the use of catches. Measures to reduce unwanted bycatch include technological standards (gear regulations, closed areas and seasons) and performance standards (e.g. economic incentives, bycatch quotas and credits, real-time incentives, and conservatory offsets) and the latter may facilitate effective cost-effective bycatch reduction. Vessel monitoring systems (VMS) and the use of on-board observers is increasing, improving information in bycatch ;levels and fates. Harnessing the innovation capacity of the fishers themselves is key. Total bans on discards have sometimes met resistance as unworkable and may alter fishing practices in unexpected ways that pose new challenges to overall sustainability. Complete analyses of economic as well as biological consequences of full discard bans are not yet available to evaluate their effectiveness.

Other effective area-based conservation measures (OECMs) acknowledged under Target 11 may contribute significantly to improved fisheries management and biodiversity conservation. For example, consistent with UNGA Resolution 61/105, more than 100 Vulnerable Marine Ecosystems – covering from 10 to over 200,000 km<sup>2</sup>– have been identified (data 2016) by RFMOs, with corresponding measures to protect the seafloor habitats. Additional OECM candidates, consistent with the CBD guidance on OECMs<sup>2</sup> are being recognized in national reports to the CBD. Guidance on their use and consequences is being developed by FAO, CBD, IUCN and several countries (e.g. Canada)

New strategies for prosecuting and managing such as “balanced harvesting” (Zhou et al., 2019) are being explored. These aim to lessen and more sustainably distribute the footprint of fisheries on species assemblages and marine ecosystems while maximizing sustainable contributions to food security,

Inter-regional cooperation is improving. The Regional Fishery Bodies (RFBs) Secretariat is facilitating inter-regional coordination of fisheries management actions. Under the CBD Sustainable Ocean Initiative (SOI), RFBs and Regional Seas Organizations (RSOs) and sometimes other sectoral management agencies, – discuss on how to better coordinate ocean conservation efforts at regional scales across fishing-related and other pressures on marine ecosystems.

## 4. Gaps, challenges and future work

The Voluntary Commitments submitted in support of SDG 14 have not yet be assessed in terms of effective implementation and outcomes: However, their overview (United Nations, 2017) reflect actions to address concerns of direct relevance to fisheries: (i) EAF, harmful practices and gear, MCS and compliance, science-based management plans, by-catch, IUU fishing, cooperation, protection of marine habitats (SDG 14.4); (ii) Removal of, and information on, harmful subsidies (SDG 14.6); (iii) Small-scale fisheries access to coastal grounds and resources and to markets, empowerment, institutional capacity, technology transfer (SDG 14b), community-managed areas (SDG 14.5); (iv) Market-based management instruments, trade measures, traceability, certification, eco-labelling (SDG 14b). Other commitments relate to the environment within which fisheries operate, e.g. (v) Blue growth and the transition to a blue economy (SDG 14.7) and marine spatial planning (SDG 14.5). Many entities pledged to substantially increase MPA coverage, the contributions of which to sustainability of fisheries will depend on ecosystems and local social and economic conditions, including population density and vulnerability, and on equity of governance systems.

A major effort is needed to improve fishery statistics and public access to them for all levels (regional, national, local). The impacts of IUU fishing need to be reassessed. Efforts are needed in small-scale fisheries, particularly in inland and coastal fisheries. on total catch

<sup>2</sup> [www.cbd.int/doc/c/6ae5/b22a/d0941e314d4343ba665869e4/mcb-em-2018-01-03-en.pdf](http://www.cbd.int/doc/c/6ae5/b22a/d0941e314d4343ba665869e4/mcb-em-2018-01-03-en.pdf)

composition by species and size, and discards. Monitoring and assessment of inland fisheries stocks needs to improve (SOFIA 2018: 16). More generally, assessment of the state of populations of non-commercial species and of vulnerable or essential habitats is needed in cases where bycatch and other impacts are still occur, to evaluate the impact of the corresponding fisheries.

The mobilization of financial resources and capacity-building are continuous challenges when pursuing existing commitments and to implement existing effective tools, particularly in many Small Island Developing States (SIDS)<sup>3</sup> and Low-Income Food Deficit Countries (LIFDCs).

There is a need for better documentation of the performance of existing tools under the broad range of ecosystem and socio-economic conditions in which fisheries occur. Performance evaluations of most RFMOs have been undertaken but have been resource-demanding and need to be regularly updated. It is particularly urgent to better document and share lessons learned regarding the ability of SSF to keep stocks and ecosystems healthy while supporting indigenous and local communities, as well as external factors that can impede or negate the efforts of these communities.

International cooperation is needed at all scales, and particularly in transboundary areas and Areas Beyond National Jurisdiction (ABNJ), for effective fisheries regulation, to further combat IUU fishing and to ensure a more equitable sharing of living marine resources benefits between developed and developing States. RFMOs may need to upgrade their constituting act (convention or agreement) to refine and improve the mandate in relation to biodiversity conservation.

Cross-sectoral cooperation between fisheries authorities and authorities of other sectors is essential for the effective conservation of biodiversity, including the use of area-based measures as conservation tools. The need is being increasingly recognized through UN Biodiversity Beyond National Jurisdiction (BBNJ) process and the developing CBD SOI initiative and is amplified by the global economic reform and the Blue Economy perspective, both of which are priorities in the post-2020 framework and the 2030 development Agenda.

There are still many gaps in knowledge about stocks (e.g. structure or factors influencing stock productivity) and ecosystems (status and resilience; fisheries and other impacts) that are challenging management at all scales. Delivering on existing and future commitments requires improved understanding of ecosystem structures, properties and processes, their complex dynamics and how they are affected by pressures including fisheries. Benchmarks comparable to single stock MSY need to be identified for ecosystem properties. Spatial scales of ocean processes and connectivity of ecosystem properties need to be improved. In some rural areas, deruralization and drift to urban centres may cause loss of community skills and knowledge. Immigration may increase local fishery pressure faster than integration in local community culture and management practices. Notwithstanding how much knowledge may be improved, fisheries projections and decisions will often be made under high uncertainty and robust assessment and adaptive management methods need to be generalized.

A better recognition of the human dimensions of fisheries and biodiversity conservation is needed, connecting fisheries to the broader social, economic and governance environment, within a systems perspective. Addressing human rights, labour issues, health and community development, among other considerations, leads to a greater likelihood of meeting the Sustainable Development Goals<sup>4</sup>.

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<sup>3</sup> Sometimes now referred to also as Large Ocean States. <https://www.undp.org/content/undp/en/home/blog/2018/Large-ocean-states-pave-the-way-to-the-2030Agenda.html>

<sup>4</sup> A comprehensive approach is provided in the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication ( <http://www.fao.org/voluntary-guidelines-small-scale-fisheries/en/>)



External drivers: Other pressures including global pollution, modification of hydrology, and socio-ecological feed-back loops, are still incompletely understood, but may greatly affect the performance and value of fixed outcome-based targets. In an uncertain and changing environment, appropriate targets intend to increase resilience and adaptability in fish populations, ecosystems and socio-economic contexts. However, challenged by scarce knowledge, inadequate institutions, economic drivers, social relationships, and the multiplicity of values, and perceptions of equitable outcomes, setting fixed, knowledge-based Targets will be complex and demanding

Climate change: Future fisheries management will have to adapt to climate change, for example, to the poleward displacement of fish biomass and related redistribution of fishing opportunities, and the changing productivity of ecosystems for resident and migrating stocks. The changes will affect ecosystem composition and resilience, population parameters, stock assessment, as well as fishing and consumption patterns. It may increase misalignments between fishing capacity and changing productivity and hence the impact of fishing on biodiversity. It will also require regular updating of Targets and other management benchmarks, to appropriately reflect sustainable boundaries for populations under the changing environmental conditions. Considering the likely high negative impact of climate change on sources of land-based animal protein (IPCC, 2019) any decrease in seafood contribution to protein availability is likely to have significant adverse impacts on land-based conservation (e.g. though increased use of bush-meat and deforestation for land-based feeds production. The role of fisheries in local and global food security need to be re-assessed in that context.

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