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NOV - 8 2002

Mr. John Korec
National Energy Board
Operations Business Unit
444-7th Avenue SW
Calgary, Alberta T2P 0X8

Dear Mr. Korec:

RE: Geophysical Services Incorporated (GSI) Proposed 2002 Marine Seismic Program, Gulf of St. Lawrence, Cabot Strait

I am writing in response to Ms. Coady's (Canada-Newfoundland Offshore Petroleum Board (C-NOPB)) 11 October 2002 E-mail requesting that DFO review the Environmental Assessment package for the proposed Gulf of St. Lawrence (Cabot Strait) seismic survey. As stated in our 16 October 2002 letter (Barnes to Coady), DFO has determined that it will not be a Responsible Authority (RA), but possesses expertise that may be considered in the environmental assessment of this project. To ensure the adequate assessment of the potential impacts of seismic activity on fish and marine mammal resources, their habitats and the fishery, the Department offers the following comments and recommendations.

General Comments

Certain aspects of the environmental assessment report, including the description of the Gulf's physical environment, literature on seismic effects, scope of the survey, and nature of the gun array, were well presented. There are however, major gaps and unsupported conclusions in the report, which prevents a thorough and detailed assessment of the proposed survey.

Statements and conclusions based on the application of the "Environmental assessment of seismic exploration on the Scotian Shelf" (LGL 1998) are questionable. There are oceanographic and biological differences between the two areas, so it is somewhat simplistic to employ a dated review from a different area. This highlights the need for a current document for the Newfoundland offshore area. In light of the dissimilarities with locale, the proponents are encouraged to conduct field measurements of the acoustic output and propagation characteristics of this array in the operating area to measure attenuation in deeper waters.

Considering that the effects of sound in general on fish behavior are not well known, DFO does not agree with the conclusion that potential impacts of the proposed project on redfish around the targeted area would be minor if conducted in late November or early

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December. For the Gulf of St. Lawrence, redfish mate between October to December. No evidence presented to date, indicates that it may be completed in November, and no known data indicate spatial variation in the timing and duration of redfish mating in the Gulf. The proponent should conduct a time table assessment of the various aspects of the biology and life history of commercially and ecologically important species around the planned area; and based on that time table, select a suitable period for the seismic survey as to minimise impacts on resources. At this late date, given that the proponent likely could not demonstrate the affect on the mating behaviour of redfish, it is recommended by DFO that the survey be re-scheduled towards late December or early January.

The environmental assessment also fails to fully evaluate the potential impacts of seismic activity on marine mammals. The authors do not provide a thorough review of available information on the abundance, distribution and residency of marine mammals around the area of the proposed survey, and do not discuss the potential influence of changes in ice conditions on their movements. This is partially due to our limited understanding of marine mammal biology in this area. However, a summary of published information for the region south of the proposed survey area is available (Hammill et al. 2001). Information re distribution and residency of some cetaceans and pinnipeds for the survey area and North of the Laurentian Channel is also available. A comprehensive review should include but not be limited to the following list of reference sources pertaining to cetaceans in the Gulf of St. Lawrence:

- Kingsley, M.C.S., and Reeves, R.R. 1998. Aerial surveys of cetaceans in the Gulf of St. Lawrence in 1995 and 1996. *Canadian Journal of Zoology*, 76(8):1529-1550.
- Mobil 1985. Hibernia Development Project, Environmental Impact Statement. Volume IIIa: Biophysical Assessment. Mobil Oil Canada, Ltd. (Operator), Gulf Canada Resources Inc., Petro-Canada Inc., Chevron Canada Resources Ltd., and Columbia Gas Development of Canada Ltd. 258 pp.
- Palka, D., A. Read and C. Potter. 1997. Summary of knowledge of white-sided dolphins (*Lagenorhynchus acutus*) from US and Canadian Atlantic waters. Report of the International Whaling Commission, 47: 729-734.
- Parsons, J.L. and J.E. Brownlie. 1981. Distribution and abundance of marine mammals of the Grand Banks, 1980-1981. Grand Banks Wildlife Study, Final Report. Chapter 4. Prepared for Mobil Oil Canada, Ltd. by MacLaren Planssearch.
- Hammill, M.O., Lesage, V., Dube, Y., Measures, L.N. 2001. Oil and gas exploration in the southeastern Gulf of St. Lawrence: A review of information on pinnipeds and cetaceans in the area. Canadian Science Advisory Secretariat Res. Doc. 2001/115: 39p.

Currently, there are insufficient data to support or refute the conclusion that the proposed project will have minor, short-term, local and non-significant effects on marine mammals and turtles. Based on the possible presence of endangered blue and right whales, we strongly encourage use of trained, dedicated observers (marine mammal biologists) during the proposed seismic surveys. Failing this, we recommend that the proposed observers attend a marine mammal observer-training course. DFO-Newfoundland and Labrador Region could provide this training at no cost. Mitigation measures regarding observers should also be explicitly stated (i.e., estimation of distance between the array and the whales, how an observer will call for shutdown or ramp-up, precautions during times of poor visibility, etc.). When in operation, all acoustic energy sources should be turned off and survey activities temporarily halted when marine mammals are observed within 1 km of the energy source. Further, data obtained regarding marine mammals and

their apparent reactions to the seismic or vessel operations should be reported to DFO following the survey.

In addition, information provided for several species was insufficient to draw conclusions about potential impacts. In particular, the potential presence of some species is often based upon historic fisheries around the survey area. This approach tends to limit the significance of the potential use of the area by these species. For example, Atlantic and Greenland halibut are not fished in the target area, but concentrations are found in winter in the Cabot Strait, suggesting that these species, like a number of others migrate towards the entrance of the Gulf of St. Lawrence at this time of the year. The proponent should provide additional information on the biology of cod, and Greenland and Atlantic halibut in the survey area, with a focus on migration patterns, for consideration in the time table assessment referred to above.

Specific Comments

- **P.2, para.6** – The possible reduction of 50 % in cod biomass as reported stems from preliminary analyses of only one of five indices used in the stock assessment of northern Gulf cod. DFO's scientific advice on the status of this stock will be issued only in February 2003.
P.5, Spawning/Mating fish & p.108, last para. – "... *delaying the survey start to late November or early December will help to mitigate any possible impacts by avoiding the more likely mating period...*". This is inaccurate; the timing of the project is still within the possible mating period of redfish (October to December).
Section 10.1.3 - Information on witch flounder larvae should be provided.
Section 10.2 - This section should include a sub-section on white hake.
P.38, Table 2 – Mackerel, herring and capelin are forage and commercial species.
- **P.38, Table 2** – Haddock are a commercial, not a forage species.
- **P.40, para. 2** – "... *for these local species, the Gulf is the primary feeding and spawning area during the summer months, while the winter period is spent outside of this area...*". This is incorrect. Herring (and capelin) off Newfoundland's westcoast do not necessarily move out of the Gulf in the fall. Herring has been captured on a regular basis during winter scientific surveys in the Gulf of St. Lawrence.
- **P.41, Fig. 13** – Cod distribution should be shown at a smaller scale to demonstrate that the survey area and vicinity are considered as habitats for this species at the time of the proposed project.
- **P.43, para. 2** - Statements such as "...*the bulk of the southern Gulf cod stock will be passing...*" should be changed to "... *the bulk should/may be passing...*". It can not be assumed that as migration has occurred earlier the last few years that this tendency will continue. All that can be said is that the timing of migration is more variable recently and therefore more difficult to estimate.
- **P.44, para. 4** – Information regarding immature cod that stay in the Gulf during winter is available and should be considered.
- **P.44, Spawning area of cod map** – The area closed to groundfish fishing from April 1 to June 15 due to cod reproduction is larger than that shown on the map.

- **P.45, Distribution of cod catches map** – Data from the sentinel fisheries program for the northern Gulf cod stock is available for October 2001 (<http://www.osi.gc.ca/en/peches-sentinelles/pdf/16-october-01.pdf>). This information should be included in the assessment as it fits into the targeted period for the survey.
- **P.45, para. 3** - Although catch rates tend to decline in November, they usually are still at or above 50% of peak catch rates. As for the gillnet index, lack of activity after October could be dictated by the sentinel program and therefore, is not an indication of lack of fish presence:
- **P.50, Fig.14** - This figure is not an accurate representation of distribution for many of the flatfish species shown, particularly witch flounder. It is suggested that this figure be omitted from the EA.
- **Section 10.2.4** - The proposed survey area is occupied by pre-spawning aggregations of witch flounder in winter (Swain and Poirier 2001¹).
- **P.52, para. 4** – Herring from Baie des Chaleurs belongs to the NAFO Area 4T stock, not the 4S stock.
- **P.55, Fig. 16** – This figure is derived from commercial catches made only in coastal areas. It does not provide a complete picture of the actual distribution of these species in the Gulf.
- **Section 10.2.12** – Snow crab is no longer referred to as "Queen crab".
- **P.59, Fig. 19** – This distribution map does not take into account latest developments regarding the snow crab fishery in the Gulf.
- **Section 12.2.13** - Should read Section 10.2.13. This section should include information on the timing of pre-spawning aggregations (i.e., witch flounder), which could be dissipated by the exploration activity.
- **P.61, para.1** - "...distribution of cetaceans and other mammals within the Gulf of St. Lawrence, though all but one species migrate out, some to quite distant regions, for the winter." This is incorrect. The blue whale is known to over-winter along the south coast of Newfoundland, and individual blue and other large whales have been trapped in the Port aux Port area by ice movements in late winter. It's possible that these and other cetaceans are found here during the proposed period of this project, but information is anecdotal, presently. For example, a 2002 DFO aerial survey in mid-September, that included the proposed project area, sighted several leatherback turtles as well as several species of cetaceans.
- **P.64, para. 1** – The report states that right whales are absent from the Gulf. This is false. Right whales occur in the southern gulf, between Gaspé and Cape Breton.
- **P.65, para. 2** – The information presented on whales is incorrect. There has never been an effective population estimate completed for many of these species in Canada. There is information on distribution and some possible ballpark estimates from recent aerial surveys. This data is recent, published and should be included (see marine mammal references listed above).
- **P.65, Fig. 20** – This figure purports to outline cetacean migration. The data are uncertain because little has been published on migration routes of cetaceans in the

¹ Swain, D.P. and G.A. Poirier. 2001. Status of witch flounder in NAFO divisions 4RST, February 2001. Canadian Science Advisory Secretariat Res. Doc. 2001/021. 55p.

area. The blue whale and harbour porpoise data are incorrect and the validity of movement of killer whales towards Gaspé is questionable.

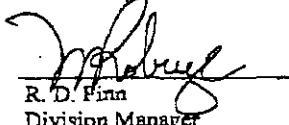
- P.65, para. 3 - The report states that blue and humpback whales occur primarily along the north shore. This is incorrect. It also states that they leave in early fall, which is also incorrect. Blue whales may remain in the Estuary and Gulf St. Lawrence as late as December and possibly later (February). More recent information on seasonal sightings and distribution of blue whales should be included.
- P.68, Fig. 21 - Anticosti Island is also an important area for grey seals. The location of the proposed survey lies in the grey seal migration route from Anticosti Island to Sable Island during October and November.

P.96, para.6 - This paragraph is misleading. Copulation occurs between October and December. Although possible differences exist in the copulation period between stocks in the North Atlantic (Unit 1 and 2J3K), there is no information that indicates variations from area to area in the Gulf.

Section 14.4 - This section should consider sub-lethal and chronic effects.

In conclusion, the environmental assessment report for the proposed seismic survey in the Cabot Strait area of the Gulf of St. Lawrence is judged to be insufficient to conduct a proper environmental assessment of the project, as proposed, for aspects that fall under the Department's mandate. DFO has an ongoing interest in working with the National Energy Board (NEB) to ensure that information and/or knowledge required for the protection of fish, fish habitat, and fisheries, as well as navigation are addressed during and following the environmental assessment of the project. If there are any questions or comments in this regard, please contact Marvin Barnes at (709) 772-4912 or Ms. Sigrid Kuehnemund at (709) 772-0853.

Yours truly,



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