

Alder Institute Merits Review Submission to the Hebron Public Review

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The Alder Institute Inc. is a non-profit collective dedicated to representing an ecological point of view in public discourse, and to translating science into common language. Alder's mandate focuses on, but is not limited to, the natural history of Newfoundland and Labrador. Founded in 1998, Alder has participated in earlier environmental assessment reviews of offshore oil and gas projects in Newfoundland and Labrador (i.e. Terra Nova, White Rose). On August 11, 2010 Alder responded to the invitation for public comment on the draft *Comprehensive Study Report (CSR) for the Hebron Development Project*. On September 23, 2011 Alder responded to the invitation for public submissions of requests for further information to the Hebron Public Review. The contact person for the purpose of the Hebron Public Review is Janet Russell.

CSR Chapter 4. With respect to the spatial boundaries of the project we had requested that information be provided for areas traversed by the product produced at Hebron when in transit between the production facility and the tanker's destination.

The response to our September 23, 2011 information requests remains outstanding. The discontinuous boundaries of the project area within the regulatory area are not realistic nor are they acceptable.

We had requested more detailed discussion of how the definitions of "significant adverse residual environmental effects" were established for Fish and Marine Birds and Marine Mammals and Sea Turtles. In all cases a significant adverse residual environmental effect is defined as one that affects the Valued Ecosystem Component (VEC) by "*causing a decline in abundance or change in distribution of a population(s) over more than one generation within the Nearshore and/or Offshore Study Area. Natural recruitment may not re-establish the population(s) to its original level within several generations or avoidance of the area becomes permanent.*"

A careful consideration of this "one size fits all" approach is warranted. Life history strategies vary enormously. Some species live fast and furious while others make long extended investments in their survival and reproduction. One can not in all scientific honesty apply the above definition to multiple classes of organisms without a consideration of the consequences. The population ecology as it applies to the situation at hand of various life history strategies needs to be accounted for when applying the above definition. In the absence of a realistic assessment of whether or not effects can or will be

measured or detected according to the chosen definition of “significant adverse residual environmental effects”, it is disingenuous to claim to have made such an assessment.

The following quotation is a relevant section from Fraser et al. 2010:

In general, all of the seabirds using this part of the northwest Atlantic follow life-history strategies built on high annual adult survival (>70%), low reproductive success, and delayed recruitment. Small changes in adult mortality for such species can cause population declines (e.g. Weimerskirch 2002). However, the large variance typically associated with population estimates impedes timely detection of such changes. There is a mismatch between the small scale of change in adult survival that may be predicted to have significant effects on a population and the ability of current population estimates to detect such small-scale change in a timely manner (see Piatt et al. 1990).

Although the posing of testable hypotheses should be encouraged, preventive action should not await the practical testing of such hypotheses. Rather, the need for a precautionary approach may be argued from basic knowledge such as the known theoretical relationship between small changes in adult survival and population change for long-lived species that are slow to mature. The Precautionary Principle holds that when threats of serious or irreversible damage exist, lack of full scientific certainty must not be used as a reason for postponing cost-effective measures to prevent environmental degradation (Principle 16 of the Rio Declaration on Environment and Development). In such instances, modeling efforts should include a precautionary approach in assessing these issues.

The Hebron Project environmental effects assessment is lacking in this regard.

CSR Chapter 9.

9.1.2 Administrative

Most migratory and many non-migratory bird species are protected under the federal Migratory Birds Convention Act, 1994. The Act states, in part, that “No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.”

On September 23 we requested more information on whether or not the Proponent plans to conform with the above, such discussion to include a comparison of how the Offshore Waste Treatment Guidelines conform to the standard set by the Migratory Birds Convention Act statement above.

Section 4 of the Migratory Birds Convention Act states that *The purpose of this Act is to implement the Convention by protecting and conserving migratory birds — as populations and individual birds — and their nests.*

Very small amounts of oil or oil-like substances i.e sheens from operational discharges in compliance with the Offshore Waste Treatment Guidelines, can kill birds (O’Hara and

Morandin, 2010). Sheens are difficult to predict, only easily observable under calm conditions and to be expected when using the ocean as a waste treatment facility for produced water (Fraser et al. 2006, Erin and OCL, 2003). Produced water is a substance harmful to migratory birds. The waters around oil and gas platforms are frequented by migratory birds at high densities due to the attractant effects of the platforms and the added attractant effects of using the ocean as a domestic waste treatment plant. Offshore oil and gas platforms thus attract marine birds in to a life-threatening situation. The ocean disposal of produced water, even when meeting the Offshore Waste Treatment Guidelines, is therefore a violation of the Migratory Birds Convention Act.

Section 9.3.1 *Nearshore* only discusses Bull Arm. On September 23, we requested further information regarding the potential effect on marine birds posed by the transport of product in to Placentia Bay. We requested the inclusion in the project area of the product transport route.

Section 9.3.2.3 *Marine Bird Nesting Colonies Along Southeastern Newfoundland* states that “*No marine bird nesting colonies are located within either the Nearshore or Offshore Study Areas, so these sites are not discussed within the Sensitive or Special Areas VEC*”. On September 23, we requested further information, discussion and clarification on how the project manages to have such discontinuous spatial boundaries. We had also requested that *Section 9.4.1.1 Nearshore Project Activities* include additional information regarding tanker transport of Hebron product.

We are still in the dark as to what methods will be used to transport Hebron product to Whiffen Head by passing Cape St. Mary’s marine bird nesting colony without there being any potential environmental effects to consider. The discontinuous approach to the product transport route while still within the CNLOPB’s physical area of jurisdiction is unrealistic and misleading. A scientifically defensible consideration of the potential environmental effects of the project is not possible while this gap in spatial coverage remains.

9.4.2.2 Operations / Maintenance and 9.5.1.2. Change in Habitat Quality

The statement is made that “*Routine Platform discharges are not expected to produce sheens.*” We requested more information to support this statement. The statement is made that “*Some marine birds, particularly gulls, may be attracted to sewage particles, but the small amount discharged below the surface is unlikely to increase the abundance of marine birds in the Offshore Study Area.*” We requested that this statement be substantiated and at the scale of the Project Area rather than Offshore Study Area.

The Proponent states that “*To minimize the possibility of fouling marine bird feathers, fluids will be discharged below the water’s surface whenever possible. It is predicted that the residual environmental effect of fluid / solid storage or discharge on the habitat quality of marine birds in the Offshore Study Area will affect a limited area and be of low magnitude.*” We requested more information, detail and discussion to support this statement. That the area affected will be limited goes without saying. That the effects are of low magnitude is false. If Canada supports the goal of the Migratory Bird Act to

protect and conserve migratory birds as “*populations and individual birds*” any operational waste treatment strategy that is known to be able to kill (or lead to the killing by interaction with another substance) of any quantity of migratory birds has an effect of unacceptable magnitude.

There is no reason to assume that the population level effect for marine birds of planned chronic pollution is of low magnitude. For example, it has already been the case for some years that chronic oiling of marine birds in our waters is of a significant scale. The following relevant summary is quoted from Fraser et al. 2006:

Hunt (1987) and Piatt et al. (1990) suggest that chronic oil pollution could potentially affect seabird populations as severely as a single large oil spill. Wiese and Robertson (2004) demonstrate that the annual mortality of seabirds in Newfoundland and Labrador attributable to oiling is of a magnitude equivalent to that caused by the Exxon Valdez oil spill. Wiese et al. (2004) reports that chronic oil pollution in Newfoundland and Labrador reduces Thick-billed Murre Uria lomvia population growth. The magnitude of oiling- induced mortality in marine birds encountering marine oil pollution is partly a function of the number of birds encountering a given pollution event rather than of the volume or size of the oil discharge per se (Burger 1993). Small spills that overlap in space and time with large numbers of birds may kill substantially more birds than large spills that do not have that overlap. Thus, chronic sources of oil pollution (i.e. operational discharges such as produced water from offshore oil and gas platforms), while not as dramatic as an Exxon Valdez, are potentially significant sources of cumulative seabird mortality.

What independent observations and/or studies have been made of the spatial and temporal extent of sheens surrounding offshore oil platforms in our waters? What independent observations and/or studies have been made of the encounter rate by birds of such sheens? What quantitative modeling has been undertaken to estimate the “low magnitude” environmental effects concluded by the Hebron proponent?

While a 2003 ESRF sponsored literature review by Erin Consulting did look at the sheen issue, their study did not include field observations or sampling. They reported that “average petroleum hydrocarbon concentrations of 20 to 40 ppm in produced water may be associated with sheens”, that “Buoyancy due to temperature difference with the ocean off Canada’s East Coast was suspected to favour sheen formation” but that “re-injection is a costly but effective alternative to produced water treatment”. The recently updated Offshore Waste Treatment Guidelines (OWTG) set the performance target for produced water to be discharged to sea from a production installation as follows:

§ a 30-day volume weighted average oil-in-water concentration in discharged produced water should not exceed 30 mg/L, and

§ a 24-hour average oil-in-water concentration in discharged produced water, as calculated at least twice per day, should not exceed 44 mg/L.

9.5.2.3 Change in Habitat Use

The statement is made that “*The physical structure of the platform and support vessels could affect marine birds by attracting them. Additionally, it is possible that the artificial reef affected, created by stationary structures will affect marine bird prey. Shearwaters, Northern Fulmars, and gulls are the species most likely to be attracted to the platform and may rest on the water nearby.*” The nature of this statement is surprisingly speculative. What data has been collected on this subject during the history of offshore oil development? What is known that would inform our expectations here to a degree of certainty greater than that suggested by the above statement? We requested a more detailed discussion of what we know of this attractant risk including a discussion of data gaps if they exist.

9.5.2.4 Potential Mortality

Possible incineration of storm petrels by flaring is mentioned concluding with the statements that “*It is unknown which seabird species, if any, are susceptible to mortality from flaring. There is currently no known mitigation for the potential environmental effects from flaring, but flaring is expected to have minimal effect on marine birds over the duration of the Project.*” We requested more information to substantiate the conclusion of minimal effect.

Table 9-11 Environmental Effects Assessment: Operations and Maintenance

The key to Table 9-11 includes the following definition under Magnitude:

N = Negligible: There may be some environmental effect but it is not considered to be measurable On September 23, we requested a discussion to substantiate a methodology that equates nonmeasurability with negligible effects. We requested that the key include more information by adding under each heading a category for “unknown”. Following this addition we requested that the assessment of effects be reconsidered and a discussion of the effect of unknowns on the level of risk being taken be provided in conjunction with a consideration of what role if any the Precautionary Principle has in the environmental assessment of offshore oil and gas projects.

The above requested changes to the Assessment keys was not provided.

The focus of this review has been the VEC Marine Birds. The environmental effects assessment provided for marine birds for this project is not realistic, scientifically defensible or acceptable.

Almost none of the relevant data which would be required to reach the conclusions reached by the Proponent exist. Neither do plans exist to fill these data gaps. Perhaps it is unrealistic to even consider such plans.

After decades of offshore oil and gas activity in our waters and several major environmental assessment exercises after which nothing much has changed in this regard, the current status of the Hebron assessment is not acceptable. An industry and regulatory regime that fails to acknowledge the level of ignorance and uncertainty that underpin its disingenuous conclusions of minimal and insignificant effects is not an industry or regulatory regime worthy of support.

References Cited

Erin Consulting Ltd. and OCL Services Ltd. Sheens Associated with Produced Water Effluents – Review of Causes and Mitigation Options 10 March 2003. Environmental Studies Research Funds Report No. 142. Calgary. 4 6 p.

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