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O/Ref: ELL040-A4

November 22, 2004

**BY HAND**

C. Andy Parker  
Manager, Environment  
Canada – Nova Scotia Offshore Petroleum Board  
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CNSOPB Rec'd			Date: NOV 22 2004
	TO	Action	Info/Copy
1	CAP/ET/BV/BBP		
2	Original to file		
3			
Doc. Reg. No.: 5578			
File No.: CP54,011 - 30,008-8			

Dear Mr. Parker:

**Re: Cohasset Project Phase II Decommissioning – Comments on Environmental Screening Report**

I submit herewith, in the form of the attached document, EnCana's comments on the Environmental Screening Report prepared by the Canada-Nova Scotia Offshore Petroleum Board, Fisheries and Oceans Canada and Environment Canada.

As a general observation on the Environmental Screening Report, we note that much of the material set out in Section 3 (Project Description), Section 6 (Consultations) and Section 8 (Description of the Environment) attempts to edit, summarize and paraphrase information previously provided by EnCana in its Environmental Assessment, Response to Public and Regulatory Comments and other responses to various information requests. Such editing, summarizing and paraphrasing by the authors of the Environmental Screening Report has introduced errors in the form of mistakes in repeating factual information and, in our view, has resulted in the mischaracterization of EnCana's position in certain matters by editing out some of our substantive reason for partial removal of its Cohasset Project subsea equipment. Given that such material and information has been previously provided in other documents, we suggest that the Environmental Screening Report should confine itself to the analysis thereof by the Responsible Authorities.

While the details in the attached document speak to the particular points identified in the Environmental Screening Report, three overriding and fundamental points deserve repetition and confirmation in this letter to put in context, with emphasis, EnCana's support for its Cohasset Phase II Decommissioning by leaving in place some of its subsea equipment in accordance with what the Board prefers to refer to as EnCana's *partial removal option*.

Firstly, we note that the Environmental Assessment in this matter concludes that partial removal is the best environmental solution for the Cohasset Phase II Decommissioning, based primarily upon its lower disturbance of the seafloor, and approximately four-week duration versus up to

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fifteen weeks duration for a total removal of all subsea equipment. Such shorter duration provides for a shorter period of interaction with the environment and species present, and a lower potential for spills. In addition, partial removal represents the least risk to personnel.

Secondly, flowlines and cable left in place will continue to self-bury in accordance with the physical process more particularly described in Appendix 2 in EnCana's Response to Public/Regulatory Comments. As you will be aware, this trend was confirmed by the September 2004 ROV Subsea Inspection Survey which showed an overall burial rate of 98%, as compared with a burial rate of 85% evident from the 1998 ROV Subsea Inspection Survey.

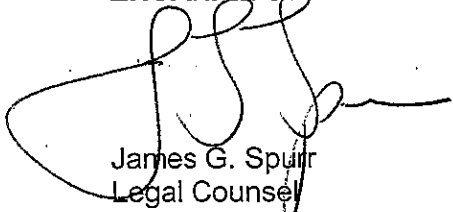
And thirdly, statements in the Environmental Screening Report respecting the impact of the Cohasset Phase II Decommissioning on the quahog fishery are overstated and misleading. In our view, it is important to clarify that quahog vessels will be able to fish within the current anchoring restriction zone and will only be required to avoid the immediate vicinity of the abandoned subsea equipment. The area encompassing the abandoned subsea equipment represents a minuscule fraction of the area available for harvesting the estimated 1.4 million metric tonnes of quahog resources available on the Sable Island bank.

The more detailed responses to those three points and the others set out in the attached document are, in our view, amendments necessary to the Environmental Screening Report in order that it be constituted as an accurate report that fairly characterizes EnCana's request for partial removal as the best solution for the Cohasset Phase II Decommissioning.

Should you require any further information or clarification respecting the foregoing or the attached, please do not hesitate to contact the undersigned at your earliest convenience.

Yours sincerely,

**ENCANA CORPORATION**



James G. Spurr  
Legal Counsel  
Canadian Frontiers Business Unit

JGS/ket  
Attached

cc: Al Reid  
Rob MacQueen  
Lori MacLean

Malcolm Weatherston  
Hugh Farrell  
Marielle Thillet

**COHASSET DECOMMISSIONING  
COMMENTS ON ENVIRONMENTAL SCREENING REPORT**

#	Location	Statement	Comment
<b>1.0 GENERAL INFORMATION</b>			
1	p.2 para.3	In January 2002, EnCana determined it would not re-use existing facilities	EnCana's official decision not to re-use jackets for Deep Panuke platforms was not made until 2003.
<b>3.0 PROJECT DESCRIPTION</b>			
	N/A	<i>General comment</i>	This section, as well as sections 6 (Consultation) and 8 (Description of the Environment) summarized information provided in EnCana's Environmental Assessment, Response to Public and Regulatory Comments, and other responses to various information requests. This introduced errors and mischaracterization of information previously submitted (see below). In order to minimize the potential for inaccuracies, it would have been more appropriate to focus the Screening Report on the RAs' analysis only, and refer to the EA Report and EnCana's responses (which are normally appended to the Screening Report) for background information.
2	p.5 Table 1; "Status" column	The proponent's EA predicts that self-burial process expected to continue, but acknowledges that flowlines may become uncovered during storm events.	The general trend for the flowlines and cable is to self-bury over time; and not to get alternately buried and uncovered. This physical process was described in Appendix 2 of EnCana's Response to Public/Regulatory Comments. This trend was confirmed by the Sep 2004 ROV subsea inspection survey which showed an overall burial rate of 98% (a summary of the survey results was provided to the Board in a letter dated Sept. 29, 2004). During that burial process, flowlines may become locally uncovered during storm events but would then re-bury deeper.
3	p.6 Table 1; "Export flowlines" row; "Status" column	Both flowlines were flushed and suspended with corrosion-inhibiting solution. Respective PLEM valves were closed.  Riser fluid sampling from the Cohasset export flowline indicated there was a break in the line	Information provided to the CNSOPB on Oct. 28, 2004 by EnCana indicated that the most likely reason for the Cohasset export flowline being "open to the sea" was not a break in the line, but the fact that the integrity of the blind flange on the Cohasset PLEM has been compromised (confirmed) and the PLEM valve was probably not closed (unconfirmed);
4	p.7 Table 1; "Interfield Pirelli" row; "Description" column	110 km	Length of the communication cable is 10 km, not 110 km
5	p.7 Table 1; "Interfield Pirelli" row; "Status" column	The proponent's EA predicts that the self-burial process is expected to continue, but acknowledges that subsea equipment may become uncovered during storm events.	See comment # 3
6	p.7 Table 1; "PLEMs" row;	The Cohasset PLEM was decommissioned in 1997 by closing the isolation valves and the PLEM riser was	See comment # 4 (Cohasset valve was probably not closed)

<p>"Status" column</p>	<p>removed.</p>	
<p>p.7 Table 1; "PLEMs" row; "Status" column 8</p>	<p>The proponent's EA predicts the burial process will continue, but acknowledges that subsea equipment may become uncovered during storm events.</p>	<p>This is an incorrect statement for the Panuke PLEM and to a lesser degree for the Cohasset PLEM. EnCana has indicated that the flowlines and cable were expected to self-bury because of the physical process described in Appendix 2 of EnCana's Response to Public/Regulatory Comments. That process is not expected to take place with the PLEMs; which is why EnCana is proposing the removal of the PLEMs or PLEM's topsides. The Cohasset PLEM is buried deeper than the Panuke PLEM because of its scour control mattresses, but it is not expected to bury much deeper than that.</p>
<p>p.8 Table 1; "Stabilization mattresses" row; "Description" column 9</p>	<p>There are 512 mattresses</p>	<p>510 mattresses, as per section 3.1</p>
<p>p.8 Table 1; "Stabilization mattresses" row; "Status" column 10</p>	<p>The September 2004 survey indicates all mattresses are sufficiently buried with the exception of the mattress around the Panuke PLEM which is only buried around the edges.</p>	<p>The 2004 ROV subsea survey actually showed that some mattresses are visible on flowlines, especially the double mattresses. However, the edges of all mattresses are buried.</p>
<p>p.9 Subsea Equipment para.1 11</p>	<ul style="list-style-type: none"> <li>▪ two approximately 10 km long subsea interfield flowlines that once connected the Panuke and Cohasset platforms;</li> </ul>	<p>One interfield flowline is still connected (production); the other is not (water injection)</p>
<p>p.9 Subsea Equipment para.2 12</p>	<p>It is noted that flexible flowlines were employed in project activities to facilitate future removal.</p>	<p>This was not a governing reason for choosing flexible flowlines (it was a design-based decision); although it was recognized that easier removal would be one of the benefits of flexible flowlines. However, subsequent detailed design required using mattresses over the flowlines to increase stability, hence negating the advantage of easier removal.</p>
<p>p.11 para.3 13</p>	<p>In addition, in accordance with section 79(1) of the Species at Risk Act (SARA), EC notified DFO that species at risk were likely to be affected by the proposed project.</p>	<p>EnCana does not believe that species at risk are likely to be affected by the proposed Project. "Affected" is not clearly defined in SARA. A definition of an "environmental effect" is any change a project may cause to a listed species, its critical habitat, or the residence of individuals of that species. Based on the assessment provided in Appendix 3 of EnCana's Response to Public/Regulatory Comments, no harm to listed species or change to their critical habitat is anticipated as a result of the Project at any time of the year.</p>
<p>p.11 Footnote for Table 2 14</p>	<p>Both departments later changed their determination to having a responsibility for the EA based on a change in the project description and the submission of additional information.</p>	<p>The Project Description was not changed. The Board modified the Scoping Document to expand the scope of the EA, but confirmed that the Project Description would not need to be revised.</p>
<p>p.11 para.4 15</p>	<p>DFO provided additional comment on the undertaking in September 2004.</p>	<p>Please see the following comments on that DFO letter (dated Sep 13):  (1) DFO's letter states that "although quahogs constitute the major fisheries resource in the area, snow crab, offshore lobster, silver hake and scallop and future groundfish fisheries may also be impacted" by the partial removal option. EnCana disagrees with this statement. The</p>

		<p>potential quahog fishery on Sable Bank, operating with hydraulic dredges scooping up clams with a cutting blade assembly 20 cm into the sand, is the only issue with respect to fishing activity that was identified through the assessment and consultation process (e.g. in DFO's comments and Clearwater's June 22 letter on the EA). Currently there are no other fisheries operating or planning to operate in the vicinity of the Project area. While unlikely to occur, fishing for other species with less invasive towed fishing gears such as groundfish otter trawls, scallop drags or fixed gear such as crab or lobster traps will be unaffected by the presence of the abandoned equipment, which is mostly buried with potential snagging hazards (e.g. PLEM topsides) removed.</p> <p>(2) The letter also refers to "16-26 tonnes of quahog resources within the approximately 42 km square area of anchoring restriction zone around the flowlines, mattresses and pipeline manifolds". This statement can be misleading. It implies that the current anchoring restriction zone will not be accessible to quahog fishing once the platforms and PLEMs/PLEM topsides have been decommissioned. In fact, as indicated in the EA, the anchoring restriction zone will be removed. Canadian Hydrographic Services will update nautical charts to remove all charted features related to the Copan facilities; with the exception of a notification for the abandoned flowlines. Hence, quahog vessels will be able to fish within the current anchoring restriction zone and will only need to avoid the immediate vicinity of the abandoned subsea equipment.</p> <p>As outlined in the Screening Report, quahog resources on Sable Bank are widespread and abundant. The area encompassing the abandoned subsea equipment represents a miniscule fraction of the area available for harvesting the estimated 1.4 million metric tonnes of quahog resources available on Sable Island Bank. Hence, there is not expected to be any loss of fishing opportunity since clam vessels will be able to readily obtain their quota by fishing in other areas of Sable Bank.</p>
<b>4.0 ROLE OF FEDERAL AUTHORITIES</b>		
16	N/A	That section should mention that the CNSOPB is the Lead Responsible Authority for this Screening environmental assessment.
<b>6.0 CONSULTATION</b>		
17	p.14 para.2	Should be the Development Plan <u>Amendment</u> decision process.
18	<p>p.16 Table 3 Row #4, "EnCana's" column</p> <p><i>In response to the public comment:</i></p> <p>There is no guarantee that flowlines and other equipment will not be a hazard to fishing soon or at</p>	<p>All public comments will also be considered by the Board during the Development Plan decision process.</p> <p>EnCana will adhere to the CNSOPB Compensation Guidelines Respecting Damages Related to Offshore Petroleum Activity (March 2002).</p> <p>This was not EnCana's only response to that comment (see # 9 of EnCana's Response to Public Comments), it was also explained that:</p> <p>(1) No significant impact to fisheries was expected from the abandoned subsea equipment</p> <p>(2) The statement that "equipment could be easily removed" is erroneous; total removal activities involve significantly higher safety risk than partial removal activities (please refer to the Safety Study submitted for the DPA amendment).</p>

		some time in the future. It is insufficient that EnCana propose to compensate for gear damage when the equipment can easily be removed.	
19	p.16 Table 3 Row #6; "EnCana's" column	No comments provided <i>In response to the public comment:</i> The Cohasset debris (subsea equipment) could have the same type of negative effect on fisheries as reported to the Fact Finding mission by the North Sea operators.	EnCana was not made aware of this comment, and could therefore not provide a response.
20	p.17 Table 3 Row #1; "RA's" column	DFO science has estimated, based on survey catch rates, that the biomass of quahogs is 16-26 tonnes in the approximately 42 km square area of the restricted anchoring zone around the flowlines.	See comment # 15 (2)
<b>7.0 INTERNATIONAL EXPERIENCE</b>			
21	p.18 para.1	<ul style="list-style-type: none"> <li>Pipelines are addressed case by case. Major pipelines are candidates for abandonment in-situ. Small diameter flowlines that are neither trenched nor buried should normally be removed (Department of Trade and Industry, 2000).</li> </ul>	DTI also mentions that pipeline candidates for in-situ decommissioning include those which are likely to self bury over a sufficient length within a reasonable time and remain so buried; which is the case at COPAN (see # 13 of EnCana's Response to Regulatory Comments).  In addition, although the Project flowlines are flexible, the Cohasset Decommissioning is a specific case because of the mostly buried mattresses, which are difficult to remove.
22	p.18 para.2	United States: <ul style="list-style-type: none"> <li>All platforms are required to be removed.</li> </ul>	All platforms in the US, however, do not go to shore; more than 150 platforms have been turned into marine artificial reefs in the GOM (see the MMS "Rig-to-Reef" program at <a href="http://www.gomr.mms.gov/homepg/whatsnew/fechann/000073.html">http://www.gomr.mms.gov/homepg/whatsnew/fechann/000073.html</a> )
23	p.18 para.2	<ul style="list-style-type: none"> <li>Pipelines and associated materials can be abandoned in-situ provided they do not constitute a hazard to navigation or commercial fishing (MMS, 2002).</li> </ul>	In practice, the only requirement for pipeline abandonment to be approved in the GOM is a trawl test.
<b>8.0 DESCRIPTION OF THE ENVIRONMENT</b>			
24	p.19 para.1	in an area with water depths of 35 to 40 metres.	45 metres
25	p.20 section 8.2 para.3	Based on the 2000 and 2001 surveys, the proponent's EA indicates that the exposed portions of both PLEMs...	This information is based on the 1998 ROV survey of the subsea equipment; not the 2000 and 2001 benthic surveys, which involved collection of sediment samples.
26	p.20 section 8.2 para.3	In 2004, an additional ROV survey indicated that the self-burial process is essentially complete; however, the effect of the burial on the remaining marine life has	See comment # 44

		not yet been determined.	
27	p.22 Table 4 "Atlantic Cod" row; "Status" column	Special Concern (COSEWIC 2003; <b>SARA</b> ) [emphasis added]	Atlantic Cod is not yet listed on Schedule 1 of SARA (only species on Schedule 1 are regulated by the Act)
28	p.23 Table 5 "Status" column, all rows	Brackets for all cetacean species include "SARA"	None of those species are yet SARA listed (Schedule 1), they are not yet subject to the regulations (including prohibitions) of the Act.
29	p.23 Table 5 "Blue Whale" row; "Status" column	Endangered (COSEWIC 2003; SARA)	Blue Whale was assessed by COSEWIC in 2002, not 2003
30	p.23 Table 5 "Fin Whale" row; "Status" column	Special Concern (COSEWIC 2003; SARA)	SARA Website indicates that Fin Whale was last assessed in April 1987 (not re-assessed in 2003)
31	p.23 Table 5 "N.BottlenoseW." row; "Status" column	Endangered (COSEWIC 2003; SARA)	Northern Bottlenose Whale was assessed by COSEWIC in 2002, not 2003
32	p.24 section 8.5 para.1	Ipswich Sparrow ( <i>Passerculus sandwichensis princeps</i> ), classified as a species of Special Concern (COSEWIC 2003)	Ipswich sparrow is listed by SARA (Schedule 1) as Special Concern, not just COSEWIC
33	p.25 Table 6 "Ipswich Sparrow" row; "Status" column	Yellow listed (NSDNR 2003); Special Concern (COSEWIC 2003)	See comment # 32
34	p.25 section 8.6 para.2	rare Ipswich Sparrow ( <i>Passerculus sandwichensis princeps</i> ), which is listed as a species of Special Concern by COSEWIC (2003)	See comment # 32
35	p.26 para.5	A biomass of 16-26 tonnes is estimated to exist within the approximately 42 square kilometer area of the anchoring restriction zone around the flow lines, mattresses and pipeline manifolds	See comment # 15 (2)
36	p.30 Table 8 "Blue Whale" row; "COSEWIC" column	Endangered 2003	See comment # 29
37	p.30 Table 8 "Fin Whale" row; "COSEWIC" column	Special Concern 2003	See comment # 30

<p>38</p> <p>p.30 Table 8 "N.BottlenoseW." row; "COSEWIC" column</p>	<p>Endangered 2003</p>	<p>See comment #31</p>
<p><b>9.0 IMPACT ANALYSIS</b></p>		
<p>39</p>	<p>p.32 Mitigation / Follow-Up</p> <p>Upon completion of project activities, the proponent shall verify project-associated emission estimates of PM, NOx, SO<sub>2</sub>, VOC CO<sub>2</sub> based on actual vessel operations and US EPA methods. This emission data will support an accounting of cumulative offshore emissions and contribute to a reasonable information base for future environmental assessments and continuous improvement initiatives.</p>	<p>The creation of a data base of cumulative offshore emissions is outside the scope of this project-specific environmental review. Section 9.1 of the Screening Report concludes that Project emissions will not be relevant from an air pollution point of view, which meets the objective of this assessment.</p> <p>However, if EC is interested in building up its own data base, EnCana is suggesting that EC indicates exactly what raw data it needs for its calculations (e.g. total fuel consumption, vessel horse power, days of operations); which EnCana could provide at the end of the program.</p>
<p>40</p>	<p>p.35 Mitigation / Follow-Up</p> <p>Should the Total Removal Option be selected, the proponent shall provide, if available, additional sediment quality information. If unavailable, or if the additional information is inadequate, the proponent shall design and implement a sampling and analysis program for sediments in close proximity to the two platforms. The plan shall be reviewed by EC in advance of implementation and the results shall be submitted as part of a Disposal at Permit application.</p>	<p>Information demonstrating that sediment chemical levels at the Cohasset and Panuke sites are expected to be well below DAS criteria was provided to EC on Oct 29 and Nov 1. No additional data is expected to be required for DAS purposes.</p>
<p>41</p>	<p>p.35 section 9.4 para.1</p> <p>The displaced sediment will be left to infill the voids created by the removal of <b>jacket and skirt piles</b>. [emphasis added]</p>	<p>by the removal of the <b>jacket skirt piles</b></p>
<p>42</p>	<p>p.35 section 9.4 para.2</p> <p>The proponent's EA states that the removal of all subsea structures would result in a reduction of biodiversity in immediate areas, including the direct loss of colonizing animals and loss or redistribution of those non-sessile organisms that rely upon the mattress community.</p>	<p>See comment # 44</p>
<p>43</p>	<p>p.36 Views of the RAs para.1</p> <p>The size and dimensions of structures to be removed is such that they are expected to become alternately covered and uncovered over time.</p>	<p>See comment # 3</p>
<p>44</p>	<p>p.36 Views of the RAs para.2</p> <p>Disturbance of the benthic community may cause a HADD which would require an authorization under section 35(2) of the Fisheries Act.</p>	<p>EnCana believes that a HADD permit would not be required for total removal. The Project area is characterized by low biodiversity due to the predominantly sand environment and the dynamic sediment transport processes on Sable Bank. The September 2004 ROV survey showed that approximately 98% of the flowlines and power cable were buried. The larger "reef-effect" observed in 1998 on an estimated 1,425 m<sup>2</sup> of exposed structures has been reduced to a remaining few small patches of exposed structures, affording habitat mainly occupied by sea</p>

45	p.36 Mitigation / Follow-Up para.2	Harmful Alteration Disruption or Destruction (HADD) of fish habitat may result from the Total Removal Option, as the removal of subsea structures may result in the loss of the artificial reef community	See comment # 44	cucumbers. Those last pockets of marine life are predicted to disappear over time as the burial process of the structures continues. If DFO decided that a HADD permit was required for total removal, any structure, such as a 'reef ball', that would be placed in the area to compensate for a loss of fish habitat would itself become a hazard to fishing.
46	p.37 section 9.5 para.3	However, EnCana states that the likelihood of an accidental spill would be low because vessels involved in the project will be complying with IMO Standards and Standard Vessel Operation Procedures.	Another reason is that there will be no specific spill sources on the vessels or from Project activities (e.g. no fuel transfer at sea)	
47	p.37 section 9.5 para.6	The total removal option could result in a loss of habitat as any artificial reef community established on Subsea components would be removed.	See comment # 44	
48	p.38 Views of the RAs para.4	The 2000 and 2001 surveys show colonization of the exposed mattresses	See comment # 25	
49	p.38 Views of the RAs para.4	Up to date information on the degree of colonization is required to assess the potential loss to marine fish. Disturbance of the benthic community and the resulting loss to marine fish may cause a HADD which would require an authorization under section 35(2) of the Fisheries Act.	See comment # 44	
50	p.40 para.3	Measures to ensure marine mammals are not exposed to harmful impacts within the exclusion zone should be considered.	See comment # 51	
51	p.40 Mitigation / Follow-Up para.2	In addition, EnCana shall prepare and submit a protocol to the CNSOPB for review by the RAs, prior to the onset of project activities, which outlines the steps to be taken should interaction occur with marine mammal or turtle species at risk.	Marine mammal and turtle species at risk (blue whale, right whale, northern bottlenose whale, and leatherback turtle) are not expected to be present in the operations area (see Appendix 1). In addition, as described in Appendix 3 of EnCana's Response to the Public/Regulatory Comments, the proposed Project is not expected to cause adverse effects on species at risk.  Therefore, it is not believed that specific mitigation measures for marine mammal and turtle species at risk are warranted. EnCana proposes to implement the following:  (1) <u>Species monitoring</u> : As mentioned previously, EnCana will have a trained environmental observer onboard during decommissioning activities to monitor species in the area, including species at risk.  (2) <u>Physical interaction</u> : Prior to sailing into the area, the captains of vessels working on the decommissioning project will be briefed on EnCana's Codes of Practice for the Gully and Sable	

			<p>Island and encouraged to be on the look out for and avoid collisions with marine mammals or sea turtles (please note that we are not aware of any collision having occurred during Nova Scotia offshore oil and gas activities). In addition, if at any time during excavating, airlifting or other underwater operation, a marine mammal or sea turtle is judged to be in danger of being physically impacted by the equipment, work will be suspended until the animal has moved away. Any collision or other physical interaction with a species at risk would be immediately reported to the CNSOPB and DFO.</p> <p>(3) <u>Spill response</u>: See comment # 52</p> <p>(4) <u>Underwater noise</u>: Sound levels from the Project's activities are not expected to be harmful to marine mammals (including species at risk) in the immediate vicinity of the sound sources (not only at a distance of 500 m); this can be verified once a contractor has been selected and specific excavation equipment has been identified (see Appendix 2). EnCana is not aware of any existing marine mammal or turtle mitigation protocol for offshore decommissioning, airlifting, or excavation activities.</p> <p>Clarification from the RAs on what they are expecting to see in the requested protocol would be helpful.</p>
52	p.40 Mitigation / Follow-Up para.3	EnCana shall prepare and submit to the CNSOPB for review by the RAs, a plan that describes measures that will be taken to protect marine mammals (and other environmental components) in the event of a spill.	<p>Please see comment # 66 re management of small spills and comment # 46 re likelihood of large spills (from fuel transfers).</p> <p>EnCana will follow the monitoring procedures described in its approved Spill Response Plan for marine mammals, including:</p> <ul style="list-style-type: none"> <li>▪ Estimate spill volume and oil type; and assess slick visually (Level 1)</li> <li>▪ Model spill behaviour; collect oil samples for source identification; and survey for local abundance of marine mammals (Level 2)</li> <li>▪ Conduct fingerprinting of oil for source identification; and conduct post-spill assessment of exposed sub-population (Level 3)</li> </ul> <p>EnCana is not aware of any other existing measures being implemented to protect marine mammals in the event of a spill. EnCana would welcome any specific suggestions from the RAs with regard to possible additional protective measures.</p> <p><i>Note: Marine mammals have body coverings, unlike those of birds, that are relatively unaffected by oiling<sup>1</sup>. Hair seals are often observed with apparently untroublesome patches of heavy oil<sup>2</sup>; light oils are likely to evaporate and wash off more readily. Spills of light oil are likely to impair breathing in ways that would tend to repel animals from the area before they are adversely affected<sup>3</sup>.</i></p> <p><sup>1</sup> Geraci, J.R. and D.J. St. Aubin. 1990. Sea mammals and oil: confronting the risks. Academic Press, San Diego. 282 p.</p> <p><sup>2</sup> McLaren, I.A. 1990. Pinnipeds and oil: ecological perspectives. pp. 55-101. In: J.R. Geraci and D.J. St. Aubin (eds.). Sea mammals and oil: confronting the risks. Academic Press, San Diego.</p> <p><sup>3</sup> Geraci, J.R. 1990. Physiologic and toxic effects on cetaceans. pp 167-197. In: J.R. Geraci and</p>

53	p.41 Views of the RAs para.1	<p>EC recommended that a protocol be developed to protect birds in the case of spills. This protocol should consider:</p> <ul style="list-style-type: none"> <li>▪ equipment that would be available to contain spills and maximum response time;</li> <li>▪ measures that would be taken in the case that birds were affected by a spill (e.g., would birds be scared away?); and</li> <li>▪ measures that would be taken in the case that birds were oiled (e.g., would the operators do nothing, capture and kills the birds, clean the birds?).</li> </ul>	<p><i>D.J. St. Aubin. (eds.). Sea mammals and oil: confronting the risks. Academic Press, San Diego.</i></p> <p>Please see comment # 66 re management of small spills and comment # 46 re likelihood of large spills (from fuel transfers).</p> <p>EnCana will follow the monitoring procedures described in its approved Spill Response Plan for marine birds, including:</p> <ul style="list-style-type: none"> <li>▪ Estimate spill volume and oil type; assess slick visually; and survey for oiled birds visually (Level 1)</li> <li>▪ Model spill behaviour; collect oil samples for source identification; survey for local abundance of marine birds; and collect oil samples from birds for source identification (Level 2)</li> <li>▪ Conduct post-mortem examination for cause of death; and conduct fingerprinting of oil for source identification (Level 3)</li> </ul> <p>The spill response plan does not include using scaring devices, bird cleanup, or capturing and killing the birds.</p>
54	p.41 Views of the RAs para.2	<p>Although the proponent indicated in its responses dated 26 July 2004 that it believes that this protocol is more relevant for permanent fixed platforms, EC maintains that it is important to adhere to the protocol.</p>	<p>This protocol is not a standard requirement for oil and gas activities (exploration or production), nor for any other marine industry offshore Nova Scotia. It was developed for handling storm petrels on permanent production platforms on the Grand Banks, where that bird species (which is particularly prone to attraction to lights from vessels) is more abundant than offshore Nova Scotia. Stranded or injured seabirds of any species have rarely been found on fixed or mobile oil and gas platforms offshore Nova Scotia. Vessels from oil and gas activities only represent a minute portion of marine vessels operating on the Scotian Shelf (fishing, shipping, research, DND, Coast Guard, etc). EC should clarify when and where that protocol should be implemented to ensure consistency.</p>
55	p.42 Mitigation / Follow-Up para.1	<p>All vessels working on the Project shall have a spill response kit onboard with sufficient capacity to deal with small spills.</p>	<p>Vessels associated with the project will have standard spill response kits capable of containing and cleaning up a small spill onboard the vessel. A standard spill kit inventory list includes:</p> <ul style="list-style-type: none"> <li>▪ Sorbent pads, sorbent booms, sorbent rolls</li> <li>▪ Shovel / scoop / mop / rags</li> <li>▪ Heavy duty plastic bags for temporary containment / Heavy duty bucket / Storage Unit</li> <li>▪ Coverall / Chemical suit</li> <li>▪ Safety boots (oil resistant, non-slip sole)</li> <li>▪ Rubber gloves</li> <li>▪ Chemical goggles</li> </ul> <p>Typically, vessels also utilize secondary containment devices such as spill trays under pumps, valves, etc.</p>
56	p.42 Mitigation / Follow-Up para.2	<p>Should storm-petrels or other species become stranded on vessels, the proponent is expected to adhere to the protocol described in Williams and</p>	<p>See comment # 54</p>

		Chardine's brochure entitled, "The Leach's Storm Petrel: General Information and Handling Instructions". A permit is required from the Canadian Wildlife Service of EC to implement this protocol.	
57	p.43 Mitigation / Follow-Up para.2	EnCana shall also prepare and submit to the CNSOPB, for review by the RAs, a plan that describes measures that will be taken to protect environmental components (e.g. birds, Sable Island, and whales) in the event of a spill. All vessels working on the Project shall have a spill response kit onboard with sufficient capacity to deal with small spills.	See comment # 52, # 53, and # 55  For Sable Island, EnCana will follow the monitoring procedures described in its approved Spill Response Plan, including: <ul style="list-style-type: none"> <li>▪ Estimate spill volume and oil type; and assess slick visually (Level 1)</li> <li>▪ Model spill behaviour; and collect oil samples for source identification (Level 2)</li> <li>▪ Survey shoreline of Sable Island to identify oil contamination and impact on wildlife; and collect oil samples from the shoreline for source identification (Level 3)</li> </ul>
58	p.45 Views of the RAs para.4	The RAs acknowledge that the <i>Partial Removal Option</i> has the potential to negatively impact any potential quahaug fishery in the Project area. There are an estimated 16 to 26 tonnes within the approximately 42km square of anchoring restriction zone. However, this biomass is a small portion of the estimated 1.4 million metric tonnes of quahaug resource available on the Sable Island Bank.	See comment # 15 (2)
59	p.45 Mitigation / Follow-Up para.1	If the <i>Partial Removal Option</i> is chosen, EnCana shall prepare and submit a monitoring program, including the appropriate mitigation, to the CNSOPB for review by the RAs to monitor the state of burial of equipment following decommissioning.	EnCana will work with the RAs to develop a monitoring program for the subsea equipment.
60	p.46 Views of the RAs para.1	The potential impacts from project activities could be the same for COSEWIC-listed species as for those that are not listed; however, the threshold at which an effect is considered significant could be much lower. For example, an impact on one individual of a species at risk, especially if that species is listed as endangered, may be considered a significant effect if it jeopardizes the species' survival or recovery.	Agree. According to the definitions of "significant impact" in the EA, an impact that would jeopardize a species' survival would be considered significant; even if it's not a species at risk. In addition, the definition of significant impact for marine mammals provided in the EA states that the loss of one individual may be significant for an endangered species
61	p.47 para.2	There is a potential for endangered SARA species such as the Blue Whale, North Atlantic Right Whale, Northern Bottlenose Whale and Leatherback Turtle to be in the project area when activities commence. Measures to ensure these animals are not exposed to harmful impacts within the exclusion zone should be developed.	See comment # 51

62	p.47 para.3	The potential for a ship to collide with a species at risk is low and the proponent has committed to an observer monitoring program; however, it is not clear what steps would be taken if a collision with a marine mammal or turtle SAR were to occur.	See comment # 51
63	p.47 para.3	Although it is predicted that any spill would be localized and would dissipate rapidly, the proponent should develop a spill response protocol to deal with marine mammals and turtles affected by a spill, if it were to occur.	See comment # 52
64	p.47 Mitigation / Follow-Up para.2	EnCana shall, prior to the onset of project activities, prepare and submit a protocol to the CNSOPB, for review by the RAs, which outlines the steps to be taken should any harmful interaction occur with marine mammal or turtle species at risk.	See comment # 51
65	p.48 para.1	EnCana shall prepare and submit to the CNSOPB, for review by the RAs, a plan that describes measures that will be taken to protect environmental components in the event of a spill.	See comment # 57
66	p.48 Views of the RAs para.1	In addition, it should be clarified that natural dispersion is not necessarily an appropriate solution for managing spills, should they occur.	<p>Natural dispersion may be the most appropriate response strategy in some cases. For example, with spills of light condensates (such as the sort being produced now on the Scotian Shelf), one should not consider any spill cleanup technique because condensates are very volatile and dispersible (even more than gasoline, for example), and will have a very short persistence on the water surface [S.Ross, <i>personal communication</i>].</p> <p>During the decommissioning Project, the only potential sources of spills will be small amount of marine diesel fuel and lube oil onboard the vessels. As described in the EA, spill modeling at the Deep Panuke site showed that a 10-barrel and a 100-barrel diesel spills dispersed or evaporated within 13 and 20 hours, respectively. Based on the very limited survival of those spills, it is unlikely that a containment or recovery effort would be warranted, nor would it be effective if it were implemented. The most appropriate response for spills such as these would be to monitor the slick until it dissipates, and perhaps enhance natural dispersion processes by running vessels through the slick.</p> <p>[S.L.Ross <i>Environmental, The Behavior and Potential Effectiveness of Countermeasures for Hypothetical Oil Spills from the EnCana Deepwater Exploration Project, 2002</i>]</p>
67	p.49 Mitigation / Follow-Up	EnCana's spill response plan shall describe measures that will be taken to protect environmental resources in event of a spill, as outlined in Section 9.6, Marine Mammals; Section 9.7 Marine Birds; and Section 9.8 Special Areas.	EnCana's approved Spill Response Plan does describe such measures. Refer to comment # 57.

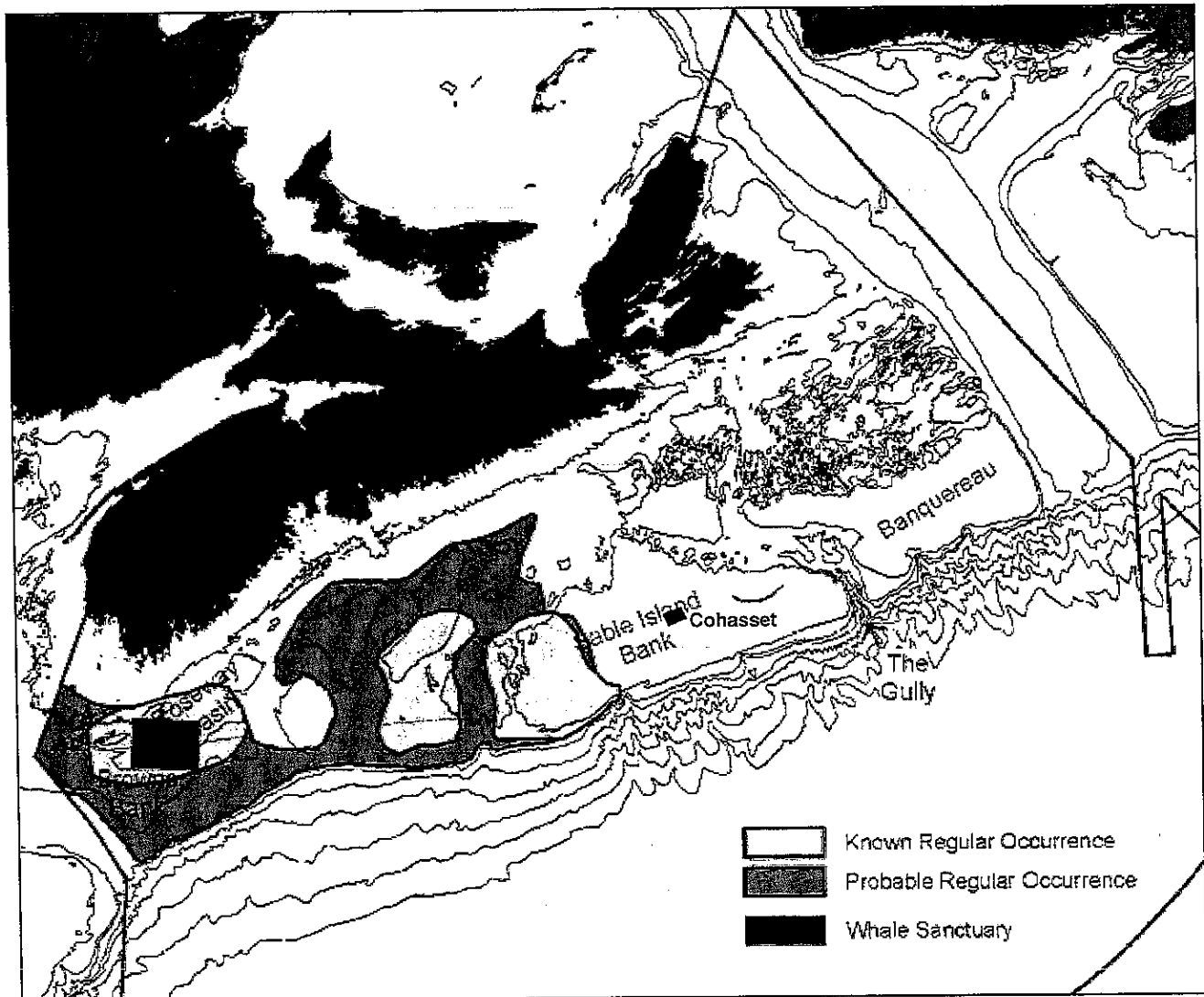
68	p.49 Mitigation / Follow-Up	All vessels working on the Project shall have a spill response kit onboard with sufficient capacity to deal with small spills.	See comment # 55
69	p.50 Mitigation / Follow-Up	EnCana shall monitor weather forecasts throughout operations to allow sufficient time to suspend activities should weather conditions dictate.	Weather forecasts are standard procedures for all offshore oil and gas operations.
70	p. 54 to 56 sections 10.1.1 and 10.1.2	<i>All paragraphs</i>	<p>Comments on the following mitigation and monitoring measures have been provided:</p> <p>10.1.1  c) see comment # 51  f) see comment # 69  g) see comment # 57  h) see comment # 54</p> <p>10.1.2  a) see comment # 39  b) see comment # 59</p>

## APPENDIX 1

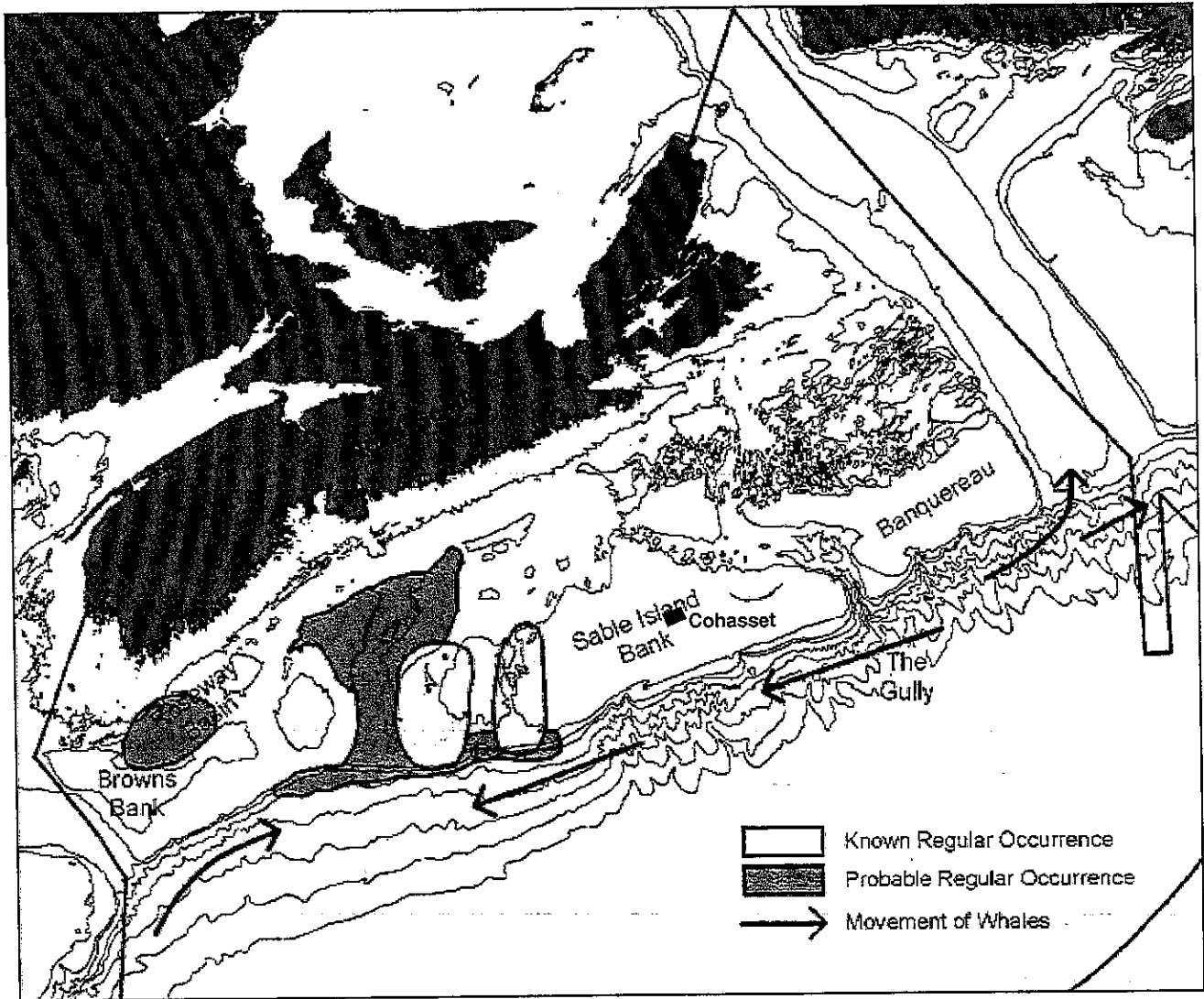
### Location Maps for Endangered Marine Mammals and Turtles

(From Breeze, H., D.G. Fenton, R.J. Rutherford and M.A. Silva. 2002. The Scotian Shelf: an ecological overview for ocean planning. Can. Tech. Rep. Fish. Aquat. Sci. 2393: 259 p.)

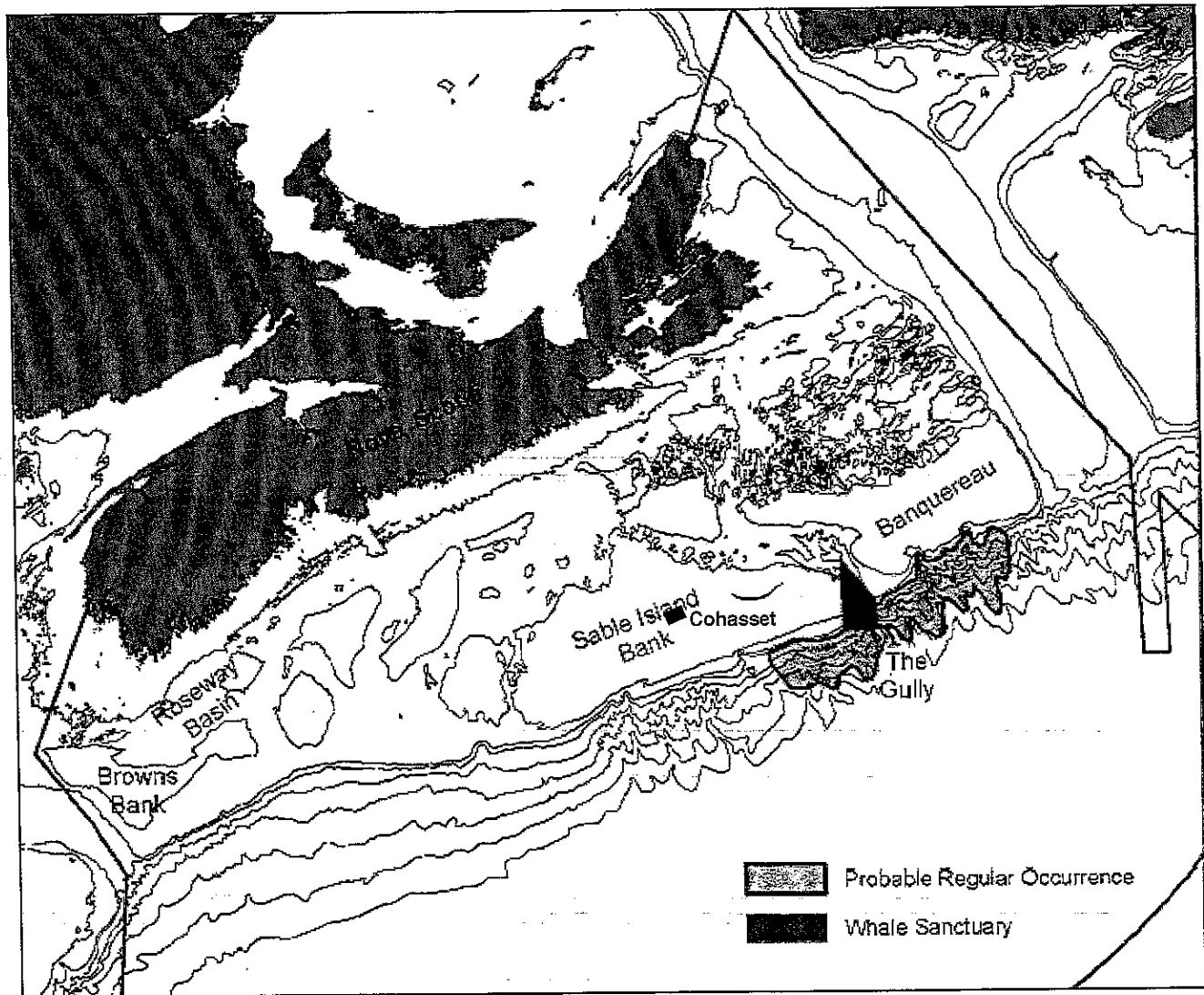
#### Known and Probable Regular Occurrence of the North Atlantic Right Whale on the Scotian Shelf, Late Spring to Fall.



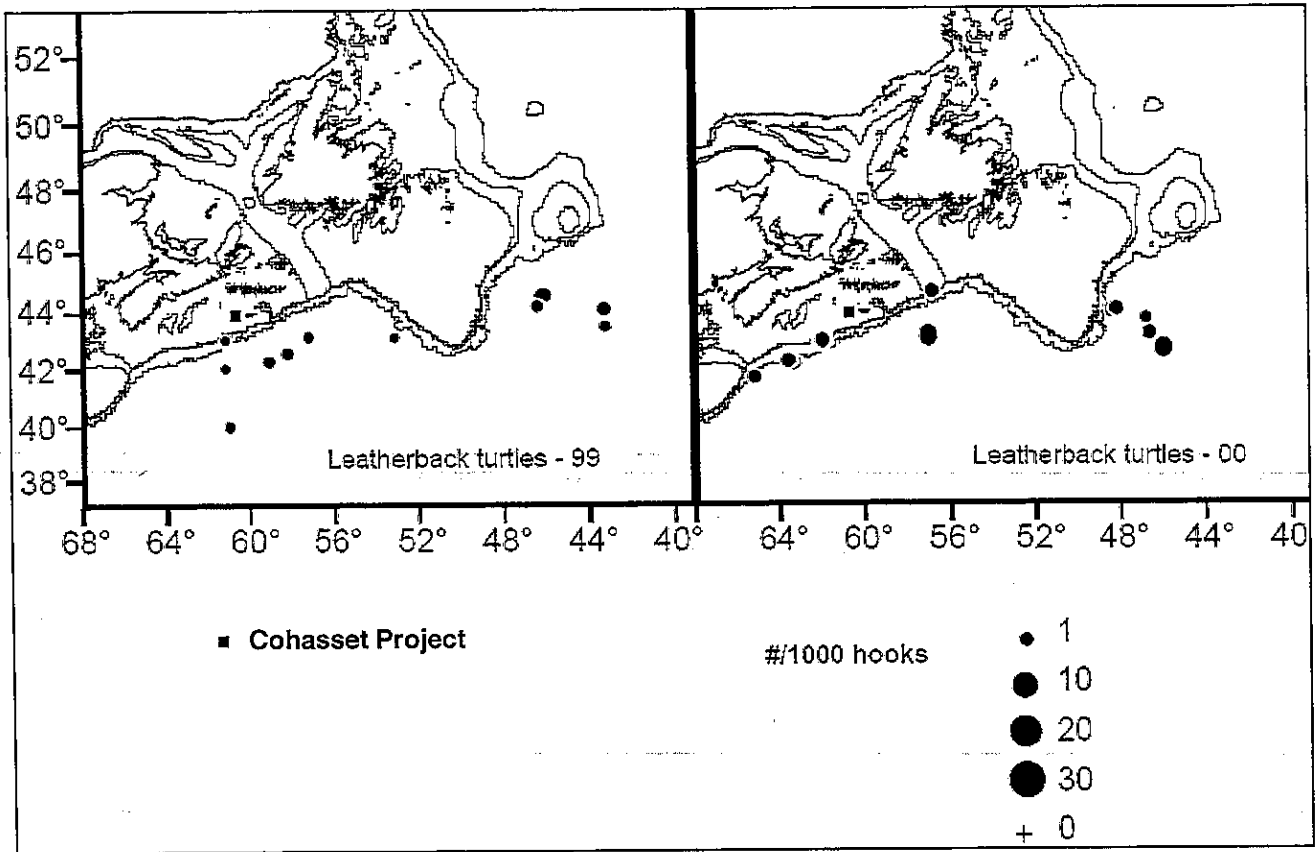
Known and Probable Regular Occurrence of the Blue Whale on the Scotian Shelf, Late Spring to Fall. Arrows indicate movement of whales to other regions.



### Known and Probable Regular Occurrence of the Northern Bottlenose Whale on the Scotian Shelf, Year Round



Catch rates of sea turtles in 1999 and 2000 in the pelagic longline fishery from domestic observer data. Much of this fishery takes place seaward of the shelf edge and turtles are likely to occur in locations other than those indicated.



## APPENDIX 2

### Effects from Noise from the Project on Marine Mammals

The following table provides a summary of the main activities expected to generate noise during Cohasset decommissioning, for both the partial and the total removal options.

<b>Summary of major noise sources and estimated duration during Cohasset decommissioning</b>			
<b>Partial Removal</b>		<b>Total Removal</b>	
DP heavy-lift barge or Anchored heavy-lift barge with anchor handling tugboat(s)	10-14 days	DP heavy-lift barge or Anchored heavy-lift barge with anchor handling tugboat(s)	10-14 days
Transportation barge and associated tugboat(s) (likely inshore)	Depending on destination of decommissioned platforms	Transportation barge and associated tugboat(s) (likely inshore)	Depending on destination of decommissioned platforms
Airlifting of soil plugs inside platform piles (machinery on deck, air injection inside the piles below seabed)	3.5 hours (0.5 hour per pile)	Airlifting of soil plugs inside platform piles (machinery on deck, air injection inside the piles below seabed)	3.5 hours (0.5 hour per pile)
Cutting of platform piles and conductor stubs with internal abrasive cutting tool (machinery on deck, cutting inside the piles below seabed)	2 days (1 day per platform)	Cutting of platform piles and conductor stubs with internal abrasive cutting tool (machinery on deck, cutting inside the piles below seabed)	2 days (1 day per platform)
DP diving support vessel, e.g. Thebaud Sea or CSO Marianos	11 days	DP mid-sized subsea construction vessel, e.g. CSO Constructor (larger than diving support vessel but smaller than large pipelay vessel)	40 days – 3 months
Diver held jetting or airlifting system to uncover the PLEMs	< 1 day	Probably Hydrodynamic Excavator mounted on DP class II vessel to uncover flowlines, cable, mattresses and PLEMs	15 days

The specific type of airlift/excavating tools to be used for Cohasset decommissioning have not yet been determined, and available data on noise produced by airlifts and excavators is very limited. Airlifting is expected to be used for removing the platform piles soil plugs. Generally, an airlift functions by injecting air into the lower end of a tube underwater, and the bubbles expanding and accelerating create a negative pressure, which is used to remove sediments. The power of this suction is mostly dependant on the length of the tube, its diameter, and the volume of injected air. Air is pumped down to the nozzle from a system onboard the vessel. For this Project, air will be injected within the platform piles, approximately 3-4 m below the seabed. In the case of partial removal, a much smaller and quieter diver airlift/excavating tool will be used to uncover the PLEMs. In the case of total removal, the primary option would be to use a Hydrodynamic Excavator (HE) to expose all buried structures. The HE unit utilizes a large prop, which is driven from the surface, to form a large water column which displaces the seabed material. Structures and pipelines are tracked as they are exposed with an onboard sonar.

In terrestrial mammals, exposure to loud sounds can lead to temporary threshold shifts (TTS), permanent threshold shifts (PTS) and even non-auditory tissue damage, which may be fatal. For continuous sound sources, the intensity of the signal relative to the hearing threshold at that frequency, and the duration of the exposure can both affect the timing of the onset of TTS and PTS. As a general rule, if a sound can cause a TTS, a prolonged exposure to it will lead to a PTS. Only recently have experiments to induce threshold shifts been conducted on captive marine mammals.

Schlundt *et al.* (2000) measured the levels of intense tones required to cause a 6 dB reduction in masked hearing threshold in two beluga and five bottlenose dolphins. At 10 and 20 kHz, received levels of 192 dB were required to cause a 6 dB TTS. Au *et al.* (1999) subjected bottlenose dolphins to octave band noise between 5 and 10 kHz for 30–50 min to explore the effects of longer exposures to broader band noise. They found no TTS at a received level of 171 dB, but a TTS of 12 to 18 dB occurred at 179 dB re 1 $\mu$ Pa (96 dB above hearing threshold). TTS has been induced, experimentally, in three pinniped species; harbour seal, northern elephant seal and Californian sea lions (Kastak and Schusterman 1996, Kastak *et al.* 1999). All three species showed a similar TTS of 4.6 to 4.9 dB, after 20 to 22 minutes of exposure at 65 to 70 dB above threshold level in the frequency range 0.1-2 kHz. Hearing recovered to normal within 24 h.

With the absence of reliable information on the levels of sound likely to cause hearing damage in most marine mammal species, it has been common practice to apply human Damage Risk Criteria (DRC) to other mammals (Richardson *et al.* 1995). Empirical studies have shown that humans exposed, in air, to continuous sound levels 80 dB above their absolute hearing thresholds are likely to suffer TTS and eventual PTS. If this DRC is applied to marine mammals, we would predict that, at low frequencies (<500 Hz), TTS would occur at around 165-180 dB re 1  $\mu$ Pa in phocids and at around 180-210 dB re 1 $\mu$ Pa in small odontocetes. These represent the DRC for exposure to continuous noise.

The present scientific consensus is that adverse hearing damage in a marine mammals will not arise at received transient sound levels of <180 dB re1 $\mu$ Pa @1m. At higher received levels or greatly extended continuous duration, one cannot be certain, and the general consensus is that this 180 dB level should be considered as the point at which potential hearing injury in marine mammals could start to occur (HESS 1997, ONR 1998, NMFS 1998).

The table below provides a summary of source levels from activities similar to those involved in the proposed Project, and other underwater activities, for comparison purposes.

Sound source	Sound level (dB re 1µPa @1m)	
	Broadband	Highest 1/3 octave band
Tug and loaded barge at 10 knots	171	162
20-m tug and empty barge	--	166
Tug and loaded barge	--	170
Thrusters (8) output from large DP pipelay vessel at average power	174.4	--
Simulated average pipelay operations from large DP pipelay vessel (8 thrusters + shipboard noise sources)	177.9	--
Supply ship ( <i>Kigoriak</i> )	181	174
Ships between 55-85 m	170-180	--
Supply vessel underway	--	145 @ 50 m
Large tanker underway	186	177
Cutter-suction dredge	150-180	--
Pile driving ( <i>Utgrunden Wind Park, Sweden</i> )	178 @ 500 m	--

Sources: Miles *et al.* (1987); Buck and Chalfant (1972); Malme *et al.* (1989); Richardson *et al.* (1991); Richardson *et al.* (1995); Battelle (2004) Pinniped Assessment for the Cape Wind Project; Lawson *et al.* (2001) Assessment of Noise Issues Relevant to Marine Mammals Near the BP Clair Development

Based on the sound levels provided in the above table, noise produced by the vessels and excavating activities is expected to be below 180 dB in the immediate vicinity of the sound source. Therefore, a safety zone monitoring for marine mammals, based on a 180 dB threshold, would not be applicable (i.e. the radius would be close to zero). However, if at any time during excavating, airlifting or other underwater operation, a marine mammal or sea turtle is judged to be in danger of being physically impacted by the equipment, work will be suspended until the animal has moved away.

Once a contractor has been selected for the decommissioning work, and specific excavation tools have been determined, EnCana can verify sound levels expected to be produced by the Project's activities. Although it is known that safety zone monitoring has been implemented for louder marine seismic and pile driving operations; EnCana is not aware of any safety zone monitoring or other mitigation protocol for marine mammals and sea turtles applied to offshore decommissioning, airlifting, or excavation activities.

