



Greenland Spreading Zone: Exploring Extreme Habitats in Arctic Seamounts and Hydrothermal Vents [GREAT]

Final Data Management Plan – Key Exploitable Results (KERs)

KER 1 - High-resolution habitat mapping of the Greenland Spreading Zone

Section	Description
Key Exploitable Result	Production of high-resolution habitat maps of deep-sea spreading zone region consisting of seamounts and underwater volcanoes, including potential active hydrothermal vent systems, in the Greenland Spreading Zone; data will be acquired using multibeam echosounder (bathymetry and backscatter), sub-bottom profiler, ROV imagery, and GIS-based analyses.
What solution does it offer / what problem does it address?	Arctic deep-sea terrain and habitats remain poorly studied. The project will provide baseline geospatial information required for regional and global bathymetric charting, marine spatial planning, biodiversity assessments, vulnerable marine ecosystem identification, and ecosystem-based management.
Target users - who can use these results and how?	User 1: Government of Greenland and Danish Geodata Agency - for nautical charts, Seafloor Management Plan, and conservation planning. User 2: OSPAR, ICES and Arctic monitoring programmes - for biodiversity assessments and ecosystem evaluations. User 3: Marine scientists - for Arctic ecosystem and habitat research, as well as open-access bathymetric charts.
Dissemination channel - how can you reach the target user?	SeaDataNet, PANGAEA, IBCAO, conference presentations, publications, training and teaching activities, GIS web services, website and SOME news, AQUARIUS data services.

Section	Description
Impact - what change would result from use of the result?	Improved evidence-based management of Arctic marine ecosystems, including potential Marine Protected Areas, and increased availability of high-quality Arctic seabed habitat information.
What difference will it make and how could it be measured?	Number of published datasets and maps; number of downloads and citations; references in policy or marine planning documents; integration into European and Arctic marine data portals.

KER 2 - FAIR biodiversity and species occurrence datasets

Section	Description
Key Exploitable Result	Standardized biodiversity datasets derived from ROV imagery, benthic specimen collections using ROV and trawl, and plankton sampling, including on-board DNA analyses using Darwin Core and OBIS-compatible formats.
What solution does it offer / what problem does it address?	Arctic marine biodiversity datasets are currently fragmented and underrepresented in international biodiversity infrastructures. The project will generate FAIR biodiversity data suitable for long-term monitoring and ecosystem assessment.
Target users - who can use these results and how?	User 1: EurOBIS and GBIF platforms - for biodiversity data aggregation and dissemination. User 2: Biodiversity researchers - for ecological and biogeographic analyses. User 3: Government of Greenland, conservation agencies and Arctic monitoring programmes - for Seafloor Management Plan, ecosystem monitoring, and biodiversity protection.
Dissemination channel - how can you reach the target user?	EurOBIS, GBIF, EMODnet Biology, publications, training and teaching activities, conference presentations, AQUARIUS data services.
Impact - what change would result from use of the result?	Increased accessibility and interoperability of Arctic biodiversity information and improved regional biodiversity baselines.

Section	Description
What difference will it make and how could it be measured?	Number of species occurrence records published; number of repositories ingesting datasets; number of scientific publications and biodiversity assessments using the data.

KER 3 - Arctic genomic and DNA baseline dataset

Section	Description
Key Exploitable Result	Genomic and DNA datasets (plankton, benthos, and sediments) from hydrothermal vents and seamount ecosystems with metadata structured according to ELIXIR-ENA and MIxS water and sediments checklist standards.
What solution does it offer / what problem does it address?	There is limited genomic baseline information available for Arctic marine waters, as well as deep-sea ecosystems and sediments. The project will provide reference datasets supporting biodiversity discovery and future ecosystem monitoring.
Target users - who can use these results and how?	User 1: ELIXIR-ENA and genomic repositories - for long-term genomic archiving. User 2: Molecular ecologists and biodiversity researchers - for biodiversity and connectivity studies. User 3: Arctic monitoring programmes – for long-term environmental change assessments.
Dissemination channel – how can you reach the target user?	ELIXIR-ENA, EMBL-EBI repositories, scientific publications, training and teaching activities, conference presentations, AQUARIUS dissemination channels.
Impact – what change would result from use of the result?	Improved genomic reference coverage for Arctic marine ecosystems and enhanced ability to monitor biodiversity responses to climate change.
What difference will it make and how could it be measured?	Number of ENA accession numbers generated; number of genomic datasets published; number of future studies reusing the data.

KER 4 - Marine conservation and management support

Section	Description
Key Exploitable Result	Benthic biodiversity data, records and distribution of maps of Vulnerable Marine Ecosystems and indicator species, supporting biodiversity conservation, assessment of potential Marine Protected Areas, and marine spatial planning in Greenlandic offshore waters. Biodiversity occurrence and specimen data will also be standardized and prepared for submission to biodiversity data portals such as EurOBIS and GBIF using Darwin Core and OBIS-compatible formats.
What solution does it offer / what problem does it address?	Decision makers currently lack sufficient ecological baseline information for management of Arctic offshore ecosystems, vulnerable marine habitats, and long-term biodiversity assessments and conservation planning.
Target users - who can use these results and how?	User 1: Government of Greenland - for Seafloor Management Plan and marine environmental planning. User 2: OSPAR and Arctic Council initiatives - for conservation assessments. User 3: International biodiversity monitoring programmes, EurOBIS, and GBIF - for Arctic ecosystem evaluation, biodiversity data aggregation, and dissemination.
Dissemination channel - how can you reach the target user?	EurOBIS, GBIF, stakeholder workshops, scientific publications, conference presentations, training and teaching activities, AQUARIUS dissemination activities.
Impact - what change would result from use of the result?	Better-informed Arctic marine conservation strategies and stronger scientific support for ecosystem protection measures.
What difference will it make and how could it be measured?	Number of policy references; stakeholder engagement metrics; inclusion of results in marine management frameworks; number of biodiversity occurrence records published through EurOBIS and GBIF; number of repositories ingesting datasets.

KER 5 - Integrated benthic habitat model and classification framework

Section	Description
Key Exploitable Result	Development of an integrated benthic habitat model for hydrothermal vent and seamount ecosystems in the Greenland Spreading Zone through synthesis of topographic, oceanographic, and biodiversity datasets. The project will test and evaluate the applicability of the existing EUNIS habitat classification framework together with Greenland's national best-practice seabed mapping protocol.
What solution does it offer / what problem does it address?	Arctic deep-sea benthic habitats remain poorly classified and there is limited understanding of which environmental variables and seafloor datasets provide the most robust basis for habitat classification in deep-sea ecosystems. The project will evaluate how integrated seafloor datasets can be combined into a standardized modelling framework for Arctic marine habitats.
Target users - who can use these results and how?	User 1: Government of Greenland - for Seafloor Management Plan and environmental assessments. User 2: Marine researchers and mapping specialists - for Arctic habitat classification methodology and predictive models. User 3: OSPAR, ICES, and Arctic biodiversity monitoring initiatives - for ecosystem assessments and habitat conservation frameworks.
Dissemination channel - how can you reach the target user?	Scientific publications, conference presentations, stakeholder workshops, SeaDataNet and EMODnet platforms, AQUARIUS dissemination activities, GIS-based habitat products.
Impact - what change would result from use of the result?	Improved understanding of Arctic benthic habitat classification and stronger scientific support for ecosystem-based marine management and conservation planning in Greenlandic waters. The work may also contribute to refinement of Arctic habitat classification approaches within European and international marine assessment frameworks.
What difference will it make and how could it be measured?	Development of integrated habitat models; comparison and evaluation of classification approaches; number of scientific outputs and habitat products generated; uptake of methods in future Arctic seabed mapping initiatives; references in management or conservation frameworks.
Additional note	Full synthesis and predictive habitat modelling will depend on securing additional post-cruise funding for data processing and synthesis, planned for 2027–2029.

