



North Pacific Fisheries Commission

NPFC-2022-SSC BFME03-WP10

Report of Japanese sea-floor visual survey in the southern Emperor Seamounts (southern-ES) in 2022

by

Mai Miyamoto*, Kota Sawada**, Motoomi Yamaguchi**, Bungo Nishizawa**

* Environmental Management Unit, Environmental Consulting Department,
JAPAN NUS CO., LTD.

** Oceanic Resources Group, Fisheries Resources Institute,
Japan Fisheries Research and Education Agency, Japan

December 2022

This paper may be cited in the following manner:

Miyamoto, M., Sawada, K., Yamaguchi, M., Nishizawa, B. 2022. Report of Japanese sea-floor visual survey in the southern Emperor Seamounts (southern-ES) in 2022. NPFC-2022-SSC BFME03-WP10. 13 pp.

Report of Japanese sea-floor visual survey in the southern Emperor Seamounts (southern-ES) in 2022

Mai Miyamoto*, Kota Sawada**, Motoomi Yamaguchi**, Bungo Nishizawa**

* Environmental Management Unit, Environmental Consulting Department,
JAPAN NUS CO., LTD.

** Oceanic Resources Group, Fisheries Resources Institute of Far Seas Fisheries,
Japan Fisheries Research and Education Agency

Introduction

This document describes a survey to identify the distribution of VME indicator species in the area around the site where the high-density cold-water corals distribution reported in NPFC-2021-SSC BFME02-WP9 (Miyamoto and Sawada 2021) was confirmed.

Materials and Methods

The sea floor visual survey was conducted by R/V Kaiyo-Maru of the Fisheries Agency of Japan in Southeastern Koko and Yuryaku Seamounts from 22 July to 20 August 2022. Thirty-four sites were set in the Koko Seamount (Fig. 1 and Fig. 2) and thirty-five sites were set in the Yuryaku Seamount (Fig. 3 and Fig. 4) based on the survey report from Baco et al. (2020) and results of Japanese scientific survey in 2021 (Miyamoto and Sawada 2021). The depth ranges were 448-736 m in Koko and 476-653 m in Yuryaku.

Results

Below we describe the result of our survey. K44, K49, northwestern area of Yuryaku and southeastern area of Yuryaku are areas where relatively high-density distribution of cold-water corals found.

Koko Seamount

K33 and K34 (Fig.5): *Chrysogorgia* sp. (gorgonian coral) and *Flabellum pavoninum* (scleractinian coral) are sparsely distributed. Several species of fish (e.g., *Allocyttus folletti*) and were observed, but the number of individuals was small.

K35, K36, K37, K38, K39, K40 and K41 (west side of K44: Fig. 6): Corals and other

benthic animals weren't observed at K35, K36, K37, K38 and K39. Several colonies of gorgonian corals (*Narella* sp., *Thouarella* sp. and *Acanella* sp.) were observed, but the number of colonies was small at K40 and K41.

K42, K43, K44 and K45 (around K44: Fig. 7): The distribution of gorgonian, *Narella* sp. and *Thouarella* sp. and scleractinian, *Enallopsammia rostrata* were confirmed, with 5-15 colonies observed in each site. In some sites, several fishes and benthos were observed.

K46 and K47 (between K44 and K49: Fig. 8): In K46, the distribution of gorgonian, *Acanella* sp. was confirmed, with 5-20 colonies observed. In K47, another species of gorgonian, *Narella* sp. was sometimes observed instead of *Acanella* sp.. Antipatharian, *Stichopathes* sp. were also observed.

K48, K49 and K52 (around K49: Fig. 9): The distribution of gorgonian, *Acanella* sp. were confirmed, with 20-50 colonies observed in each site. The occurrence of scleractinian, *Enallopsammia rostrata* in K49 and of some Coralliidae corals, *Narella* sp. and *Thouarella* sp. in K52 were also confirmed. In K49, several fishes and benthos were observed.

K50, K51 and K58 (south side of K49: Fig. 10): Some antipatharian, *Bathypathes* sp. and more than 50 colonies of very small (a few cm) hydro-coral, *Stylasterina* were observed.

K53, K54 and K55 (Fig. 11): Few corals and other benthic animals were observed at these sites.

K56 and K57 (Fig. 12): These sites were dominated by antipatharian coral *Stichopathes* sp. and *Acanella* sp. and *Bathypathes* sp. were also observed.

Yuryaku Seamount

Northwestern area of Yuryaku (Y23-Y31: Fig. 13): In Y23, Y24 and Y25 were observed several coral species such as some Primnoidae, Acanthogorgiidae or Plexauridae gorgonians or scleractinian corals *Enallopsammia rostrata* or *Madrepora oculata*. Scleractinian corals were not dense enough to form reef structures. In Y27, Y29, Y31 were confirmed some gorgonian corals and scleractinian, *Desmophyllum dianthus*.

Corals and other benthic animals were not observed at Y26, Y28 and Y30.

Sotheastern sites with few gorgonian corals (Y32-Y38: Fig. 14): In all sites, few gorgonian corals, *Isidella* sp. were distributed, but colonies were small.

Southeastern sites with some coral species (Y43-Y47: Fig. 15): Several species of gorgonian corals including Primnoidae, Isididae and Acanthogorgiidae were distributed with 5-10 colonies, but colonies height were small.

Southeastern sites with large gorgonians (Y39-Y41 and Y48-Y51: Fig. 16): There were various species of corals including Isididae corals *Isidella* sp. or *Lepidisis* sp., Primnoidae corals *Narella* sp., *Arthrogorgia* sp., *Callogorgia* sp., *Parastenella* sp. or *Thouarella* sp., Acanthogorgiidae coral *Acanthogorgia* sp or *Bathypathes* sp. antipatharin corals and *Enallopsammia* sp. scleractinian corals. Other animals including North Pacific armorhead *Pentaceros wheeleri*, Japanese armorhead *P. japonicus*, abyssal cutthroat eel *Meadia abyssalis*, squat lobster *Eumunida pacifica* or basket star were also observed.

Conclusion

The results of the two-year study will be reviewed in detail and compared with the results of the US report (Baco et al. 2020), and will provide a basis to develop VME conservation and management measures at NPFC.

Acknowledgement

This survey is conducted as a part the Research and assessment program for fisheries resources, the Fisheries Agency of Japan. We wish to express our gratitude to the staff of Fishery Agency of Japan and Japan Fisheries Research and Education Agency, the captain and crew of the R/V Kaiyo-Maru.

References

- Baco, A.R., Morgan, N.B., Roark, E.B. 2020. Observations of vulnerable marine ecosystems and significant adverse impacts on high seas seamounts of the northwestern Hawaiian Ridge and Emperor Seamount Chain. *Mar. Policy*, 115: 103834.
- Miyamoto, M. and Sawada, K. 2021. Report of Japanese sea-floor visual survey in the southern Emperor Seamounts (southern-ES) in 2021. NPFC-2021-SSC BF-ME02-WP09. 14 pp.

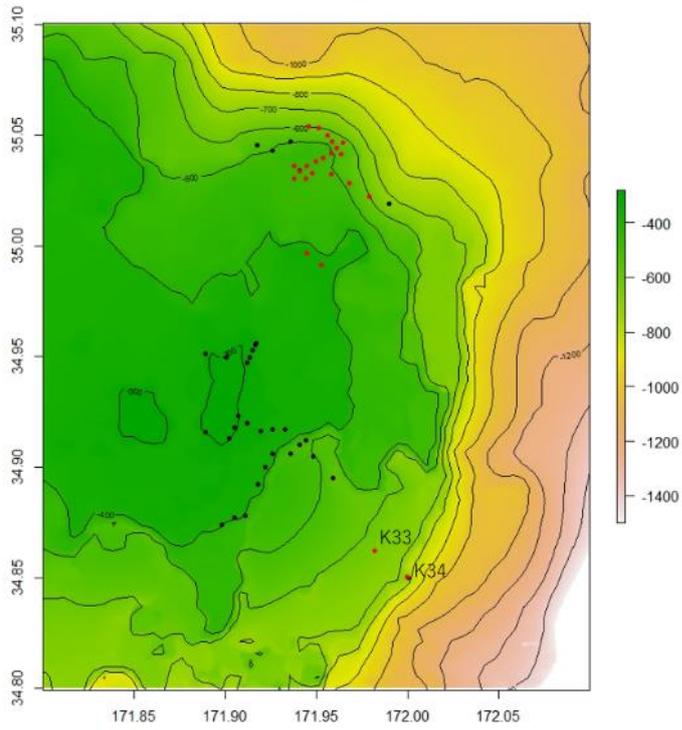


Fig. 1. Survey sites of all Koko seamount. Red dots are operation points of the drop camera survey in 2022 and black dots are operation points in 2021.

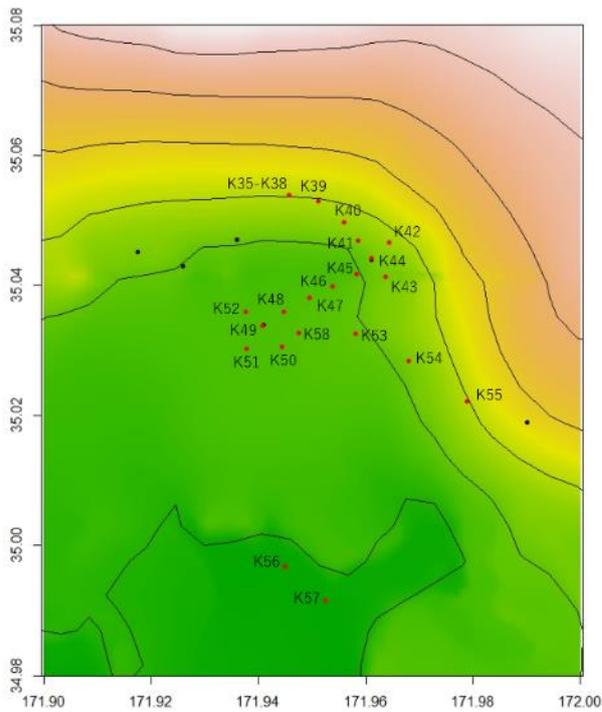


Fig. 2. Expansion of north survey sites of Koko seamount.

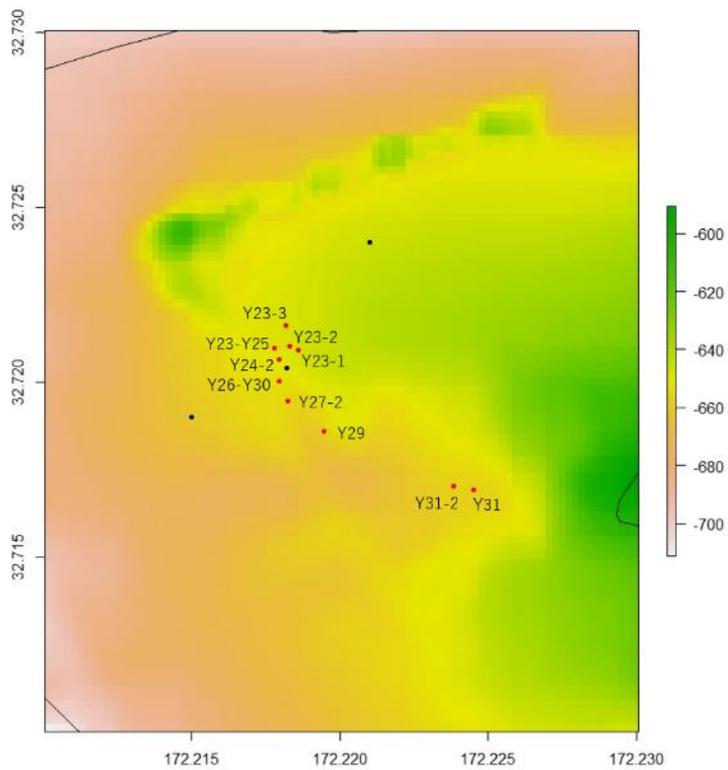


Fig. 3. Northwestern area of survey sites of Yuryaku seamount. Red dots are operation points of the drop camera survey in 2022 and black dots are operation points in 2021.

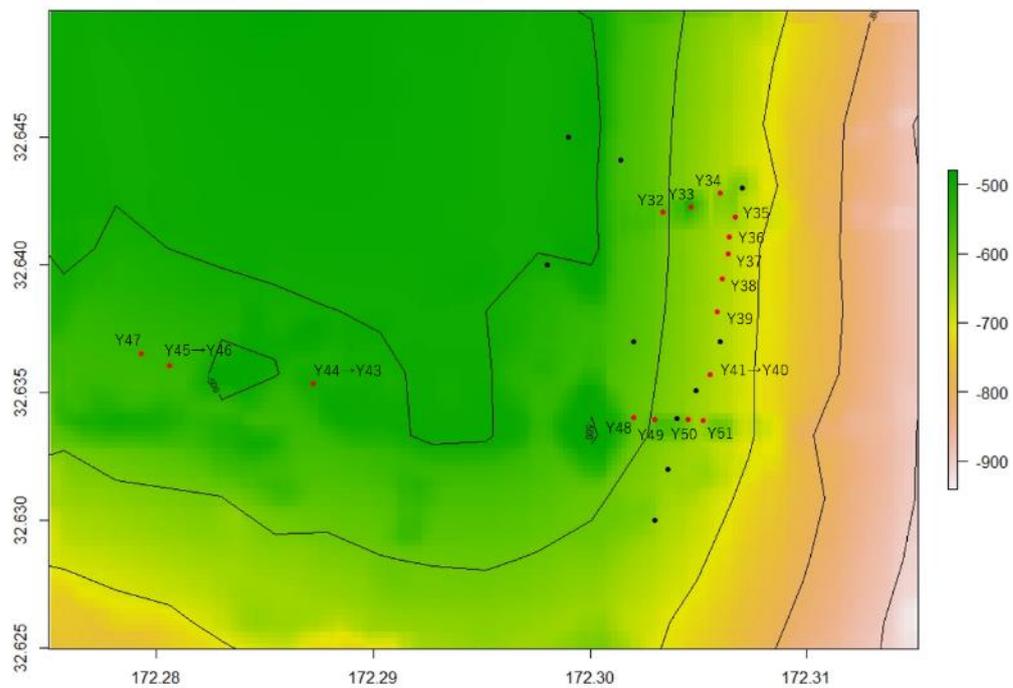


Fig. 4. Southeastern area of survey sites of Yuryaku seamount. Red dots are operation points of the drop camera survey in 2022 and black dots are operation points in 2021.

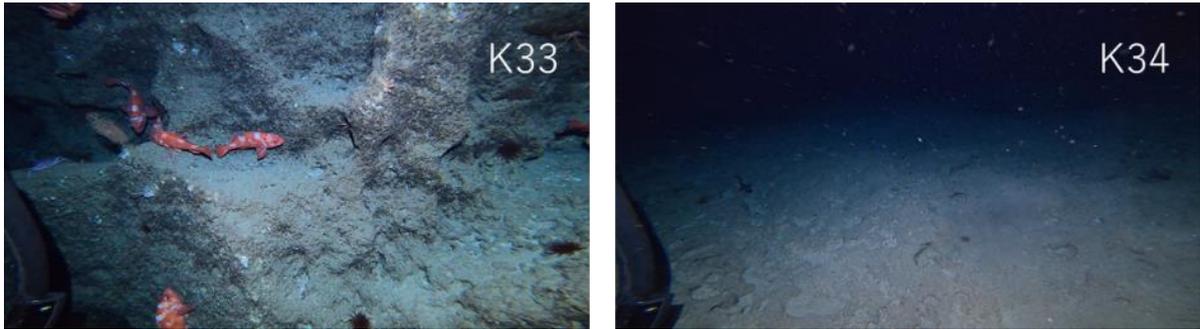


Fig. 5. Pictures of sea floor taken by the drop camera system at K33 and K34.

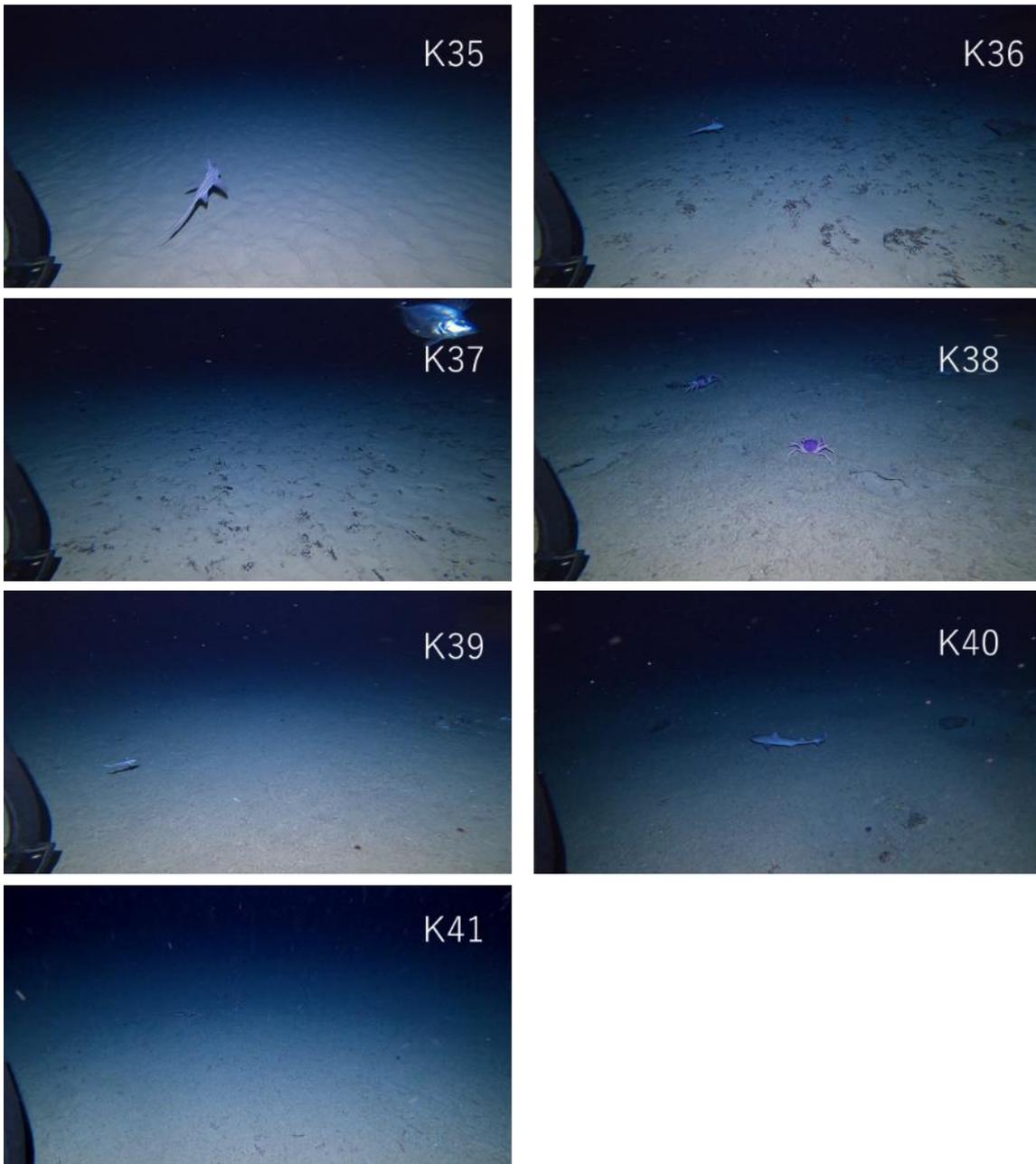


Fig.6. Pictures of sea floor taken by the drop camera system at K35, K36, K37, K38, K39, K40 and K41.



Fig. 7. Pictures of sea floor taken by the drop camera system at K42, K43, K44 and K45.

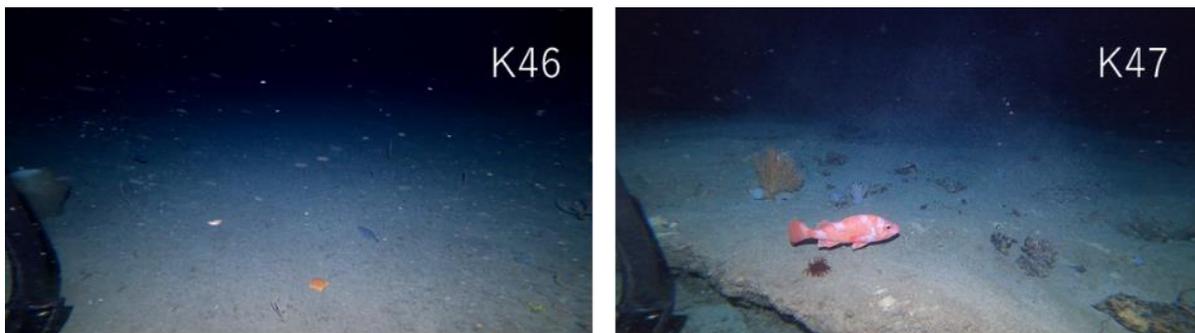


Fig. 8. Pictures of sea floor taken by the drop camera system at K46 and K47.

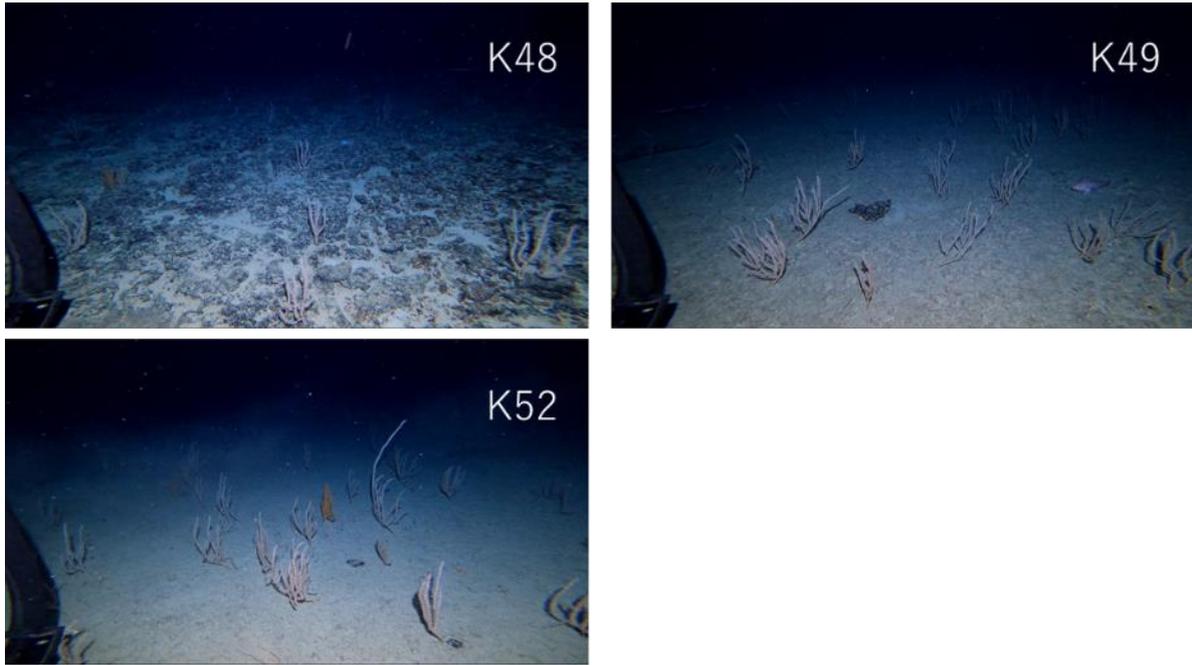


Fig. 9. Pictures of sea floor taken by the drop camera system at K48, K49 and K52.



Fig. 10. Pictures of sea floor taken by the drop camera system at K50, K51 and K58.

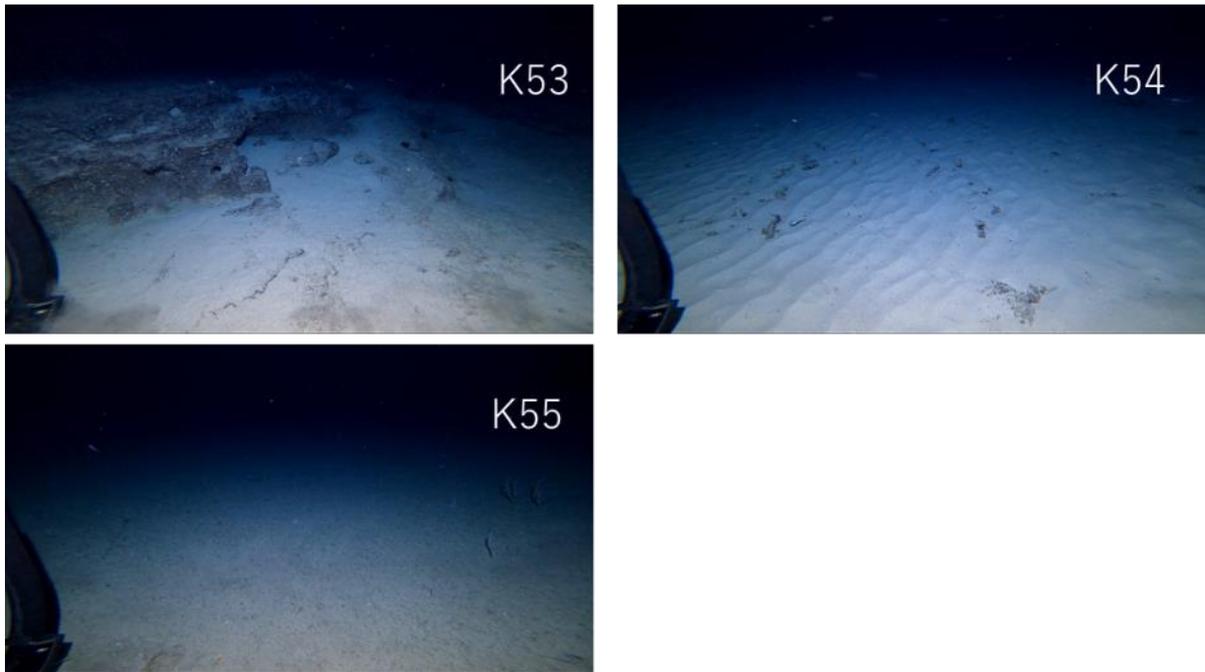


Fig. 11. Pictures of sea floor taken by the drop camera system at K53, K54 and K55.



Fig. 12. Pictures of sea floor taken by the drop camera system at K56 and K57.

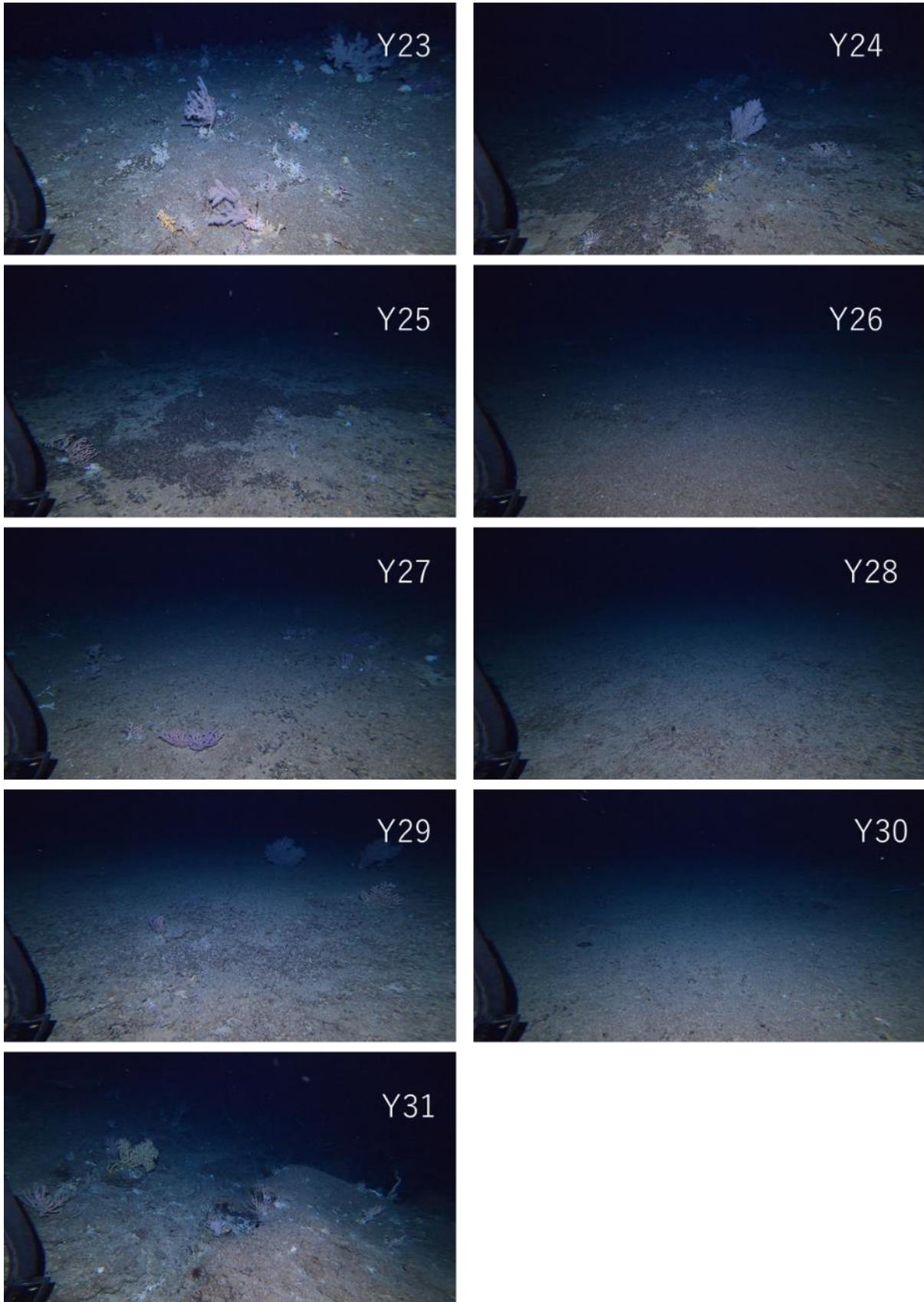


Fig. 13. Pictures of sea floor taken by the drop camera system at Y23 to Y31.

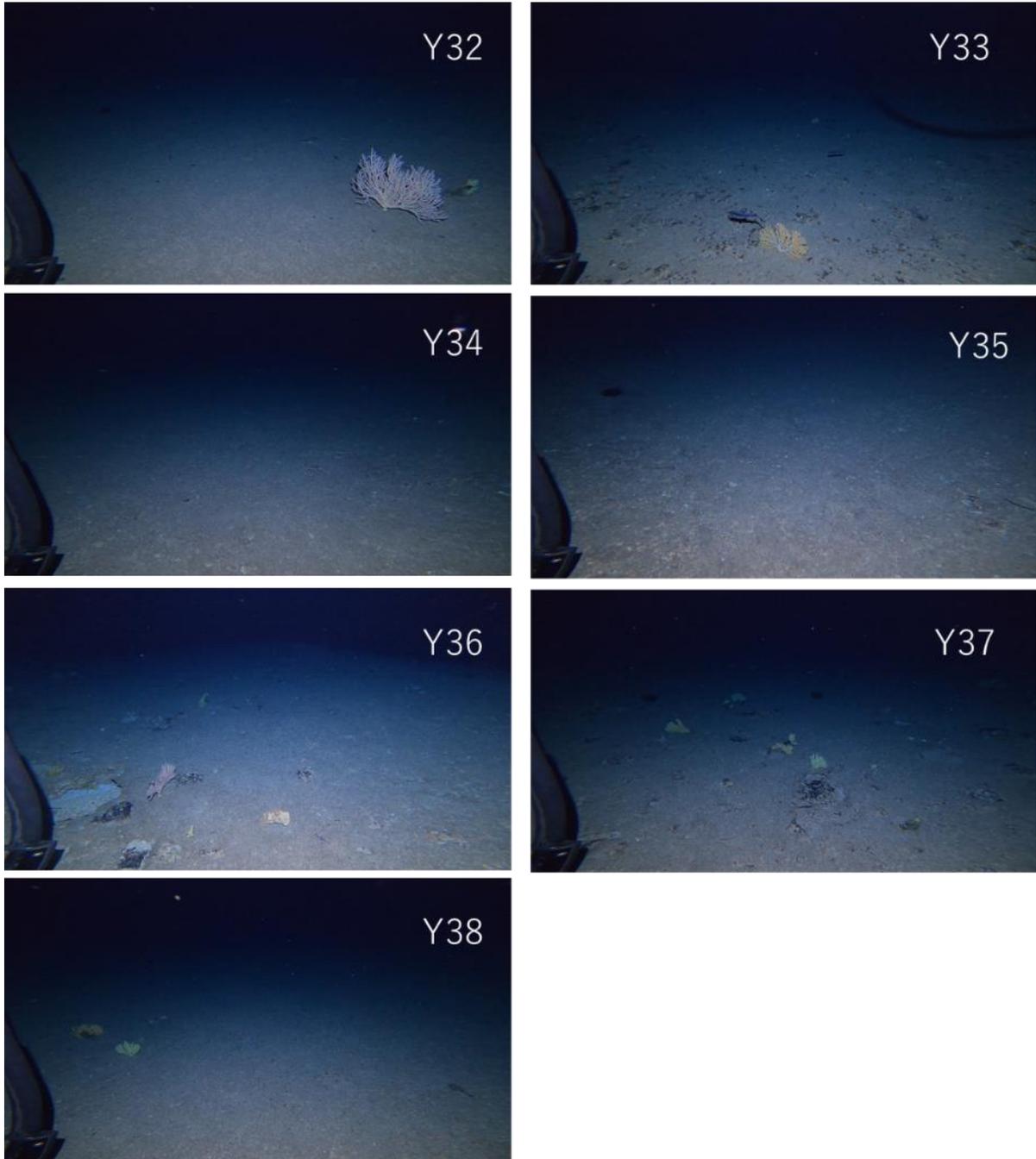


Fig. 14. Pictures of sea floor taken by the drop camera system at Y32 to Y38.

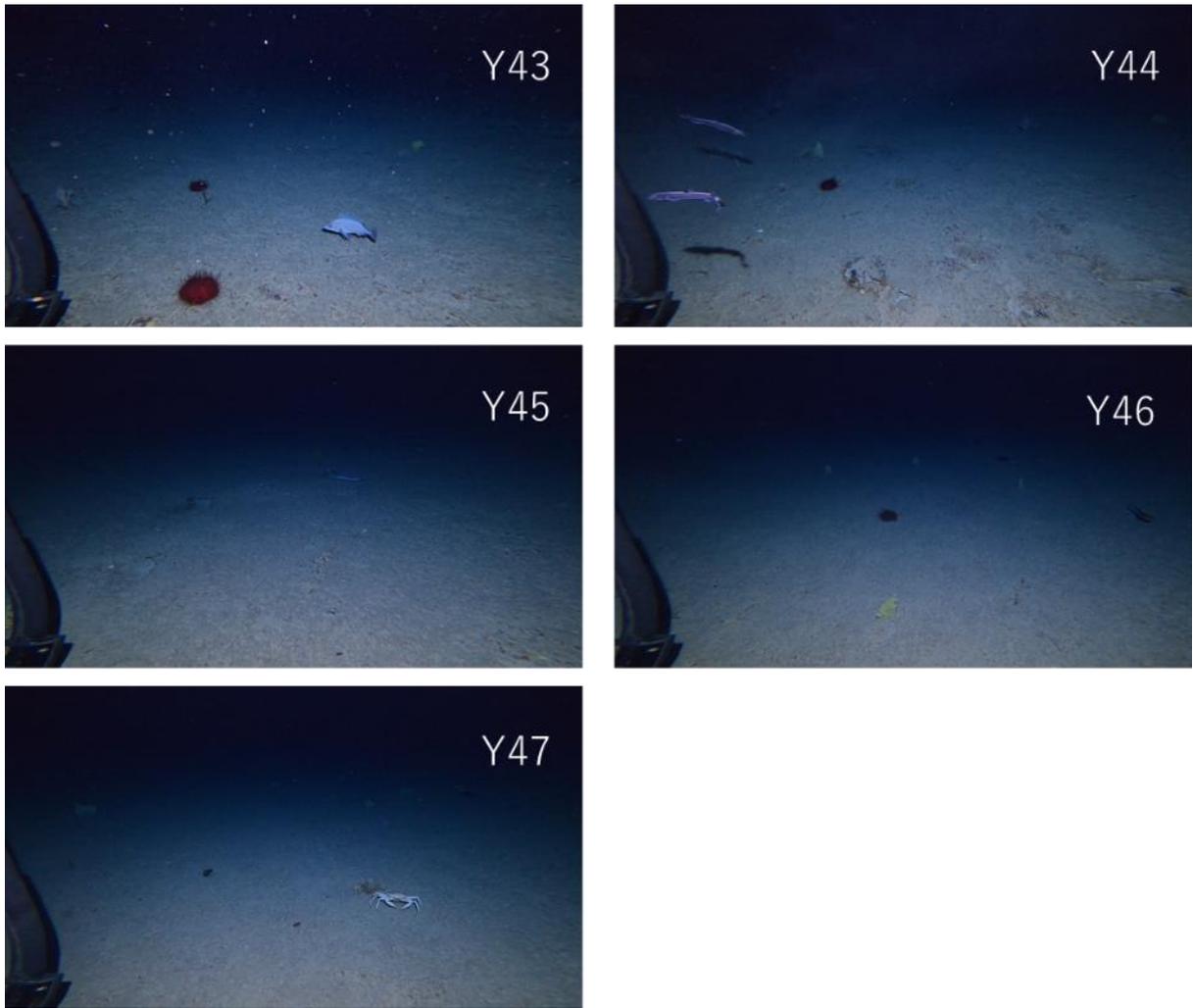


Fig. 15. Pictures of sea floor taken by the drop camera system at Y43 to Y47.

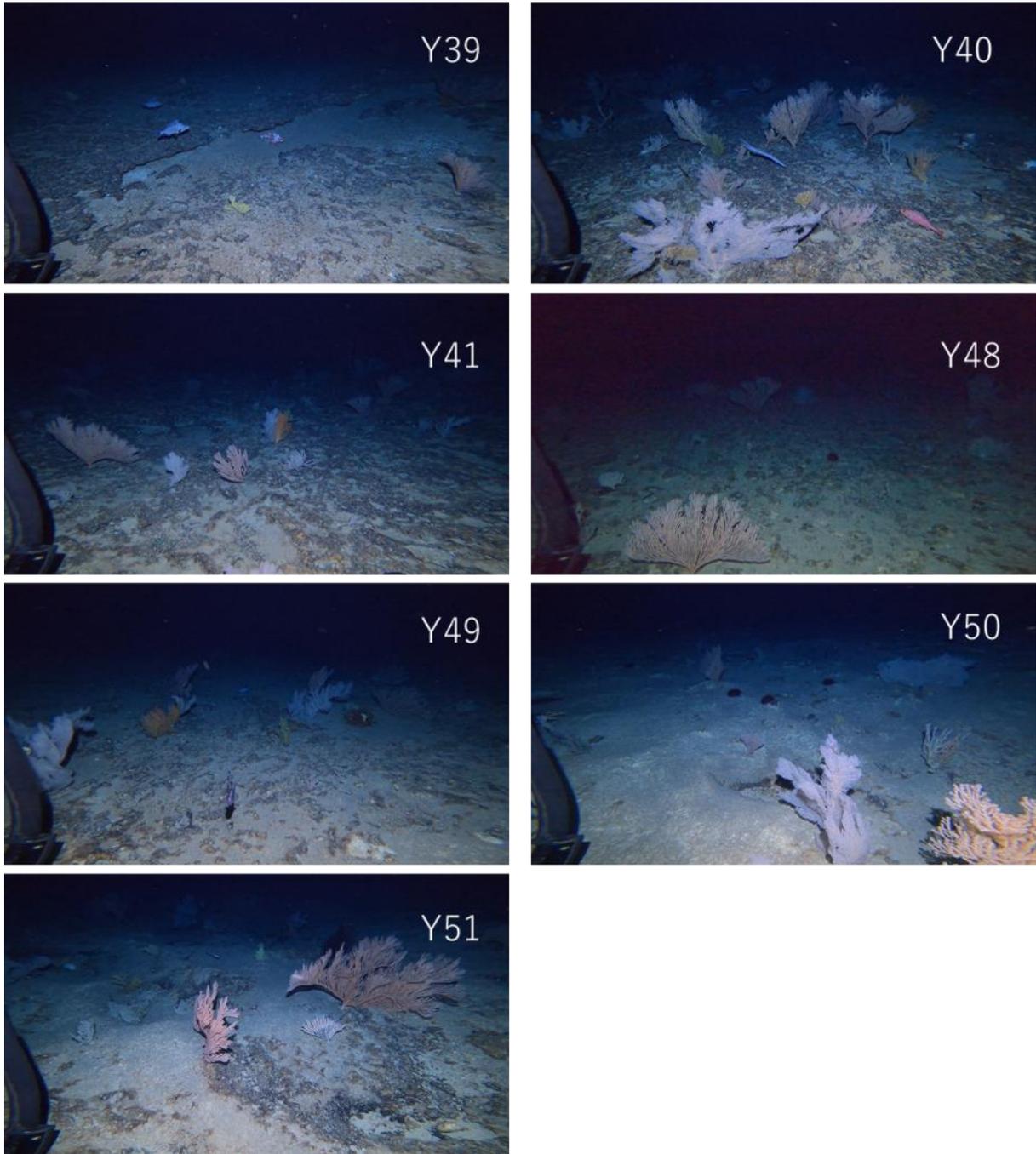


Fig. 16. Pictures of sea floor taken by the drop camera system at Y43, Y44, Y45, Y48, Y49, Y50 and Y51.