
1.0 INTRODUCTION

The Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) is responsible, on behalf of the Government of Canada and the Government of Newfoundland and Labrador, for petroleum resource management in the Newfoundland Offshore Area. The *Canada-Newfoundland Atlantic Accord Implementation Act* and the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act* (the Accord Acts), administered by the C-NLOPB govern all petroleum operations in the Newfoundland and Labrador offshore area. The C-NLOPB's responsibilities under the Acts include: issuance and administration of petroleum and exploration and development rights; administration of statutory requirements regulating offshore exploration, development and production; ensuring activities are conducted in an environmentally prudent manner; and approval of Canada-Newfoundland benefits and development plans.

This document provides a Strategic Environmental Assessment (SEA) of potential exploration (and production) activities that could occur in the Sydney Basin Offshore Area (Figure 1.1). The SEA serves as a planning document assisting the C-NLOPB in their decision process with respect to areas which may or may not be suitable to offshore exploration, and/or areas which may require special mitigations. The SEA will provide: an overview of the existing environment; discuss in broader terms the potential environmental effects associated with offshore oil and gas activities in the SEA Area; identify knowledge and data gaps; highlight issues of concerns; and make recommendations for mitigation and planning. The SEA provides a broad scale environmental assessment considering larger ecological settings. As such, the Sydney Basin SEA is not intended, in part or in whole, to preclude the requirements for a project-specific environmental assessment.

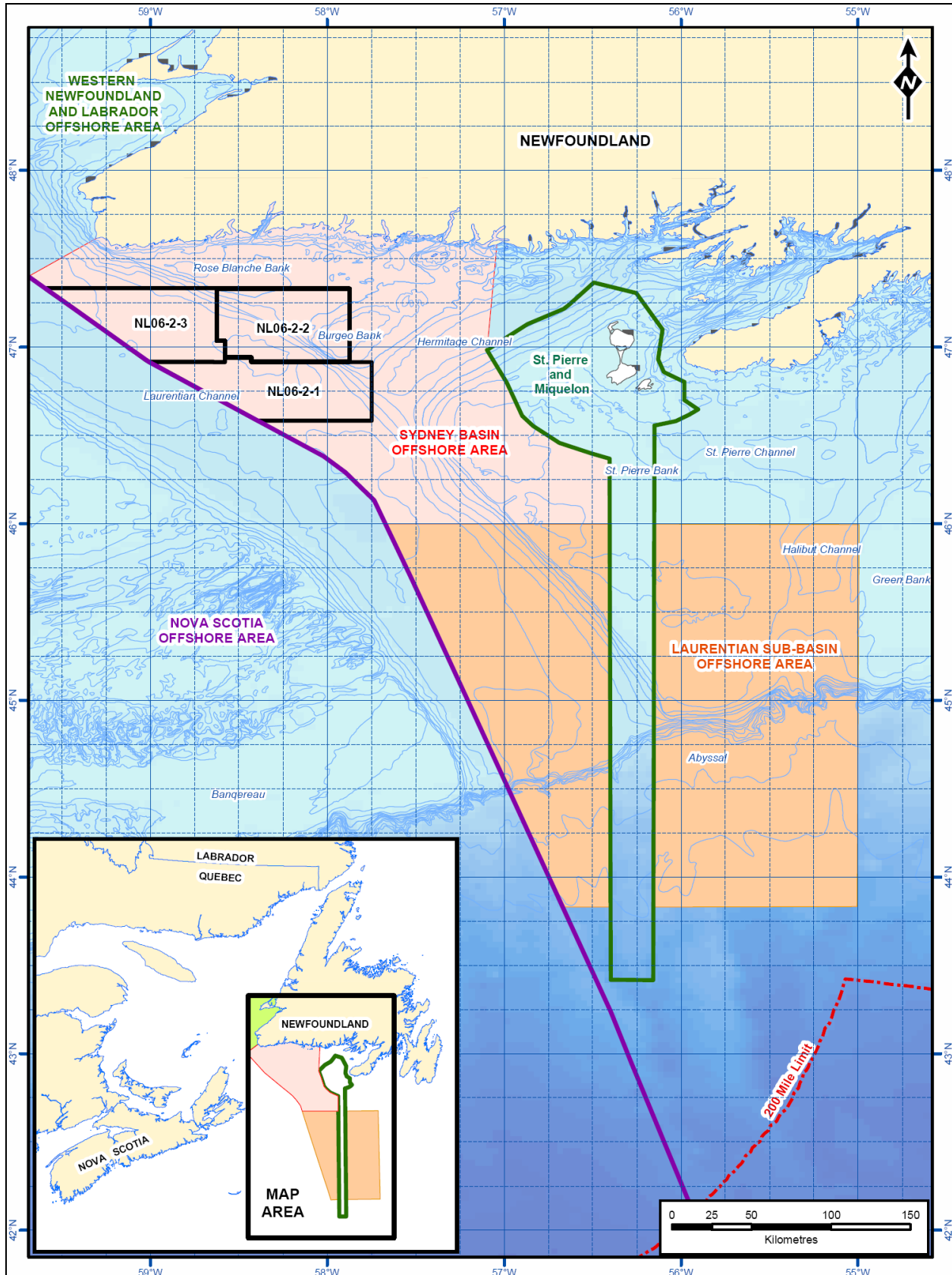
The terms “offshore” or “offshore area” refer to the jurisdictional area of the C-NLOPB, as defined in the Accord Acts to mean “those submarine areas lying seaward of the low water mark of the Province and extending, as any location as far as (a) any prescribed line, or (b) where no line is prescribed at the location, the outer edge of the continental margin or a distance of two hundred nautical miles from the baselines from which the breadth of the territorial sea of Canada is measured, whichever is greater”.

The SEA will provide support for the bid process on parcels NL06-2-1, NL06-2-2, NL06-2-3 and any future parcels within the SEA Area.

1.1 Call for Bids

For the purposes of rights management, the Newfoundland and Labrador offshore area has been divided into two areas. The first area comprises 30 full grids (some 1.1 million ha) and is located in the northeast Grand Banks area, while the second area covers the remaining Newfoundland and Labrador offshore area. The size of parcels to be nominated and the rentals applicable to exploration licences vary according to the areas (C-NLOPB 2006a).

Figure 1.1 Sydney Basin Offshore Area Strategic Environment Assessment Area



The C-NLOPB issues an official call for nominations annually, in the fall. This call is a preliminary step prior to a competitive call for bids by allowing interested parties the opportunity to nominate lands of interest to be included in a subsequent call for bids. The C-NLOPB is not bound to proceed with a call for bids in respect of any lands nominated, nor is a nominee obligated to bid on lands nominated and included in a subsequent call for bids. The C-NLOPB also has the right to nominate lands on its own initiative for inclusion in a call for bids.

Pursuant to the Accord Acts, the C-NLOPB submits for approval to the provincial and federal Ministers a plan outlining the anticipated decisions of the C-NLOPB during that year respecting calls for bids. Lands that are nominated may be considered for inclusion in the plan for interests. The C-NLOPB initiates a call for bids, upon receipt of Ministerial approval, normally commencing in early March and closing in late November. Exploration Licences are issued to successful bidders in early January following the close of the Call for Bids.

1.2 Licences

There are three types of licences: exploration, significant discovery and production licences. A general overview of the requirements for each licence is provided below.

1.2.1 Exploration Licence

An Exploration Licence confers the right to explore for, and the exclusive right to drill and test for, petroleum; the exclusive right to develop those portions of the Newfoundland and Labrador offshore area in order to produce petroleum; and the exclusive right, subject to compliance with the other provisions of the Accord Acts, to obtain a production licence (C-NLOPB 2006a).

The term of an exploration licence shall not exceed nine years and shall not be extended or renewed thereafter. In the offshore area, exploration licences have the maximum nine-year term typically consisting of two consecutive periods of five years and four years. The interest owner is required to drill or spud and diligently pursue one exploratory well on or before the expiry date of Period I as a condition precedent to obtaining tenure to period II. Failure to drill or spud a well will result in reversion to Crown reserve of the licence.

If the Exploration Licence requirement for Period I is fulfilled, the interest owner is entitled to obtain tenure to Period II. The only requirement applicable to Period II is the payment, in advance, of annual rentals.

1.2.2 Significant Discovery Licence

A drilling program that has resulted in a significant discovery entitles the interest owner to a Significant Discovery Licence (C-NLOPB 2006a). A significant discovery is defined in the Accord Acts as:

a discovery indicated by the first well on a geological feature that demonstrates by flow testing the existence of hydrocarbons in that feature and, having regard to geological and engineering factors, suggests the existence of an accumulation of hydrocarbons that has potential for sustained production.

A Significant Discovery Licence is the document of "title" by which an interest owner can continue to hold rights to a discovery area while the extent of that discovery is determined and if it has potential to be brought into commercial production in the future. A SDL is effective from the application date and

remains in force for so long as the relevant declaration of significant discovery is in force, or until a production licence is issued for the relevant lands.

1.2.3 Production Licence

The interest owner is entitled to a production licence once a commercial discovery has been declared (C-NLOPB 2006a). A commercial discovery is defined as:

a discovery of petroleum that has been demonstrated to contain petroleum reserves that justify the investment of capital and effort to bring the discovery to production.

A production licence confers the right to explore for, and the exclusive right to drill and test for, petroleum; the exclusive right to develop those portions of the offshore area in order to produce petroleum; the exclusive right to produce petroleum from those portions of the offshore area; and title to the petroleum so produced. A production license is effective from the date it is issued for a term of 25 years or for such period during which commercial production continues.

1.3 Objectives and Purpose of the Sydney Basin Offshore Area Environmental Assessment

SEA has been defined as:

[T]he formalized, systematic and comprehensive process of evaluating the environmental impacts of a policy, plan or programme and its alternatives...and using the findings in...decision-making (Therivel et al. 1992: 19-20).

SEA represents a broader, more proactive approach to assessing and managing environmental effects than traditional project-specific environmental assessments. A SEA:

- ◆ allows environmental issues to be identified and addressed at the earliest stages of planning, and typically focuses on “regional-scale” environmental concerns.
- ◆ can facilitate the consideration of stakeholder issues and concerns early in the planning process, and demonstrates accountability and due diligence in decision-making.
- ◆ can also help to define the environmental components and potential effects which may require consideration in subsequent project-specific environmental assessments by identifying the key environmental issues associated with a particular sector and/or region.

In this particular case, information from the SEA will assist the C-NLOPB to:

- ◆ determine whether or not an exploration license should be offered in whole or in part within the SEA Area;
- ◆ determine what mitigative measures or restrictions should be applied of offshore oil and gas exploration activities in the SEA Area; and
- ◆ determine whether or not to issue Exploration License (pursuant to the Accord Acts) in whole or in part within the SEA Area.

An exploration licence confers (C-NLOPB 2006b):

- ◆ The right to explore for, and the exclusive right to drill and test for, petroleum;
- ◆ The exclusive right to develop those portions of the offshore area in order to produce petroleum; and

- ◆ The exclusive right, subject to compliance with the other provisions of the Accord Acts to apply for a production licence.

Activities that may be associated with exploration licences include:

- ◆ seismic and other geophysical surveys;
- ◆ drilling of wells (either exploration or delineation); and
- ◆ well abandonment.

If one or more exploratory drilling programs are successful in the identification of petroleum deposits with commercial potential, production activities may follow. Production activities may include:

- ◆ drilling of wells (delineation, development/production, and injection wells);
- ◆ installation and operation of subsea equipment;
- ◆ installation and operation of production facilities; and
- ◆ production abandonment activities.

Each of the exploration and production activities requires specific approval of the Board, including a project specific assessment of its associated environmental effects in accordance with the *Canadian Environmental Assessment Act* (CEA Act). The Sydney Basin SEA is not intended and will not replace the requirement for project-specific Environmental Assessments.

1.4 Scoping

The C-NLOPB has the responsibility pursuant to the Accord Acts to ensure that offshore oil and gas activities proceed in an environmentally responsible manner. The C-NLOPB decided in 2002 to conduct a series of SEAs for portions of the Newfoundland and Labrador Offshore Area that may have the potential for offshore oil and gas exploration activity but that were not subject to recent SEAs nor to recent and substantial site-specific assessments.

The C-NLOPB identified a requirement for a SEA for an area offshore southwestern Newfoundland known as the Sydney Basin Offshore Area. As part of the preparation of a SEA for the SEA Area, a scoping document (Appendix A) was drafted by C-NLOPB staff with the assistance of a Working Group (C-NLOPB 2006b). The Working Group is comprised of 10 members representing federal and provincial government agencies, local Regional Economic Development Boards, the fishing industry, and non-governmental organizations.

The exploration activities considered within the scope of this SEA include exploratory and delineation drilling, seismic surveys including two-dimensional (2-D), three-dimensional (3-D), vertical seismic profiling (VSP) and geohazards surveys and wellsite abandonment. Generic types of potential production facilities that could be employed for the SEA Area have been identified and a generic discussion of their project-environment interaction is included.

The spatial boundary for the SEA Area is shown in Figure 1.1. The SEA Area is bounded by two existing Offshore Areas (Western Newfoundland and Laurentian Subbasin). The temporal boundary is the oil and gas activities as described above that may occur in the SEA Area within the next 10 years. The report will be reviewed in five years to determine if updates are required.

Comments were received from different groups/agencies on Draft Two of the SEA (posted on the C-NLOPB's Public Registry website) and were considered by C-NLOPB for the final document.

1.4.1 Valued Environmental Components

Project scope encompasses those components and activities considered for the purpose of strategic environmental assessment. The scoping exercise conducted in relation to this environmental assessment included:

- ◆ review of the Draft Scoping Document issued by C-NLOPB (2006b);
- ◆ consultation with relevant regulatory agencies and other stakeholders;
- ◆ a review of available information on the existing biological and physical environments of the SEA Area;
- ◆ a review of relevant regulations and guidelines related to offshore exploration activities; and
- ◆ the professional judgment of the study team.

Representatives of key government agencies, fishing industry representatives and other stakeholders were consulted as part of the scoping process; in order to discuss the proposed SEA, obtain information on the existing environment, and to identify any potential environmental issues that may be associated with the offshore exploration and production activities within the SEA Area.

It is generally acknowledged that a strategic environmental assessment must focus on those components of the environment that are valued by society and/or that can serve as indicators of environmental change and have the most relevance to the final decision regarding the environmental acceptability of offshore exploration and production activities within the SEA Area. These components are known as Valued Environmental Components (VECs).

Based on the results of the scoping exercise described above, the following VECs are considered in this SEA:

- ◆ Invertebrates and associated Habitat;
- ◆ Marine Fish and associated Fish Habitat
- ◆ Commercial Fisheries
- ◆ Marine Birds;
- ◆ Marine Mammals and Sea Turtles;
- ◆ Species at Risk; and
- ◆ Sensitive and Special Areas and related Tourism and Recreational Activities.

The rationale for the selection of these VECs is provided below.

- ◆ **Invertebrates and Invertebrate Habitat:** The commercial fishery is an important element in Newfoundland and Labrador's history, as well as its current socio-cultural and economic environment. Invertebrates and invertebrate habitat have a dual role in that invertebrates may be an important fishery commodity or is an integral member of the marine ecosystem. Although examined separately from fish and fish habitat, there is a clear interrelationship between them.

- ◆ Marine Fish and Habitat: The fish and fish habitat upon which the fishery depends is an important consideration in the environmental assessment of activities which may influence the marine environment.
- ◆ Commercial Fisheries: Commercial fisheries were also selected as a VEC because historically, the fishery has played an important role in Newfoundland and Labrador's economy and has helped to define much of the province's character. The fishery remains an integral component of the economy of Newfoundland and Labrador.
- ◆ Marine Birds: Newfoundland's offshore environment hosts a range of seabirds throughout the year. Seabirds are a key element in Newfoundland and Labrador's biological and social environment. They are important socially, culturally, economically, aesthetically, ecologically and scientifically.
- ◆ Marine Mammals and Sea Turtles: Whales and seals are key elements in the biological and social environments of Newfoundland and Labrador. Although certain sea turtles species may be uncommon in the SEA Area, they are considered a VEC because of some species' endangered and threatened status.
- ◆ Species at Risk: There are species of marine birds, fish, marine mammals and sea turtles that are protected by the Species at Risk Act (SARA). Species at Risk are considered a VEC due to regulatory concern and in recognition of their protected status under SARA.
- ◆ Sensitive and Special Areas: Sensitive and special areas are assessed as they may be an important habitat for invertebrates, fish, marine birds, marine mammals, sea turtles and species at risk. In addition, these areas often are the corner stone upon which a variety of tourism and recreational activities are based.

These seven VECs represent the key environmental components that are examined in this document. This SEA examines the potential environmental effects associated with offshore exploration and production activities for each of these VECs. Data gaps and suggested mitigations are provided where appropriate.

1.4.2 Consultations

Consultations were undertaken with the following agencies, fisheries industry representatives (including those in the Nova Scotia fishing industry - see Appendix B) and stakeholders, community and regional agencies and other interest groups:

- ◆ Fisheries and Oceans Canada (DFO) managers (St. John's);
- ◆ DFO Area Offices (SEA Area);
- ◆ Newfoundland and Labrador Department of Fisheries and Aquaculture (NL DFA);
- ◆ Environment Canada;
- ◆ Fish, Food and Allied Workers Union (FFAWU) Managers (St. John's and Corner Brook);
- ◆ One Ocean;
- ◆ Port aux Basques-Rose Blanche fishers;
- ◆ Burgeo fishers;
- ◆ Conne River Band Council;
- ◆ Newfoundland Federation of Indians;
- ◆ Fishery Products International;

- ◆ Clearwater Seafoods Limited Partnership;
- ◆ Groundfish Enterprise Allocation Council (GEAC);
- ◆ Natural History Society of Newfoundland and Labrador; and
- ◆ Burgeo Town Council.

Collectively, these consultations helped to identify data gaps, concerns about commercial fisheries harvesting operations and aquaculture activities within the SEA Area. The information gathered during these consultations has been used in assessing and recommending appropriate mitigative measures relevant to the commercial fisheries and aquaculture activities present in the area. As noted in Appendix B, fishers raised three questions/concerns during the Port aux Basques-Rose Blanche consultation meeting:

- 1) Will there be an ongoing consultation process as plans for oil exploration proceed?

Public will be provided with an opportunity to comment during the project-specific stage.

- 2) Would they be kept informed of any seismic surveys taking place in the SEA area, or will they learn about it via the CBC Fisheries Broadcast?

Local fishers will be consulted by operators. The environmental assessment will be posted on the C-NLOPB Registry website, allowing the opportunity to comment, and there will be a “Notice to Mariners”.

- 3) Fishers are prepared to work towards “co-existence” with offshore oil activities and appreciated the opportunity to be involved in these SEA consultations; however, they would like to remain, and must be, part of the region’s development process.

The C-NLOPB agrees. One Ocean has provided for open dialogue between industry and fishers.

1.5 History of Oil and Gas Activities in Sydney Basin Offshore Area

The SEA Area covers a large offshore area south of Newfoundland, with a well-exposed outcrop belt on Cape Breton Island, offshore Nova Scotia.

The SEA Area has been a major coal-mining area onshore and offshore Nova Scotia since the early 1700s. In the 1950s, hydrocarbons were identified in the sandstones and along faults in the Nova Scotian mines and in the 1990s, associated gas was observed to emerge at the sea floor along the offshore extension of these faults near Cape Breton.

Exploration activity in the portion of the SEA Area, which lies offshore Newfoundland, has consisted of the collection of approximately 6,464 line-km of 2-D seismic data. Texaco Canada conducted the most recent seismic program in 1973. To date, no drilling has occurred in the SEA Area. However, history provides confirmation of the potential for hydrocarbons in the SEA Area, which extends from offshore Nova Scotia to waters off the southwestern coast of Newfoundland.

Presently, there are no exploration licenses within the SEA Area. However, there are eight Exploration Licenses immediately southeast of the SEA Area. On March 22, 2006, the C-NLOPB announced a Call for Bids, pertaining to three parcels in the SEA Area, covering 768,768 hectares (C-NLOPB 2006a). These parcels range in water depth from 200 to 400 m and are within the 200-mile limit.

1.6 Organization of the Strategic Environmental Assessment

This report is organized as follows.

Chapter 1 provides an introduction to SEA, and includes background information on the SEA Area and SEA in general, as well as the purpose and context of the assessment, the planning and regulatory processes that apply to offshore exploration in the region, past and potential seismic surveys and drilling programs within the SEA Area and the organization of the document. The Introduction also discusses the scope of the assessment, defining the specific components and activities under consideration and the spatial and temporal boundaries of the SEA. It also describes the issue scoping exercise undertaken as part of the assessment, and identifies the specific VECs upon which the SEA is focused and the rationale for their selection.

Chapter 2 provides an overview of potential exploration and production activities that could occur in the SEA Area, including a general, generic description of offshore petroleum exploration (including seismic surveys and well drilling) and production activities.

Chapter 3 provides a description of the physical setting of the SEA Area based on existing, available information.

Chapter 4 provides a description of the biological environmental setting of the SEA Area based on existing, available information.

Chapter 5 provides the potential environmental effects analysis for each of the VECs under consideration. Each VEC is discussed in a separate section, which includes a discussion of:

- ◆ potential environmental interactions and existing knowledge regarding them, as well as standard mitigation measures to avoid or reduce potential environmental effects; and
- ◆ the nature and adequacy of available information for the SEA Area and relevant data requirements.

Chapter 6 presents a summary of the key findings and conclusions of the assessment.

References, including personal communications and the literature cited, are provided in Chapter 7.

Supporting information is provided in the Appendices.