

## 5.0 Summary and Conclusions

### 5.1 Potential Issues

Potential issues that are generally applicable to East Coast oil and gas exploration activity, including the Amendment Area, include the following:

- Effects of accidental spills on marine flora and fauna,
- Effects of industrial sound on marine mammals, and to a lesser extent on commercial invertebrates and fish,
- Disturbance of sensitive benthic communities, and
- Attraction of seabirds to rigs and supply vessels.

Potential issues specific to the Western Newfoundland and Labrador Offshore Amendment Area identified during the preparation of the SEA Amendment include the following:

- Potential sensitivity of the Cod Spawning Area off the Port au Port Peninsula where there may be aggregations of spawning Atlantic cod, and
- Potential sensitivity of a possible redfish mating area overlapping with Parcel 1.

### 5.2 Data Gaps

There is limited information on marine invertebrates and fish that occur in the Amendment Area. Information on the distribution of deep sea corals (an emerging issue offshore in general) in the Amendment Area is especially lacking.

There is a limited database on fishery landings in the Amendment Area, likely because the level of commercial fishing activity in the area is low.

Key data gaps identified for the Amendment Area include:

- Distribution in time and space, specifically of fish eggs and larvae, marine birds, marine mammals, sea turtles, and SARA-listed species such as wolffish, leatherback sea turtles, and various whale species,
- Locations of enhanced areas of production and/or concentrations of feeding seabirds and marine mammals,
- Locations of spawning areas or other critical habitat for commercial invertebrates and fish,
- Information on benthic communities,
- Underwater noise data, modeled, or measured,
- Information on physical and chemical properties of oil and gas, and
- Oil spill trajectory modeling for Parcel 1 and the remainder of the Amendment Area.

## 5.3 Addressing Data Gaps

Depending on timing and nature of exploration activities, the Board may require baseline data collection, modeling studies, or monitoring programs associated with project activities.

Some of the data gaps can be addressed by the relevant government departments under their respective mandates, some by collaborative efforts between industry and government, some during monitoring programs during exploration, and some as part of site specific EAs. Some examples are listed below.

- Additional spatial and temporal distribution data on fish spawning aggregations would be valuable for managing the fisheries as well as for use in impact assessment.
- Additional distributional data on marine-associated birds and marine mammals will likely be collected by operators through seabird and marine mammal observation programs carried out in conjunction with exploration activities. These monitoring and observation programs have been undertaken for many of the exploration activities undertaken in the northeast Grand Banks, the Laurentian Subbasin and the Orphan Basin.
- Government provides oversight and their data archives are the ultimate beneficiaries.
- Site-specific EAs typically provide reviews of all relevant data and in some cases also provide original data (e.g., benthic surveys).
- Generally applicable information such as sound propagation modeling may be done through government and industry partnerships (e.g., Environmental Studies Research Funds [ESRF], Petroleum Research Atlantic Canada [PRAC], and Program of Energy Research and Development [PERD]).
- Oil spill trajectory modeling (and potentially drill cuttings deposition modeling) during the site-specific EA process.

## 5.4 Planning Considerations

### 5.4.1 Important Fish Spawning/Mating Areas

One of the primary findings of the SEA (C-NLOPB 2005) was the potential need for special planning in the vicinity of the key spawning area for Atlantic cod (Cod Spawning Area off Port au Port Peninsula). The C-NLOPB may require special restrictions on activities in this area. Considering that the Cod Spawning Area shares part of its western boundary with part of the eastern boundary of the Amendment Area, it remains an issue for the SEA Amendment. The potential redfish fall/early winter mating and spring/summer larval extrusion areas may also require special planning or mitigation. The potential mating area is located in the central portion of the Amendment Area and includes Parcel 1. The potential larval extrusion area overlaps with the southern portion of the Amendment Area.

## 5.4.2 Available Mitigations

Operators will be required by the C-NLOPB to comply with all applicable legislation and guidelines, including the C-NLOPB guidelines (e.g., *Geophysical, Geological, Environmental and Geotechnical Program Guidelines – C-NOPB 2004*; *Offshore Waste Treatment Guidelines – NEB et al. 2002*; *Offshore Chemical Selection Guidelines – NEB et al. 1999*).

Mitigations have been discussed throughout the SEA Amendment.

For seismic exploration (including VSP), mitigations employed by operators include:

- Ramping up ('soft start') of airguns at the start of survey;
- Monitoring of marine mammals and sea turtles;
- Communication with the fishing industry;
- Notice to mariners and fisheries broadcasts;
- Use of fisheries guard vessels and FLOs to help avoid conflicts with fishing vessels and gear;
- Compensation for gear losses attributable to seismic survey activity;
- Design/selection of equipment to optimize source levels;
- Avoidance of sensitive areas and/or times (e.g., spring cod spawning off west coast of Port au Port Peninsula, and potential redfish fall mating area in Amendment Area);
- Shutdowns if certain sensitive species of marine mammals and sea turtles (e.g., Schedule 1 SARA species) are within a pre-determined safety zone; and
- Seabird monitoring and a stranded bird release program.

These mitigations are now more or less standard practice on the East Coast, including Newfoundland and Labrador waters.

Mitigations for exploratory drilling activity include:

- Adherence to *OWTG* limits on discharges;
- Screening and selection of chemicals used in drilling;
- Design and implementation of a Waste Management Plan (WMP) to be approved by the C-NLOPB;
- Use of environmental criteria (to minimize emissions) in selection of any new equipment to be installed;
- Well abandonment procedures to be approved by C-NLOPB, and will include the implementation of mitigation measures to protect marine mammals and sea turtles that may be in the area;
- Selection of supply vessel and aircraft routing to avoid sensitive areas and/or times;

- Communication with fishing industry and other mariners in regard to vessel routing and safety zone, and other issues that may arise;
- Use of seabird observers (also to record marine mammals and sea turtles) on drilling rigs;
- Implementation of a fishing gear compensation program in the event that gear is damaged by an operator; and
- Seabird monitoring and a stranded bird release program.

Mitigations for oil spills include:

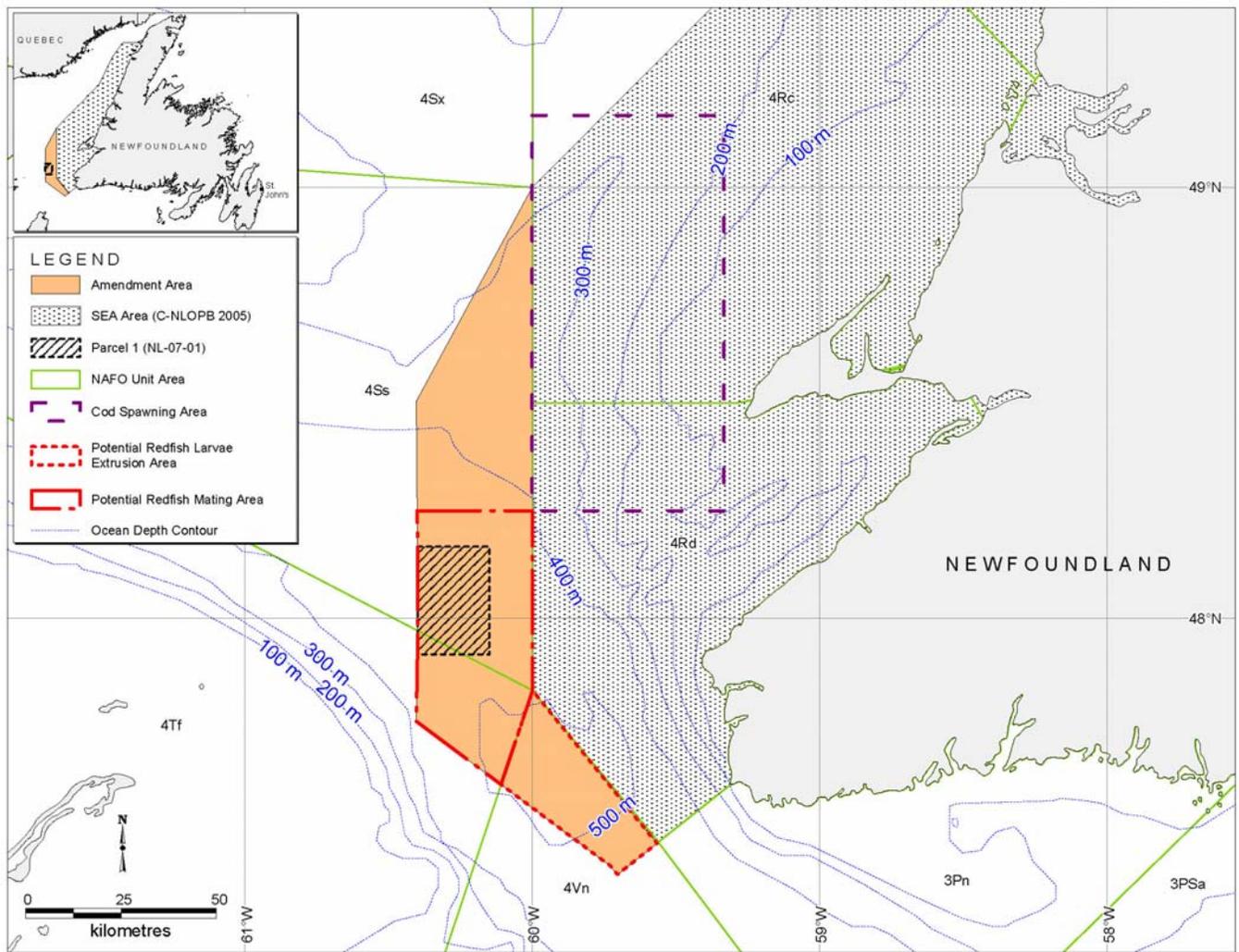
- Emphasis on prevention through education, procedures and policies;
- Design and implementation of an Oil Spill Response Plan to be approved by C-NLOPB;
- Immediate spill response material (e.g., absorbents and booms) on the drill rig and/or attendant vessels; and
- Fishery compensation programs for damaged gear and lost markets in the event of damage attributable a major spill or blow out.

In addition, existing and future research under ESRF, PRAC, PERD, and others will assist in refining mitigations by filling data gaps (e.g., acoustical environment).

## 5.5 Conclusion

The Western Newfoundland and Labrador Offshore Area Strategic Environmental Assessment Amendment concludes that petroleum exploration activity generally can proceed in the Amendment Area with the application of standard mitigation measures currently applied to offshore exploratory activities elsewhere in the NL offshore. However, the SEA Amendment identifies redfish spawning habitat – mating and larval extrusion – in the Amendment Area (Figure 5.1). Parcel 1 of NL07-1 is likely to overlap the redfish mating area. The implementation of non-standard mitigation or restriction on activities would likely be required to reduce potential impacts on redfish spawning. The nature and extent of these restrictions or non-standard mitigations would be determined during the project-specific environmental assessment.

A project-specific environmental assessment will determine the nature and extent of these restrictions or non-standard mitigations for each activity proposed in each area. If it is determined during an assessment process that baseline information is required in order to assess impact predictions, the operator may then be required to undertake data collection. It is likely that during the early exploration phase such data collection can be conducted opportunistically as part of ongoing industry activity. In the event that petroleum resources with development potential are discovered, the C-NLOPB will consult with the appropriate operator, government agencies and interested parties in the public to determine the specifics of data collection effort that would be required to support a future development application.



**Figure 5.1. Potentially Sensitive Areas Within and Near the Amendment Area.**