

## **Introduction**

FAO is committed to supporting responsible fisheries, including in the ABNJ and in accordance with international law, though the implementation of its Code of Conduct for Responsible Fisheries and its associated international plans of actions and guidelines. The most relevant to deep sea fisheries (DSF) is FAO's International Guidelines for the Management of Deep-sea Fisheries in the High Seas of the Food and Agriculture Organization of the United Nations ("the Guidelines") that were adopted in 2008. These support States and RFMO/As to implement paragraphs 76-95 of UNGA Resolution 61/105 (adopted December 2006). Though much of the follow-up action by States and RFMOs has focused on the protection of VMEs from significant adverse impacts from bottom fishing, achieved particularly through area closures, there has been associated work on establishing the bottom fishing footprint, exploratory fishing protocols outside of the footprint, and VME encounter protocols, that work synergistically to manage bottom fisheries more general whilst also ensuring protection to known and unknown VMEs. Also, and as reinforced in UNGA Resolution 64/72 paragraph 119d, (adopted December 2009) and included in the DSF Guidelines, is the need to adopt, monitor and enforce conservation measures to ensure that targeted fish stocks are maintained at levels commensurate with long-term sustainability.

## **FAOs support to facilitate cooperation and coordination among RFMO/As**

FAO is independent of the decision-making processes of RFMO/As, but has a close working relationship with them and a common vision to promote sustainable fisheries to provide employment and nutrition supporting livelihoods in all their diverse forms whilst maintaining a healthy ecosystem that provides a wide range of services. FAO recognises that the RFMO/As managing bottom fisheries are regional by nature, thus ensuring the most appropriate and relevant scientific advice and management requirements to meet specific needs. However, these organisations benefit from sharing ideas relevant to scientific, compliance and management committees among regions. FAO, through its Common Oceans programme (2014-2021) and the "Sustainable fisheries management and biodiversity conservation of deep-sea living marine resources and ecosystems in the ABNJ" (DS) project, supported by GEF, provided a forum for discussions and exchanges of ideas at independent expert multi-stakeholder meetings. These were face-to-face meetings before covid times, but continued as virtual meetings during the pandemic. An example is the VME workshop held in Japan with the North Pacific Fisheries Commission<sup>1</sup>. These meetings are now, in March 2022, being to "open-up" with possibilities of a return to face-to-face meetings. However, many recognised the cost and time efficiencies of virtual meetings so these will be developed and supported by FAO as required. The DS Project work cited below were all developed under these types of "expert" meetings.

## **The DSF Guidelines**

The DSF Guidelines was adopted in 2008 and its implementation was reviewed in Busan, Republic of Korea, in 2010. Though the meeting was helpful, it was too early to review the implementation. A follow-up review was planned to be undertaken in 2020, but was not possible with the advent of the pandemic. A review is now planned to be undertaken in the second phase of the DSF Project, potentially in 2023.

The DSF Guidelines have been remarkably successful and have been often cited by RFMOs when developing their bottom fisheries measures. They worked particularly well in supporting scientific advice and conservation measures in regions that were well established and relatively advanced in terms of vessel monitoring, stock assessments, and ecosystem knowledge. This was the case in the north Atlantic, South Pacific, Southern Oceans, and encouragingly in the southeast Atlantic where the fisheries

---

<sup>1</sup> [Report of the FAO/NPFC Workshop on Protection of Vulnerable Marine Ecosystems in the North Pacific Fisheries Commission Area: Applying Global Experiences to Regional Assessments, 12–15 March 2018, Yokohama, Japan](#)

and ecosystems are less well known. RFMOs in the other regions are mainly recently established and are developing their bottom fishing measures. They have found it challenging to implement bottom fishing measures in data-poor situations, but have in the last few years greatly improved their vessel monitoring and assessments, and adopted measures to varying extent to protect VMEs through closed areas and establish bottom fishing footprints, encounter protocols and exploratory fishing protocols.

The DSF Guidelines have also promoted large changes in the way bottom fisheries are managed, by dividing the regions into spatial management units, and by stimulating new and improved monitoring systems and research. The DSF Guidelines have also helped to bring the gap between resource exploitation and biodiversity conservation, particularly with respect to prohibiting bottom fishing in areas known to contain VMEs. Further, through the environmental and monitoring work of the RFMO/As and associated government laboratories, including supporting national submissions through the Convention on Biological Diversity (CBD) EBSA (Ecological or Biological Significant Marine Areas) process, it became clear that fisheries organisations are the main organisation with data on marine ecosystems, and the ABNJ marine ecosystems in particular.

### **Application of the Ecosystem Approach**

The DS Project, working closely with RFMO/As, reviewed the application of the FAO ecosystem approach to fisheries within the ABNJ<sup>2</sup>. This was largely an assessment based on published information and interviews mainly with members of RFMO/A secretariats. It identified how individual RFMO/As were implementing an EAF and identified that all scored relatively well on the ecological aspects but less well on the social and economic aspects. The report clearly identified that this finding is consistent with the mandates of RFMOs whose responsibilities are directed towards fisheries, stock assessment and reducing ecosystem impacts. The RFMO/A member states, especially through discussions with industry and constituents, glean information on the social and economic aspects and then include this in their negotiations during RFMO/A meetings dealing with stocks, TACs and quota's. The social and economic issues are the responsibility of each individual member State, as their domestic goals or priorities might differ, and the RFMOs respect the sovereign nature of these national policies.

Other important finding of the study was the tendency for RFMOs to treat EAF as a scientific issue, when the study felt that EAF is an issue that should more evenly include all of the RFMO/A committees. Another finding was the diversity of approaches used among RFMOs and in how each treat and defines EAF. Each having their merits, but a higher consistency may aid in implementation. The implementation of EAF will form an important part of the DSF Project Phase II.

### **Review of the deep sea fish stocks in the ABNJ**

FAO undertakes a review of the status of marine fish stocks in its biennial publication "The State of World Fisheries and Aquaculture" (SOFIA)<sup>3</sup>. Very few of the deep sea stocks are actually included in this report, mainly because many are difficult to assess and the information is not available to determine if stocks are at or near to levels that support maximum sustainable yields. The DS Project undertook a review of the approximately 50 DSF stocks, and using criteria that were less rigorous than those used by SOFIA, determined that the status of around half of these stocks was unknown, about half of the remained were supporting sustainable fisheries (indicating the stock is healthy though not possibly at optimal levels), and the other remaining half was considered overfished and in need of action to promote recovery.

---

<sup>2</sup> <https://www.fao.org/documents/card/en/c/cb1509en>

<sup>3</sup> <http://www.fao.org/3/ca9229en/ca9229en.pdf>

The assessment of some of these deep-sea stocks is problematic, especially for those that are associated with seamounts. The upcoming DS Project will have a special focus on these “data-limited” stocks to ensure that adequate data is collected and the assessment methods are developed to ensure sustainability.

### **Management of VMEs and SAIs**

Vulnerable marine ecosystems (VMEs) and the reduction or elimination of significant adverse impacts (SAIs) from bottom fisheries was identified by the UNGA in 2004 (UNGA Res 59/25) and in 2006 (UNGA Res 61/105), when the UNGA adopted some tight deadlines for identification and management action. FAO, through the DS project, was invited to develop a VME database (UNGA Res. 61/105 para 90) that shows the global progress of the implementation of UNGA Resolution 61/105 (supported by the DSF Guidelines) in protecting VMEs. The FAO VME DataBase<sup>4</sup> contains all management measures adopted by RFMOs from 2006. This was summarised in 2016 by an FAO publication entitled “Vulnerable marine Ecosystems – Process and Practices” and continues to be updated on the VME Database. This is the only global source that shows the management of bottom fisheries in a map and factsheet interface and shows that most of the oceans are actively and adaptively managed. Most of the VMEs that were identified by RFMOs in the ABNJ were closed to bottom fishing by around 2015. These are subject to regular review, particularly in the northwest and northeast Atlantic and south Pacific. For example, NAFO in the northwest Atlantic undertook a scientific review of its VMEs in 2020 and delineated and closed new VMEs and modified the boundaries on others in 2022. New interim protected areas were adopted in the Indian Ocean in 2018 to protect benthic habits. The challenge in many regions where fisheries are newer is that the benthic ecosystems are poorly known. Habitat modelling is being refined to help with this, but a degree of ground truthing is still needed.

### **Monitoring Control and Surveillance**

FAO, through the DS Project in 2020, undertook a study of Monitoring Control and Surveillance<sup>5</sup> (MCS) and of the legal support<sup>6</sup> necessary. This desktop study outlines the basis in international law, including voluntary instruments, for the establishment of fisheries regulations adopted by RFMOs and how these can be subjected to MCS. It forms a global summary and provides a basis for the second phase of the DS project to provide more direct training and support to implement recommendations of the study.

### **Climate change**

FAO, through the DS Project, worked with independent scientists and the Deep Ocean Stewardship Initiative (DOSI) climate change working group to produce a multi-authored publication on “Deep-ocean climate change impacts on habitat, fish and fisheries”<sup>7</sup> in 2018. The work identified significant changes to physical and chemical deep sea oceanography that has already started to affect fish and benthic organisms.

### **Covid response.**

#### Effects on the fisheries and livelihoods

The DS fisheries in the high seas has certainly been affected, with difficulties initially related to travel bans affecting vessel crewing, and access to ports and markets<sup>8</sup>. This has continued, along with

---

<sup>4</sup> [Vulnerable Marine Ecosystems Database \(fao.org\)](https://www.fao.org/vme-database/)

<sup>5</sup> [Monitoring, control, and surveillance of deep-sea fisheries in areas beyond national jurisdiction \(fao.org\)](https://www.fao.org/monitoring-control-and-surveillance-of-deep-sea-fisheries-in-areas-beyond-national-jurisdiction/)

<sup>6</sup> <http://www.fao.org/3/ca5628en/CA5628EN.pdf>

<sup>7</sup> <https://www.fao.org/3/ca2528en/ca2528en.pdf>

<sup>8</sup> [FAO Fisheries & Aquaculture - COVID-19 and its impact on the fisheries and aquaculture sector](https://www.fao.org/3/ca2528en/ca2528en.pdf)

difficulties in abiding by some of the RFMO conservation and management measures especially as relates to observer coverage.

The principal States involved in high seas<sup>9</sup> demersal fishing in 2016 are in order of decreasing catch: Spain, Portugal, Republic of Korea, Russian Federation, Japan, France, Australia, Faroe Islands, Norway, United Kingdom and Estonia. The combined distant-water demersal finfish catches are around 186 000 t (which includes fishing in EEZs under bilateral agreements). These are all fisheries conducted by countries that are or were classified by the World Bank as having an upper-middle to high-income economy. No States undertaking fisheries on the high seas are on the UN list of least developed countries. Further, the species caught are high value and low volume, and run by large companies with markets that can adapt. They also have the funding base to ride these sorts of events (catch fluctuations over 2-5 year time frames are common). The volume is too small relative to EEZ and pelagic fisheries to affect food supplies overall.

Therefore, these DS fisheries do not support poverty alleviation directly nor make any significant contribution to food security or social protection as is seen, for example, in small scale fisheries<sup>10</sup>. However, the crew on many DSF vessels come from countries such as the Philippines and Indonesia and the fishing operations provide essential livelihoods services to them and their dependents.

### Effects on the RFMOs and management

The covid-19 pandemic has certainly affected the management of DSF in the ABNJ. “The impacts of COVID-19 have affected fisheries management processes. Some fish assessment surveys have been reduced or postponed, obligatory fisheries observer programmes have been temporarily suspended, and the postponement of science and management meetings will delay implementation of some necessary measures, and the monitoring and enforcement of these measures.” (page 3 of SOFIA covid addendum). The report also raises concerns regarding safety and social protect, but these are unlikely to affect DSF as a result of the covid pandemic. This may not be the case for other high seas fisheries, EEZ fisheries and especially SSF.

Assessments of the effects of the pandemic<sup>111213</sup> include:

- Fewer RFMO meetings, held virtually and confined to core management topics.
- Delays in adopting new and follow-on management decisions
- Confidentiality concerns about online meetings
- Research projects/surveys delayed or cancelled, hence less information being collected
- Restricted MCS activities in all areas
- At-sea observer coverage requirements relaxed in some regions (for example, see box below for SIOFA with respect to the Cook Islands)

---

<sup>9</sup> Statistics are not readily available for this calculation, but FishStatJ (FAO, 2021) can be used to look at States having distant water fisheries (WWR2, 2020, FAO, Figure 3.1, <https://doi.org/10.4060/ca7692en>).

<sup>10</sup> SOFIA Covid addendum CA9349EN.pdf

<sup>11</sup> FAO. 2020. The impact of COVID-19 on fisheries and aquaculture – A global assessment from the perspective of regional fishery bodies: Initial assessment, May 2020. No. 1. FAO, Rome. <https://doi.org/10.4060/ca9279en>

<sup>12</sup> Haas et al. 2020-2021

<sup>13</sup> RFMO websites and 2020/2021 meeting reports.

From SIOFA Scientific Committee 2021 report<sup>14</sup>

21. In 2020, The Cook Islands National Observer Programme (CINOP) was unable to maintain 100% observer trip coverage due to the global impact of Covid-19: 50% trips covered and 52% haul coverage. However, in the absence of 100% observer coverage as a result of the derogation of CMM 2019-01, para 39a, the Cook Islands made best efforts to collect data by alternate means through vessel officers and crew.

22. In 2020, despite not maintaining a 100% observer coverage as a result of derogation of CMM 2019-01, para 39a, the Cook Islands continued to collect a wide range of data through vessel officers and crew including fishing activities, catch composition, discards, bycatch, seabird, mammal, vessel sightings, biological data, otoliths and VME encounters.

However, it must be stated that RFMOs have adapted quickly to working under restricted conditions and there are likely few consequences that would affect the long-term sustainability of fish stocks or impacts on the environment. However, whereas this may be the case for advice and management in 2020 and 2021, the lack of supporting scientific information and reduced MCS would have increasing implications in the future. Landings data and effort statistics are likely to continue but with higher uncertainty and reliability that could lead to poorer assessments and advice applicable to 2023 onwards.

It is difficult to mitigate against the current difficulties in acquiring data, since it is a constraint governed by national covid-related restrictions. However, to avoid accidental over-fishing there is a need to be more prudent in line with the precautionary approach until full data collection returns.

In addition, the pandemic highlights the reliance on human observers (and other tasks performed by humans) to run the DSF and this constraint could be used to stimulate the development and use of automated recording systems. The following is likely:

- The DSF will continue to operate under restricted conditions and vessels may (temporarily) leave the fishery (to fish elsewhere).
- Information on the fishery will be harder to collect and so there will be more uncertainty in fisheries statistics and the provision of advice. This may impact on assessments for several years as time series may be interrupted.
- IUU fishing will remain constant or increase, making statistics even more unreliable, with the possibility of stock sizes being reduced below  $B_{lim}$ .

### The FAO DSF Project

The DSF Project is scheduled to start during 2022 and end in 2027. The state of the covid pandemic difficult to predict during that time period, but let us be somewhat pessimistic for the purposes of this mitigation section. The following assumptions are made:

- The project will operate slower than expected and monitoring project progress through indicators will be harder if data is difficult to collect.
- Consultants (international and national) will not be able to travel to other countries and travel within a country may be restricted. This will likely result in more local consultants being hired.

---

<sup>14</sup> <http://apsoi.org/meetings/sc6>

- Workshops and meetings will not be able to be held in person, which will stimulate greater development of virtual meetings and online learning tools. However, the overall expectations and outputs will likely decrease and possibly substantially. This will allow for the development of tools to improve online meetings and may increase efficiency overall if successful.
- The project will find it harder to work with those involved with data collection (a main theme of the project). However, this may stimulate the uptake of new technologies to assist in data collection.
- The project will find it harder and more time consuming to carry-out day-to-day operations which may mean a need for increased staffing.
- The general declines in vessels conducting DSF may result in reduced funding for RFMOs and a reduction in the scientific monitoring and management of the marine environment. This may come at a time when there is an ever increasing need for monitoring owing to climate change and biodiversity impacts. The project needs to ensure that the RFMOs are seen to be part of a bigger system to help protect the marine environment for its many provisioning capabilities.

None of the above, assuming that there are still DSF being conducted, will result in the project being un-implementable. They will in some cases result in delays and difficulties. However, they will also stimulate new ideas and the application of new technologies to allow for progress.