South Pacific Regional Fisheries Management Organisation

9th MEETING OF THE SCIENTIFIC COMMITTEE

Held virtually, 27 September to 2 October 2021

SC9-DW11

Updated List of VME Taxa (Incorporating FAO Criteria)

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Incorporating combinations of FAO criteria into a multi-taxonomic level list of VME indicator taxa for the SPRFMO Convention Area

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Contents

1. Purpose

The purpose of this paper is to update lists of Vulnerable Marine Ecosystem (VME) indicator taxa known from the Evaluated Area of the SPRFMO Convention Area by identifying taxa that meet a combination of FAO criteria for defining VMEs rather than a single criterion. These lists will provide an important resource for future Scientific Committee (SC) work on defining VME indicator taxa.

2. Background

At the 8th meeting of the SPRFMO SC, New Zealand presented a review of taxonomic records from within the Evaluated Area of the SPRFMO Convention Area (SC-DW11) for each of the 15 VME taxa identified in SC7-DW13 (see Table 1). The review included taxonomic records for the ten VME indicator taxa included in the joint Bottom Fishery Impact Assessment (BFIA, Australia and New Zealand 2020). Data included in the review were extracted from the three New Zealand databases: *trawl* (research trawl survey records over the period 1905-2020), *cod* (fishery observer records over the period 1990–2020), and *niwainvert* (research records over the period 1905-2020), and the international OBIS database (records from open-access global data on marine biodiversity over the period 1924-2019). Following data checking (a description of this process is provided in SC8-DW11), the final dataset included 101,253 unique records across the 15 VME taxa groups, of which 9,540 records were from within the SPRFMO Convention Area and 5,300 records were from within the Evaluated Area of the SPRFMO Convention Area.

Table 1| 15 taxonomic groups assessed against FAO guidelines for identifying VMEs in SC7-DW13. * indicates the 13 taxa currently included as VME indicator taxa in SPRFMO CMM03-2021 encounter protocol.

Phyla	Class	Order	Family
Porifera*			
Cnidaria	Anthozoa	Alcyonacea (Soft corals) *	
		Alcyonacea (Gorgonians - Tree-like forms, sea fans, sea whips, bottlebrush) *	
		Scleractinia (Stony corals) *	
		Antipatharia (Black corals) *	
		Actiniaria (Anemones) *	
		Pennatulacea (Sea pens) *	
		Zoantharia (Hexacorals) *	
	Hydrozoa (Hydroids) *		
		Anthoathecata	Stylasteridae (Hydrocorals) *
Echinodermata	Crinoidea (Sea lillies) *		
	Asteroidea	Brisingida ('Armless' stars) *	
Bryozoa			
Retaria	Xenophyophorea (Xenophyophores)		
Annelida	Polychaeta	Sabellida	Serpulidae (Serpulid tube worms)

Taxonomists and para-taxonomists with a working familiarity of the fauna of the South-West Pacific region assessed the likely morphological, ecological and life history characteristics of the species and genera within each of the VME taxonomic groups against the FAO guidelines for identifying VMEs

(Table 2), taking into account their vulnerability to bottom trawling gear, where the most vulnerable ecosystems are those that are easily disturbed (fragile) and slow to recover, or may never recover. Any species that were identified by experts as meeting at least one of the FAO criteria was included in a draft list of known VME taxa. Similarly, a genus was included if it contained any species meeting at least one of the FAO criteria. The review by taxonomic experts identified 281 genera and 231 species that, in the opinion of the expert reviewers, met FAO VME criteria and therefore could be considered known VME taxa (Table 3).

SC8-DW11 identified several ways the list of known VME taxa could be further refined, including determining how FAO criteria are best combined to identify VME taxa. Following discussion of SC8-DW11, in its report the SC:

> **Agreed** that, as resources permit, the draft lists of VME taxa could be used to evaluate the potential implications of using habitat suitability models for higher-level taxonomic groups for assessing the performance of spatial management measures;
>
> **Agreed** that the draft lists of VME taxa could be used to develop VME indicator taxa identification guides for use by observers on bottom fishing vessels;
>
> **Agreed** that analysis of co-occurrence would be useful to link VME taxa to specific types of habitats;
>
> **Agreed** that the lists of VME taxa should be updated as required to consider areas in which existing or new exploratory fisheries are operating;
>
> **Agreed** that the lists of VME taxa should be reviewed periodically and updated as necessary when better information on the life-history characteristics of VME indicator taxa become available;
>
>> **Requested** Members and CNCPs to begin compiling information they hold on VME groups that can contribute to updates to the list;
>
> **Agreed** to add the question of how the FAO criteria should best be combined to identify VME taxa to the work plan.

To address the SC Multi-annual Work Plan task of determining how FAO criteria should be best combined to identify VME taxa, this paper interrogates the lists of known VME taxa from within the Evaluated Area of the SPRFMO Convention Area as presented in SC8-DW11, to identify which taxa meet different combinations of the FAO criteria.

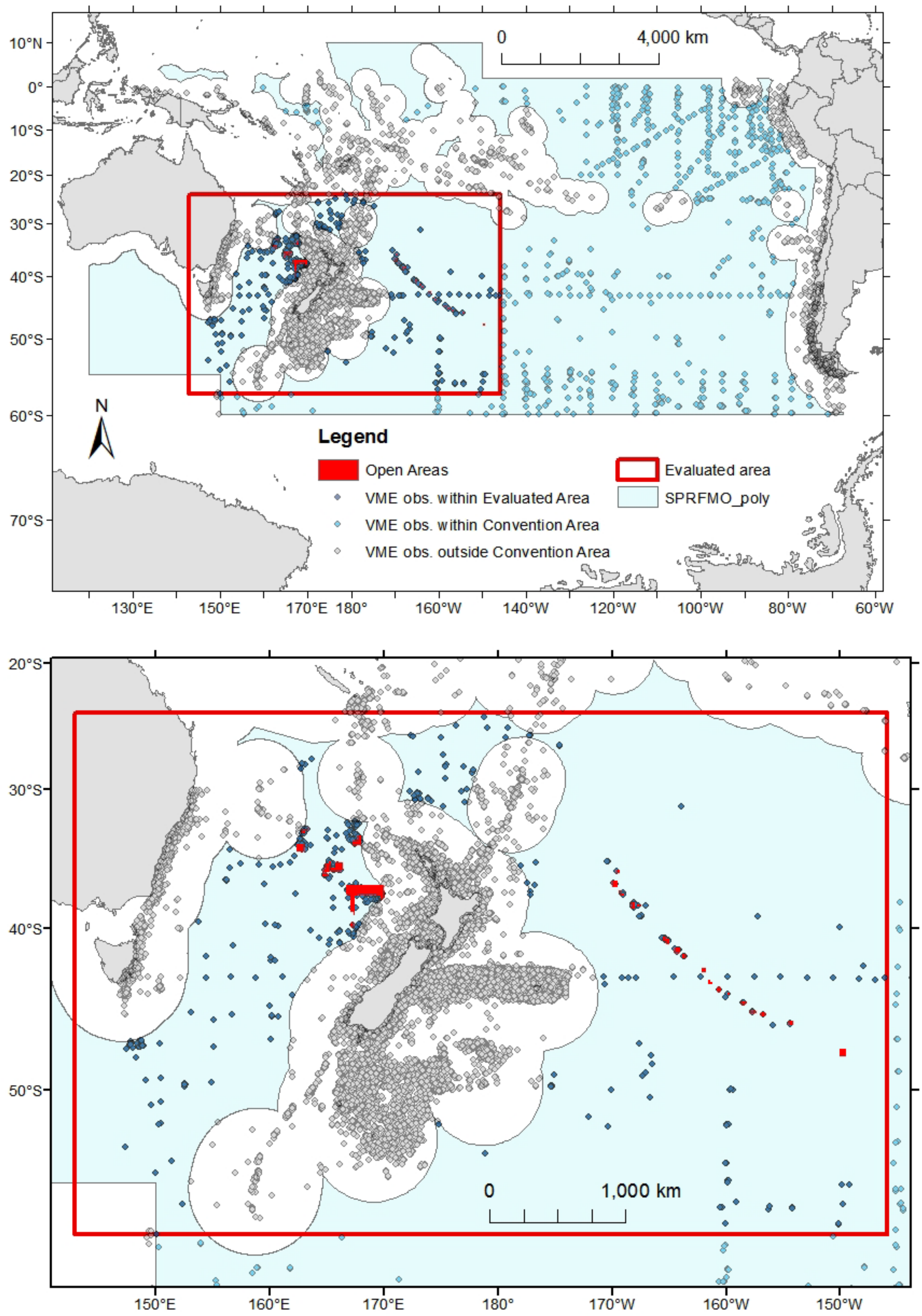

Figure 1 | The SPRFMO Convention Area with the location of the Evaluated Area from within which data was compiled. Also shown as red polygons are the locations of areas open to bottom trawling under SPRFMO CMM03-2021, and the location of VME taxa observations included in the combined dataset.

Table 2 | FAO criteria for identifying VME taxa and scoring guidance.

FAO Guidelines	Scoring guidance
Uniqueness or rarity – an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by similar areas or ecosystems. These include habitats that contain endemic species; habitats of rare, threatened or endangered species that occur only in discrete areas; or nurseries or discrete feeding, breeding, or spawning areas.	Those taxa that only occur in a few discrete areas within the SPRFMO Convention Area, and their loss from those areas would not be compensated for in any other areas, should be scored as meeting this criterion.
Functional significance of the habitat – discrete areas or habitats that are necessary for the survival, function, spawning/reproduction or recovery of fish stocks, particular life-history stages (e.g., nursery grounds or rearing areas), or of rare, threatened or endangered marine species.	Taxa that make an obvious and demonstratable contribution towards the survival of other species by creating nursery habitats, filtering water or recycling nutrients are considered functionally significant and should be scored as meeting this criterion**.**
Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities.	Taxa that are brittle, delicate or have 3-dimensional structures making them susceptible to entanglement in bottom fishing gear should be scored as meeting the fragility criteria.
Life-history traits of component species that make recovery difficult – ecosystems that are characterized by populations or assemblages of species with one or more of the following characteristics: slow growth rates; late age of maturity; low or unpredictable recruitment; or long-lived.	Taxa that live for more than 30 years are expected to have a low recovery rate from fishing disturbance and should be scored as meeting this criterion.
Structural complexity – an ecosystem that is characterized by complex physical structures created by significant concentrations of biotic and abiotic features. In these ecosystems, ecological processes are usually highly dependent on these structured systems. Further, such ecosystems often have high diversity, which is dependent on the structuring organisms.	Taxa that can grow larger than 50 cm in height can be considered as structure forming and should be scored at meeting this criterion.

3. Methods

To refine the multi-taxonomic level list of VME taxa for the SPRFMO Convention Area, we interrogated the expert scoring of taxa presented in Table 3 of SC8-DW11 against four combinations of the five FAO criteria for identifying VME taxa. We identified these combinations with direct reference to the descriptions of what constitutes a VME in the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas (FAO 2009).

Paragraph 14 of the FAO guidelines describes vulnerability of a VME as "*related to the likelihood that a population, community, or habitat will experience substantial alteration from short-term or chronic disturbance,* ***AND***[1] *the likelihood that it would recover and in what time frame."*. Therefore, the central definition of a VME revolves around the combined concepts of fragility and recovery, which are represented by two of the FAO's five criteria for identifying a VME. Paragraph 14 goes on to state

[1] Our emphasis

that fragility and recovery are "*related to the characteristics of the ecosystems themselves, especially biological and structural aspects. VME features may be physically or functionally fragile. The most vulnerable ecosystems are those that are both easily disturbed and very slow to recover, or may never recover*". Therefore, we considered that the other three FAO criteria can be used, in addition to the central criteria of fragility and recovery, to qualify the particular form of vulnerability expressed by the VME indicator taxa. Thus, we developed four combinations of the FAO's criteria for identifying VMEs; these were:

> **Combination 1:** *Fragility + Recovery (F+R)* – recognizes fragile taxa that have life-history traits that make their recovery difficult from degradation by anthropogenic activities (e.g., including one or more from the following: slow growth rates/ late age of maturity, low or unpredictable recruitment, long-lived).
>
> **Combination 2:** *Fragility + Recovery + Uniqueness or Rarity (F+R+UR)* – recognizes that the vulnerability of a fragile and slow to recover taxon may not be compensated for by its occurrence in other areas (i.e., taxa that are also rare, unique, threatened, or endangered).
>
> **Combination 3:** *Fragility + Recovery + Functional Significance (F+R+FS)* – recognizes that the vulnerability of a fragile and slow to recover taxon may be related to its functional significance (e.g., taxa that also provide habitat for the survival, spawning/reproduction or recovery of fish stocks)
>
> **Combination 4:** *Fragility + Recovery + Structural Complexity (F+R+SC)* – recognizes that the vulnerability of a fragile and slow to recover taxon may be related to its structural complexity (e.g., taxa that also create complex physical structures when in significant concentrations, which provide habitat that support ecological processes and high diversity).

4. Results

Within the Evaluated Area of the SPRFMO Convention Area, SC8-DW11 identified 231 species and 281 genera that met at least one of the FAO criteria for the identification of VMEs (Table 3, Table 4 Appendix 1). Of these, 120 species and 113 genera met the combined fragility and recovery criteria; 84 species and 70 genera met the fragility, recovery and rarity/uniqueness combination of criteria; 65 species and 65 genera met the fragility, recovery and functional significance criteria combination; and 49 species and 50 genera met the fragility, recovery and structural complexity combination of the VME criteria.

Porifera, Gorgonian Alcyonacea, Antipatharia and Stylasteridae had the most taxa meeting various combinations of criteria, and all of the Scleractinia evaluated met three of the four combinations of criteria (Table 3). Actiniaria, Hydrozoa, Brisingida, Bryozoa and Serpulidae did not have any taxa that met any of the combinations of VME criteria.

65% of species (Table 3) and 79% of genera (Table 4) could be evaluated against all the combinations of VME criteria, with the remaining taxa unable to be evaluated due to a lack of information and. Most of the Gorgonian Alcyonacea and all of the Antipatharia could not be evaluated against all VME criteria combinations. None of the Alcyonacea, Pennatulacea and Crinoidea could be evaluated against any of the combinations of criteria due to a lack of information related to their fragility and recovery.

For each taxon, the number of observations included in the dataset, the number of observations with weight records, the range of weights, and the mean and range of the depth records are presented in Appendix 4 of SC8-DW11.

Table 3 | The number of species recorded within the Evaluated Area of the SPRFMO Convention Area for each of the 15 VME taxa groups identified in SPRFMO SC7-DW13, the number of species identified in SC8-DW11 as meeting at least one VME criterion of the FAO, and the number of VME species meeting combined VME criteria for (i) fragility and recovery; (ii) fragility, recovery and rarity/uniqueness; (iii) fragility, recovery and functional significance; and (iii) fragility, recovery and structural complexity. Complete lists of taxa are presented in Appendix 1.

VME taxon group	No. species included in analysis	No. VME species identified in SC8-DW11 as meeting at least 1 VME criterion	No. species meeting fragility and recovery criteria	No. species meeting fragility, recovery and rarity / uniqueness criteria	No. species meeting fragility, recovery and functional significance criteria	No. species meeting fragility, recovery and structural complexity criteria	% species identified in SC8-DW11 that could be assessed against all combinations
Porifera (Sponges)[1]	65	65	53	46	32	22	100%
Alcyonacea (Soft corals)	1	1	0	0	0	0	0%
Alcyonacea (Gorgonains - sea fans, sea whips, bottlebrush)[2]	24	24	14	13	14	14	54%
Scleractinia (Stony corals)[3]	5	5	5	2	5	5	100%
Antipatharia (Black corals)	17	17	17	2	0	7	0%
Actiniaria (Anemones)	12	12	0	0	0	0	100%
Pennatulacea (Sea pens)	8	8	0	0	0	0	0%
Zoantharia (Hexacorals)	3	1	1	0	0	1	100%
Hydrozoa (Hydroids)	34	32	0	0	0	0	100%
Stylasteridae (Hydrocorals)	30	30	30	21	14	0	100%
Crinoidea (Sea lillies)	15	15	0	0	0	0	0%
Brisingida ('Armless' stars)	5	5	0	0	0	0	100%
Bryozoa	28	15	0	0	0	0	100%
Xenophyophorea (Xenophyophores)	0	0	0	0	0	0	NA
Serpulidae (Serpulid tube worms)	1	1	0	0	0	0	100%
TOTAL	**248**	**231**	**120**	**84**	**65**	**49**	**65%**

[1] Includes all Porifera within the classes Demospongiae and Hexactinellida

[2] Includes all Alcyonacea within the sub-orders Holaxonia, Calcaxonia and Scleraxonia

[3] Includes all taxa within the following genera: *Solenosmilia; Goniocorella; Oculina; Enallopsammia; Madrepora; Lophelia*

Table 4 | The number of genera recorded within the Evaluated Area of the SPRFMO Convention Area for each of the 15 VME taxa groups identified in SPRFMO SC7-DW13, the number of genera identified in SC8-DW11 as meeting at least one VME criterion of the FAO, and the number of VME genera meeting combined VME criteria for (i) fragility and recovery; (ii) fragility, recovery and rarity/uniqueness; (iii) fragility, recovery and functional significance; and (iii) fragility, recovery and structural complexity. Complete lists of taxa are presented in Appendix 1.

VME taxon group	No. genera included in analysis	No. VME genera identified in SC8-DW11 as meeting at least 1 VME criterion	No. genera meeting fragility and recovery criteria	No. genera meeting fragility, recovery and rarity / uniqueness criteria	No. genera meeting fragility, recovery and functional significance criteria	No. genera meeting fragility, recovery and structural complexity criteria	% genera identified in SC8-DW11 that could be assessed against all combinations
Porifera (Sponges)[1]	63	81	61	47	39	23	100%
Alcyonacea (Soft corals)	8	7	0	0	0	0	0%
Alcyonacea (Gorgonains - sea fans, sea whips, bottlebrush)[2]	38	38	10	6	10	9	26%
Scleractinia (Stony corals)[3]	5	5	5	2	5	5	100%
Antipatharia (Black corals)	20	20	20	3	0	10	0%
Actiniaria (Anemones)	17	16	0	0	0	0	100%
Pennatulacea (Sea pens)	10	10	0	0	0	0	0%
Zoantharia (Hexacorals)	3	3	3	1	1	3	100%
Hydrozoa (Hydroids)	30	30	0	0	0	0	100%
Stylasteridae (Hydrocorals)	14	14	14	11	10	0	100%
Crinoidea (Sea lillies)	22	22	0	0	0	0	0%
Brisingida (‘Armless’ stars)	6	6	0	0	0	0	100%
Bryozoa	67	26	0	0	0	0	100%
Xenophyophorea (Xenophyophores)	0	0	0	0	0	0	NA
Serpulidae (Serpulid tube worms)	5	5	0	0	0	0	100%
TOTAL	**326**	**281**	**113**	**70**	**65**	**50**	**79%**

[1] Includes all Porifera within the classes Demospongiae and Hexactinellida
[2] Includes all Alcyonacea within the sub-orders Holaxonia, Calcaxonia and Scleraxonia
[3] Includes all taxa within the following genera: *Solenosmilia; Goniocorella; Oculina; Enallopsammia; Madrepora; Lophelia*

5. Discussion

Within the Evaluated Area of the SPRFMO Convention Area, the analysis presented here identified 113 genera and 120 species that met both the FAO's fragility and recovery criteria for identifying VMEs. However, because most observations (56%) within the dataset that was analysed for SC8-DW11 were designated at the taxonomic level of family or higher, and because a high proportion of taxa had insufficient information to allow an analysis against all four combinations of VME criteria (33% of genera, 23% of species), this is likely an under-estimate of the number of VME taxa (at the level of species or genera) present within the area. This underestimate is potentially further exacerbated by a high prevalence of taxa that either have low catchability (the dataset included data from a range of sampling methods, although was dominated by observer data from bottom trawl fisheries, which have been demonstrated to have low catchability for VMEs – for example see SPRFMO SC7-DW14, SC7-DW21, Auster et al. 2011) or may be naturally rare, as evidenced by the high percentage of taxa with only a single observation within the dataset (see SC8-DW11).

Where evaluations of different combinations of VME criteria are possible, we argue that there is value in evaluating multiple combinations of the FAO's VME criteria. Specifically, we believe that our Combination 1 (fragility plus recovery) provides the most basic assessment of whether a VME indicator taxa is likely to suggest the presence of a VME, combining as it does the two criteria central to the concept of a VME. Additional combinations of the VME criteria provide insights into: (i) those taxa that may be vulnerable because they their loss in one area may not be compensated for by their occurrence in other areas (Combination 2: fragility plus recovery plus uniqueness/rarity); (ii) those taxa whose vulnerability may be related to their functional importance for other species (Combination 3: fragility plus recovery plus functional significance); and (iii) those taxa whose vulnerability may related to their physical structural complexity of the habitat they provide for other species (Combination 4: fragility plus recovery plus structural complexity). Used together, these combinations of the FAO's VME criteria can provide a direct line of insight into the potential consequences of taxon-specific impacts of bottom fishing. For example, consequences such as the potential loss of rare species, habitat areas for spawning fish, and habitats with high diversity. Within a management context, this information can help target mitigation strategies towards those taxa whose loss may result in broad and/or local ecosystem-level impacts. For example, while management is required to prevent significant adverse impacts (SAIs) on all VMEs, it may be desirable to focus on management measures that protect those VME indicator taxa that have a disproportionately important role in ecosystem functioning.

The FAO recommends that when designating an ecosystem as vulnerable, habitats and ecosystems should be evaluated against the criteria, individually or in combination, using the best available scientific and technical information. Although 281 genera and 231 species were assessed by taxonomists and para-taxonomists as meeting at least one of the VME criterion (SC-DW11), far fewer taxa met even the most basic combination of fragility and rarity (40% of genera and 52% of species assess as meeting at least one of the VME criterion), and even fewer met combinations that also included rarity and uniqueness (25% of genera and 36% of species), functional significance (23% of genera and 28% of species) and structural complexity (14% of genera and 21% of species). This finding may be in part because there remains a considerable lack of knowledge about the life-history characteristics of many of the taxa included in the analysis, and expert reviewers indicated difficulties in evaluating some taxa against the FAO's VME criteria due to a lack of basic biological information. The result was that many taxa could not be evaluated against all combinations of the VME criteria, with taxonomists indicating insufficient knowledge to be able to assess at least one of the criteria for 44% of the genera and 33% of the species included in the analysis. Further, this assessment of knowledge limitation is likely an underestimate of the extent at which insufficient data exists for undertaking these assessments, due to differences in how reviewers indicated insufficient data (i.e., some reviewers explicitly identified a lack of data in their scoring – see yellow cells in Appendix 1, while others left cells blank where insufficient data existed). This issue is likely why some of the VME indicator taxa listed in CMM03-2021 (Actiniaria, Hydrozoa, Bryozoa and Brisingida) didn't meet even the basic combination of VME criteria (fragility and recovery). Consequently, we recommend that the list of VME taxa is continually updated and reviewed as better information on the life-history characteristics of VME taxa become available. In the interim, we suggest the lists of VME taxa presented here are best interpreted as identifying those taxa that do meet the FAO criteria, until further information is available to complete the assessment. A future improvement would be to score the Table presented in Appendix 1 as meeting the basic Combination 1 criteria, not meeting these criteria, or uncertain because information is unavailable for assessing the fragility and/or recovery criteria.

The FAO Guidelines are not specific on how the VME criteria should be combined when evaluating the vulnerability of habitats and ecosystems. We have presented an approach that first identifies what we consider to be the most basic assessment of whether a VME indicator taxa is likely to suggest the presence of a VME, and we then build upon that to suggest other criteria combinations that can provide a direct line of insight into the potential consequences of taxon-specific impacts of bottom fishing. Morato et al. (2018, 2021) used a different multi-criteria approach. Their assessment methodology accounts for VME indicators not being equally vulnerable to human impacts by scoring each of their VME indicator groups against each of the five VME criteria (from 1 (low) through 5 (high)). They assume that the VME criteria are approximately orthogonal and calculate a final VME indicator score for each of the VME indicators using a quadratic mean (i.e., the square root of the mean of squares)[2]. This approach differs from the approach we used in that it explicitly applies a qualitative score to each combination of VME indicator taxa and VME criteria (whereas our scoring was binary, indicating if a criterion was met or not) and then calculates a final score for each VME indicator taxa across all VME criteria (whereas our approach required specific combinations of criteria to be met). While calculating a VME indicator score is an appealing and a potentially useful approach for addressing the issues of how to consider multiple FAO criteria at once, in our case it is problematic to implement. That is, given the current level of uncertainty associated with the assessments of VME taxa against the VME criteria, which would be further exacerbated by trying to apply a qualitative score to those assessments. However, we recognize the need for consistency between RFMOs in how the FAO VME criteria are applied and recommend opening a discussion with the FAO and other RFMOs on the potential usefulness of different criteria combination approaches.

[2] Morato et al. (2018) also calculated VME abundance scores by scoring bycatch abundance as a 5 if it exceeded encounter thresholds, a 3 if it exceeded an intermediate encounter threshold and a 1 if it was below an intermediate encounter threshold. They then calculated a final VME index by assigning 90% weight to the "VME indicator score" and 10% weight to the VME abundance score, aggregating scores within 0.05 x 0.05 degree grid cells, and retaining the maximum VME index value as the overall value for that cell.

6. Recommendations

It is recommended that the Scientific Committee:

- **Notes** that the lists of VME taxa presented in SC8-DW11 have been updated to take into consideration combinations of the FAO's VME criteria.
- **Reaffirms** that the lists of VME taxa should be reviewed periodically and updated as necessary when better information on the taxa become available, so that taxa can be assessed against more VME criteria.
- **Recommends** discussion with the FAO and other RFMOs on the potential usefulness of different criteria combination approaches and how they could be standardized among RFMOs.

7. References

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Appendix 1

Table A1 | List of VME taxa identified at the genus or species level in SC8-DW11 through an expert scoring process against FAO criteria for identifying VMEs. Taxa in grey are those that were not identified as meeting any VME criteria. Last four columns indicate taxa that met combinations of VME criteria. Question marks indicate where expert reviewers indicated a lack of information to evaluate a criterion, and yellow cells in the last four columns indicate combinations of criteria could not be evaluated due to a lack of information. Note: no xenophyophores were identified to the level of genera or species.

Candidate taxa	Family	VME taxa group	Fragility (F)	Recovery (R)	Unique/Rarity (UR)	Func. Signif. (FS)	Struct. Complex. (SC)	F + R	F + R + UR	F + R + FS	F + R + SC
Axinella	Axinellidae	Porifera		X		X	X				
Parahigginsia	Heteroxyidae		X	X	X			X	X		
Janulum imago	Raspailiidae		X	X	X			X	X		
Ircinia	Irciniidae			X		X					
Coscinoderma	Spongiidae			X		X	X				
Spongia	Spongiidae		X	X		X		X		X	
Arenosclera	Callyspongiidae		X	X				X			
Callyspongia	Callyspongiidae		X	X		X	X	X		X	X
Callyspongia (Callyspongia) nuda	Callyspongiidae		X			X	X				
Cladocroce	Chalinidae		X	X		X		X		X	
Amphimedon	Niphatidae		X			X					
Neopetrosia	Petrosiidae		X	X		X		X		X	
Xestospongia	Petrosiidae			X		X	X				
Oceanapia	Phloeodictyidae		X			X					
Abyssocladia	Cladorhizidae				X						
Abyssocladia carcharias	Cladorhizidae		X	X	X			X	X		
Abyssocladia inflata	Cladorhizidae				X						
Chondrocladia	Cladorhizidae			X	X						
Chondrocladia concrescens	Cladorhizidae			X	X	X					
Chondrocladia (Chondrocladia) nani	Cladorhizidae			X	X						
Lissodendoryx	Coelosphaeridae		X			X					
Esperiopsis inodes	Esperiopsidae		X								
Phorbas	Hymedesmiidae		X			X					
Ophlitaspongia	Microcionidae		X								
Mycale	Mycalidae		X			X					
Phlyctaenopora	Mycalidae		X	X	X			X	X		
Tedania	Tedaniidae		X			X					
Polymastia granulosa	Polymastiidae		X			X					
Radiella	Polymastiidae			X	X						
Topsentia	Halichondriidae		X	X		X		X		X	
Aaptos	Suberitidae		X	X		X		X		X	
Rhizaxinella	Suberitidae		X			X					
Suberites	Suberitidae		X	X		X		X		X	
Suberites cupuloides	Suberitidae		X	X		X		X		X	
Halicometes hooperi	Tethyidae		X	X	X			X	X		
Tethya	Tethyidae		X	X		X		X		X	

Candidate taxa	Family	VME taxa group	Fragility (F)	Recovery (R)	Unique/Rarity (UR)	Func. Signif. (FS)	Struct. Complex. (SC)	F + R	F + R + UR	F + R + FS	F + R + SC
Ecionemia novaezealandiae	Ancorinidae			X		X					
Rhabdastrella	Ancorinidae			X		X					
Stelletta	Ancorinidae			X		X	X				
Calthropella (Calthropella)	Calthropellidae		X	X	X			X	X		
Calthropella (Pachataxa)	Calthropellidae		X	X	X			X	X		
Awhiowhio unda	Corallistidae		X	X	X			X	X		
Corallistes	Corallistidae		X	X	X	X		X	X	X	
Herengeria auriculata	Corallistidae		X	X	X			X	X		
Herengeria vasiformis	Corallistidae		X	X	X	X	X	X	X	X	X
Neoschrammeniella fulvodesmus	Corallistidae		X	X	X	X		X	X	X	
Erylus	Geodiidae		X	X	X	X		X	X	X	
Geodia	Geodiidae			X		X					
Geodia praelonga	Geodiidae			X	X	X	X				
Geodia regina	Geodiidae		X	X		X	X	X		X	X
Geodia vestigifera	Geodiidae		X			X	X				
Penares palmatoclada	Geodiidae		X		X						
Costifer wilsoni	Isoraphiniidae		X	X	X	X	X	X	X	X	X
Homophymia stipitata	Neopeltidae		X	X	X	X		X	X	X	
Sollasipelta punctata	Neopeltidae		X	X	X			X	X		
Characella	Pachastrellidae		X	X	X			X	X		
Neoaulaxinia persicum	Phymatellidae		X	X	X	X		X	X	X	
Pleroma aotea	Pleromidae		X	X	X	X		X	X	X	
Pleroma menoui	Pleromidae		X	X	X	X		X	X	X	
Pleroma turbinatum	Pleromidae		X	X	X	X	X	X	X	X	X
Aciculites pulchra	Scleritodermidae		X	X	X	X		X	X	X	
Scleritoderma	Scleritodermidae		X	X	X	X	X	X	X	X	X
Scleritoderma flabelliformis	Scleritodermidae		X	X	X	X	X	X	X	X	X
Antarctotetilla leptoderma	Tetillidae		X	X		X		X		X	
Craniella neocaledonica	Tetillidae		X	X	X			X	X		
Fangophilina	Tetillidae		X	X	X			X	X		
Tetilla australis	Tetillidae		X	X		X		X		X	
Thenea cf. microspirastra	Theneidae		X	X	X			X	X		
Thenea novaezealandiae	Theneidae		X	X	X	X		X	X	X	
Discodermia proliferans	Theonellidae		X	X	X			X	X		
Poecillastra	Vulcanellidae		X	X	X	X		X	X	X	
Poecillastra laminaris	Vulcanellidae		X	X	X	X	X	X	X	X	X
Hyalonema	Hyalonematidae		X	X	X	X	X	X	X	X	X
Hyalonema (Corynonema) tenuifusum	Hyalonematidae		X	X	X			X	X		
Hyalonema (Cyliconemaoida)	Hyalonematidae		X	X	X			X	X		
Hyalonema (Oonema) bipinnulum	Hyalonematidae		X	X	X			X	X		
Monorhaphis chuni	Monorhaphididae		X	X	X		X	X	X		X
Pheronema	Pheronematidae		X	X	X	X		X	X	X	
Pheronema conicum	Pheronematidae		X	X	X	X	X	X	X	X	X
Euryplegma auriculare	Aulocalycidae		X	X	X			X	X		
Amphidiscella abyssalis	Euplectellidae		X	X	X		X	X	X		X
Amphidiscella sonnae	Euplectellidae		X	X	X		X	X	X		X
Amphoreus schuppi	Euplectellidae		X	X	X			X	X		
Corbitella inopiosa	Euplectellidae		X	X	X			X	X		
Dictyaulus crinolinum	Euplectellidae		X	X	X		X	X	X		X

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Euplectella	Euplectellidae		X	X	X	X	X	X	X	X	X
Euplectella aspergillum regalis	Euplectellidae		X	X	X	X	X	X	X	X	X
Euplectella imperialis	Euplectellidae		X	X	X	X	X	X	X	X	X
Malacosaccus erectus	Euplectellidae		X	X	X	X		X	X	X	
Regadrella	Euplectellidae		X	X	X	X	X	X	X	X	X
Saccocalyx tetractinus	Euplectellidae		X	X	X	X	X	X	X	X	X
Walteria leuckarti	Euplectellidae		X	X	X	X	X	X	X	X	X
Caulophacus	Rossellidae		X	X	X	X	X	X	X	X	X
Caulophacus (Caulodiscus) lotifolium	Rossellidae		X	X	X	X	X	X	X	X	X
Crateromorpha	Rossellidae		X	X	X	X	X	X	X	X	X
Crateromorpha (Crateromorpha) meyeri	Rossellidae		X	X	X	X	X	X	X	X	X
Hyalascus	Rossellidae		X	X	X	X	X	X	X	X	X
Rossella	Rossellidae		X	X	X	X	X	X	X	X	X
Rossella antarctica	Rossellidae		X	X	X	X	X	X	X	X	X
Symplectella rowi	Rossellidae		X	X		X		X		X	
Aphrocallistes beatrix beatrix	Aphrocallistidae		X	X		X	X	X		X	X
Auloplax sonnae	Auloplacidae		X	X	X	X		X	X	X	
Chonelasma hamatum	Euretidae		X	X	X	X	X	X	X	X	X
Chonelasma lamella	Euretidae		X	X	X	X	X	X	X	X	X
Gymnorete stabulatum	Euretidae		X	X	X	X		X	X	X	
Farrea	Farreidae		X	X		X	X	X		X	X
Farrea ananchorata	Farreidae		X	X	X	X		X	X	X	
Farrea similaris	Farreidae		X	X		X	X	X		X	X
Anomochone expansa	Tretodictyidae		X	X	X			X	X		
Anomochone furcata	Tretodictyidae		X	X	X			X	X		
Hexactinella simplex	Tretodictyidae		X	X	X			X	X		
Anthomastus	Alcyoniidae	Alcyonacea (soft corals)		?							
Pseudoanthomastus	Alcyoniidae			?	X						
Carijoa	Clavulariidae		X	?		X	X	?		?	?
Rhodelinda	Clavulariidae			?	X						
Rhodelinda gardineri	Clavulariidae			?	X						
Telesto	Clavulariidae		X	?		X	X	?		?	?
Dendronephthya	Nephtheidae		X	?		X	X	?		?	?
Duva	Nephtheidae		X	?		X		?		?	
Chironephthya	Nidaliidae		X	?		X	X	?		?	?
Acanthogorgia	Acanthogorgiidae	Alcyonacea (gorgonians)	X	?		X	X	?		?	?
Anthogorgia	Acanthogorgiidae		X	?		X	X	?		?	?
Anthothela	Anthothelidae		X	?		X	X	?		?	?
Chrysogorgia	Chrysogorgiidae		X	?		X	X	?		?	?
Iridogorgia	Chrysogorgiidae		X	?		X	X	?		?	?
Metallogorgia	Chrysogorgiidae		X	?		X	X	?		?	?
Radicipes	Chrysogorgiidae		X	?		X		?		?	
Corallium	Coralliidae		X	X		X	X	X		X	X
Corallium tortuosum	Coralliidae		X	X	X	X	X	X	X	X	X
Hemicorallium abyssale	Coralliidae		X	X	X	X	X	X	X	X	X
Viminella	Ellisellidae		X	?		X	X	?		?	?
Acanella	Isididae		X	X		X	X	X		X	X
Acanella rigida	Isididae		X	X	X	X	X	X	X	X	X

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Isidella	Isididae		X	X		X	X	X		X	X
Keratoisis	Isididae		X	X		X	X	X		X	X
Keratoisis flexibilis	Isididae		X	X	X	X	X	X	X	X	X
Keratoisis glaesa	Isididae		X	X	X	X	X	X	X	X	X
Lepidisis	Isididae		X	X		X		X		X	
Minuisis pseudoplanum	Isididae		X	X	X	X	X	X	X	X	X
Orstomisis	Isididae		X	X		X	X	X		X	X
Sclerisis	Isididae		X	X	X	X	X	X	X	X	X
Paragorgia	Paragorgiidae		X	X		X	X	X		X	X
Paragorgia arborea	Paragorgiidae		X	X		X	X	X		X	X
Paragorgia maunga	Paragorgiidae		X	X	X	X	X	X	X	X	X
Dentomuricea	Plexauridae		X	?		X	X	?		?	?
Euplexaura	Plexauridae		X	?		X	X	?		?	?
Muriceides	Plexauridae		X	?		X	X	?		?	?
Paracis	Plexauridae		X	?		X	X	?		?	?
Paracis squamata	Plexauridae		X	?	X	X	X	?	?	?	?
Paramuricea	Plexauridae		X	?		X	X	?		?	?
Placogorgia	Plexauridae		X	?		X	X	?		?	?
Swiftia	Plexauridae		X	?		X	X	?		?	?
Trimuricea	Plexauridae		X	?		X	X	?		?	?
Villogorgia	Plexauridae		X	?		X	X	?		?	?
Callogorgia	Primnoidae		X	?		X	X	?		?	?
Callogorgia formosa	Primnoidae		X	?	X	X	X	?	?	?	?
Callogorgia gilberti	Primnoidae		X	?	X	X	X	?	?	?	?
Callogorgia korema	Primnoidae		X	?	X	X	X	?	?	?	?
Callogorgia tuberculata	Primnoidae		X	?	X	X	X	?	?	?	?
Calyptrophora	Primnoidae		X	?		X	X	?		?	?
Calyptrophora diaphana	Primnoidae		X	?	X	X	X	?	?	?	?
Helicoprimnoa fasciola	Primnoidae		X	?	X	X	X	?	?	?	?
Metanarella nannolepis	Primnoidae		X	?	X	X	X	?	?	?	?
Narella	Primnoidae		X	?		X	X	?		?	?
Narella hypsocalyx	Primnoidae		X	?	X	X	X	?	?	?	?
Narella mesolepis	Primnoidae		X	?	X	X	X	?	?	?	?
Narella vulgaris	Primnoidae		X	?	X	X	X	?	?	?	?
Parastenella doederleini	Primnoidae		X	?	X	X	X	?	?	?	?
Parastenella pacifica	Primnoidae		X	?	X	X	X	?	?	?	?
Perissogorgia	Primnoidae		X	?		X	X	?		?	?
Perissogorgia colossus	Primnoidae		X	?	X	X	X	?	?	?	?
Primnoa	Primnoidae		X	?		X	X	?		?	?
Primnoa notialis	Primnoidae		X	?		X	X	?		?	?
Thouarella	Primnoidae		X	?		X	X	?		?	?
Victorgorgia	Victorgorgiidae		X	?		X	X	?		?	?
Isidoides armata	Calcaxonia[1]		X	?	X	X	X	?	?	?	?
Goniocorella dumosa	Caryophylliidae	Scleractinia	X	X	X	X	X	X	X	X	X
Solenosmilia variabilis	Caryophylliidae		X	X		X	X	X		X	X
Enallopsammia	Dendrophylliidae		X	X		X	X	X		X	X
Enallopsammia rostrata	Dendrophylliidae		X	X		X	X	X		X	X
Madrepora oculata	Oculinidae		X	X		X	X	X		X	X
Oculina virgosa	Oculinidae		X	X	X	X	X	X	X	X	X
Antipathes	Antipathidae	Antipatharia	X	X	?	?	X	X	?	?	X
Cirrhipathes	Antipathidae		X	X	?	?		X	?	?	
Stichopathes	Antipathidae		X	X	?	?		X	?	?	

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Asteriopathes	Aphanipathidae		X	X	X	?		X	X	?	
Cladopathes	Cladopathidae		X	X	?	?	X	X	?	?	X
Trissopathes	Cladopathidae		X	X	?	?	X	X	?	?	X
Trissopathes tetracrada	Cladopathidae		X	X	?	?	X	X	?	?	X
Leiopathes	Leiopathidae		X	X	?	?	X	X	?	?	X
Leiopathes acanthophora	Leiopathidae		X	X	?	?	X	X	?	?	X
Leiopathes bullosa	Leiopathidae		X	X	?	?	X	X	?	?	X
Leiopathes secunda	Leiopathidae		X	X	?	?	X	X	?	?	X
Antipathella strigosa	Myriopathidae		X	X	?	?	X	X	?	?	X
Cupressopathes	Myriopathidae		X	X	?	?		X	?	?	
Cupressopathes cylindrica	Myriopathidae		X	X	?	?		X	?	?	
Cupressopathes simplex	Myriopathidae		X	X	X	?		X	X	?	
Myriopathes japonica	Myriopathidae		X	X	?	?	X	X	?	?	X
Alternatipathes alternata	Schizopathidae		X	X	X	?		X	X	?	
Bathypathes	Schizopathidae		X	X	?	?	X	X	?	?	X
Bathypathes patula	Schizopathidae		X	X	?	?		X	?	?	
Dendrobathypathes	Schizopathidae		X	X	?	?	X	X	?	?	X
Dendrobathypathes Isocrada	Schizopathidae		X	X	?	?	X	X	?	?	X
Dendropathes	Schizopathidae		X	X	?	?	X	X	?	?	X
Lillipathes	Schizopathidae		X	X	?	?	X	X	?	?	X
Lillipathes lillei	Schizopathidae		X	X	?	?	X	X	?	?	X
Parantipathes	Schizopathidae		X	X	?	?		X	?	?	
Parantipathes dodecasticha	Schizopathidae		X	X	?	?		X	?	?	
Parantipathes helicosticha	Schizopathidae		X	X	?	?		X	?	?	
Stauropathes	Schizopathidae		X	X	?	?		X	?	?	
Stylopathes	Stylopathidae		X	X	?	?		X	?	?	
Stylopathes columnaris	Stylopathidae		X	X	?	?		X	?	?	
Triadopathes	Stylopathidae		X	X	?	?		X	?	?	
Tylopathes glutinata	Stylopathidae		X	X	?	?		X	?	?	
Actinernus elongatus	Actinernidae	Actiniaria		X	X						
Isactinernus quadrilobatus	Actinernidae			X							
Bolocera	Actiniidae			X							
Parabunodactis inflexibilis	Actiniidae				X						
Actinoscyphia	Actinoscyphiidae			X							
Actinoscyphia plebeia	Actinoscyphiidae			X							
Sicyonis	Actinostolidae			X							
Amphianthus capensis	Amphianthidae			X							
Edwardsiella	Edwardsiidae										
Actinauge	Hormathiidae			X							
Actinauge granulate	Hormathiidae			X							
Actinauge verrillii	Hormathiidae			X							
Chondrophellia orangina	Hormathiidae			X	X						
Hormathia	Hormathiidae			X							
Hormathia lacunifera	Hormathiidae			X							
Phelliactis	Hormathiidae			X							
Alvinactis chessi	Kadosactinidae			X	X						
Cyananthea hourdezi	Kadosactinidae			X	X						
Liponema	Liponematidae			X							
Actinecta cyanea	Minyadidae				X						
Phellia	Phelliidae			X							
Anthoptilum	Anthoptilidae	Pennatulacea	X	?				?			

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Anthoptilum grandiflorum	Anthoptilidae		X	?			X	?			?
Anthoptilum murrayi	Anthoptilidae		X	?				?			
Funiculina quadrangularis	Funiculinidae		X	?			X	?			?
Halipteris finmarchica	Halipteridae		X	?			X	?			?
Kophobelemnon	Kophobelemnidae		X	?				?			
Kophobelemnon macrospinosum	Kophobelemnidae		X	?				?			
Gyrophyllum sibogae	Pennatulidae		X	?				?			
Pennatula	Pennatulidae		X	?				?			
Pennatula inflata	Pennatulidae		X	?				?			
Pteroeides	Pennatulidae		X	?				?			
Distichoptilum gracile	Protoptilidae		X	?			X	?			?
Protoptilum	Protoptilidae		X	?				?			
Umbellula	Umbellulidae		X	?				?			
Epizoanthus[1]	Epizoanthidae	Zoantharia	X	X	X	X	X	X	X	X	X
Epizoanthus paguriphilus	Epizoanthidae										
Epizoanthus stellaris	Epizoanthidae										
Kulamanamana haumeaae	Parazoanthidae		X	X			X	X			X
Savalia	Parazoanthidae		X	X			X	X			X
Garveia	Bougainvilliidae	Hydrozoa	X			X					
Corymorpha furcata	Corymorphidae		X			X					
Eudendrium	Eudendriidae		X			X					
Oceania armata	Oceaniidae		X			X					
Leuckartiara annexa	Pandeidae										
Solanderia	Solanderiidae		X			X	X				
Aglaophenia ctenata	Aglaopheniidae		X		X	X	X				
Gymnangium explorationis	Aglaopheniidae		X			X	X				
Gymnangium tubuliferum	Aglaopheniidae		X			X	X				
Lytocarpia	Aglaopheniidae		X		X	X	X				
Lytocarpia cf. rigida	Aglaopheniidae		X			X	X				
Lytocarpia subdichotoma	Aglaopheniidae		X		X	X	X				
Lytocarpia tenuissima	Aglaopheniidae		X			X	X				
Campanularia diverticulata	Campanulariidae		X								
Obelia	Campanulariidae		X								
Clathrozoon	Clathrozoidae		X			X	X				
Halecium	Haleciidae		X		X	X					
Halecium delicatulum	Haleciidae		X			X					
Corhiza scotiae	Halopterididae		X			X					
Halopteris crassa	Halopterididae		X			X					
Acryptolaria	Lafoeidae		X			X	X				
Acryptolaria conferta	Lafoeidae		X			X	X				
Acryptolaria minima	Lafoeidae		X		X	X	X				
Acryptolaria operculata	Lafoeidae		X			X	X				
Cryptolarella abyssicola	Lafoeidae		X			X					
Lafoea dumosa	Lafoeidae		X			X	X				
Phialucium mbengha	Phialuciidae										
Plumularia	Plumulariidae		X		X	X	X				
Plumularia insignis	Plumulariidae		X			X					
Sertularella	Sertularellidae		X		X	X	X				
Dictyocladium monilifer	Sertulariidae		X		X	X	X				
Dictyocladium reticulatum	Sertulariidae		X			X	X				
Gigantotheca	Sertulariidae		X		X	X	X				
Salacia	Sertulariidae		X			X	X				

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Salacia bicalycula	Sertulariidae		X		X	X	X				
Salacia spiralis	Sertulariidae		X		X	X	X				
Symplectoscyphus	Symplectoscyphidae		X		X	X	X				
Symplectoscyphus cf. macroscyphus	Symplectoscyphidae		X			X	X				
Synthecium	Syntheciidae		X			X	X				
Synthecium brucei	Syntheciidae		X			X	X				
Synthecium subventricosum	Syntheciidae		X			X	X				
Parascyphus simplex	Thyroscyphidae		X			X	X				
Stegolaria	Tiarannidae		X			X	X				
Stegolaria geniculata	Tiarannidae		X			X	X				
Stegolaria irregularis	Tiarannidae		X		X	X	X				
Cryptolaria exserta	Zygophylacidae		X			X	X				
Cryptolaria pectinata	Zygophylacidae		X			X	X				
Zygophylax polycarpa	Zygophylacidae		X		X	X	X				
Zygophylax sibogae	Zygophylacidae		X			X	X				
Adelopora fragilis	Stylasteridae	Stylasteridae	X	X				X			
Astya aspidopora	Stylasteridae		X	X	X			X	X		
Calyptopora reticulata	Stylasteridae		X	X	X	X		X	X	X	
Conopora	Stylasteridae		X	X	X	X		X	X	X	
Conopora candelabrum	Stylasteridae		X	X	X			X	X		
Conopora laevis	Stylasteridae		X	X		X		X		X	
Conopora tetrastichopora	Stylasteridae		X	X	X			X	X		
Conopora unifacialis	Stylasteridae		X	X	X			X	X		
Conopora verrucosa	Stylasteridae		X	X		X		X		X	
Crypthelia	Stylasteridae		X	X	X	X		X	X	X	
Crypthelia curvata	Stylasteridae		X	X	X			X	X		
Crypthelia cymas	Stylasteridae		X	X				X			
Crypthelia polypoma	Stylasteridae		X	X	X			X	X		
Crypthelia robusta	Stylasteridae		X	X	X	X		X	X	X	
Crypthelia stenopoma	Stylasteridae		X	X		X		X		X	
Distichopora dispar	Stylasteridae		X	X	X			X	X		
Errina	Stylasteridae		X	X	X			X	X		
Errina bicolor	Stylasteridae		X	X	X			X	X		
Errina cheilopora	Stylasteridae		X	X	X			X	X		
Errina dendyi	Stylasteridae		X	X	X			X	X		
Errina novaezelandiae	Stylasteridae		X	X	X			X	X		
Errinopsis	Stylasteridae		X	X	X			X	X		
Inferiolabiata lowei	Stylasteridae		X	X		X		X		X	
Lepidopora cryptocymas	Stylasteridae		X	X	X			X	X		
Lepidopora dendrostylus	Stylasteridae		X	X		X		X		X	
Lepidopora sarmentosa	Stylasteridae		X	X	X	X		X	X	X	
Lepidotheca	Stylasteridae		X	X	X	X		X	X	X	
Lepidotheca altispina	Stylasteridae		X	X	X			X	X		
Lepidotheca chauliostylus	Stylasteridae		X	X	X	X		X	X	X	
Leptohelia microstylus	Stylasteridae		X	X		X		X		X	
Sporadopora micropora	Stylasteridae		X	X		X		X		X	
Stylaster	Stylasteridae		X	X	X	X		X	X	X	
Stylaster eguchii	Stylasteridae		X	X		X		X		X	
Stylaster gracilis	Stylasteridae		X	X	X			X	X		
Stylaster imbricatus	Stylasteridae		X	X	X	X		X	X	X	
Stylaster sinuosus	Stylasteridae		X	X	X	X		X	X	X	

Candidate taxa	Family	VME taxa group	Fragility (F)	Recovery (R)	Unique/Rarity (UR)	Func. Signif. (FS)	Struct. Complex. (SC)	F + R	F + R + UR	F + R + FS	F + R + SC
Antedon	Antedonidae	Crinoidea	X	?	?			?	?		
Cyclometra	Antedonidae		X	?	?			?	?		
Erythrometra rostrata	Antedonidae		X	?	?			?	?		
Florometra novaezealandiae	Antedonidae		X	?	?			?	?		
Thaumatometra	Antedonidae		X	?				?			
Thaumatometra alternata	Antedonidae		X	?				?			
Monachocrinus	Bathycrinidae		X	?	?		X	?	?		?
Charitometra basicurva	Charitometridae		X	?				?			
Glyptometra inaequalis	Charitometridae		X	?				?			
Strotometra	Charitometridae		X	?	?			?	?		
Anneissia plectrophorum	Comatulidae		X	?				?			
Comanthus gisleni	Comatulidae		X	?	?			?	?		
Comatulidae incertae sedis imossica	Comatulidae		X	?	?			?	?		
Comissia dawsoni	Comatulidae		X	?	?			?	?		
Himerometra robustipinna	Himerometridae		X	?				?			
Pentametrocrinus	Pentametrocrinidae		X	?				?			
Pentametrocrinus semperi	Pentametrocrinidae		X	?	?			?	?		
Pentametrocrinus varians	Pentametrocrinidae		X	?	?			?	?		
Porphyrocrinus	Phrynocrinidae		X	?	X		X	?	?		?
Democrinus cf. weberi	Rhizocrinidae		X	?	?		X	?	?		?
Aglaometra valida	Thalassometridae		X	?	?			?	?		
Crotalometra	Thalassometridae		X	?	?			?	?		
Thalassocrinus	Hyocrinidae		X	?	?		X	?	?		?
Metacrinus	Isselicrinidae		X	?			X	?			?
Metacrinus wyvillii	Isselicrinidae		X	?	?		X	?	?		?
Saracrinus	Isselicrinidae		X	?	X		X	?	?		?
Brisinga	Brisingidae	Brisingida	X								
Brisingenes	Brisingidae		X								
Hymenodiscus	Brisingidae		X								
Hymenodiscus aotearoa	Brisingidae		X		X						
Belgicella racowitzana	Freyellidae		X		X						
Freyastera digitata	Freyellidae		X		X						
Freyella	Freyellidae		X								
Freyella echinata	Freyellidae		X		X						
Freyella felleyra	Freyellidae		X		X						
Antropora	Antroporidae	Bryozoa			?						
Crateropora	Aspidostomatidae				?						
Aberrodomus candidus	Bifaxariidae		X		X						
Bifaxaria submucronata	Bifaxariidae		X								
Domosclerus	Bifaxariidae		X		?						
Domosclerus corrugatus	Bifaxariidae		X								
Domosclerus piscis	Bifaxariidae		X		X						
Raxifabia tunicata	Bifaxariidae		X		X						
Metroperiella	Bitectiporidae				?						
Parkermavella	Bitectiporidae				?						
Buffonellodes	Buffonellodidae				?						
Ipsibuffonella	Buffonellodidae				?						
Julianca	Buffonellodidae		X								
Bugula decipiens	Bugulidae		X		X						
Bugulella gracilis	Bugulidae		X								
Amphiblestrum	Calloporidae				?						

Candidate taxa	Family	VME taxa group	Fragility (F)	Recovery (R)	Unique/Rarity (UR)	Func. Signif. (FS)	Struct. Complex. (SC)	F + R	F + R + UR	F + R + FS	F + R + SC
Onychoblestrum	Calloporidae				?						
Onychoblestrum hastingsae	Calloporidae										
Platypyxis	Calloporidae				?						
Amastigia	Candidae		X		?						
Caberea	Candidae		X		?						
Notoplites	Candidae		X		?						
Cellaria	Cellariidae		X		X						
Cellaria immersa	Cellariidae		X			X					
Melicerita chathamensis	Cellariidae		X								
Celleporina	Celleporidae				?						
Galeopsis	Celleporidae		X		?						
Lagenipora ferocissima	Celleporidae										
Chaperiopsis	Chaperiidae				?						
Chaperiopsis splendida	Chaperiidae										
Crepidacantha bracebridgei	Crepidacanthidae										
Cribralaria	Cribrilinidae				?						
Figularia	Cribrilinidae				?						
Figularia pelmatifera	Cribrilinidae										
Puellina	Cribrilinidae				?						
Villicharixa strigosa	Electridae										
Ellisina	Ellisinidae				?						
Escharella	Escharellidae				?						
Chiastosella exuberans	Escharinidae										
Farciminellum hexagonum	Farciminariidae		X		?						
Gigantopora	Gigantoporidae				?						
Hippothoa watersi	Hippothoidae										
Hippothoa peristomata	Hippothoidae										
Lacerna	Lacernidae				?						
Phonicosia	Lacernidae				?						
Phonicosia circinata	Lacernidae				?						
Calyptotheca	Lanceoporidae				?						
Harpagozoon minutus	Lekythoporidae										
Poecilopora	Lekythoporidae		X		?						
Chronocerastes	Microporellidae				?						
Microporella	Microporellidae				?						
Micropora	Microporidae				?						
Rosemariella thompsonae	Microporidae				X						
Hippellozoon novaezelandiae	Phidoloporidae		X			X					
Reteporella	Phidoloporidae		X		?	X					
Stephanollona	Phidoloporidae				?						
Stephanollona scintillans	Phidoloporidae										
Oppiphorina	Phorioppniidae		X		X						
Haswelliporina	Porinidae		X		?						
Haswelliporina cf. venusta	Porinidae		X		?						
Quadricellaria bocki	Quadricellariidae										
Siphonicytara	Siphonicytaridae		X		?						
Smittina	Smittinidae				?						
Smithsonius	Tessaradomidae		X		?						
Acanthodesiomorpha problematica	Cheilostomatida incertae sedis		X		X						
Metalcyonidium	Clavoporidae				?						

Candidate taxa	Family	VME taxa group	Fragility (F)	Recovery (R)	Unique/Rarity (UR)	Func. Signif. (FS)	Struct. Complex. (SC)	F + R	F + R + UR	F + R + FS	F + R + SC
Pachyzoon	Pachyzoidae				?						
Nevianipora	Diaperoeciidae		X		?						
Entalophora	Entalophoridae				?						
Disporella	Lichenoporidae				?						
Entalophoroecia	Plagioeciidae				?						
Plagioecia	Plagioeciidae				?						
Stomatopora	Stomatoporidae				?						
Exidmonea	Tubuliporidae				?						
Fenestulipora cassiformis	Tubuliporidae		X		X	X					
Tubulipora	Tubuliporidae				?						
Pandanipora	Tubuliporina[2]		X		?						
Hyalopomatus	Serpulidae	Serpulidae			X						
Neovermilia	Serpulidae		X								
Placostegus	Serpulidae				X						
Protula	Serpulidae		X								
Spirobranchus latiscapus	Serpulidae		X								

[1]Epizoanthus is a very broad genus, one undescribed species would fit most criteria as it is arborescent (habitat forming), forming tree-like structures of agglomerated sediment (fragile) in association with a eunicid worm (functional significance). It is currently known only from New Caledonia and the North of the New Zealand waters (rarity).

[2] Suborder