



SUMMARY OF

Regional Guidance on

Measures to Protect

Corals and Sponges

**During Exploratory Drilling
in the Canada-Newfoundland
and Labrador Offshore Area**

Context

This Guidance outlines measures that should be implemented before, during, and after exploratory drilling in the Canada-Newfoundland and Labrador Offshore Area to minimize impacts on habitat-forming aggregations of corals and sponges.

It has been developed in response to current regulations and policies relevant to exploratory drilling, including conditions of project-specific Environmental Assessments (EA), the *Regulations Respecting Excluded Physical Activities* (Newfoundland and Labrador Offshore Exploratory Wells), and the Government of Canada's 2022 Marine Other Effective Area-Based Conservation Measures (OECM) Guidance which reflects the 2019 federal marine OECM Protection Standard and the 2018 Convention on Biological Diversity OECM guidance. The Marine OECM Guidance specifies that existing or foreseeable activities in federal marine OECMs continue to be assessed on a case-by-case basis to ensure that risks to the OECM's conservation objectives have been avoided or mitigated effectively.

The Guidance considers best available scientific information and advice, international standards, regional industry practices, and feedback from interested parties. It takes a balanced approach to maintain high levels of environmental protection during exploratory drilling programs. DFO will continue to use a scientific, risk-based approach to assess industrial activities, such as petroleum exploration, on a case-by-case basis. The Guidance will be updated in response to new science, regional experience, and advancement of best practices.



Application

Unless otherwise specified, the mitigation measures set out in this Guidance apply to the pre-, during, and post-drilling phases of exploratory drilling programs inside and outside OECMs in the Canada-Newfoundland and Labrador Offshore Area. This Guidance is not meant to be prescriptive, rather provides transparency on expectations by outlining a process for proponents to meet regulatory and policy requirements, and providing certainty for industry.

This Guidance will inform provision of advice and recommendations by DFO to the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) concerning mitigations to minimize impacts to corals and sponges. It is also to be used by proponents in designing and planning exploratory drilling projects or programs. The C-NLOPB will continue to issue operations authorizations for exploratory drilling that consider and reflect advice and recommendations from DFO.

While this Guidance serves as a guideline, it is not conclusive in all matters. It outlines recommendations, and does not replace established EA conditions or other regulatory requirements.

Photo, top: Black coral (*Bathypathes* sp.), Davis Strait.
Photo, left: Large gorgonian, or popcorn, coral (*Primnoa* sp.), Northeast Saglek Bank. Both courtesy of Amundsen Science.

PHASE 1: PRE-DRILLING

OUTSIDE OECS

Seabed Investigation Survey

The Seabed Investigation Survey to establish baseline data for coral and sponge abundance, density, condition, and distribution of functional groups (see **Figure 1**) should incorporate:

- visual survey data of sufficient quality and quantity to identify corals and sponges to the functional group level along each entire transect, and log report to be provided to DFO;
- survey of the drill center survey area to 6.5 mm Predicted No Effects Threshold (PNET), with a minimum area of 200 m x 200 m;
- survey of modeled drill cuttings dispersion area based on 1.5 mm PNET;
- 8 radial transects from the proposed well location based on 1.5 mm PNET, plus survey extension guardrails of 10% to account for uncertainty;
- survey buffer of 100 m added around the drill center survey area to accommodate for well relocation. Buffer will be increased if drill center survey area is larger than 200 m x 200 m;
- surveys at reference sites outside of expected zone of influence to determine levels of environmental change relative to baseline conditions;
- sediment collection at reference sites, if chosen as method for measuring drill cuttings extent and thickness;
- if applicable, surveys at anchor locations; and
- the Seabed Investigation Survey Plan and results are to be reviewed by the C-NLOPB and DFO prior to drilling.

Relocation protocol

If technically feasible, the well location should be relocated within the drill center survey area as a measure to avoid and/or minimize impacts to aggregations of habitat-forming corals and sponges. This relocation could occur in response to a recommendation from DFO or a real-time decision by a proponent, with supporting rationale provided to the C-NLOPB and DFO. Both options will consider:

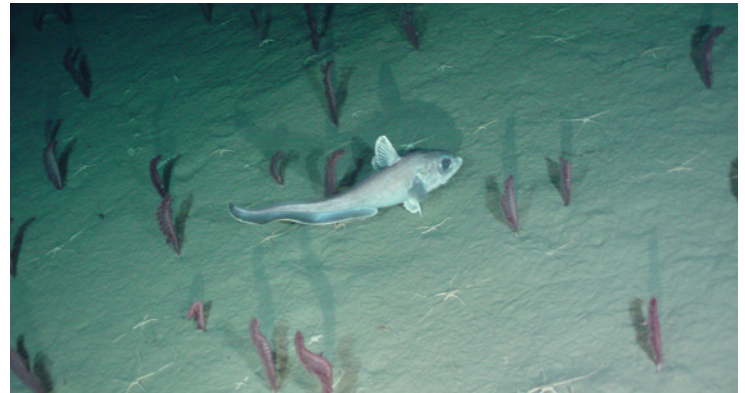
- abundance and spatial distribution of the five functional groups: sea pens, small gorgonians, large gorgonians, black corals, and sponges (see Annex A, Technical document);
- vulnerability of functional groups (e.g black corals are rare on continental shelf with a longer life span and rigid fragile skeleton);
- overlapping functional groups; and
- the footprint of the well and associated modelling (i.e. smothering as a result of drill cuttings).

INSIDE OECS

Seabed Investigation Survey

All measures recommended outside OECS should be followed and implemented inside OECS. In addition, the Seabed Investigation Survey (see **Figure 2**) should be enhanced as follows:

- survey is to have 16 radial transects from the proposed well location;
- if technically feasible, one sample of the dominant species for each of the functional groups that are prevalent throughout the survey area should be collected during the pre-drill survey or in the immediate vicinity of the proposed well location just prior to drilling, with the exception of black corals; and
- close-up still photos should be taken of the proposed well location during the pre-drill survey or in the immediate vicinity just prior to drilling.



Relocation as part of OECS Plan

The OECS Plan must be submitted to DFO and the C-NLOPB at least 90 days before the start of the drilling program, and is to include a detailed description of measures that have been or will be implemented to avoid and/or minimize impacts on corals and sponges. There will be an elevated expectation to demonstrate avoidance or minimizing of impacts to corals and sponges inside OECS.

Photo: Sea pen (*Pennatula* spp) field/high concentration sea pens northwest of 30 Coral Closure. Credit: DFO-CSSF 2007

PHASE 2: DURING DRILLING

OUTSIDE OECMs

Management of drill cuttings and muds

In areas with aggregations of habitat-forming corals and/or sponges as determined by the Seabed Investigation Survey, measures should be implemented to avoid and/or minimize impacts on them, including, where technically feasible:

- redirection of drill cuttings, such as by a subsea cuttings transport system (CTS) to a specified discharge location away from the well.

If relocation and redirection are not technically feasible, other mitigations will be assessed and determined in consultation with the C-NLOPB and DFO, including:

- use of subsea pump to return drill cuttings and fluids to the drilling rig: Riserless Mud Recovery (RMR) systems enable the separation of drill cuttings and fluids on the drilling rig (DNV, 2013), followed by a method of disposal:
 - untreated discharge: Collected water-based drill cuttings are separated with a shaker and discharged from the drilling rig at the surface (DNV, 2013);
 - coarse slurrification and discharge: Drill cuttings are ground to finer particles, mixed with water, and discharged from the drilling rig at the surface (DNV, 2013);
 - slurrification and reuse as spud mud: Drill cuttings are processed by grinding to finer particles, and mixed with water and chemicals to get specifications of drilling fluid (DNV, 2013); or
 - coarse slurrification of separated cuttings for disposal at the sea floor: Consists of a combination of CTS and mud recovery techniques (DNV, 2013).



INSIDE OECMs

Management of drill cuttings and muds

All measures recommended outside OECMs should be followed and implemented inside OECMs.

If relocation and redirection are not technically feasible, mitigations in addition to those identified for outside of OECMs will be assessed and determined in consultation with the C-NLOPB and DFO, including directional drilling.

The OECM Plan is to include a detailed description of measures considered and to be implemented, including those described at left, in order to limit adverse effects from drill cuttings and muds on OECM conservation objectives. **There will be an elevated expectation to demonstrate avoidance or minimizing of impacts to corals and sponges in OECMs.**



Photo, left: Sea pen (*Anthoptilum* sp.), Laurentian Channel. Photo, right: Small gorgonian (Bamboo coral, *Acanella* sp.), Southwest Grand Banks. Both courtesy of CHONe-CSSF-DFO.

PHASE 3: POST-DRILLING

OUTSIDE OECS

Follow-Up and Monitoring Program

The program is designed to measure and verify the accuracy of model predictions, impacts on corals and sponges, and the effectiveness of mitigation measures.

The follow-up and monitoring plan will be submitted to the C-NLOPB and reviewed by DFO.

Follow-up and monitoring surveys will:

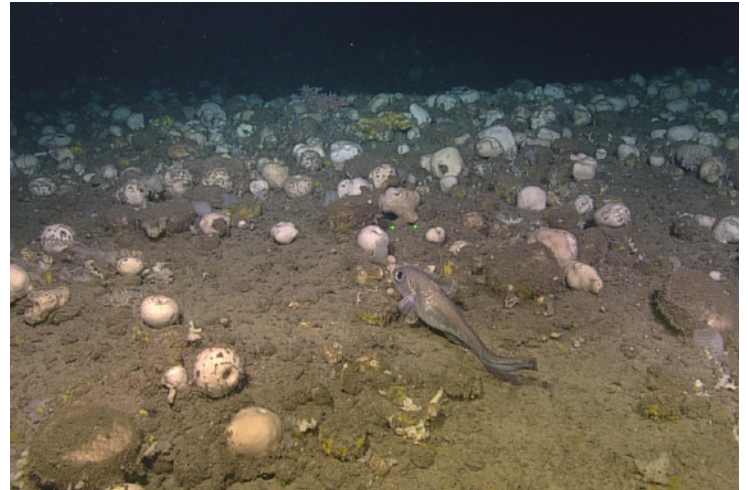
- provide visual survey data of sufficient quality and quantity to identify corals and sponges to the functional group level along entire transect, and log report to be provided to DFO;
- have the same design as the pre-drill survey (**Figure 1**);
- measure the extent and thickness of drill cuttings (e.g. one method could include sediment collection);
- assessment of deposition of drill cuttings and muds on corals and sponges to verify the drill cuttings dispersion model;
- show spatial distribution of corals and sponges;
- compare the abundance, densities, and condition of corals and sponges to pre-drill results to verify effectiveness of mitigation measures; and
- results of follow-up and monitoring will be submitted to the C-NLOPB no later than 60 days after drilling.

INSIDE OECS

Follow-Up and Monitoring Program

All measures recommended outside OECS should be followed and implemented inside OECS. In addition, the follow-up and monitoring program should be enhanced as follows:

- the survey is to have 16 radial transects; and
- close-up still photos in the immediate area around the wellhead once drilling is complete. Photo of the entire colony with scale bar or laser points, as well as close-up photos of key features (e.g. polyps, attachment to substrate).



Photo, top: Sponge field dominated by *Geodia* spp. Taken by ROPOS in NE Flemish Cap (now protected in the NAFO VME Closure). Credit: DFO-CSSF 2010. Photo, bottom: Sponge (*Geodia* sp.), centre, and large gorgonian coral (*Primnoa* sp.), left, Northeast Saglek Bank. Courtesy of Amundsen Science.

Pre-drill SEABED INVESTIGATION SURVEY DESIGN

for illustrative purposes
ONLY

Figure 1
OUTSIDE OECS

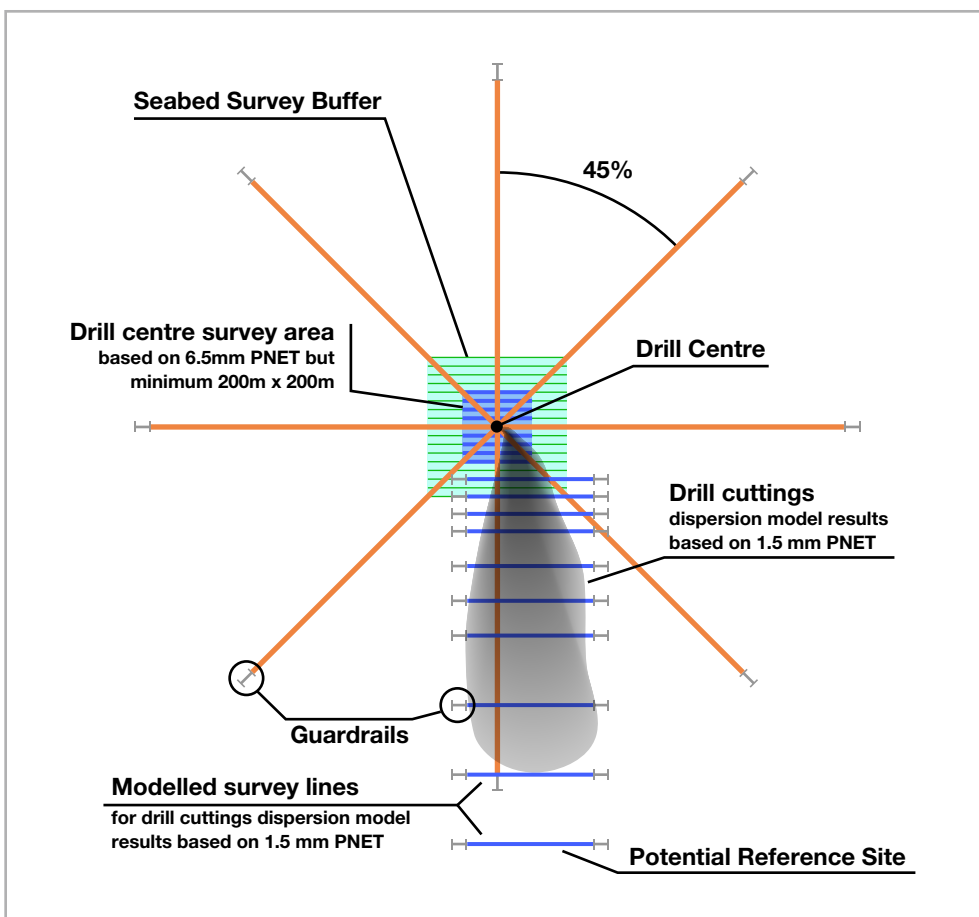
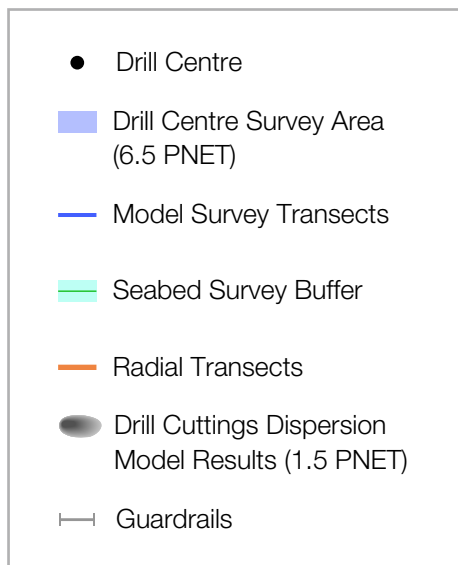


Figure 2
INSIDE OECS

