Appendix 2: Scoring criteria and scoring method

List of scoring criteria and the method used to obtain scores. Scoring methods agreed between participants and a random sub-set independently validated by another. See Bell et al., 2019 for full report. Count = Number of given criteria (e.g. number of working groups); value = value of criteria (e.g. percentage observer coverage). Criteria that could not be scored given as NA and disregarded.

|  |  |  |
| --- | --- | --- |
| **Criteria** | **Scoring Method** | **Category[[1]](#footnote-1)** |
| Is the organisation a RFMO? | Binary (1 if yes, 0 if no) | Capacity |
| Is there a secretariat? | Binary (1 if yes, 0 if no) | Capacity |
| How many permanent staff in the secretariat? | Count | Capacity |
| What year was the secretariat established? | Value | Disregard |
| How many expert working groups does the RFMO have? | Count | Capacity |
| Number of working group meetings per year? [Permanent meetings] | Count | Capacity |
| Number of working group meetings per year? [Ad hoc meetings] | Count | Disregard |
| What is the approximate secretariat annual budget? | Value | Capacity |
| What proportion of the overall budget is allocated to the management of target species? | Value | Disregard |
| What proportion of the organisations budget is allocated to the management of bycatch species? | Value | Disregard |
| How many contracting parties/ member states are there? | Count | Disregard |
| Are data routinely collected on target fish catches? | Qualitative score (between 0 and 1)[[2]](#footnote-2) | Action |
| Are data routinely collected on target fish landings? | Qualitative score (between 0 and 1) | Action |
| Are data collected on non-target species, including VME indicator species? | Qualitative score (between 0 and 1) | Action |
| Are data routinely recorded on habitat characteristics? | Qualitative score (between 0 and 1) | Action |
| Are VMS data recorded and stored? | Binary (1 if yes, 0 if no) | Action |
| Are all vessels logging and providing VMS data? | Qualitative score (between 0 and 1) | Capacity |
| What is the typical VMS logging frequency? | Qualitative score (between 0 and 1) | Capacity |
| Are AIS data recorded and stored? | Binary (1 if yes, 0 if no) | Action |
| Are all vessels logging and providing AIS data? | Qualitative score (between 0 and 1) | Capacity |
| What is the typical AIS logging frequency? | Qualitative score (between 0 and 1) | Capacity |
| What are the reporting standards: target species catch? | Qualitative score (between 0 and 1) | Disregard |
| What are the reporting standards: bycatch species catch? | Qualitative score (between 0 and 1) | Disregard |
| Assessment Reporting (reports per year of all types, e.g. fish, fisheries, environment, VME) | Count | Disregard |
| Does the RFMO have a website? | Binary (1 if yes, 0 if no) | Disregard |
| Are reports and other types of information and data available via a website? | Binary (1 if yes, 0 if no) | Disregard |
| Are scientific observer data collected, recorded and stored for fish catches including bycatch species? | Binary (1 if yes, 0 if no) | Action |
| What is the observer coverage? | Value | Action |
| Is increased observer coverage required? (i.e. mandated coverage is absent or below best practice guidelines) | Penalty score: Binary (1 if yes, 0 if no) | Need |
| Proportion of area fished | Value | Need/ Value |
| Proportion of area closed to fishing | Value | Action |
| Has a definition of VME been agreed by the RFMO? | Binary (1 if yes, 0 if no) | Disregard |
| Is a VME species indicator list available? | Binary (1 if yes, 0 if no) | Action |
| Is a VME feature indicator list available? | Binary (1 if yes, 0 if no) | Action |
| Do VME species/ features still need to be identified? | Penalty score: Binary (1 if yes, 0 if no) | Need |
| How many species are on the VME indicator species list? | Count | Disregard |
| Are biodiversity indicators available? | Binary (1 if yes, 0 if no) | Action |
| What is the minimum depth of VME taxa occurrence? | Value | Need/ Value |
| What is the maximum depth of VME taxa occurrence? | Value | Need/ Value |
| How many VME types have been identified? | Count | Need/ Value |
| How many VME habitats (features) have been defined? | Count | Need/ Value |
| Do VME types or habitats still need to be identified? | Penalty score: Binary (1 if yes, 0 if no) | Need |
| Are there any physical oceanographic features which are especially important? | Binary (1 if yes, 0 if no) | Disregard |
| How many area closures have been agreed? | Count | Action |
| How many of the closures occur within the fishing footprint (if one has been defined) | Count | Action |
| How many target species are there? | Count | Need/ Value |
| How many bycatch fish species are there? | Count | Need/ Value |
| How many fisheries are there? | Count | Disregard |
| How many stocks are formally assessed? | Count | Action |
| What is the stock assessment interval? | Value | Disregard |
| What is the stock assessment category? | Value | Disregard |
| Is stock biomass assessed? | Binary (1 if yes, 0 if no) | Action |
| How often is stock biomass assessed? | Qualitative score (between 0 and 1) | Disregard |
| Has a fishing footprint been defined? | Binary (1 if yes, 0 if no) | Action |
| What is the extent of the fishing area or footprint (demersal gears >400m)? | Value | Need/ Value |
| What is the minimum depth of demersal deep-sea fishing? | Value | Need/ Value |
| What is the maximum depth of demersal deep-sea fishing? | Value | Need/ Value |
| What is the total fishing effort? | Value | Need/ Value |
| What is the total fishing effort? GFW 2012-2016 data | Value | Need/ Value |
| How many vessels fish (in total) in the RFMO in a given year? | Count | Need/ Value |
| What is the average size of the fishing vessels within each fishery? (as an estimate) | Value | Disregard |
| What types of fishing gear are used?  | Text | Disregard |
| Does the RFMO permit the use of mobile, bottom contacting gears? | Binary (1 if yes, 0 if no) | Need |
| What is the total deep-sea demersal catches/ landings? | Value | Need |
| FAO catch statistics for Convention Area (2012-2016 mean, 000s tonnes) | Value | Disregard |
| What is the stability of annual landings? | Value | Need |
| What is the total value of landings in RFMO area? | Value | Need |
| What is the value of landings of demersal species? | Value | Need |
| What proportion of the catch is exported beyond the adjacent RFMO coastal states? | Value | Disregard |
| How often are fishery independent surveys conducted? | Count | Action |
| How often are *ad hoc* scientific surveys conducted? | Count | Action |
| What sampling methods are used to assess bottom fishing impacts? | Text | Disregard |
| Are there any studies and reports published describing VME impacts in the RFMO? | Qualitative score (between 0 and 1) | Action |
| How often are SAIs assessed in the RFMO? | Qualitative score (between 0 and 1) | Action |
| Are observer programmes implemented to investigate bottom fishing impacts? | Binary (1 if yes, 0 if no) | Action |
| Are scientific observer data collected, recorded and mapped for VME indicator species? | Binary (1 if yes, 0 if no) | Action |
| Have habitat suitability/ species distribution models been developed? | Binary (1 if yes, 0 if no) | Action |
| What is the total extent of mapped VME in the RFMO? | Value | Need/ Value |
| Are routine fishery independent surveys conducted to sample VME indicator species? | Binary (1 if yes, 0 if no) | Action |
| How often are fishery independent surveys for VME indicator species conducted? | Qualitative score (between 0 and 1) | Action |
| What is the total extent of the regulatory area | Value | Need/ Value |
| Are fisheries subject to VME encounter rules? | Binary (1 if yes, 0 if no) | Action |
| How many VME encounter rules are there? | Count | Action |
| Have any VME encounters been reported by the fisheries? | Count | Disregard |
| Are there any VME fishery closures established? | Binary (1 if yes, 0 if no) | Action |
| How many separate VME closures have been established? | Count | Action |
| What is the total area of the VME fishery closures? | Value | Action |
| Are there any fishery exploratory protocols? | Binary (1 if yes, 0 if no) | Action |
| Have any exploratory fishery protocols been applied? | Binary (1 if yes, 0 if no) | Action |
| Have any notices of intent for exploratory fisheries in new fishing areas been reported/assessed? | Binary (1 if yes, 0 if no) | Action |
| How many exploratory fisheries have been approved and developed in new fishing areas? | Count | Action |
| Are there any gear/depth restrictions adopted as protection measures? | Binary (1 if yes, 0 if no) | Action |
| Are there any fishery footprint restrictions (freezing of the footprint) adopted as protection measures? | Binary (1 if yes, 0 if no) | Action |
| Are VMEs routinely monitored? | Binary (1 if yes, 0 if no) | Action |
| How often are VMEs monitored? | Qualitative score (between 0 and 1) | Action |
| What are the sampling gears used? | Text | Disregard |
| Are there any plans for the long-term monitoring of VME? | Binary (1 if yes, 0 if no) | Capacity |
| Are there any impediments preventing long-term monitoring of VMEs? | Binary (1 if yes, 0 if no) | Disregard |

1. Capacity = Capacity to fulfil requirements/ act on management needs

Need = Scale of management actions required

Action = Actions taken to address management needs

Value = Indicators of ecological richness (a.k.a. Fishery-Ecosystem Value), subset of ‘Need’ scores.

Disregard = Ignore, i.e. comparison would not be meaningful [↑](#footnote-ref-1)
2. Qualitative scorings: 1 = Full, 0.75 = Full partial, 0.5 = Partial, 0.25 = Partial none, 0 = None, NA = Unknown [↑](#footnote-ref-2)