North Pacific Fisheries Commission

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Defining the distribution range of the two potential vulnerable marine ecosystem (VME) sites identified in NPFC-2019-SSC VME04-WP02 in the Emperor Seamounts region

by

Mai Miyamoto [1)] and Aigo Takeshige [2)]

[1)] Environmental Management Unit, Environmental Consulting Department, JAPAN NUS CO., LTD.

[2)] Oceanic Ecosystem Group, National Research Institute of Far Seas Fisheries, Fisheries Research and Education Agency, Japan

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Distribution range of the two potential Vulnerable Marine Ecosystem (VME) sites identified in NPFC-2019-SSC VME04-WP02 in the Emperor Seamounts region

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Mai Miyamoto[1)] and Aigo Takeshige [2)]

[1)] Environmental Management Unit, Environmental Consulting Department, JAPAN NUS CO., LTD.
[2)] Oceanic Ecosystem Group, National Research Institute of Far Seas Fisheries, Fisheries Research and Education Agency, Japan

NPFC2019-SC04 recommended to conduct further research to define the range of the two VME sites identified in NPFC-2019-SSC VME04-WP02 with the potential to close them to fishing. In this document, we report the distribution ranges of two VME sites based on the results of past seafloor observation surveys.

One of the potential VME site locates in the northwestern part of Koko Seamount. Gorgonian colonies, commonly *Paragorgia*, were densely aggregated in this site (Fig. 1). The distribution range of this potential VME site is shown in Figure 2 and by coordinates of corners (Table 1). The other potential VME site is detected in the northern ridge of Colahan Seamount where Scleractinian corals, mainly *Solenosmilia variabilis*, are widely aggregated (Fig. 3). The distribution range of this potential VME site is shown in Figure 4 and by coordinates of corners (Table 1). For each site, it is necessary to protect those distributional range of potential VME sites by including all these corners.

We recommend that the coordinates of the potential VME sites provided in this paper, along with information in NPFC-2019-SSC VME04-WP02, be a basis for the consideration by the Commission of conservation and management measures to protect VME communities.

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References

[FAO] Fisheries and Agriculture Organization, 2009. International Guidelines for the Management of Deep-Sea Fisheries in the High Seas. Food and Agriculture Organization of the United Nations, Rome, Italy. 73 pp.

Miyamoto, M. and Yonezaki. S. 2019. Updating assessment of the potential impacts of Japanese bottom fisheries on vulnerable marine ecosystems (VMEs) in the Emperor Seamounts region. NPFC-2019-SSC VME04-WP02. 20 pp.

[NPFC] North Pacific Fisheries Commission 2019. Conservation and management measure for bottom fisheries and protection of vulnerable marine ecosystems in the Northwestern Pacific Ocean. NPFC-CMM 2019-05. 27 pp.

Cite No.	D1227, D1616-1～4 (in page 8)
Uniqueness or rarity	*Paragorgia* is common coral taxon in the Emperor Seamounts region, but aggregation at this density has not been observed in other place.
Functional significance of the habitat	School of oxeye oleo were often observed in the habitat.
Fragility	The branched axis of *Paragorgia* is porous, quite fragile and susceptible to physical damages.
Life-history trait of component species	Paragorgiidae has high growth rates among cold-water corals.
Structural complexity	Dense aggregation of large branched colonies construct complex structure over a spatial extent (2km).
Eligibility as a VME	The structural complexity, fragile and functional significance quality this *Paragorgia* habitat as a VME.

Fig. 1. Result of the application of FAO VME criteria to *Paragorgia* habitat on the northwestern part of Koko Seamount.

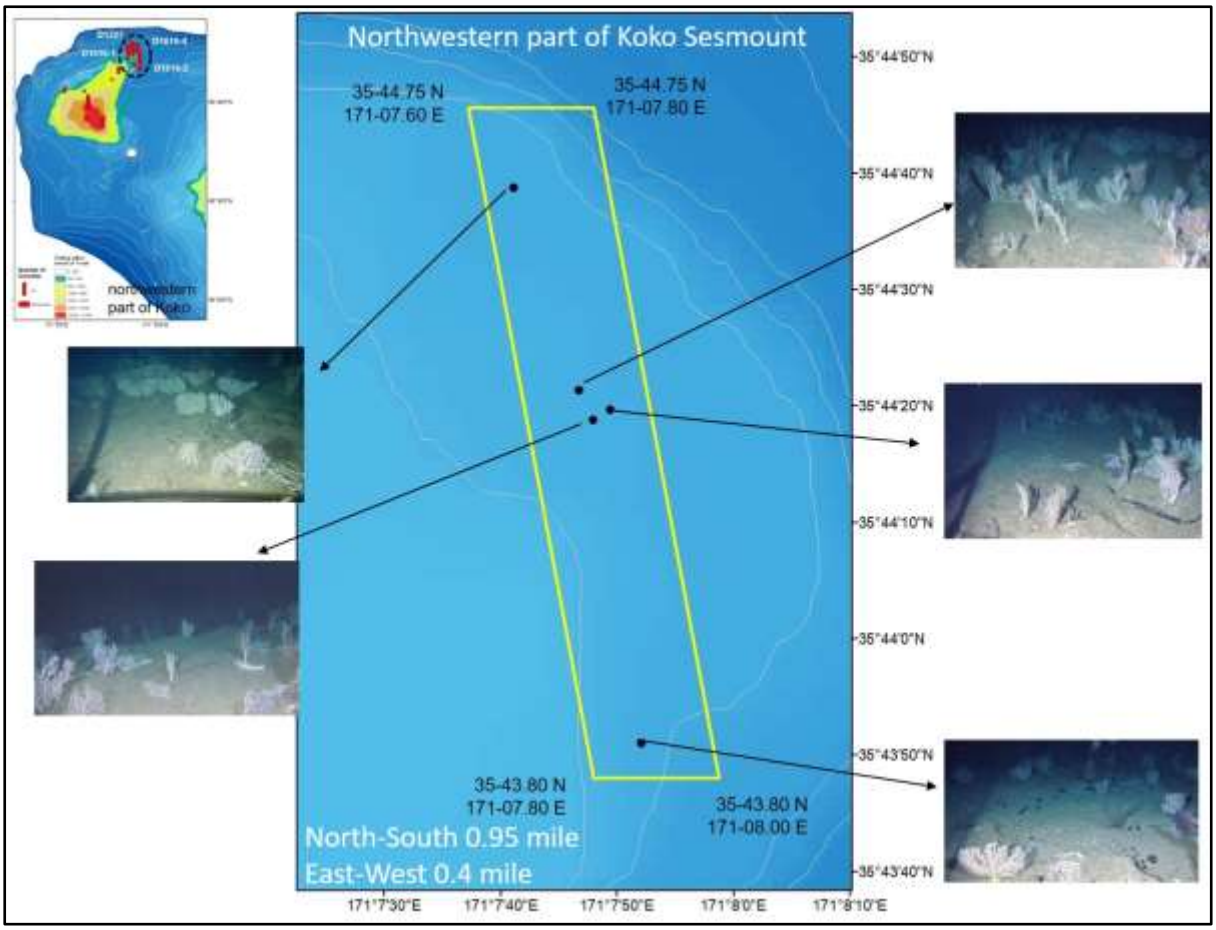

Fig. 2. Distribution range of potential VME, Paragorgia aggregation observed by sea-floor images in the northwestern part of Koko Seamount.

Cite No.	D1123, D1213 (in page 13)
Uniqueness or rarity	*Solenosmilia valiabilis* is widely distributed in the world ocean, but there has been no record from the North Pacific. Large reefs of stony corals are rare in the Emperor Seamounts region.
Functional significance of the habitat	Many species of Crustacea, Crinoidea and Pisces were observed among the branches of these corals.
Fragility	These colonial Scleractinia form branched hard axes which are susceptible to physical damages.
Life-history trait of component species	Growth rates of those colonial Scleractinia species, that construct complex calcareous structure, are supposed to be low.
Structural complexity	These species construct complex framework structure.
Eligibility as a VME	The uniqueness, functional significance, fragility and structural complexity qualify this Scleractinia reef as a VME.

Fig. 3. Result of the application of FAO VME criteria to *Solenosmilia variavilis* habitat on the northern ridge of Colahan Seamount.

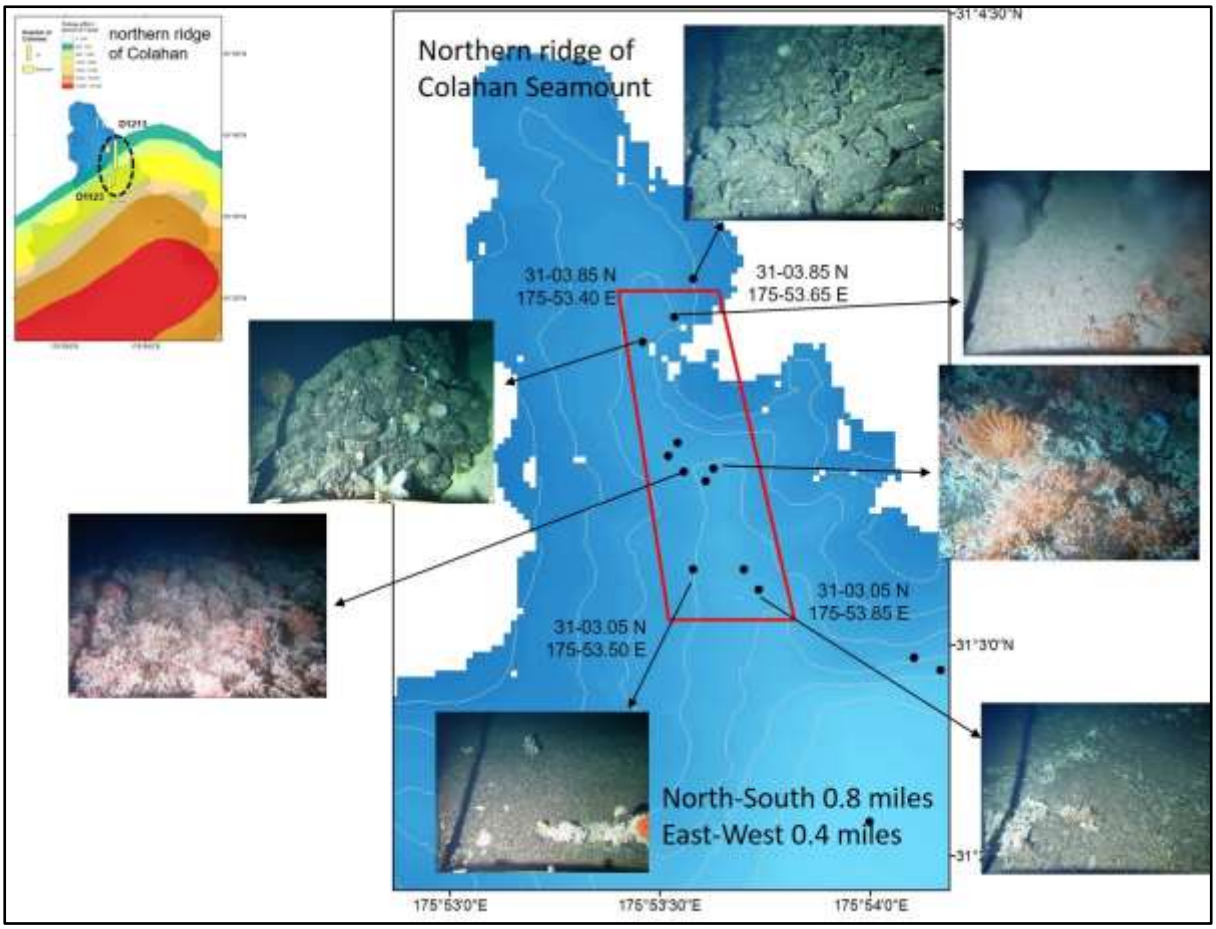

Fig. 4. Distribution range of potential VME, Scleractinia aggregation observed by sea-floor images in the northern ridge of Colahan Seamount.

Table 1. Distribution range of two potential VME areas in the northwestern part of Koko Seamount and northern ridge of Colahan Seamount.

Northwestern part of Koko Seamount	35-44.75 N 171-07.60 E	35-44.75 N 171-07.80 E
	35-43.80 N 171-07.80 E	35-43.80 N 171-08.00 E
Northern ridge of Colahan Seamount	31-03.85 N 175-53.40 E	31-03.85 N 175-53.65 E
	31-03.05 N 175-53.50 E	31-03.05 N 175-53.85 E