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DSCC Comments to the AUS/NZ Cumulative BFIA

DSCC

Comment on Draft Cumulative Bottom Fishery Impact Assessment for Australian and New Zealand Bottom Fisheries in the SPRFMO Convention Area, 2023

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Introduction

The draft joint BFIA suffers from three fundamental defects:

1. It relies on inadequate science. This includes that the BFIA only considers HSI models rather than actual data; cryptic taxa are not considered; the models rely not only on sparse data but on environmental proxies and some key proxies are missing; the relationship (if any) between habitat suitability and abundance is uncertain and difficult to estimate; only a subset of VME indicator taxa was modelled (meaning some VME taxa are not modelled); the coarse taxonomic resolution of the modelled VME indicator taxa may mask ecological patterns and vulnerabilities at scales of communities, populations and species level; and the spatial scale at which habitat suitability models are predicted may not relate to the spatial scales at which VME indicator taxa are distributed. The BFIA fails to take an ecosystem approach in considering VMEs.
2. It is contrary to international law and policy, specifically being contrary to the UN Fish Stocks Agreement, the 1982 Convention on the Law of the Sea, the 2009 FAO Deep-Sea Guidelines, recent international commitments on biodiversity protection, and the United Nations General Assembly (UNGA) resolutions on bottom fishing, from UNGA resolution 61/105 (2006) onwards, the SPRFMO Convention and measure 2023-03; and

3. It is inconsistent with the 2019 BFIA [Standard](#), manifestly inadequately assesses cumulative impacts and makes no effort to identify or map VMEs.

The Joint BFIA should be rewritten to be consistent with the UNGA resolutions and the FAO Deep-Sea Guidelines as well as other RFMO practice around the world.

Inadequate Science

The draft joint BFIA notes that “Under the spatial management measures implemented in CMM03-2023 over 70% of Habitat Suitability for most VME taxa within an FMA is within areas closed to fishing, but this reference point is not met for some taxa, particularly within Northwest Challenger, Central Louisville, and South Louisville.”

This reliance on HSI modelling only a few taxa at its foundation equates the protection of taxa with the protection of VMEs. That approach ignores the multifaceted nature of VMEs, including connectivity, and ignores the ecosystem approach. In its reliance on a model, this is even starker: it is based on some taxa, mostly lumped at a low taxonomic level. So even on the narrow basis of protecting taxa, it fails because it only protects some units of taxa. Cryptic and rare species which the model does not account for or address are at risk of destruction or even extinction. But the problem is broader: protection of some taxa, as opposed to VMEs properly considered, is not consistent with the ecosystem approach.

The SC-9 paper investigating the spatial scenarios,¹ [SC9-DW06_rev1](#), acknowledged that “there is great uncertainty in translating model outputs to estimates of abundance of VME indicator taxa on the seafloor, as well as issues of potential model over-prediction leading to over-optimistic estimates of protection for some taxa.” (page 4). The work done focused on the protection of specific indicator taxa, mostly made up of many species, rather than vulnerable marine ecosystems (VMEs), and thus did not apply the ecosystem approach or address the prevention of SAIs on VMEs.

The draft BFIA acknowledged that “The habitat suitability models have high statistical skill in classifying suitable VME taxa habitat. However, there is great uncertainty in translating model outputs to estimates of abundance of VME taxa on the seafloor, as well as issues of potential model over-prediction leading to over-optimistic estimates of protection for some taxa.” (page 17) Yet such caveats are not implemented in the BFIA, which proceeds to apply the 70% protection level (e.g. pages 143, 152) in lieu of actually properly assessing impacts. Instead, “a reference point for evaluating the performance of the spatial management measures is attaining a minimum of 70% protection of suitable habitat for each modelled VME indicator taxa in each FMA. Recognizing that the minimum level of protection does not need to be attained until 2024, we report on the performance of both the spatial management measures implemented in CMM03-2023 (Table 32) and the spatial management measures that are proposed to be adopted by the Commission in 2024 (Table 33).” (page 153). So the performance of the spatial management measures, rather than the effects of bottom fishing, are the object of the assessment. This approach is far from that required by UNGA resolution 61/105: “(a) To assess, on the basis of the best available scientific information, whether **individual** bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems)” (para 83) (emphasis added)

Some key uncertainties are noted in the Intersessional Working Group (IWG) paper² (Paragraph 53):

- i. The relationship (if any) between habitat suitability and abundance is uncertain and difficult to estimate;*

¹ SC9-DW06_rev1 Development of Spatial Management Scenarios for Bottom Trawling

² COMM 11 – Doc 07 Report of the Bottom Fishing Intersessional Working Group Review of CMM 03 Bottom Fishing Bottom Fishing Intersessional Working Group. (“IWG Report”) At <https://www.sprfmo.int/assets/Meetings/01-COMM/11th-Commission-2023/meeting-documents/COMM11-Doc07-Report-of-the-BFIWG-Review-of-SPRFMO-CMM-03-Bottom-Fishing.pdf>

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- ii. A subset of VME indicator taxa were modelled (meaning some VME taxa are not modelled);*
- iii. Data on some environmental variables that are significant predictors of VME distribution are not available or modelled (i.e., substrate type);*
- iv. The coarse taxonomic resolution of the modelled VME indicator taxa may mask ecological patterns and vulnerabilities at scales of communities, populations and species level;*
- v. The spatial scale at which habitat suitability models are predicted may not relate to the spatial scales at which VME indicator taxa are distributed.*

“The best science available to the SC at the current time” ([SC-8 report](#)) is not the same as adequate science. There manifestly is not adequate science, starting with an overwhelming lack of data on VMEs outside, as well as enormous uncertainties inside, the FMAs. This is a critical failure since an approach purporting to protect a given percentage of VMEs presumes an adequate knowledge of the denominator - the total number of VMEs and their component taxa, including individual species, and rare cryptic, and undescribed species. In short, the approach of protecting (or conversely allowing the damaging or destruction of) a certain percentage of VMEs is far too uncertain to implement as a management tool. And, as is acknowledged by the IWG, “There are few options to reduce uncertainty regarding the spatial distribution of VME taxa... there is likely to continue to be a limit to the VME data available, and therefore a level of ongoing uncertainty.” (IWG para 59) This matters as the science is inadequate to provide the foundation for a management approach.

There are other objections: In using selected taxa, the approach risks damaging or destroying other taxa, including populations of rare, cryptic and undescribed species, which apart from the four stony coral modelled are mixed together with many other species at the level of phylum, class, order or family. Further, its reliance on individual modelled taxa rather than VMEs takes the analysis away from the central issue of preventing SAIs on VMEs. Indeed, the 2022 Sustainable Fisheries resolution that followed the August 2022 UNGA workshop on bottom fishing, [UNGA Resolution 77/118](#), called on States and RFMOs as follows (emphasis added).

"211. Recognizes the need for further progress with regard to obtaining more biological information on the species that comprise vulnerable marine ecosystems, including their associated and dependent species, the assessment of significant adverse impacts on vulnerable marine ecosystems, and protecting and conserving biodiversity, including beyond vulnerable marine ecosystems, as well as the consistent application of the Guidelines;

"212. Calls upon, in this regard, States, regional fisheries management organizations and arrangements and those States participating in negotiations to establish a regional fisheries management organization or arrangement competent to regulate bottom fisheries, to identify and overcome barriers to the implementation of the relevant paragraphs of General Assembly resolutions 64/72, 66/68 and 71/123 such as data availability, especially with regard to baseline data and the **spatial distribution and connectivity of vulnerable marine ecosystems, including their associated and dependent species, while recognizing the importance of international collaboration for this purpose, further recognizing that effective management of bottom fisheries is crucial to ensure the long-term sustainability of the sector;**

The spatial distribution and connectivity of VMEs, including their associated and dependent species is completely ignored in the ‘scenario analysis’.

With respect to the Louisville Seamount chain, the paper SC9-DW06_rev1 reported that the 70% targets were not met for DEM [Class: Demospongiae] using the Power metric. It seems self-evident that such an approach, focusing on targets for specific selected taxa which individually are taken to represent many species, does not and cannot substitute for a management approach which must be aimed at the objective of prevention of SAIs on VMEs, applying both the precautionary and ecosystem approaches. The Louisville Seamount chain that was assessed is recognised as an

Ecologically and Biologically Significant Area (EBSA) by the Convention on Biodiversity³. The draft BFIA should have acknowledged this.

There are other objections: in using selected taxa, the approach risks damaging or destroying other taxa including populations of rare and cryptic species which apart from the four stony coral modelled are mixed together with many other species at the level of phylum, class, order or family. Further, its reliance on individual modelled taxa rather than VMEs takes the analysis away from the central issue of preventing SAIs on VMEs.

The list in para 53 of the IWG, also reflected in para 19 of the IWG helpfully sets out the limitations of the current understanding and modelling approach.⁴ This is an important list which exemplifies why the BFIA should not and cannot be based on the spatial approach as the approach to preventing SAIs on VMEs. There are too many uncertainties. The Convention mandates the response to such uncertainties: the precautionary approach. “The Commission and subsidiary bodies shall:

- (i) be more cautious when information is uncertain, unreliable, or inadequate;
- (ii) not use the absence of adequate scientific information as a reason for postponing or failing to take conservation and management measures;
- (iii) take account of best international practices regarding the application of the precautionary approach, including Annex II of the 1995 Agreement and the Code of Conduct.” (Art 3(2)(a))

One reason for using the FMA scale is given in para. 27 of the IWG Report:

“The development and evaluation of the spatial management measures to date has been undertaken at the Fishery Management Area scale. This was chosen as a practical scale at the time the modelling was undertaken. Changing from this scale to a finer-scale at this point in time would present significant challenges including:

- Additional work and resources to re-evaluate the performance of the spatial management measures, and a potential re-design of the current management areas;
- Feasibility – a finer scale may require in-situ mapping of VMEs to determine management responses. However, given the models are based on habitat suitability indices, translation of HSI into actual presence on the seafloor and absolute abundance is difficult;
- Additional consultation with operators and the need for smaller management areas;
- New resourcing or reprioritization of the Scientific Committee Multi-Annual workplan tasking.”

None of these are valid or compelling reasons to ignore or for failing to prevent SAIs on VMEs at the site scale. The UNGA resolutions, and now CMM 03-2023 para 48 provide a clear response: closing VMEs where they have been identified.

The BFIA Fails to assess VME at the crucial site level

An important observation is made in the IWG paper at paragraph 14 of Topic 1. It acknowledges that “**A plain reading of paragraph 18 [of the UN FAO Deep-Sea Guidelines) suggests that while**

³ See CBD Decision XI/17. <https://www.cbd.int/doc/decisions/cop-11/cop-11-dec-17-en.pdf>

⁴ a. The relationship (if any) between habitat suitability models and taxa abundance is uncertain and difficult to estimate, meaning there is a risk that the amount of “protected” VME (e.g., outside the area open to fishing) is less than predicted by the current presence-only models;

b. The incompleteness of VME indicator taxa modelled – there are no habitat suitability models for 4 of the VME indicator taxa listed in Annex 5 of CMM03-2022;

c. The coarse taxonomic resolution of the modelled VME indicator taxa, which may mask ecological patterns and vulnerabilities at the scale of populations;

The scale of habitat suitability predictions, which may not relate to all VME distributions and means the habitat suitability index models are limited in their ability to inform assessment and prevention of SAIs at the scales of populations.

there should be some level of scientific enquiry undertaken at the site-level...⁵. We completely agree. This is missing from the draft BFIA.

It goes on to state that “in addition to the other 5 factors specified in paragraph 18, it does not preclude or discourage the use of coarser scales for management decisions. It does not make a recommendation on the appropriate scale to be used for preventing SAIs on VMEs.” The latter sentence is misleading: the Guidelines clearly assume that the appropriate scale is the scale of the site or VME, and nobody had then suggested otherwise. There was no need to make a recommendation on the appropriate scale because the appropriate scale was clearly the site or the VME. There is a weaker acknowledgment of the same point in para 37,⁶ which misses the necessity - not “as the case requires” - to assess SAIs on VMEs at the site scale.

The BFIA should identify VMEs with a view to applying para 48 of [CMM 03-2023](#): “*Register of Known VMEs: where the Commission has identified areas as vulnerable marine ecosystems, the Commission shall:*

- a) *Register the VME in Annex 9 of this CMM; and*
- b) *Ensure the Management Area boundaries established in paragraph 14 and Annex 4 of this CMM are updated to exclude the VME from areas open to fishing.”*

Impacts on Individual Species

The analysis presented focuses on taxa at a higher level than species level.

As noted in the BFIA, assessment at this coarser taxonomic level, assumes that different species within a higher-level taxonomic group have similar characteristics affecting their vulnerability and distribution. This may not always be true. Diverse life-history traits, distribution patterns, and/or meta-population dynamics within coarser taxonomic resolutions can lead to the ecological patterns and vulnerabilities at the population/species level being obscured. The 1% level for significance for any taxa group in the HSI models may ignore important areas for individual species. Overall, this limits SPRFMO’s ability to manage SAIs at the community and population level based on data aggregated into coarse taxonomic groupings.

Contrary to International Law and Practice

Nowhere can it be gleaned that only 70% of VMEs need to be protected, or, put another way, 30% can be destroyed.

This is inconsistent with the UNGA resolutions, the FAO Guidelines and practice in all other bottom fishing RFMOs. Ultimately it relies on an inappropriate and impermissible ‘balancing’ of the environment against the profitability of the fishing industry.

The goal stated in the SC9-DW06_rev1 [paper](#)⁷ “to establish optimal areas for the *minimisation* of SAIs on VMEs while minimising costs to the fishery” is antithetical to both international law and policy - as well as science, as Professors Auster and Watling have [observed](#).⁸ The required goal, since

⁵ Para 14 of Topic 1 reads “14. While it has been argued that paragraph 18(i) of the FAO Deep-sea Fisheries Guidelines means that the appropriate scale of management can only be the site/encounter level, this interpretation is unnecessarily restrictive. A plain reading of paragraph 18 suggests that while there should be some level of scientific enquiry undertaken at the site-level, in addition to the other 5 factors specified in paragraph 18, it does not preclude or discourage the use of coarser scales for management decisions. In fact, it does not make a recommendation on the appropriate scale to be used for preventing SAIs on VMEs.”

⁶ “The Commission, or its Members, can also consider impacts on a finer scale if the case requires, for example if there are specific threats to assess or during the review of VME encounters.” Para 36.

⁷ SC9-DW06_rev1. Development of Spatial Management Scenarios for Bottom Trawling. At <https://www.sprfmo.int/assets/2021-SC9/SC9-DW06-rev1-Development-of-Spatial-Management-Scenarios-for-Bottom-Trawling-untracked.pdf>

⁸ SC9-Obs02. L. Watling and P. Auster. VMEs, Communities and Indicator Species - Confusing Concepts for Conservation of Seamounts. At <https://www.sprfmo.int/assets/2021-SC9/SC9-Obs02-VMEs-Communities-and->

UNGA Resolution 61/105, is the *prevention* of SAIs, not their minimisation, and there is to be no trade-off aimed to minimise costs to the fishery in preventing SAIs on VMEs. Article 192 of UNCLOS provides that States have the obligation to protect and preserve the marine environment: there is no exception for economic advantages. The freedom to fish provided for in Article 87 is expressly qualified in the phrase “subject to the conditions laid down in section 2”. The SPRFMO Convention in Article 20(1)(d) requires measure to “protect the habitats and marine ecosystems in which fishery resources and non-target and associated or dependent species occur from the impacts of fishing, including measures to prevent significant adverse impacts on vulnerable marine ecosystems and precautionary measures where it cannot adequately be determined whether vulnerable marine ecosystems are present or whether fishing would cause significant adverse impacts on vulnerable marine ecosystems.” SAIs are therefore required to be prevented by the SPRFMO Convention, which also mandates the precautionary approach as well as the ecosystem approach in its objective in Article 2: “The objective of this Convention is, through the application of the precautionary approach and an ecosystem approach to fisheries management, to ensure the long-term conservation and sustainable use of fishery resources and, in so doing, to safeguard the marine ecosystems in which these resources occur.”

A core weakness of the approach taken in the BFIA is the failure to apply the ecosystem approach. Instead, it analyses the limited taxa for which the modellers had data (due largely to benthic bycatch brought up to the decks in nets). Rather than describe ecosystems impacted by bottom trawling, the best it can do is describe some taxa impacted by bottom trawling. As Professors Watling and Auster pointed out, the two are very different concepts. This approach “cuts and dices” VMEs into individual taxa, and far from preventing SAIs on VMEs, can, at the most, predict the percentage of individual taxa which are projected to be destroyed or not destroyed but in most cases only at the taxa level of phylum, order, class or family, as hundreds of species are reduced to 11 VME taxa. Compounding the problem are the uncertainties involved. The findings of the paper underline that even an 80% scenario (which would sanction the destruction of 20% of VMEs) is not achievable for all areas (e.g. North & South Lord Howe rise, Westpac Bank, West Norfolk, North & South Louisville).

The paper [SC9-DW06_rev1](#) states that (page 19) “In general, higher protection targets resulted in more significant impacts on the estimated fishery value. Those impacts may be underestimated in the results provided, as the scenarios have not been tested for practical ‘fishability’. However, the paper suggests that “These protection scenarios will support explicit consideration by the Commission of the trade-offs inherent in ensuring the long-term sustainable use of fisheries resources and the safeguarding of the marine ecosystems in which those resources occur.”

There is no, and should be no, trade-off between fishing and the safeguarding of marine ecosystems. As is noted in the Summary, Article 2 of the SPRFMO Convention makes that clear. The objective is “to ensure the long-term conservation and sustainable use of fishery resources and, in so doing, to safeguard the marine ecosystems in which these resources occur.” The requirement to safeguard marine ecosystems cannot be and is not subject to some sort of ‘trade-off’ between commercial fishing and protection. Nor can such a trade-off be found in UNCLOS, where Art 192 imposes an unqualified obligation on States to provide the protection and preservation of the marine environment: period. Art 193 stresses that any use is contingent on Art 192 obligation of protection and preservation being given effect.

Indeed, the IWG paper accepts this: “Any management approach adopted by SPRFMO must meet the overarching obligation in Article 192 of UNCLOS to protect and preserve the marine environment. This obligation cannot be balanced against utilisation objectives.” (para 77). But while rejecting the balancing approach, the IWG continued to apply the rationale based on the balancing approach. Such a conclusion advocating trading off VME protection with fishing is a breach of the Convention, international law, and the UNGA resolutions. No authority is cited for the proposition

and none can be: it is inconsistent with UNCLOS, the Fish Stocks Agreement, and the applicable UNGA resolutions.

This is a fundamental weakness of the ‘spatial’ approach of protecting only a percentage of protection, as pursued in the draft BFIA. In seeking to shield the fishing industry from the requirements to protect and preserve the marine environment it flies in the face of established and clear law and policy.

The reason this matters is also noted by the IWG (para. 74) “*Beyond the SPRFMO Scientific Committee, it is worth noting that the Second World Ocean Assessment noted that:*

- *Biodiversity is changing globally at rates unprecedented in human history, creating the potential for species extinction before they have been described. Bottom trawl fisheries are the most widespread source of anthropogenic physical disturbance to global seabed habitats (s3.2.2).*
- *Coldwater corals and the frameworks they create (both living and dead) are extremely vulnerable to direct and indirect impacts from bottom trawling (p. 324). The impacts of fishing activities on coldwater corals are well recognized, with bottom trawling, in particular, having strong direct physical (e.g., breaking or dislodging colonies) as well as secondary sedimentation (e.g., smothering individuals or colonies) effects (p. 326).*
- *Bottom trawling causes considerable modification of the sea floor (p. 405).*
- *Bottom trawling constitutes the greatest current threat to seamount ecosystems (p. 439).*

The legal obligations listed by the IWG (paras. 77-79), including that utilisation cannot be balanced against environmental protection (Art 192, as well as 194(5)) and the specific obligations in the Convention, especially Art. 3, cannot be dismissed or ignored, and must be implemented.

The UNGA resolutions are the international community’s specific response to bottom trawling and the obligations in the UN Fish Stocks Agreement and UNCLOS, and together with the FAO Deep-sea Guidelines constitute “generally recommended international minimum standards” under Art 119 of UNCLOS.

The spatial distribution and connectivity of VMEs, including their associated and dependent species is completely ignored in the draft BFIA. The suggestion that only 70% of total VME abundance should be protected is contrary to the UNGA requirements and inconsistent with the decisions being taken by some members of SPRMO in other RFMO Commission meetings e.g. NAFO.⁹ The work done focused on the protection of specific indicator taxa, rather than VMEs, and thus did not apply the ecosystem approach or address prevention of significant adverse impacts (SAIs) on VMEs. There was no consideration of using taxa caught by bottom trawling to identify VMEs. The proposal leaves areas open to SAI from bottom trawling where a tonne of VME taxa has been observed caught in one trawl in past years. Given that fishing trawl nets are recognised as having a low catchability for VME taxa the impact on the seafloor is likely to be much greater. The area impacted was likely to be a VME.

The “arbitrary” nature of the partial protection approach must be rejected. The IWG said that: “This could be achieved by setting, in the interim, a minimum level of protection for each modelled VME taxa. This would be arbitrary, but in the absence of a clear definition of how much impact constitutes an SAI, this approach offers a pragmatic starting place to operationalize spatial management measures to prevent SAIs on VMEs by closing areas to bottom fishing where VMEs are likely to occur.” (para 85)

Likewise, the approach of determining a percentage in order to allow the bottom trawling industry to continue is an impermissible balance or trade-off approach: “The table consolidates different sources

⁹ This is described in the draft BFIA on page 15: “The Commission also tasked the SC to develop spatial management options that protect a minimum of 70%, 80%, 90%, 95% of suitable VME indicator taxa habitat at spatial scales comparable to the Fisheries Management Areas (CMM03-2021). In response, candidate spatial management scenarios were presented to the Commission in 2022 (COMM10-Inf03), with the Commission establishing at its 11th meeting in 2023 a 70% minimum level of protection for suitable habitat for each modelled VME indicator taxa, to be implemented at its 12th meeting in 2024.” and at page 143.

of data, each of which has limitations, but collectively indicate the impacts of reducing open area boundaries on fishing opportunity” (para 90) The partial protection approach was not endorsed by the recent UNGA workshop only in August 2022.

Other RFMOs

No other RFMO is following the ‘spatial management’ approach that New Zealand has advocated. The DSCC has prepared a [detailed account](#) of approaches taken by RFMOs.¹⁰ CCAMLR bans bottom trawling altogether; as of 2022 NAFO has [closed](#) the last seamount trawl fishery in the Northwest Atlantic, and CCAMLR, NAFO, GFCM, NPFC, SEAFO, and NEAFC have measures generally following the UNGA requirements. SIOFA to date has only an interim measure which reflects the UNGA requirements.

Inconsistent with the BFIA Standard

Compliance with the BFIA Standard is required by CMM 03-2023. Para 22 provides that: “a) Each Member or CNCP proposing to participate in bottom fishing activities shall submit to the Scientific Committee a proposed assessment that meets the SPRFMO Bottom Fishery Impact Assessment Standard (SPRFMO BFIA) with the best available data including consideration of cumulative impacts, not less than 60 days prior to the annual meeting of the Scientific Committee. BFIA shall be prepared using a scale no coarser than the Fishery Management Area. These submissions shall also include the mitigation measures proposed by the Member or CNCP to prevent such impacts.”

VMEs not identified

The BFIA Standard notes that UNGA Resolutions 71/123 and 72/72 call upon RFMOs to use the full set of criteria in the FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas (FAO Deep-sea Fisheries Guidelines; FAO 2008) to identify where VMEs occur or are likely to occur as well as for assessing significant adverse impacts. It noted that “mapping of known or likely vulnerable marine ecosystems is an important prerequisite for impact assessment and development of management and mitigation measures to prevent significant adverse impacts in such areas” (page 20). The standard goes on to require that:

Areas known or likely to support VMEs should be defined and mapped using all potential sources of information, including:

- Mapping of fishing positions observed to contain ‘evidence of VMEs’, as defined in the encounter protocol in CMM 03 (Bottom Fishing), and of scientific observer data on bycatches of VME indicator taxa.

- Distribution of predicted habitat suitability derived from predictive habitat models for vulnerable marine taxa (Rowden et al. 2013, Pitcher et al. 2015, Anderson et al. 2016a, Anderson et al. 2016b, Rowden et al. 2017, Georgian et al. 2019), or from other physical data/surrogates, used to inform habitat-suitability analyses (Hirzel et al. 2002, Clark et al. 2006, Davies et al. 2008).

- Mapping of known or predicted underwater topographic features, particularly seamounts, which may support VME indicator taxa.

- Data from scientific seabed biodiversity surveys which should be integrated into, or used to inform, habitat suitability analyses (Pitcher et al. 2007a,b, Williams et al. 2009, Anderson et al. 2011; Pitcher et al. 2016b, Anderson et al. 2016).”

¹⁰ Susanna Fuller, Duncan Currie, Matthew Gianni, Lyn Goldsworthy, Cassandra Rigby, Kathryn Schleit, Colin Simpfendorfer, Les Watling, Barry Weeber. Preventing Biodiversity Loss in the Deep Sea — A Critique of Compliance by High Seas Fishing Nations and RFMOs with Global Environmental Commitments. 2020. At <http://www.savethehighseas.org/resources/publications/preventing-biodiversity-loss-in-the-deep-sea-a-critique-of-compliance-by-high-seas-fishing-nations-and-rfmos-with-global-environmental-commitments/>

It goes on to detail seabed biodiversity surveys: *“The most reliable data on benthic biodiversity and presence of VMEs will be provided by scientific seabed biodiversity surveys, either using seabed sampling equipment designed to quantitatively sample the fauna concerned (such as benthic sampling sleds), or using photographic or video imagery along planned survey transects. Where feasible, efforts should be made to conduct such sampling in areas of particular interest or concern, such as those within bottom trawl management areas with high probability of VME indicator taxa habitat suitability.*

Particular efforts should be made to survey areas proposed for long-term and large-scale spatial closures, to ensure that such areas do contain substantial and biodiverse communities, and that they are representative (in terms of actual or predicted biodiversity and VME abundance) of areas to be left open to possible fishing. Such surveys could be conducted as internationally collaborative surveys between SPRFMO participants.” (page 21)

None of this has been done for the BFIA.

Cumulative Impacts

What is required

As is acknowledged in the draft BFIA, in 2016, UNGA Resolution 71/123 strongly emphasised the importance of strengthening procedures for carrying out, reviewing and evaluating impact assessments, taking into account individual collective and cumulative impacts, and ensuring that any measures are based on best available scientific information, and adopt an ecosystem approach. The resolution called on States and RFMOs “to ensure that impact assessments, including for cumulative impacts of activities covered by the assessment, are conducted consistent with the Guidelines, particularly paragraph 47 thereof, are reviewed periodically and are revised thereafter whenever a substantial change in the fishery has occurred or there is relevant new information, and that, where such impact assessments have not been undertaken, they are carried out as a priority before authorizing bottom fishing activities;” (para. 180(b))

Earlier, UNGA resolution 66/88 (2011) following the earlier review called on States and RFMOs to “a) To strengthen procedures for carrying out assessments to take into account individual, collective and cumulative impacts, and for making the assessments publicly available, recognizing that doing so can support transparency and capacity-building globally;” (para. 129)

The FAO Deep-Sea Guidelines provide (para 27) that “Impacts should be evaluated individually, in combination and cumulatively.” In conducting impact assessments, impacts are to address (para 47) “v. identification, description and evaluation of the occurrence, scale and duration of likely impacts, including cumulative impacts of activities covered by the assessment on VMEs and low-productivity fishery resources in the fishing area.

The BFIA Standard requires that the description of fishing should include

- “how many tows (cumulative effects)” (page 1);
- “what is the likely spatial scale and duration of the impacts? Will impacts be cumulative with previous impacts in the area? The overall consequences of impact will be the product of spatial scale, duration and cumulative impact on potential VMEs/VME indicator taxa and other marine resources” (1.3.4, page 7);
- “Cumulative impact – The frequency of the impact will influence the risk, with activities occurring repeatedly at a site likely to have a greater risk. This will depend on the amount of fishing effort and should be considered in relation to the recovery of the VMEs/taxa. Other potential cumulative impacts (e.g. non-fishing impacts) should also be considered.” (1.3.5, page 7)
- Overall risk: the following risk categories apply: Medium: Where the impact could have an influence on the environment, which will require active modification of the management approach and/or mitigation. This would be allocated to short to medium-term impacts of

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moderate intensity, locally to regionally, with possibility of cumulative impact. High: Where the impact could have a significant negative impact on the environment, such that the activity(ies) causing the impact should not be permitted to proceed without active management and mitigation to reduce risks and impacts to acceptable levels. This would be allocated to impacts of high intensity that are local, but last for longer, and/or impacts which extend regionally and beyond, with high likelihood of cumulative impact. (1.3.5, page 8)

Cumulative Impacts in the Draft BFIA: Missing

Other than reciting the requirements, despite its title, the BFIA completely ignored cumulative impacts. In relying on the HSI model, the BFIA relied on the ‘naturalness layer’ (see BFIA page 93). By accounting for historical fishing impacts on VME indicator taxa, applying a so-called “naturalness layer”: the model strives to use baselines which assume prior impacts from bottom trawling. This masks cumulative impacts, and thus gives an misleading impression of damage caused by current bottom trawling, as well as, that “using impacted baselines generally leads to more optimistic protection level estimates because of a smaller predicted taxa abundance within these open areas”. (SC 9-DW06 Rev. 1, page 6) The naturalness layer also ignores the potential for recovery if an area is not fished, even if recovery takes many decades if not longer. So far from taking into account cumulative impacts, the BFIA masks them. Nowhere are the cumulative impacts of climate change, including changes in oceanographic dynamics, ocean temperatures, ocean acidification, changes in oxygen, chlorophyll, carbon, salinity and other drivers of productivity, ocean acidification or potential deep-sea mining anywhere addressed. The draft BFIA states specifically: “These non-fishery related hazards are not assessed in this impact assessment.”

This is all the more surprising given the inclusion of the term “cumulative” in the title of the draft BFIA.

Conclusion

For all these reasons, the draft BFIA should be rewritten to take into account all cumulative impacts of bottom fishing, including the ones noted above; to comply with the BFIA Standards; to use the best scientific information available, including all bycatch information, and apply the precautionary approach and an ecosystem approach to fisheries management; to apply the applicable UNGA resolutions, FAO Deep Sea Guidelines and the SPRFMO Convention.

Additional References

Levin, L. A. et al. 2020. Climate change considerations are fundamental to management of deep-sea resource extraction. *Glob. Chang. Biol.* 26: 4664–4678.

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