

**Project title: Post-Processing of VME Imagery collected during the EAF-Nansen Programme
– Common Oceans Deep-Sea Fisheries Project**

Project code: VME-2026-01

Project lead: Alexis Martin (FR-OT)

Description:

Survey leg 3.3 (“Deep-sea fisheries resources in the SIOFA Convention Area”) of the R/V Dr Fridtjof Nansen, undertaken in November–December 2025 under the FAO EAF-Nansen Programme and Common Oceans Deep-Sea Fisheries Project, generated benthic imagery from Walter’s Shoal, Station X and Banana.

The Bendicam systems recorded 68.5 h of underwater video across 22 stations/transects over 33–3005 m depth, together with photographs of benthic macro-invertebrate by-catch. The imagery remains largely unannotated, preventing its use as a quantitative dataset for VME assessment.

The project will convert images and videos into a structured, quality-controlled and georeferenced dataset documenting VME indicator taxa and benthic habitat observations. This directly supports SIOFA’s implementation of FAO VME guidance, ecosystem-based fisheries management, assessment of benthic impacts, and establishment of an ecological baseline for future monitoring. It will use a standardized annotation protocol that will be developed as a part of the project. Video/image records will be reviewed systematically, and annotations will retain the source-file reference, station/transect, timecode or image identifier, taxonomic identification (to species level where feasible), number of organisms, VME-indicator status and relevant observation/quality flags.

Scientific quality control will focus on consistency of taxonomic assignments and counting rules. The resulting observations will be linked to survey station metadata in a form suitable for it to be used to develop site-level benthic profiles and georeferenced maps of VME indicator occurrence and density/relative abundance, where the imagery and survey metadata permit.

Note that taxonomic processing of preserved biological samples, DNA barcoding and other specimen-based work described in paper SC-11-52 are outside the scope of this project.

Objectives:

1. Complete systematic annotation of the available benthic photographs and underwater video, with emphasis on VME indicator taxa and other conspicuous benthic organisms, using a consistent protocol and traceable image/timecode references.
2. Apply scientific QA/QC and taxonomic validation, with identification at the finest defensible taxonomic level and explicit recording of uncertainty where required.
3. Integrate annotations with survey metadata and produce quantitative summaries, site-level benthic profiles and georeferenced maps showing the distribution and density/relative abundance of VME indicator taxa.
4. Deliver the processed annotation dataset, associated metadata and analytical outputs to the SIOFA Secretariat, and prepare a progress report and final papers for submission to the SIOFA Scientific Committee.

Timeline:

- 1 November 2026 Project start
- 31 December 2026 Annotation protocol/data schema finalised and technical personnel contracted
- 15 February 2027 Systematic annotation completed

- 15 February 2027 Preliminary scientific QA/QC and preliminary integration with survey metadata completed
- 28 February 2027 Progress report submitted as an information paper to SC12
- 31 April 2027 Imagery annotated
- 30 September 2027 Final report for SC13 and final project data submitted to the SIOFA Secretariat
- 15 October 2027 Data submission verification and project completion

Budget:

EUR 25 000 (maximum authorised project cost).

The budget will be used to fund the technical labour required for systematic imagery annotation and on the quality-control, data-integration and reporting steps needed to produce management-relevant VME outputs.

Item	Responsible CCP	Estimated cost	Notes
Systematic annotation of underwater video and benthic photographs	FR-OT contracted technical personnel	€25,000	Main technical labour: image/video review, organism counts/identifications, timecodes/image IDs, data entry and first-pass QC.
Scientific QA/QC and taxonomic validation	FR-OT	Supported in-kind by FR-OT (MNHN)	Validation of VME indicator identifications, counting consistency and uncertainty flags.
Data integration, quantitative summaries and VME mapping	FR-OT	Supported in-kind by FR-OT (MNHN)	Link annotations to survey metadata; derive site summaries, benthic profiles and georeferenced VME maps.
Data curation, Secretariat submission and SC paper preparation	FR-OT	Supported in-kind by FR-OT (MNHN)	Metadata, final data package, figures and preparation/presentation of the SC paper.
Data verification	SIOFA Secretariat – Data Officer	–	Verify submitted data and other related project files
Total		€25,000	

80% of the total project sum (20 000 EUR) will be paid out to MNHN at the beginning of the project, upon signature of the working contract with the technical personnel. The remaining 20% (5 000 EUR) will be paid out to MNHN after the data and project files have been delivered to the Secretariat.

Payments will be made upon invoices, through the French electronic payment platform.

Funding source:

SIOFA MoP, as specified in the SIOFA Scientific Committee Workplan 2026–2030 as project VME-2026-01 (section 6.1.6).

Participating CCPs and roles:

BOREA–Muséum national d'Histoire naturelle (FR-OT)

- project coordination
- provision of the standardized annotation protocol and VME taxonomic reference framework
- scientific quality control
- analysis, mapping and preparation of SIOFA outputs.

Dedicated technical personnel to be recruited by FR-OT under the project to undertake systematic annotation of underwater video and benthic photographs, data entry and first-pass quality control.

Project outputs:

1. Standardized annotation protocol and data scheme for imagery processing (31 December 2026).
2. Quality-controlled annotation dataset for processed photographs and videos, including traceable source references/timcodes, taxonomic identifications, counts and VME-indicator attributes (31 April 2027).
3. Georeferenced analytical outputs: station/transect summaries, benthic profiles and maps of VME indicator occurrence and density/relative abundance where standardisation is supported by the source data (30 August 2027).
4. Report summarising methods, coverage and results, including VME indicator maps
 - a. Progress report to SC12 (28 February 2027)
 - b. Final results and final FR-OT report to SC13 (30 September 2027)
5. Data submission to the SIOFA Secretariat comprising the annotation dataset, metadata/data dictionary and derived map layers/tables (30 September 2027)

Intellectual property:

SIOFA, Institute of Marine Research (Norway) and Muséum national d'Histoire naturelle (France) will hold the intellectual property in project-funded derived outputs produced under VME-2026-01, including the funded annotation dataset, derived analytical products, maps and project report, subject to any pre-existing rights in source imagery and survey data. The original imagery and associated cruise metadata remain governed by the existing EAF-Nansen Programme/Common Oceans data policy and the rights of the original data providers; this project does not transfer ownership of those source materials. FR-OT/participating institutions retain pre-existing know-how, taxonomic reference material and analytical methods/code developed independently of this funding, while granting SIOFA the rights required to use, reproduce and archive project deliverables for its management purposes. Project deliverables will be deposited with the SIOFA Secretariat under the access/confidentiality conditions applicable to the source data. Any subsequent scientific publication will acknowledge SIOFA/MoP funding and the EAF-Nansen/Common Oceans data origin and will respect applicable data-release conditions.

Risks and assumptions:

The principal risks are (i) annotation effort exceeding expectations because of the 68.5 h video volume or image quality, (ii) taxonomic identifications being limited by image resolution or viewing angle, (iii) incomplete calibration/metadata limiting conversion of counts to absolute densities, and (iv) contracting or staff-availability delays. These risks will be managed through a predefined

annotation hierarchy focused first on VME indicators, explicit uncertainty/quality flags, staged QA/QC, use of relative abundance or occurrence metrics when absolute density cannot be defensibly estimated, and early contracting with progress checks against the January and February milestones. The SC12 delivery target assumes timely project start and access to the complete imagery and metadata.