

**Offshore Seafloor and Seep
Sampling Program (2017-
2027) Environmental
Assessment Amendment**



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Fugro Canada

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Report

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Abbreviations

ASP	Atlantic Seafood Producers
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
DFO	Fisheries and Oceans Canada
DND	Department of National Defence
EA	environmental assessment
FFAW-Unifor	Fish Food & Allied Workers-Unifor
FLO	Fisheries Liaison Officer
Fugro	Fugro GeoSurveys
MBES	multi-beam echosounder
OCI	Ocean Choice International
SBP	sub-bottom profiler
VEC	Valued Ecosystem Component

OFFSHORE SEAFLOOR AND SEEP SAMPLING PROGRAM (2017-2027) ENVIRONMENTAL ASSESSMENT AMENDMENT

Introduction
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1.0 INTRODUCTION

This document is an Amendment to the Environmental Assessment (EA) of Fugro Canada's (Fugro's) *Offshore Seafloor and Seep Sampling Program (2017-2027)* project (the Project) in the eastern Newfoundland offshore area (Figure 1-1). The Amendment assesses the environmental effects of modifying the mitigation regarding the restriction to conduct survey work in Northwest Atlantic Fisheries Organization (NAFO) coral / sponge closure areas. Mitigation in the 2017 EA currently restricts survey vessels from entering or conducting survey work in restricted or protected areas (NAFO coral / sponge closure areas, known shipwreck sites or seabird colonies). The purpose of the Amendment is to seek approval to allow survey work within NAFO coral / sponge closures areas.

1.1 PREVIOUS ENVIRONMENTAL ASSESSMENT REVIEW AND DETERMINATION

Fugro's original EA (Stantec 2017a) assessed the seafloor mapping and seep sampling exploration program during May to November (any year during the 2017-2027 timeframe). The original EA received a positive determination from the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) on October 13, 2017. An amendment was filed in November 2017 (Stantec 2017b) to modify the temporal scope of the Project, extending Project activities into December 2017-2027 (from the original November 2017-2027). The amendment received a positive determination from the C-NLOPB on November 28, 2017. An EA Update for 2018 was filed with the C-NLOPB on 24 May 2018 (Stantec 2018) to update key aspects of existing environmental conditions (Stantec 2018) since the 2017 EA was filed. Previous EA filings for the Project are available online at: <http://www.cnlopb.ca/assessments/fugrogeosurv.php>.

1.2 THE OPERATOR

Fugro provides geoscience data of various types to oil and gas exploration and production companies worldwide. These include geohazard and engineering datasets for production and development. In recent years, Fugro has also conducted considerable seep investigations to provide data for integration into exploration programs. Multi-client programs, such as the subject of this amendment, are routinely conducted by Fugro throughout the world. Fugro also offers advanced data processing, analysis, and visualization / presentation methods, for integration with client data. Fugro will be the operator of the sampling program and proponent for the purposes of this EA.

1.3 CONTACTS

Contact at Fugro for this EA Amendment is:

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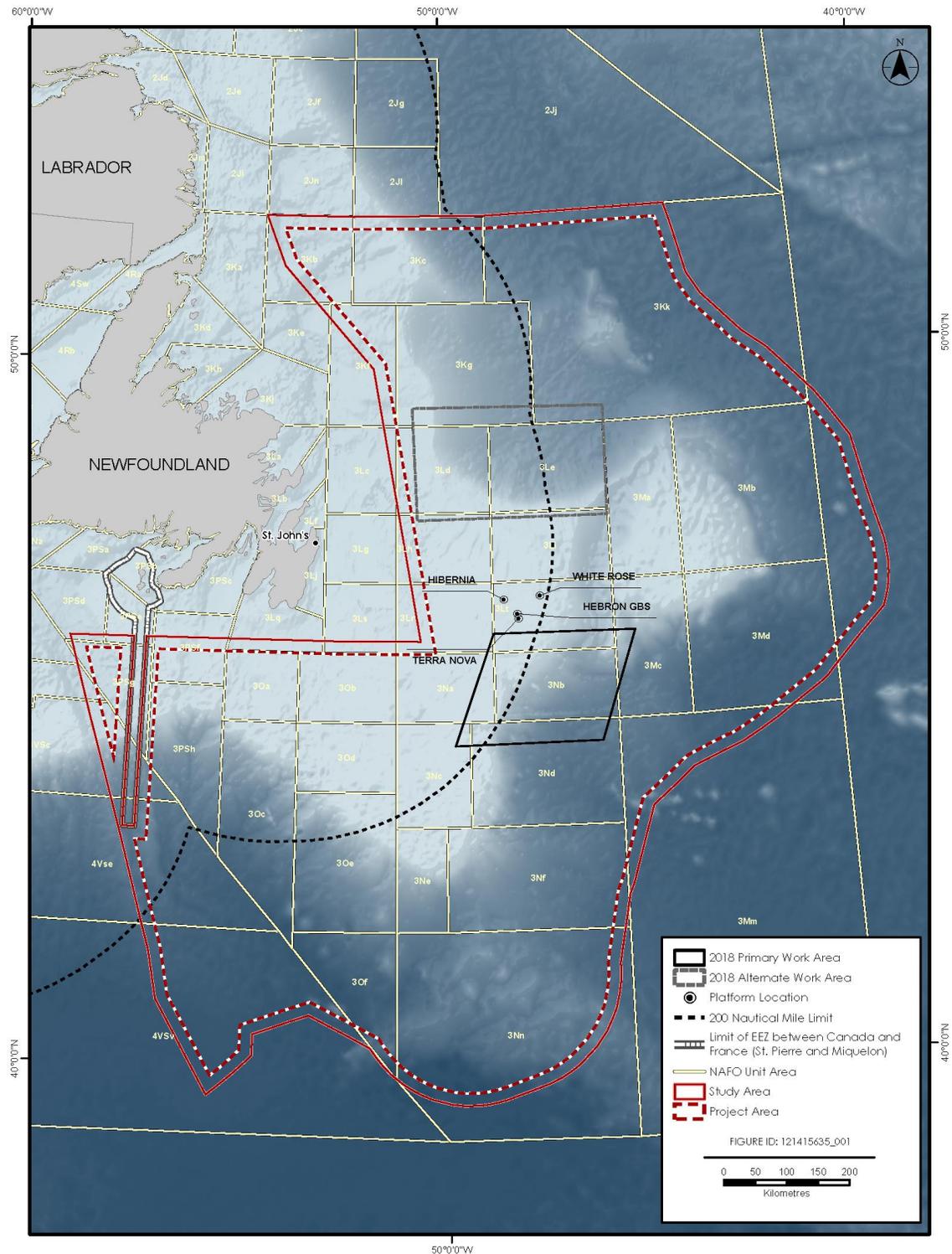


Figure 1-1 Study and Project Areas, including 2018 Work Areas

2.0 PROJECT DESCRIPTION

2.1 PROJECT AS ORIGINALLY PROPOSED

As detailed in the original EA (Stantec 2017a), Fugro will conduct a sampling program to identify areas of potential natural seabed seeps of hydrocarbons, which involves the collection of the following data:

- acquiring multi-beam echosounder (MBES) data
- acoustic sub-bottom profiling (SBP)
- conducting seabed heat flow measurements using a thermal probe for shallow seabed core locations
- collecting seabed cores using a gravity core method
- sampling potential natural seabed seeps (by collecting water samples)

Any combination of data could be collected each year, between 2017 and 2027.

2.2 PROPOSED PROJECT ACTIVITY AMENDMENT

Fugro is proposing to amend the mitigation regarding the restriction to enter and conduct survey work in NAFO coral / sponge closure areas.

2.3 KEY MITIGATION MEASURES

Mitigation measures included in the original EA, including conditions applied to the Project by the C-NLOPB, include:

- Fugro will contract vessels with equipment, protocols, and procedures for the prevention of pollution by oil, sewage, and associated waste materials in accordance with *the Canadian Shipping Act* and International standards and certification authorities
- A marine mammal observer (MMO) / seabird observer will be on board the vessel
- A Fisheries Liaison Officer (FLO) will on board the vessel
- There will be ongoing consultation between Fugro and stakeholders, including One Ocean and fishers' groups (FFAW-Unifor Petroleum Industry Liaison, OCI, and ASP). This will include identifying the location and timing of their members who fish in the area and will avoid areas during times of heavy fixed gear use
- Simultaneous operations will be conducted with operators of other exploration activities
- Sampling will occur in a sequence that creates the least disruption to local fishers based on consultation with the fishers' groups
- A minimum of 2 km will be maintained from active seabird colonies
- Survey vessels will not enter or attempt to conduct survey work in restricted or protected areas (Northwest Atlantic Fisheries Organization (NAFO) coral / sponge closure areas, known shipwrecks, and seabird colonies)
- Data collection will occur over a 24-hour period; therefore, lighting is required at night for safety purposes. As there is potential for marine and migratory birds to be attracted to the vessels at night. The vessel crews will conduct routine checks for stranded birds and release of stranded birds per the protocol outlined in Best Practices for Stranded Birds Encountered Offshore Atlantic Canada (Environment Canada 2015) and the Leach's Storm Petrel: General Information and Handling Instructions (Williams and Chardine 1999)

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- A Live Seabird Salvage Permit will be acquired from the Canadian Wildlife Service (CWS) prior to operations and stranded birds or bird mortalities will be reported to CWS during the program
- Fisheries and Oceans Canada (DFO) will be contacted prior to start of the Project to determine where DFO research vessels are conducting surveys. The order of sampling locations will be revised, where necessary, to avoid conflict with DFO research vessels
- The Department of National Defence (DND) will be contacted prior to start of the Project to determine where naval exercises are being conducted and the order of sampling locations will be revised, if necessary, to avoid interaction with naval vessels
- In the unlikely event of a lost core, a full risk assessment of the impact would be undertaken in consultation with all relevant parties, and appropriate action then undertaken for recovery, if required

Fugro is seeking approval to amend the mitigation regarding the restriction to enter and conduct survey work in NAFO coral / sponge closure areas. MBES and SBP data acquisitions require no contact with, or physical disturbance to, the seabed and are commonly used to characterize the seabed for the purposes of habitat mapping in environmental surveys without damage to sponge/coral habitats. The proposed amendment will also allow the collection of seabed cores and heat flow measurements (with a probe); however, within the closure areas, samples will not be collected in areas of hard seabed (i.e., areas more likely to contain sponges/corals) as identified by the multibeam and SBP data. Fugro is proposing the following mitigation amendments:

- Seabed sampling will not be conducted in areas of known shipwrecks sites and seabird colonies
- Seabed samples and heat flow measurements within the coral / sponge closure areas will not be collected in areas of hard seabed (i.e., areas more likely to contain sponges / corals) as identified by the MBES and SBP data

The assessment of environmental effects as a result of the proposed amendment to the mitigation is discussed in Section 3.

2.4 STAKEHOLDER CONSULTATION

Fugro has and will continue to consult with other stakeholders throughout the life of the Project.

Throughout the Project, Fugro has consulted with and provided updates to:

- One Ocean
- ASP
- OCI
- FFAW-Unifor
- DFO
- Department of National Defence

Fugro has notified these stakeholders of intent to request an amendment to the mitigation measure regarding the restriction to enter and conduct survey work in NAFO coral / sponge closure areas.

3.0 EFFECTS OF THE PROPOSED AMENDMENT TO MITIGATION ON THE ENVIRONMENT

3.1 VALUED ECOSYSTEM COMPONENTS

The six Valued Ecosystem Components (VECs) identified in the original EA (Stantec 2017a) are:

- Species at Risk
- Fisheries and Other Ocean Users
- Marine and/or Migratory Birds
- Marine Mammals and Sea Turtles
- Marine Fish and Shellfish (fish habitat)
- Sensitive Areas

The existing environment has recently been updated in the EA Update (Stantec 2018). The purpose of this Amendment is the modification of the mitigation to allow Fugro to conduct surveys in NAFO coral / sponge areas and the assessment of potential effects that may result from the proposed modification. The assessment below, therefore, is focused on potential interactions with and effects on benthic habitat, specifically coral / sponge habitat, within the Marine Fish and Shellfish (fish habitat) VEC.

3.2 PROJECT INTERACTIONS

Fugro proposes to conduct a seafloor and seep sampling program that includes the following activities: sampling of natural seabed seeps; conducting seabed heat flow measurements; collecting shallow seabed cores where conditions permit; and collecting high-resolution bathymetry, backscatter, and sub-bottom profiler data via MBES and SBP. Potential Project-VEC interactions are identified in original EA and 2017 Amendment (Stantec 2017a, 2017b). Fugro is seeking approval to enter and conduct surveying activities within the NAFO coral / sponge closure areas. The primary interaction from routine Project activities with the coral / sponge areas comprises the collection of seabed cores and heat flow measurements. MBES and SBP data acquisitions require no contact with the seabed, and therefore are predicted to have negligible interactions with coral / sponge habitat.

3.3 ENVIRONMENTAL EFFECTS ASSESSMENT OF THE PROPOSED PROJECT MODIFICATION

A MBES will be used to collect high-resolution sonar data along a swath of the seafloor. A SBP generates high-resolution 2D profiles of the seabed, to depths of up to 100 m below seafloor (depending on sediment type). MBES and SBP data acquisitions require no contact with the seabed and will not result in direct physical disturbance of the bottom substrate; these surveys are therefore not anticipated to affect corals and sponges. Data from these systems are commonly used to characterize the seabed for the purposes of habitat mapping in environmental surveys without damage to sponge / coral habitats. For example, as discussed in recent offshore drilling EAs, geophysical, geohazard, wellsite seabed surveys, and VSP surveys are not predicted to interact with benthic habitat (Nexen 2018, Statoil 2017). Adverse effects from MBES and SBP data acquisitions are predicted to be negligible in magnitude.

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The deployment of the corer and heat flow probe have the potential to interact with and Marine Fish and Shellfish, particularly the benthic environment, including coral and sponge areas. As noted in the original EA, and in the EA Update, there are coral / sponge closure areas in the Study Area (see Figure 3-10 in Stantec 2018). Within the Project Area, deep-water corals include stony corals, black wire and gorgonian corals, soft corals, sea pens, and sponges. The highest average coral biomass occurred between 600 and 900 m depth along the northeastern slope of the Grand Banks, in the Flemish Pass, and around the Flemish Cap. There is approximately 2.7 ha of NAFO-identified coral / sponge closure areas within the Project Area, representing approximately 2.8% of the Project Area.

The proposed amendment to the mitigation would permit seabed sampling and heat flow measurement collection within the coral / sponge closure areas; however, where required, seabed samples within the closure areas will not be collected in areas of hard seabed (i.e., areas more likely to contain sponges / corals) identified by the MBES and SBP data. Given the diameter of a seabed core is approximately 10 cm, and penetrates using its own weight and gravity, not mechanically forced (i.e., drilled, pushed) into the seabed, it is predicted that adverse effects to coral / sponge habitat will be low in magnitude. Given the closure areas represent only 2.8% of the Project Area, it is conservatively assumed that less than 3% of coring would occur in the closure areas, and only then within those areas of the closure areas determined (by analysis of substrate type) to have a low probability of supporting corals and sponges.

Considering the proposed amendment to mitigation, the residual environmental effects prediction for Marine Fish and Shellfish from routine project activities and accidental events made in the original EA (Stantec 2017a), and as amended in November 2017 (Stantec 2017b), remain the same (i.e., not significant). With the implementation of mitigation measures described in Section 2.3, overall residual adverse environmental effects from routine Project activities, accidental events and cumulative effects for all VECs are predicted to be not significant.

3.4 CUMULATIVE ENVIRONMENTAL EFFECTS ASSESSMENT

The proposed amendment to the mitigation to permit survey work in NAFO coral / sponge closure areas is not anticipated to result in a change to the cumulative effects assessment as described in the original EA (Stantec 2017a), and as amended in November 2017 (Stantec 2017b). The adverse residual cumulative environmental effect on Species at Risk, Commercial Fisheries and Other Users, Marine and Migratory Birds, Marine Mammals and Sea Turtles, Marine Fish and Shellfish, and Sensitive Areas is predicted to be not significant.

3.5 CONCLUSION

The purpose of the Amendment is to seek approval to allow survey work within NAFO coral / sponge closures areas under certain conditions. As discussed above, the amendment to the proposed mitigation will not result in a significant adverse effect. Interaction with the environment will be limited and environmental effects low to negligible; therefore, follow-up monitoring is not required for this Project. With the implementation of mitigation measures described in Section 2.3, residual adverse environmental effects from routine Project activities, accidental events and cumulative effects are predicted to be not significant. The proposed amendment to the mitigation does not change this conclusion.

4.0 REFERENCES

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