1 July 2020

Mr Yohei Sasakawa
The Chairman
The Nippon Foundation
1-2-2 Akasaka, Minato-ku
Tokyo, Japan

Dear Mr Sasakawa

On behalf of the Nippon Foundation-GEBCO Seabed 2030 Project I submit, for your consideration, a proposal for Ocean Frontier Mapping activity for the period 1 August 2020 to 31 March 2021.

Yours sincerely

Jamie McMichael-Phillips
Project Director

THE NIPPON FOUNDATION-GEBCO
SEABED 2030 PROJECT

Ocean Frontier Mapping Activity
1 August 2020 to 31 March 2021

Application to The Nippon Foundation

Submitted by
Jamie McMichael Phillips, Project Director
1 July 2020

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1. EXECUTIVE SUMMARY

The World Ocean floor in some remote places is so poorly mapped that a ship can travel through areas the equivalent of a medium-sized country without passing over any previously collected depth soundings. We here refer to these areas as the "Ocean Frontiers". These areas are not typically transited by marine traffic and by the year 2030, they will remain unmapped if we do not actively take measures to ensure they are mapped.

This lack of basic knowledge about the seafloor is a challenge: for achieving the United Nation's Sustainable Development Goal (SDG) 14, "conserve and sustainably use the oceans, seas and marine resources for sustainable development"; for meeting the complete mapping goal of the U.N. Decade of Ocean Science for Sustainable Development; for undertaking scientific research; and for acquiring a fundamental understanding of the functioning of our ocean and planet. Nowhere will the challenge to achieve the goal of complete mapping of the ocean seafloor by 2030 be greater than in these remote "Ocean Frontiers."

At The Nippon Foundation-GEBCO Seabed 2030 Vision to Action event, at the Royal Society in October 2019, Chairman Sasakawa, announced 3 initiatives to be considered for further collaborative activity to accelerate mapping of the sea floor. One of these initiatives was to support the mapping of unexplored areas - the Ocean Frontiers.

We propose that Ocean Frontier Mapping can be progressed by funding dedicated mapping days for already scheduled expeditions in these remote and poorly mapped ocean areas. Leveraging the skills of the alumni from The Nippon Foundation-GEBCO training program to provide experienced echosounder operators will also assist expeditions to ensure that vital mapping data are collected at all times, including during transit. This model was recently employed in Seabed 2030's partnership with the Five Deeps Expedition, and with the Ryder 2019 Expedition – the latter was the first ever to enter and map the Sherard Osborne Fjord in northern Greenland.

This application proposes collaboration with a series of already scheduled scientific missions taking place after 1 August 2020 and before 31 March 2021. This collaboration will support crucial mapping activity in Ocean Frontiers.

Noting The Nippon Foundation desire to make good use of a proportion of the XPrize funds in support of the Seabed 2030 mission, we respectably request you allocated US500,000 for the Ocean Frontier Mapping activity set out in this application.

2. PROGRAMME OF WORK

There are 5 proposed scientific missions that are listed in the summary table in Appendix II that we propose are worthy of collaboration for Ocean Frontier Mapping. The table sets out those missions where we propose to fund mapping days; those missions where we would only need to provide multibeam operators; and those missions where we undertake both.

2.1. Mapping Days

Here we propose that funding is made available for the addition of dedicated mapping days onto already scheduled and funded scientific expeditions in unmapped areas of the World Ocean. The global fleet of oceanographic research vessels is growing and expanding its reach. As this happens, more opportunities arise for ships to visit some of the most remote areas of the oceans ("Ocean Frontiers") however, the scientific objectives of these cruises is often unrelated to mapping. To assure that mapping is done in these regions while taking advantage of the fact that the extraordinary expense of getting the ship to these areas is already covered, where necessary, we propose funding for incremental costs associated with adding mapping days to such cruises. For some cruises there will be no charge. Adding mapping days to an already funded expedition may range from $15,000 to $50,000 per day depending on the size and capacity of the vessel.

2.2. Multibeam Operators

We further propose that funding is made available for the deployment of experienced multibeam operators, drawn mostly from alumni of the Nippon Foundation – GEBCO Training Program, who will assist in expeditions that lack the technical capacity for multibeam data acquisition and will ensure that data are collected at all the times during an expedition, including along transits**.** Again as the oceanographic fleet expands, and particularly as philanthropic organizations (e.g., RevOcean, OceanX, etc.) build new vessels equipped with state-of-the-art mapping systems, we often find vessels with mapping capability transiting over unmapped regions of the ocean but not collecting data because the vessel is "in between" expeditions. We propose to ensure that mapping data is continuously collected on these transits by providing these vessels with trained (mostly through the Nippon Foundation – GEBCO Training Program) multibeam operators during these transits. Thus for a very small incremental cost, we can greatly expand our global mapping coverage. This concept has already been successfully proven with the Five Deeps, Ryder 2019, and Northwest Passage 2019

Expeditions and more opportunities already exist. The cost of a multibeam sonar operator is around $500 per day, plus travel to and from the vessel.

2.3. Management

To be properly coordinate this program, we will require the services of a Program Coordinator. The postholder will be the focal point for contact about multibeam operators, organisation of travel to/from the ships for the operators; and assurance that data sets collected are submitted to the Seabed 2030 Project in a timely manner. Funding for this Coordinator is addressed separately and is not part of this bid.

2.4. Criteria

Criteria for selection of expeditions receiving multibeam sonar operators for transits has been based on the following:

a. The vessel demonstrates that it does not normally have multibeam sonar operators during transits (i.e. operators are not part of standard ship operations).

b. The vessel is equipped with a multibeam system capable of acquiring appropriate high-quality bathymetry at the water depths of the target area.

c. The vessel will make all effort to ensure that the transits cover areas that have not previously been mapped.

2.5. Provision of Funding

Proposed funding for selected missions is based on the recipient having agreed to:

a. Provision of all the bathymetry from the transits to the Seabed 2030 project no later than two months after the expedition has been completed.

b. Provision of all the bathymetric raw data from the transits to the Data Centre for Digital Bathymetry (DCDB) for public access no later than two months after the expedition has been completed.

c. Provision of all the bathymetric data acquired during the entire expedition, in international waters no later than one year after the expedition has been completed.

3. APPENDIX I – Proposed Mission Details

See separate document:

Ocean Frontier Mapping Proposed Missions August 2020 to March 2021.

Ocean Frontier Mapping Proposed Missions August 2020 to March 2021 - APPENDIX I

	Year	Ocean area	Cruise Name	Vessel/platform	Start Month	End Month	Days	Operators	Operator Cost (k USD)	Mapping Day Cost (k USD)
1	2020	Atlantic	The Nippon Foundation - GEBCO *Two Oceans Two Technologies* Transits	Seakit	8	9	30	4	60	20
2	2020	Pacific	The Nippon Foundation - GEBCO *Two Oceans Two Technologies* Transits	Saildrone	8	9	10	1	10	250
3	2020	Atlantic	Congo Canyon Ocean Bottom Seismometer Recovery	RRS Discovery	11	12	50	2	57	nil
4	2021	Atlantic	Atlantic Meridional Transect (AMT)	RRS Discovery	2	3	45	2	46	nil
5	2020/21	Pacific	Caladan Oceanic October to January Expedition	DSV Pressure Drop	10	1	50	2	57	nil
								Sub Total Cost	***230***	***270***
								Grand Total Cost	**$500,000**	