2.0 Project Description

The Project Description is based upon information available at the time of writing. At present, not all Project details are known because not all contractors and suppliers have been selected and the specific numbers and locations of wells will depend upon ongoing analyses of 3-D seismic data and the success (or lack thereof) of initial wells. Nonetheless, this Project Description is an accurate reflection of the Proponents' present level of knowledge. The Project Description will be refined as the Project progresses.

2.1. Name and Location

The official name of the Project is the Laurentian Sub-basin Exploration Drilling Program. It is located near the mouth of the Laurentian Channel at the offshore entrance to the Gulf of St. Lawrence, about 250 km southwest of St. John's, Newfoundland and Labrador (Figure 2.1). Offshore drilling has previously occurred at five locations within 50 km of the Project Area (Figure 2.1).

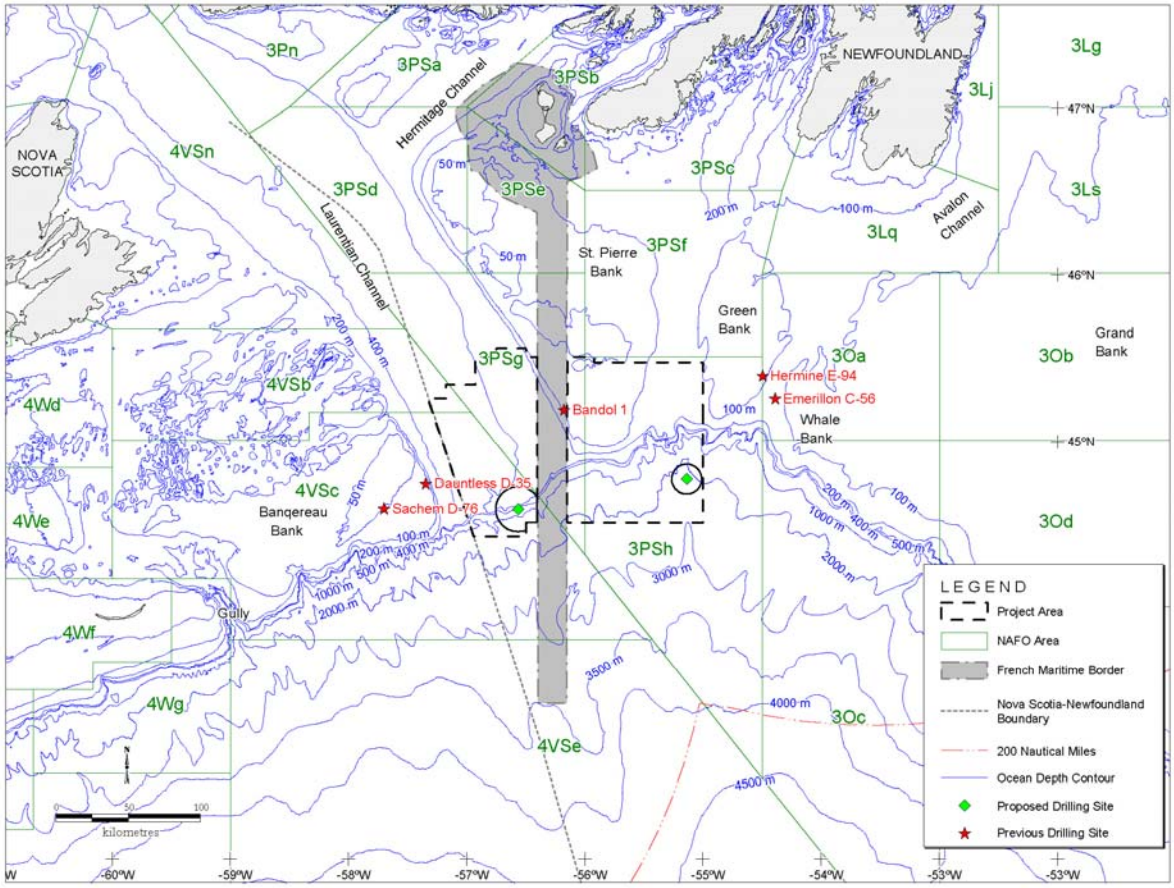

Figure 2.1. Laurentian Sub-basin Proposed Year 1 Drill Site and Previous Drill Sites in the Area.

Initially, ConocoPhillips intends to drill an exploratory well in one of two locations, in ELs 1081 and 1087. Depending on results and seismic data interpretation, an additional exploration and two appraisal wells may be drilled in those license areas, as well as up to three additional wells in ELs 1082, 1085 and 1086 (Table 2.1). Additional information will be provided as it becomes available.

The Project Area as defined in Figure 1.1 is similar to the previous seismic EAs conducted by ConocoPhillips and includes all of the license areas within which ConocoPhillips may drill.

Table 2.1. Locations of Potential Wells.

Year (Tentative)	Block	Exploratory/Appraisal	Water Depth (m)	Coordinates (UTM Zone 21)
2007	1087	Exploratory	2,300 approx.	647,287E 4,958,250N ±10km
2007	1081	Exploratory	750 approx.	534,535E 4936538N ±15km
2008/9	1087	Exploratory	N/A*	N/A
2008/9	1081	Exploratory	N/A	N/A
2009	1086	Exploratory	N/A	N/A
2010	1085	Exploratory	N/A	N/A
2010	1082	Exploratory	N/A	N/A

*Not available at this time
Source: ConocoPhillips,

2.2. The Operator

The Operator, ConocoPhillips Canada (CPC), is headquartered in Calgary, Alberta and has approximately 2,000 employees. CPC is the third largest oil and natural gas production and exploration company in Canada with an average production of 363,000 barrels of oil equivalent per day. The company is a wholly owned subsidiary of Houston-based ConocoPhillips and was formed in 2002 following the merger of Conoco Inc. and Phillips Petroleum. A fully integrated energy company, ConocoPhillips is globally involved in every aspect of the oil and natural gas industry. The company operates in over 40 countries, has more than 38,000 employees around the globe, and US$160 billion of assets. ConocoPhillips stock is listed on the New York Stock Exchange under the symbol "COP."

CPC's diverse mix of oil and gas exploration and development opportunities stretch from Western Canada to the Frontier regions of the Far North and offshore Atlantic Canada. Alberta's oil sands resources are also a significant part of the company's portfolio, with interests in Syncrude and the Surmont Project, located near the town of Fort McMurray.

In Western Canada, the company holds conventional oil and gas interests in Alberta, northeast British Columbia and southwest Saskatchewan.

The company's legacy projects include:

- Far North, with a 75% interest in the Parsons Lake field
- Surmont Oil Sands Project, as operator and 50% owner
- Offshore Atlantic Canada, with a majority interest in over 7.1 million acres in the Laurentian Basin.

CPC's ongoing commitment to its stakeholders is supported through the principle of sustainable development and its SPIRIT values (safety, people, integrity, responsibility, innovation and teamwork). This is the foundation upon which they build relationships with communities where they operate, managing the social, economic and environmental elements of everything they do.

ConocoPhillips has established a clear goal to conduct its business in a way that promotes economic growth, a healthy environment and vibrant communities, now and in the future. The company is committed to:

- increasing the availability of ever-cleaner energy;
- being transparent and accountable by measuring and reporting both financial and non-financial performance;
- operating to the highest safety standard;
- positively impacting communities wherever it operates;
- minimizing the environmental impact of operations;
- investing in the well-being and development of its employees;
- constantly improving the energy and material efficiency of operations;
- practicing and upholding the highest ethical standard; and,
- ensuring the long-term financial viability of the company.

To achieve these commitments, CPC strives to incorporate sustainable development into all of its planning and decision-making.

2.2.1. Partners

BHP Billiton and the Murphy Oil Corporation are partnered with CPC in its exploration activities in the Laurentian Sub-basin. BHP Billiton is the world's largest diversified resources company with approximately 37,000 employees working in 25 countries and substantial interests in oil, gas, liquefied nature gas and diamonds. The company is headquartered in Melbourne, Australia, with oil and natural gas production, exploration and development in Australia, the United Kingdom, the United States, Algeria, Trinidad and Tobago, and Pakistan. BHP Billiton strives to operate as a sustainable business, defining a sustainable future as one where:

- employees and contractors work free of injury and illness;
- operations are conducted in an environmentally and socially responsible way;
- the company is valued by its host communities, employees, customers, shareholders, contractors and suppliers;
- its products are used to produce goods that improve people's standard of living; and
- its shareholders realize a superior return on their investment in its business.

Murphy Oil Corporation is headquartered in El Dorado, Arkansas, and is a worldwide oil and gas exploration and production company with refining and marketing operations in the United Sates and the United Kingdom, and crude oil and natural gas exploration and production operations in Canada. Murphy Oil Company Ltd. (MOCL) is engaged in crude oil and natural gas exploration and production; extraction and sale of synthetic crude oil; and marketing of petroleum products in Canada. MOCL's headquarters are in Calgary. Murphy strives to meet the highest standards of performance in all its operations using the latest technology and sharing an enduring commitment to do the job right. At the highest levels of the Corporation and in all the Company's operations, the policy is to meet and surpass environmental standards, to create a safe and rewarding work place and to make positive contributions to the communities in which Murphy operates.

2.3. Project Overview

Depending on the results of seismic data analyses, CPC expects to drill an initial exploratory well, likely in either EL 1087 or 1081. Any subsequent drilling would be dependent upon additional data analyses and results of the initial well. If results are successful, CPC may drill up to seven exploration/appraisal wells in ELs 1087, 1081, 1085 and/or 1086. This represents the maximum potential exploration program and would only be undertaken if initial results were successful. Each well will take from 50 to 100 days to complete. Drilling will be conducted by a drill rig (jack-up, anchored or dynamically-positioned drill ship or semi-submersible, depending upon water depth), supported by a number of supply vessels and offshore helicopters. Vertical seismic profiling (VSP) and well site shallow geohazard survey activities may also be conducted in conjunction with the drilling.

The Operators' drilling contractors will maintain a marine shore base(s) in Atlantic Canada during the proposed drilling campaign. The re-supply of drilling equipment and materials will be performed from this location. The transport of personnel to and from the shore base and the Project Area will be conducted mainly by helicopter, but in isolated situations, supply boats may be used. The Project Area as defined in this EA encompasses five of the ELs within the Operator's land holdings in the Laurentian Sub-basin, offshore Newfoundland (Figure 1.1). No new shore-based facilities will be constructed for this operation.

2.3.1. Alternatives to Project/Alternative Means within Project

A potential alternative to the Project is to not drill any wells in these locations but to seek oil and gas elsewhere in order to satisfy market demand. However, CPC and its partners have been awarded rights to explore in these areas through a regulated competitive bidding process and are now seeking to fulfill commitments made as part of this process. As such, there is no alternative to the Project.

Alternative means to complete the Project may be considered in selecting the rig, drilling program/fluid, supply base, waste/emissions management, and program timing. Selection of these alternatives will be guided by a consideration of economic, environmental, community, safety and technical factors.

2.3.2. Project Phases

For the purposes of this EA, the Project is considered to consist of two phases: (1) drilling of exploration wells, inclusive of routine activities such as VSP and formation evaluations, and (2) well abandonment.

2.3.3. Project Scheduling

Execution and scheduling of subsequent wells will largely be dependent on exploration success encountered by the initial wells. The first well is tentatively planned for the second quarter of 2007 and the Project may extend for the life of the licenses. It is anticipated that from one to four wells per year could be drilled.

2.3.4. Site Plans

The Project Area and site locations (Year 1) are presented in Figure 2.1 and Table 2.1. More specific locations for subsequent years will depend on the results of drilling and further seismic and well data analyses.

2.3.5. Personnel

The overall Project will be managed by CPC from an office located in Newfoundland and Labrador. The managers have the authority to effectively manage the overall operational aspects of the Project on an ongoing basis. Day-to-day drilling operations will be directed by the Operators' drilling superintendents.

Offshore, the management team consists of the Senior Drilling Supervisors (Operators' offshore representative), the designated Offshore Installation Managers, and Supply Vessel Masters.

2.3.6. Mobile Offshore Drilling Units

Drilling will be conducted by a bottom-founded jack-up rig (example type: *Rowan Gorilla VI*), anchored semi-submersible (example type: *Global Grand Banks*) or dynamically positioned (DP) drill ship (example type: Deepwater Millenium) or DP semi-submersible rig (example type: *Erik Raude*). [The example types provided have all been used on the east coast of Canada.] In the case of a DP rig, the drill stem and riser are the only connections with the seafloor. The DP rigs are often used in water depths exceeding 500 m. They are virtually the same as anchored rigs in terms of drilling and discharge treatment equipment. A jack-up rig may be used in water less than 150-m deep. Deepwater drilling will be conducted by a dynamically positioned (DP) drill ship or semi-submersible. The key difference between DP units and other drill rigs typical on the Grand Banks is that the DP vessels are not anchored to the bottom but maintain position using a system of thrusters. Although generally noisier than anchored rigs, maintaining the DP vessel in position does not disturb the seabed and may be the only practical alternative in water depths over 1,000 m. An example of this type of rig is the *Erik Raude* which has been approved for use in the Orphan Basin off eastern Newfoundland and Labrador.

2.3.7. Geophysical Surveys

Three general types of geophysical surveys are usually conducted in support of exploratory drilling off the east coast.

1. Prior to selecting drill sites, 2-D and/or 3-D seismic surveys are conducted with full seismic arrays by a dedicated seismic vessel (e.g., *Western Neptune*). These surveys have received EA approvals previously and two years of surveys have been completed.

2. Prior to drilling, geohazard surveys are conducted to assess potential drilling hazards such as slope instability or pockets of shallow gas. Shallow geohazard surveys may be conducted at each location. The specific equipment will be determined based on location, but multi-beam sonar, side scan sonar, a towed array, and bottom sampling and/or ROV video are typically used. For deepwater wells, 3-D seismic data may be sufficient to assess geohazards.

3. Vertical seismic profiling (VSP) using an airgun array may be conducted as part of the drilling activities. The VSP is used to assist in further defining a petroleum resource and is typically a requirement of the Board. The array is similar to that employed by 2-D or 3-D seismic surveys but is usually smaller and deployed in a small area for a limited amount of time (several days to several weeks).

For all geophysical surveys, the Operator will adhere to the C-NLOPB's *Geophysical, Geological, Environmental and Geotechnical Program Guidelines, April 2004.* When a seismic sound source (single airgun or array) is used, a dedicated and qualified observer will oversee mitigations such as delayed start-ups, ramp-ups, and shut-downs for marine mammals and sea turtles.

2.3.8. Marine Support Vessels

Supply/standby vessels will meet Canadian standards and will be managed from the Contractors' offices in Atlantic Canada. Letters of Compliance for each chartered standby vessel will be in place prior to work commencing. The vessels will be comparable to those presently operating on the Grand Banks in terms of power and capabilities. The vessels will be used for re-supply, safety stand-by, and iceberg surveillance and control.

2.3.9. Helicopter Support

Contract helicopter support will be provided by several twin-engine, offshore-rated helicopters (about six trips per week per rig). The helicopter contractor will also provide all auxiliary flight services for First Response equipment and technicians, alternate landing sites complete with weather station, aviation fuel, helicopter passenger transportation suits and an aircraft maintenance and passenger loading terminal located in Atlantic Canada.

2.3.10. Shore Base Facilities

The Project will be managed and operational decisions will be made from the Operators' offices in Newfoundland and Labrador. The existing infrastructure and activity in Atlantic Canada harbours enables the industry to optimize the utilization of supply vessels and other logistic assets. The existing facilities are capable of servicing multiple operations with the existing infrastructure including office space, crane support, bulk storage and consumable (fuel, water) storage and delivery capability. Warehouse facilities will be provided by Project contractors as required and will consist primarily of storage for tubular goods, and the equipment belonging to the drill rigs which can be stored onshore.

Operation and co-ordination service of all aeronautical and marine voice and data communication services will be provided from a central facility (contractor to be selected). The primary communications link between the drill rigs and the Project Operations offices will be via a dedicated satellite service. Independent backup communications systems will be provided by high quality HF radio service, available through the coastal radio station. Details on communications systems are outlined in the Alert and Emergency Response Plans to be filed with the C-NLOPB.

2.3.11. Drilling

Examples of typical (and very approximate) well setting depths and hole/casing sizes for the proposed locations are shown in Table 2.2. This scenario assumes no abnormal geopressures or shallow hazards. The well is started with a structural hole drilled to reach a depth typically 100 m below the mudline (BML). On occasion the structural pipe may be jetted in. This would be followed by the conductor hole to approximately 750-mBML, the surface hole to 2,500-mBML, the intermediate hole to 4,200-mBML and the production hole to 5,000-mBML. Typically, the structural and conductor holes are drilled, the

drill string is pulled out and steel pipe called casing is inserted and cemented in place in order to prevent the wall of the hole from caving in, prevent seepage of mud and other fluids, and provide a foundation for subsequent casing strings. A conductor casing lines the upper section of the well and provides formation integrity to facilitate well control while drilling the surface hole.

Table 2.2. Description of Typical Drill Hole and Casings.

Possible Casing Plan and Drill Hole Characteristics					
Hole Section	**Hole Size (mm)**	**Casing Size (mm)**	**Section Depth (m Below mudline)**	**Drilling Fluid Type**	**Point of Drilling Fluid Return**
Structural	1,066	914	100	WBM*	Seafloor
Conductor	660	508	750	WBM	Seafloor
Surface	445	346	3,000	SBM**	Drilling Unit
Intermediate	311	251 liner	4,500	SBM	Drilling Unit
Main hole	216	178 liner	5,000	SBM	Drilling Unit

Source: ConocoPhillips (*Water-based mud, **Synthetic-based mud),

The next casing string is the surface casing, which ensures adequate pressure integrity to reach subsequent casing setting depths. Intermediate casings may also be required; the size, depth and number of which will vary according to expected formation depths and pressures.

If significant quantities of hydrocarbons are found, production casing may be installed or the initial well may be abandoned without casing the open hole to provide sidetrack utility from the wellbore. It is intended to gather all data possible from the well and then temporarily or permanently abandon the well. If insignificant hydrocarbons are found the well will be secured and abandoned according to the C-NLOPB's regulations (see below).

2.3.11.1. Well Testing

Deep water exploratory wells are not usually tested; however, appraisal wells may be tested. Once a well has been drilled to total depth and the initial geological evaluation has been completed, a decision on whether to test the well will be made. The decision to test a well is dependent on the quality, quantity and content of the hydrocarbon-bearing formations encountered. If well testing is deemed necessary, the Operator would return to the location at a later date with a suitably equipped drilling unit. During typical well testing operations test tools are installed in the cased well bore and are used to perforate the casing, cement and formation at the specified zone of interest. Once the well has been perforated, formation fluids are allowed to flow to the drilling deck surface test facility in a controlled manner.

These fluids may contain hydrocarbons (oil and gas) and/or formation water. The produced hydrocarbons are separated from the produced water in the test unit. Hydrocarbons and small amounts of produced (formation) water are flared using high efficiency igniters to ensure relatively complete

combustion of hydrocarbons and minimize emissions. If not flared, produced water, if it occurs, will be treated in accordance with the *Offshore Waste Treatment Guidelines* (*OWTG*) developed jointly by the National Energy Board (NEB), the C-NSOPB, and the C-NLOPB (NEB et al. 2002) prior to ocean discharge.

2.3.12. Well Abandonment

Following completion of drilling and well testing activities many exploration wells are permanently abandoned. The well abandonment procedures follow industry standard practices and are in accordance with the *Newfoundland Offshore Petroleum Drilling Regulations*. Abandonment procedures are designed to prevent hydrocarbons from flowing out of the well. Well log information is used to determine how the hole should be plugged to ensure isolation of the formations that may contain hydrocarbons.

Offshore wells are typically abandoned in two stages. During the first stage, the wellbore is isolated using mechanical and cement plugs in accordance with existing regulations. During the second stage the wellhead and any associated equipment items are removed from the seabed. Removal of the wellhead will routinely involve the use of mechanical cutters. In some circumstances, however, subsurface cutting using shaped charges may be required. Wellheads may be left in place, subject to approval from the Board, if it is determined that they do not create an obstruction on the seafloor (e.g., in the case of water depths significantly beyond the capabilities of fishing gear, probably about 1,500-m depth).

2.3.13. Emissions and Waste Discharges

Waste discharges will include drill muds and cuttings, produced water, grey and black water, ballast water, bilge water, deck drainage, discharges from machinery spaces, cement, blowout preventer (BOP) fluid (glycol/water), and air emissions. All discharges will be in compliance with the *OWTG*. Details are provided in the following sections on the discharges that have not been discussed above.

Discharges from the rig will be managed in accordance with the *OWTG*. Other requirements may be attached to individual authorizations from the C-NLOPB.

2.3.14. Cement

In order to avoid damaging subsurface equipment, excess cement from the conductor casing is not brought back to the surface but discharged to the sea floor. About 68 m^3 of cement may be discharged based on deepwater experience off Nova Scotia but larger amounts are possible. The actual amount can only be determined by ROV survey after the discharge.

2.3.15. Produced Water

If hydrocarbons are present and testing is conducted then small amounts of produced water may be discharged by atomizing with hydrocarbons and flared. If the flare capacity is exceeded, then small amounts of treated produced water will be brought ashore for disposal or discharged according to the *OWTG*.

2.3.16. Grey/Black Water

The rigs will accommodate up to 150 personnel, depending upon the rig. Each rig will discharge up to approximately 50 m^3 of grey water per day. Black water or sewage will be macerated to 6 mm particle size or less and discharged as per the *OWTG*. Estimated amounts of black water are up to 25 m^3 per day per rig.

2.3.17. Machinery Space Discharges

Machinery space drainage will be through a closed system and treated to *OWTG* standards (15 mg/L of oil or less).

2.3.18. Bilge Water

Bilge water will be treated to *OWTG* standards.

2.3.19. Deck Drainage

Any deck drainage such as the rotary table floor and machinery spaces will undergo treatment as per the *OWTG*.

2.3.20. Ballast Water

Water used for stability purposes in both supply boats and drilling rigs is stored in dedicated tanks and thus does not normally contain any oil. If oil is suspected in the ballast water it will be tested and if necessary treated to *OWTG* standards.

2.3.21. Cooling Water

Top drives, draw-works and other equipment on rigs are cooled by pumping water through a set of heat exchangers; the water is then discharged overboard in accordance with the *OWTG*. Other equipment is cooled through a closed loop system which may use chlorine as a disinfectant. Water from closed systems will be tested prior to discharge and will comply with the *OWTG*. Any proposals for alternate biological control will be submitted to C-NLOPB for consideration prior to use.

2.3.22. Solid Waste

All trash and garbage, including organic waste from galleys, will be containerized and transported to shore for disposal in approved landfills. Combustible waste such as oil rags and paint cans will be incinerated in high efficiency burners (if available on the specific rig) or placed in hazardous materials containers for transport to shore. The rig will have a recycling program.

Any hazardous waste will be properly containerized, sealed, labelled and its disposition on shore at an approved facility will be the responsibility of a certified waste handler. All third-party waste management facilities will be assessed by CPC to ensure they meet CPC waste management standards.

2.3.23. Air Emissions

The Project will release substances to the atmosphere from fugitive emissions (e.g., from fuel storage tanks) and from helicopter, supply vessel, and drill rig engines, generators, and machinery. Flaring may also occur if petroleum hydrocarbons are encountered and during testing. The specific amounts and types of emissions are not known at this time because vessel and rig contractors have not yet been selected (see Section 5.5 for typical quantities emitted). However, marine diesel will be the primary fuel and operational discharges will be similar to other marine operations using vessels of this size and power.

2.3.24. Miscellaneous

With semi-submersible rigs, BOP test fluid (glycol/water) is released at intervals (typically three pressure and three function tests per 40-day drilling). About 1.0 m^3 is released per test (Husky 2000). Chemicals potentially discharged offshore will be screened using the *Offshore Chemical Selection Guidelines*. Excess chemicals or chemicals in damaged containers will not be discharged into the sea but returned to shore on supply boat. Any spent or excess acids will be neutralized as approved by C-NLOPB and discharged.

Substances not discussed above or covered in the *OWTG* will not be discharged without prior notification and approval of the C-NLOPB.

2.3.25. Waste Management Plan

The waste streams will be managed according to the Operator's Waste Management Plan. The purpose of the Waste Management Plan is to provide guidance on effectively dealing with hazardous and non-hazardous waste. A Waste Management Plan will be submitted to the C-NLOPB as part of the DPA requirements. Wherever possible, waste streams will be kept independent of one another so as not to create the additional problem of expensive decontamination or separation onshore.

2.4. Multiple Ocean Uses

Current and past uses of the area include marine shipping, oil and gas activity, defense-related ship traffic, and commercial fisheries. There also may have been marine dumping (including munitions) near or in the Project Area in the past. Hunting of murres, waterfowl, and seals has occurred for many years farther inshore from the Project Area.

The physical presence of the rig and supply boats affects navigable waters at the entrance to the Laurentian Channel to a small degree. The Project Area is close to major North Atlantic shipping lanes entering Canadian waters and may receive ship traffic from fishing vessels, tankers, freighters, naval vessels, private yachts and others.

There are no known sources of contamination in the Project Area although there is a continuing problem on the Grand Banks and the approaches to the Gulf of St. Lawrence in general with illegal oily discharges from shipping. Previous disturbance of the seabed may have occurred from bottom trawling or dredging activity associated with commercial fisheries.

The closest conservation area (Laurentian Channel Coral Conservation Area, the "Stone Fence") is near the southwest border of the Project Area and the closest major seabird colony (Cape St. Mary's) is about 160 km to the northeast from the northeast corner of the Project Area. The closest urban centre is St. John's, about 250 km to the northeast of the northeast corner of the Project Area (Figure 2.2).

The Project has the potential to affect air, water, plankton, fish and fish habitat, fisheries, marine birds, turtles and mammals through emissions and discharges, both routine and accidental. There are no known special or unique resources in the Project Area although several species listed on Schedule 1 of the *Species at Risk Act* may occur there (e.g., blue whale, leatherback turtle, Ivory Gull, Atlantic wolffish). Potential interactions and effects are discussed in detail in Sections 5.0 and 6.0.

During past offshore Nova Scotia EAs, concern has been expressed that oil and gas exploration activities may interact with munitions dump site or hazardous shipwrecks, some of which are identified on the most recent hydrographic charts. The Operator will avoid interacting with any identified sites by consulting with the Department of National Defence, which is presently assembling a database of munitions dump sites (see *Navy Maple Leaf*, 3 September 2003, Vol. 6 No. 32) and the online registry of shipwrecks (http://users.accesscomm.ca/shipwreck/index.htm). In addition, pre-drilling geohazard surveys using sonar and other geophysical equipment and ROV will identify any potential anthropogenic hazards as well as geohazards and will enable avoidance of shipwrecks and munitions, or other mitigation as deemed appropriate.

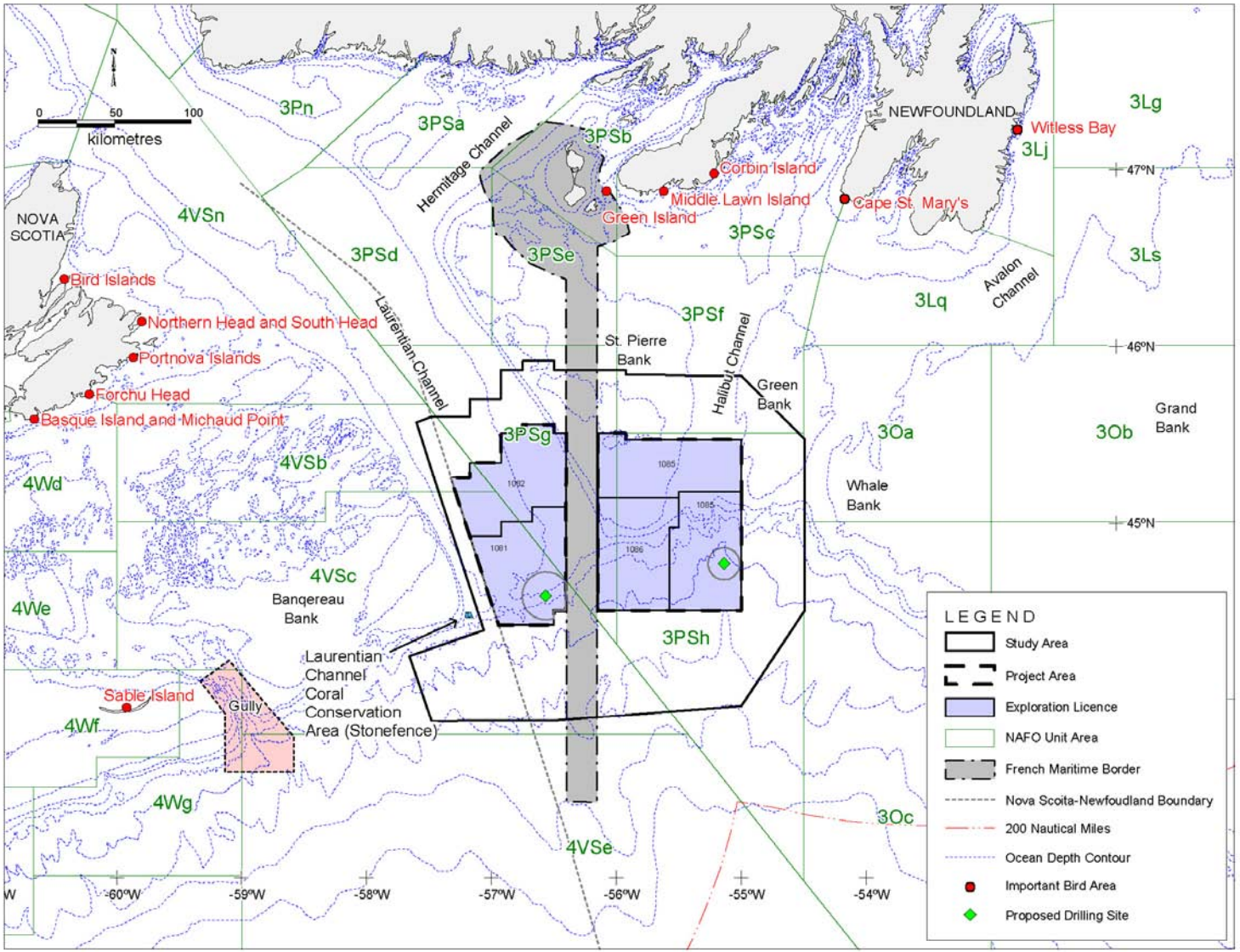

Figure 2.2. Location of Project Area Relative to the Gully MPA, the Cape St. Mary's Seabird Colony and the Coral Conservation Area (Stone Fence).