

**Canadian Parks and Wilderness Society, Nova Scotia Chapter (CPAWS-NS)  
Review of the Whites Point Quarry and Marine Terminal Environmental Impact Statement**

Submitted to the Whites Point Quarry and Marine Terminal Project Joint Review Panel  
August 11<sup>th</sup>, 2006

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## **Introduction**

The Canadian Parks and Wilderness Society (CPAWS) is a national registered charity founded in 1963. It has 13 chapters and 20,000 members across Canada, including the Nova Scotia chapter (CPAWS-NS), incorporated in 1999. CPAWS works to ensure that nature comes first in the management of parks and protected areas, and that additional protected areas are created to retain Canada's biodiversity and wilderness both on land and at sea. The society achieves this through a combination of education, research, and advocacy. CPAWS works cooperatively with other conservation-oriented groups, governments, First Nations, and individual Canadians.

The Atlantic Ocean Committee of CPAWS-NS is working to secure the ecological integrity of the marine environment of Nova Scotia by actions such as identifying unique and sensitive marine sites to promote for protection. The Committee also encourages government agencies to follow through on policy and other legal commitments regarding protection and conservation of the marine environment, such as Canada's commitment to create a system of National Marine Conservation Areas, established by Parks Canada.

National Marine Conservation Areas (NMCAs) are one of several types of marine protected areas that can be established under Canadian federal law - in this case, the Canada National Marine Conservation Areas Act. Like National Parks, NMCAs are founded on the principle of representivity. To ensure that a representative sample of Canada's marine diversity is conserved, Parks Canada will endeavour to establish a marine conservation area in each of 29 marine regions identified across the country, one of which is the Bay of Fundy (Parks Canada 2003). Each NMCA will include a broad array of the natural and cultural characteristics that distinguish the marine region. The main goal of an NMCA is to ensure sustainable development within the marine and coastal environment. Conservation, sustainable use, and interpretation of both natural and cultural heritage are important aspects of the NMCA program. Exploration or exploitation of minerals, aggregates or hydrocarbons is not permitted in an NMCA.

Research reported in a Master of Environmental Studies thesis conducted by a student at Dalhousie University identified the Digby Neck and Islands area as having the highest social support for marine conservation area establishment anywhere in the Bay of Fundy region (Sheppard 2004). This, combined with the area's high biological conservation value,

distinguishes it as the best and possibly only location where it is currently feasible to pursue discussions on possible NMCA establishment in the region, as required by federal policy.

CPAWS-NS is very concerned about the potential impacts of the proposed Whites Point Quarry and Marine Terminal Project on future marine conservation area establishment in the region. The Project could make the Neck and Islands a less appropriate option for pursuing a protection designation such as an NMCA, which could foreclose not only this important conservation opportunity but also the increased tourism, recreation, education, economic, scientific and cultural opportunities that could accompany such a designation. It could also have implications for the NMCA program as a whole.

To this end, some of our concerns with the Environmental Impact Statement issued by Bilcon centre around the themes of 1) the ecological importance of the area; 2) the degree of certainty around potential impacts; 3) the impacts of the project on land value and other economic opportunities; 4) the consistency of the project with local development strategies and objectives; 5) the determination of impact significance; 6) ballast water and invasive species; 7) international agreements; 8) cumulative effects; and 9) a failure to adequately outline the Proponent's environmental record.

## **1.0 Ecological Importance of the Area**

### 1.1 General

#### *What the Guidelines say*

In section 9.3.5 Land Use and Value of the *Environmental Impact Statement Guidelines for the Review of the Whites Point Quarry and Marine Terminal* (the Guidelines), the Proponent is required to describe “ecologically important areas” in the region affected by the Project.

#### *What the EIS says*

It is stated in section 9.3.15.5, p. 110 of the Whites Point Quarry and Marine Terminal Project environmental impact statement (the EIS) that: “No designated protected areas, special harvesting sites, transportation corridors, recreation areas, ecologically important areas, or movement areas are known to exist along the Digby Neck/Bay of Fundy coastline.”

*Issues to be addressed*

The above statement is misleading with regard to the ecological importance and conservation significance of this area. Firstly, part of Brier Island is owned by the Nature Conservancy of Canada and held as a nature reserve. There is no reason why this should not be considered a designated protected area.

Further, although the Digby Neck and Islands region is certainly under-protected through official protection measures, its ecological value has been affirmed and reaffirmed in many studies (e.g. see Parks Canada 1975, Buzeta et al. 2003, King 2004, Sheppard 2004, and references therein), making it the subject of various protection efforts. For example, Parks Canada (1975) studied Brier Island and the surrounding marine area and identified it as a candidate site for establishing a marine park (the precursor to the NMCA program) in the Bay of Fundy. This report identified that “the island attracts the most diverse group of migrant land and shorebirds and rare bird species than any other area in the Bay of Fundy”; that it is “an area of outstanding biological value”; and that it “has been remarkably little affected by development” thus making it “urgent that as much of the Island be recovered to ensure the preservation of this critical wildlife area” (Parks Canada 1975, p.3).

Although the Parks Canada study was limited only to Brier Island, other studies have noted the significance of the entire Neck and Islands region. For example, in Buzeta et al. 2003, Fig. E.13, the whole of Digby Neck and Islands (including the Project property) is included in a region identified as an area of importance to waterfowl in the Bay of Fundy. The Nova Scotia Museum of Natural History recognizes both Brier Island and the Digby Neck area as sites of special interest (Nova Scotia Museum of Natural History 1996; Region 912 Outer Bay of Fundy). In addition, the importance of NMCA establishment in this area was reaffirmed through the M.E.S thesis research of Victoria Sheppard, a volunteer with CPAWS-NS, who identified the Digby Neck and Islands as the only location in the Bay of Fundy region where it would currently be feasible to attempt to establish an NMCA.

The presence of a 150-hectare quarry and deep water marine terminal could decrease the conservation value of the area and the desirability of pursuing it as an NMCA, which has implications for the completion of Canada’s NMCA program as a whole. More significantly, such a development poses a variety of threats to this fragile and important ecological region. The EIS tends to underemphasize the ecological importance and conservation value of the Digby

Neck and Islands, and thereby downplays the inappropriateness of the Project for this region and the full extent of its potential threats.

## 1.2 Birds

### *What the Guidelines say*

Section 10.2.2 of the Guidelines requires the Proponent to describe and evaluate the potential impacts of the Project on VECs related to birds and bird habitat.

### *What the EIS says*

Effects on migratory land birds are stated as a long term, insignificant negative effect of local scale (section 9.2.1).

Effects on waterbirds are stated as a long term, insignificant negative effect of local scale (section 9.2.4).

### *Issues to be addressed*

CPAWS-NS questions the rationale of the above conclusions on potential impacts to birds. Any impacts on waterbirds in this area cannot be considered to be merely of local scale given that section 9.2.1, p.25 of the EIS states “Brier Island has been designated by Bird Studies Canada as an Important Bird Area and the Island and its surrounding waters are considered *Globally Significant* for its concentrations of migratory land birds and shorebirds as well as its coastal waters being a year round feeding area for seabirds” (emphasis added). Further, “migration data from Brier Island should be applicable to the Whites Point Quarry site ... The use of Digby Neck and Long and Brier Islands by migrating land birds is a very important biological feature in southwest Nova Scotia.” Moreover, “species known to breed on Brier Island could be expected at the Whites Point Quarry and Marine terminal site” (section 9.2.1, p.24). Parks Canada (1975) found that Brier Island “attracts the most diverse group of migrant land and shorebirds and rare bird species than any other area in the Bay of Fundy.” In Buzeta et al. 2003, Fig. E.13, the whole of Digby Neck and Islands (including the Project property) is included in a region identified as an area of importance to waterfowl in the Bay of Fundy. The recognized global significance of this area for its use by bird colonies merits that any impacts be considered of a national/international spatial scale.

The probability that negative impacts will occur is also relatively high. In section 9.2.1, p.25, the EIS states “the fall migration is large with daytime counts of passerines (warblers, sparrows, thrushes, et al.) at Brier Island reaching over 1.4 million per month during September and October” and that “radar studies have shown that many more migrant passerines move at night than in the day so the numbers quoted above are underestimates of total migrants.” In section 9.2.1, p.28 it states “most land birds that use Brier Island during migration will also pass along Digby Neck” and that “night migrants, particularly those migrating in foggy or inclement conditions, can be attracted to lights.” Birds attracted to lights can become fatally exhausted from circling these lights. Since there are large numbers of birds migrating through the area of the Project, and the lights of the Project constitute a risk to these birds, it is likely that bird fatalities will occur. Likewise, although “relatively little is known of the actual routes taken by waterbirds migrating through the outer Bay of Fundy” (section 9.2.4.10), it is known that Brier Island and surrounding areas are an important staging area for migrating shorebirds, as are the shores of the inner Bay of Fundy. It is suggested that several species of these migrating birds move up the coast of Digby Neck, from Brier Island to the inner Bay of Fundy. It is also indicated that some of these birds migrate along the coastline, some flying at low heights (such as common loons, 15m, and red-necked grebes, 0.5-50m). Thus, there is possibility for collision with the marine terminal and ships, especially during poor visibility conditions (e.g. coastal fog, which is common in this area).

Despite mitigation measures (e.g. having lighting on the ship loader shaded so that light is directed downward), having this operation in such an important migratory bird area presents an unacceptable level of risk. If the precautionary approach is to be used as stated, then the Project must be considered to have a significant negative effect of a national/international scale on both land and water birds in this area.

### 1.3 Species at Risk

#### *What the Guidelines say*

Section 10.2.1 of the Guidelines requires the Proponent to consider Project impacts on species at risk, including habitat or individual residences.

### *What the EIS says*

There are two traditional wintering areas of the harlequin duck, a species listed as special concern under SARA/COSEWIC (endangered under NSESA), located approximately 12km away on either side of the Whites Point property. In section 9.2.4.1.9 it concludes that there is likely little movement of birds between these two sites, therefore the Project will not interfere with such movement or with the birds in general. However, in Reference Volume I Tab 2, it is noted that there was also a pair of harlequin ducks observed as near as 1km from the property. Furthermore, it is noted that an apparent upward trend in the numbers of harlequin ducks wintering in Nova Scotia could result in an expansion of their areas of use further along the Digby Neck coastline. Impacts on waterfowl - special concern are considered in the EIS to be a long term, neutral effect of national/international scale.

In section 9.2.1, p.29 the EIS states “of the 13 Odonate species considered at risk in Nova Scotia, none was recorded during this survey. However, the timing of the survey was not appropriate for all species and potential habitat for five species at risk was identified on the Whites Point property.” Also: “In his report, Paul Brunelle has assigned colour rankings of “red” and “yellow” to an additional ten species whose status is currently considered as “Undetermined” by NSDNR. Aquatic habitats appropriate to three of these ten species have been identified on the Whites Point property.” The impact statement for Odonata species at risk is for a long term, insignificant positive effect, of local scale.

The common loon, a species ranked “yellow” by the province due to its apparent low reproductive rate, was found to congregate in the coastal waters of the Whites Point property during winter and are also found there in lesser numbers in summer (section 9.2.4.1.11). Red-necked grebes and black guillemots “were observed in significant numbers in the coastal waters adjacent to the Whites Point property” (9.2.4.1.12), and are both species identified as “at risk” in Nova Scotia by ACCDC. The impact statement for waterbirds is a long term, insignificant negative effect, of local scale.

The Proponent claims that the ‘preservation zones’ surrounding the Whites Point property will provide protection for three plant species at risk on the property, namely mountain sandwort, hemlock parsley, and glaucous rattlesnake-root. They conclude that the Project will result in a long term, significant positive effect, of provincial scale.



*Issues to be addressed*

The potential for impacts on the harlequin duck, a species of special concern, are underrepresented and under-analyzed, given the proximity of important wintering areas to the Project, the lack of knowledge surrounding the movements of the ducks using this area, and the possible need for growing numbers of the ducks to expand their use of the area further along the Digby Neck shoreline. No consideration is given to threats from potential spills of oil or other pollutants from the Project site or from ships traveling to and from the site, nor of the potential impacts from noise on this species, or the potential for increased habitat requirements as Harlequin duck numbers improve. A more thorough understanding of potential risks posed by the project to this species and to species recovery is needed to be able to adequately assess impacts.

With respect to Odonata species at risk, it cannot be assumed that because aquatic habitats will be part of the environmental preservation zone and manmade wetland areas will be created that this will have a positive effect. No information is given, for example, on whether substances such as dust or blasting residues from the Project could affect the habitability of the water bodies near the site, or whether the created wetland area will be appropriate habitat for the Odonata species indicated. More information on threats to and habitat requirements of the species noted (both ‘at risk’ and ‘undetermined’) must be provided.

Because the common loon and the red-necked grebe are both provincially listed species at risk, impacts on even individuals of these species should be considered of provincial scale. Furthermore, because it is known that “disturbance due to land based activities, ship loading (noise) and vessel manoeuvring could result in temporary or longer term displacement of animals from part of their home range” (section 9.2.4.5), this should be considered a significant negative effect. Placing stresses on an at-risk species by displacing it from known and existing habitat areas is unwise and does not demonstrate proper use of the precautionary principle.

Very little information is given on the habitat characteristics and requirements for the three plant species at risk that are present on the property, their potential or historical range, or their particular sensitivities or ability to withstand stresses that could result from the Project such as dust, blasting residues, an influx of invasive species, hydrologic impacts, changes in microclimate, etc. More information must be provided to demonstrate that the proposed measures will be adequate for the protection and eventual recovery through proliferation of these species.

The EIS must also outline how the Proponent will maintain the good quality and original area of the preservation zone during and after the period of activity on the site.

#### 1.4 Biodiversity

##### *What the Guidelines say*

Section 10.2.7 Biodiversity states: “Describe and assess the ways in which the Project might influence biodiversity, through changes in ecosystem and habitat loss; habitat fragmentation and barriers to movement; the recovery capacity of habitats or species; edge effect responses; species distributions; the occurrence of invasive or non native species; polluting emissions to water and air; species of concern; harvest levels; and important habitats.”

##### *What the EIS says*

In Volume II EIS Guidelines referenced to the EIS Document, Guidelines section 10.2.7 Biodiversity is not listed and referenced to any section of the EIS and so presumably is not specifically dealt with anywhere in the EIS. No explanation for this omission is provided.

In section 9.2.1.2, it states that clearing the active areas of the property will, in the short term, “essentially eliminate wildlife habitat within these areas. Furthermore, noise from the extraction, transportation, and crushing activities could exclude some of the more sensitive species from adjacent, undisturbed habitats and possibly reduce the reproductive success of those that do remain.”

In section 9.2.1.2, p.32 of the EIS it states: “In the long term, however, with the successful implementation of a reclamation program in the disturbed areas, the protection of the rarest species and habitats currently found on the site, and the introduction of new habitats, the biological diversity of the site could be enhanced.”

##### *Issues to be addressed*

Although information related to effects on biodiversity is scattered throughout the EIS, there should be a section that addresses this topic directly and fully.

The destruction of existing habitat and the creation of “habitats that were previously either scarce or nonexistent on the property” (9.2.1, p.34) such as cleared field areas and sediment retention ponds will not likely result in a desirable increase in biodiversity. Although biodiversity

is generally a good thing, simply having a larger number of species present in a specific area is not necessarily beneficial ecologically. This distinction must be made if the question of biodiversity is to be addressed in a useful manner. Rather than altering, destroying or disturbing existing habitats and potentially bringing in new species, it is more important to maintain and strengthen existing biodiversity. Any increase in biodiversity through clearing would likely be largely due only to increases in weedy and/or invasive species that would occur, as those recognized in section 9.2.1, p.36. Even though monitoring and removal of invasive plant species is proposed (section 9.2.1.4), it is questionable how successful this would be since monitoring is proposed for every five years. After five years, invasive species could already be well established and difficult to get rid of. The creation of habitats that were previously scarce or nonexistent on the property is not an ecologically sound mitigation of biodiversity impacts. Rather, this would seem to disrupt the ecological integrity of the site and surrounding areas, which could lead to farther-reaching ecological impacts of the project.

Finally, many of the wildlife monitoring surveys (breeding birds, Odonata, Lepidoptera, some plant species including one at-risk species) are proposed to take place at five-year intervals. This will not be frequent enough to identify population trends and risks, and to allow for timely mitigation and protection measures to be implemented.

### 1.5 Marine Species and Habitat

#### *What the Guidelines say*

Section 10.2.2 Fish, Invertebrates and Habitat requires the Proponent to “describe and evaluate potential Project impacts on VECs related to fish, invertebrates and their habitats.”

Section 7.10 Decommissioning and Reclamation Phase requires the Proponent to “describe the proposed approach to, and conceptual plans for, decommissioning Project facilities including the marine terminal, and reclaiming the site for future use.”

#### *What the EIS says*

Section 9.2.4.5 states: “Since the only disturbance in the coastal – nearshore marine habitat along the entire shoreline is berthing, ship loader, and conveyor supports anchored to the bottom and loss or alteration of marine habitat is compensated, this would result in a long term, neutral (no) effect, of local scale.”

Section 9.2.9.5 states: “Considering the frequency, duration, meeting of threshold criteria (as required in the “Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters”) and proposed setbacks from fish habitat and spawning areas, effects on marine fish habitat from blasting would result in a long term, insignificant negative effect, of local scale.”

Section 7.10 states that “portions of the marine infrastructure, such as the conveyor support system, gallery trusses and floor, mooring dolphins and buoys” will remain in place after the 50-year life of the Project has elapsed.

### *Issues to be addressed*

The Brier Island-Digby Neck area has been demonstrated to have a high level of finfish diversity (Buzeta et al. 2003, p.51). It is also a productive lobster area, providing habitat for spawning, nursery, rearing and feeding, and supports a variety of groundfish such as haddock, Pollock, cod and flounder (EIS Appendix 17, p.3). In studies of cod egg distributions, a high number of cod eggs have also been found in the Brier Island-Digby Neck area, with counts in April being highest close to the coastline (Buzeta et al. 2003, p.51). The natural biological diversity and abundance in this area, its role as habitat for important commercial species including lobster, as well as the importance of the area for Atlantic cod, a species of special concern under COSEWIC, merit special attention to potential impacts.

The EIS states that only 31.2m<sup>2</sup> of nearshore bottom habitat will be altered, disrupted or destroyed by the construction of the marine terminal. This only takes into account the area of the pipe piles themselves, not the total area affected by the structure.

Further, not enough evidence is provided to show that the proposed habitat compensation plan will be adequate or effective. For instance, lobsters are generally territorial and aggressive – will the lobster/fish shelters proposed for the habitat compensation area be adequately spaced and of sufficient number to account for this and be effective? Also, since the compensated habitat area will still be in close proximity to the Project, will it not also be impacted by the Project (noise, sediment, large ship activity, etc.)?

More information must be provided on the decommissioning of the marine terminal. If much of this structure will remain in the water, what is the rationale for this? What might the effects and results be as this structure eventually degrades and breaks down? This is not adequately described.

More information must also be provided on the appropriateness of the proposed marine terminal structure for the area. The pipe pile design will decrease impacts on the nearshore bottom habitat, but will this structure be able to withstand the force of high winds, high waves, ice, storms, and other possible weather and marine events in the Bay of Fundy over time? Will repairs or modifications likely be necessary during the life of the Project, and if so, what are the projected impacts of this?

## **2.0 Degree of Certainty**

### *What the Guidelines say*

In section 8.1 Methods of the Guidelines, the Proponent is required to “indicate the degree of certainty in the impact predictions.”

### *What the EIS says*

In section 8.1, the Proponent states that “the reliability of effect prediction is high.”

### *Issues to be addressed*

## 2.1 Effects of Noise and Blasting on Marine Mammals

To determine the impacts of blasting on marine mammals, the Proponent provided a Blasting Protocol document to DFO for their review and comment. In the DFO report on this document (Appendices Vol. III, Tab 9), the following comments are made:

- DFO’s comments are based on an original Blasting Plan created in 2002, as no subsequent plans have been provided by the Proponent (p.4)
- regarding sound energy propagation: “At present, reliable modeling of this effect cannot be done as the coupling of sound energy into the water column is more complex than for the case of exploration seismics. Therefore our conclusions on this are qualitative and speculative” (p.7).
- “Sound propagation modeling of a single 45 kg ANFO charge detonated at 6m was provided by the proponent ... The frequency content of the pressure pulse is not provided. Modelling of long-range sound propagation (beyond 500m) was not conducted ... Modelling of multiple blasts (8 ms separation time) has not been provided by the proponent. At 500 m range within

the water column, successive pressure pulses at 8 ms separation may be sufficiently closely spaced to partially overlap ... No ambient noise measures have been made in this area. If there is a relatively high level of natural and pre-existing anthropogenic underwater noise, blast sounds might attenuate to these higher background levels more quickly than in quieter areas” (p.8).

- “Because even slight damage to the hearing mechanism could be of serious impact to marine mammals highly dependent on acoustics to socially communicate and locate prey – not to mention avoidance of ship traffic – the question of auditory damage is an important one ... There is a high level of uncertainty in regards to the sound pressure levels that are required to generate biological effects in marine mammals ... Subtle behavioral effects, especially for baleen whales, have been documented to occur at much lower acoustic levels [than those thresholds deemed acceptable by the US National Marine Fisheries Service]” (p.12).
- “It is unclear whether blasting would occur if weather conditions did not permit observations to 500m ... Without measures of the underwater sound pressure levels and frequency characteristics during blast operations to confirm accuracy of modelling, and a better understanding of the sound levels that cause physical effects in marine mammals likely to be present within the Bay of Fundy, a more definitive answer to this question can not be provided ... A 2500 meter safety zone for endangered marine mammals in the Bay of Fundy (blue whales and right whales) is likely to be effective for a single blast; however, concern remains about the potential effects of exposures to multiple blasts – particularly in quick succession (< 1 second). However, even with an elevated position it will be very difficult for an observer to detect a marine mammal at a distance of 2500 meters. Even if conditions are optimal for viewing ... there can be whales and seals that can remain undetected” (p.13).
- “Longer-term or subtle behavioural effects, if induced in endangered right whales following blast sound exposure, may be very hard to detect and quantify” (p.14).
- A moderate to high level of uncertainty is associated with DFO’s conclusions (p.14).

The DFO report thus identifies a number of areas where there is lacking information in the Blasting Protocol provided by the Proponent, as well as many areas where there is a significant degree of uncertainty. Therefore, it is not possible to predict potential impacts with a high degree of certainty, as claimed in the EIS. The DFO report also recognizes that blasting activity can have potentially significant negative effects on marine mammals.

Studies have shown that humpback whales (and potentially other species of whale) can suffer long-term behavioural effects due to exposure to industrial activity such as blasting, as well as injury or mortality due to industrial noise-related orientation disturbances (Borggaard, Lien and Stevick 1999:159). It has also been shown that humpbacks and other whales can abandon an area where industrial activity is present, and this avoidance can persist over a period of several years (Borggaard, Lien and Stevick 1999:159). Importantly, the Borggaard et al. study found that “significantly fewer of the [humpback whale] individuals initially photographed in Trinity Bay were subsequently resighted in Newfoundland waters in 1993,” following blasting activity in 1992 (Borggaard, Lien and Stevick 1999:159). Humpback whales are just one of the whale species that frequent the Bay of Fundy. This shows that blasting could have long-term effects of a broad scale on whale distributions in the Bay of Fundy, which would be a significant negative effect.

The Borggaard et al. study also found that long-term studies are required to determine long-term effects of industrial noise on whales (Borggaard, Lien and Stevick 1999:150). Thus, by the time the effects of the Project activities become evident, impacts may already be present and mitigation may be difficult or impossible, despite monitoring efforts. Moreover, Map 31, which shows the locations of proposed blast monitoring sites, shows a less extensive monitoring program than that suggested by DFO in their recommendations (appendix III, tab 9). A justification should be provided for why this reduced monitoring program is adequate.

The Project is located in an important region for marine mammals, including a nearby Conservation Area for the highly endangered North Atlantic right whale. Other species at risk also common in the immediate area include the harbour porpoise and fin whale. Further, local whale watching tour operations depend on the regular presence of marine mammals in the area. Given the many uncertainties involved and employing the precautionary principle it must be concluded that the negative effects that could result from the Project, including injury, death, or displacement of species at risk and/or damage to an important local tourism industry, would be too great to risk proceeding. More information on the current blasting plan must also be supplied by the Proponent to better clarify the risks.

## 2.2 Effects of Blasting on American Lobster

In Reference Document Volume V, Tab 24 the following statements are made regarding the effects of blasting on the American lobster:

- “While there has been scientific research on the sensitivities of various decapod crustaceans to acoustic stimuli and waterborne vibrations, it is very limited in nature and does not pertain specifically to the American lobster. In terms of physical and/or behavioural impact of sound energy on decapod crustaceans, research of this nature is also limited” (p.4).
- Moreover, the snow crab study that is used is highly unreliable as it is focused on the effects on the crabs of seismic testing rather than blasting, and “only one fertilized egg mass was exposed to a single received level” of seismic energy (p.4).
- “The explosion may temporarily affect lobster activity patterns, thereby resulting in less lobster movement and lower catches” (p.5).

The lobster fishery is by far the most valuable fishery in the Digby Neck and Islands region and is the primary fishing industry sector in this region (section 9.3.10, p.86). Moreover, the lobster fishery has remained relatively stable over the past 10-15 years (section 9.3.10, p.85). The Nova Scotia Department of Agriculture and Fisheries describes the lobster fishery as “the backbone of the fishing industry and the main economic engine that drives the economy in many coastal communities” (NSDAF 2006). This is certainly the case for the Digby Neck and Islands, which is located in the Lobster Fishing Area with the largest landings by far in all of Atlantic Canada (NSDAF 2006).

Yet there are also concerns among local people that the lobster fishery is currently under stress from over-fishing and the potential presence of a shell disease among some lobster in the area (Reference Vol. IV, Tab 23, section 4.3). Adding an additional stress with unknown negative impacts to the lobster population at this point would therefore be ill advised.

Little is known about how lobster are affected by and react to noise from blasting and other activities (e.g. crushing). Possible risks from the Project include reduced reproduction rates, changed movement patterns, and reduced catches. These are unacceptable risks for such a central, highly valuable and currently stable industry. The conclusion that this is an insignificant negative effect is therefore not appropriate, given the value of the industry and the uncertainties surrounding possible impacts. A precautionary approach would warrant foregoing a project of



this nature in this area, at least until more is known about the potential effects on the American lobster, which may well be significant.

### 2.3 Effects on waterbirds

As described in section 1.2 of this report, Whites Point and the surrounding area constitute a significant habitat for waterbirds. Yet, in section 9.2.4.10 it states that “relatively little is known of the actual routes taken by waterbirds migrating through the outer Bay of Fundy”. It is suggested that several species of migrating birds may move up the coast of Digby Neck, from Brier Island to the inner Bay of Fundy. Little is known about these migration routes and thus it is difficult to gauge how a large project such as the one proposed might impact bird populations migrating through the area. Yet, effects on waterbirds are stated as a long term, insignificant negative effect of local scale (section 9.2.4.5). Effects on migrating birds could potentially have impacts that go well beyond the local area. More information should be supplied on the known migration routes of the birds that migrate through this area so that threats can be more adequately assessed.

There is also the matter of the effects of blasting on waterbirds in the area. Section 9.2.12.2 states: “There are almost no data on the effects of intensive sounds on the hearing of waterbirds.” Because of this lack of data, there are also no established guidelines for blasting in areas frequented by waterbirds, so the Proponent offers to use guidelines for pinnipeds instead (9.2.12.3). However, there is very little information given to support this decision and describe the level of appropriateness for using these guidelines for waterbirds, a completely different taxonomic Class. Given the high levels of uncertainty around this, more support for why these guidelines have been adopted for waterbirds must be provided.

### 2.4 Effects on at-risk butterfly species

In section 9.2.1, p.30 of the EIS it states “the 2005 study was preliminary and the status at the Whites Point property of these three [at risk] butterfly species was not established.” Before the Project can proceed, a more thorough study of the potential use of the site by Lepidoptera species, especially those at risk, must be conducted. This will provide a higher level of certainty regarding potential impacts on these species.

### **3.0 Impacts of the Project on Land Value and Other Economic Opportunities**

#### *What the Guidelines say*

In section 10.3.3 Economy of the Guidelines, the Proponent is required to “discuss the effect of the Project on land values in the region” and “identify constraints that could affect economic benefits or opportunities.”

#### *What the EIS says*

Section 9.3.15.6 addresses potential impacts on property values, but there is no direct discussion of potential impacts on the conservation value of the area.

Section 9.3.14.5 concludes that the Project will have a long term, insignificant negative effect, of regional scale on the tourism industry.

#### *Issues to be addressed*

The EIS doesn't consider the conservation value of the Project property and surrounding area. The conservation value of the Digby Neck and Islands area has been identified through multiple studies and it has been considered as a good candidate for the implementation of protection measures (see for example King 2004, Buzeta et al. 2003, Sheppard 2004, Parks Canada 1975). The EIS doesn't consider the value of maintaining the site as is, or how the overall effects of the Project could decrease the area's existing conservation value. Considering only property values is a very narrow approach to the question of land values. Other land values must also be evaluated, including conservation value.

The EIS does not consider the impacts of future opportunities for development related to tourism that may be foreclosed or diminished because of the Project. The foreclosure of such opportunities could represent a sizeable loss for the area. Development of the quarry and marine terminal could potentially preclude, or at least make less desirable or more difficult, the option of obtaining an official protection designation and the economic opportunities that could result from this.

For instance, Parks Canada has identified Brier Island and the surrounding area in the past as a potential site for establishing a National Marine Park (now known as a National Marine Conservation Area, or NMCA) in the Bay of Fundy (Parks Canada 1975). The Masters thesis research of a CPAWS volunteer, Victoria Sheppard, further identified the broader Digby Neck

and Islands area as the *only* site where NMCA establishment would currently be feasible in the Bay (Sheppard 2004). Such a development could mean millions of dollars of investment from Parks Canada to increase visitor infrastructure, interpretation facilities, marketing of the local area and its natural and cultural assets, much needed research and inventorying of marine organisms and their environment, etc. It could also create many job opportunities for park interpreters, managers, other parks staff, students/researchers, and for the tourism sector in general.

A national protection designation such as an NMCA can provide a great economic boost to the surrounding area. In a CPAWS Yukon chapter report on the economic impacts of National Park establishment on a local community in the Yukon, it was found that “a thorough comparison of Haines Junction with five other comparable Yukon communities from the 1960s on provides evidence that the establishment of Kluane National Park and Reserve has played a large role in the growth and economic development of Haines Junction” and that “the Park seems to have served as a catalyst that not only improved economic conditions but also gave the community amenities and infrastructure that set the stage for future growth” (CPAWS-Yukon 2006, p.11).

The potential impacts of the Project on the conservation value and general biophysical abundance and diversity of the area (see section 1 of this report, for example) could decrease the desirability of pursuing this kind of development for this area. Moreover, the location of the quarrying operation on the Bay of Fundy coastline is problematic for NMCA establishment. No exploration or extraction of minerals or aggregates is permitted in an NMCA (Canada National Marine Conservation Areas Act, section 13). Since an NMCA may include coastal land and islands as well as submerged lands and waters, the presence of a quarry would exclude that area of the Digby Neck from being part of an NMCA. Should there be any future expansion of the quarry operations, this could provide further complications and would further decrease the area that would be eligible for protection and development as an NMCA.

The EIS should consider the potential for NMCA designation for the Digby Neck and Islands area; the ecological, economic, tourism, recreational, educational and cultural benefits such a designation could bring; and, how the Project could impact this potential. Not doing so fails to address the “opportunity cost” of the Project on the likelihood of establishment and success of an NMCA in the area. Consequently, Nova Scotians reviewing the EIS do not have a complete picture of the full potential impacts of this project on the future of the area.

Furthermore, the EIS fails to fully consider the potential impacts of the Project on the future growth of the local tourism industry in general. The EIS focuses on the visual impact of the quarry for those travelling in the area. However, impacts on the tourism industry are not just about the direct visual impacts, but also the image people have of the area. This region is a popular tourist destination because of its relatively pristine natural beauty and its traditional way of life. The development of a large quarry and marine terminal is at odds with both of these characterizations, and can detract from potential visitors' ideas of what this area is like. Potential visitors may question the quality of the natural environment if they learn about the presence of such a large industrial development. The EIS should consider how this project could counteract the tourism marketing strategy of the area which centres on it being "one of Nova Scotia's most spectacular natural regions", "an environmental treasure", home to "timeless small fishing villages" and Brier Island which "is renowned as a sensitive ecological treasure" (Nova Scotia Doers and Dreamers Travel Guide 2006).

There is much potential for further development of the ecotourism industry in the Digby Neck and Islands region. For instance, TIANS is focusing on developing sustainable coastal tourism in the province, as described in its new document "Nova Scotia Strategy for Sustainable Coastal Tourism Development" (available at <http://www.tians.org/sustainable/index.cfm?id=35>). More consideration of how the Project could restrict such potential for ecotourism growth is needed if the EIS is to provide an adequate picture of impacts on this industry.

#### **4.0 Consistency with Local Development Strategies and Objectives**

##### *What the Guidelines say*

In section 9.3.1 Community Profile of the Guidelines, the Proponent is required to "identify the various perspectives and aspirations for the future within the region" and "consider the relationship between the Project and the relevant community and regional social and economic development strategies, policies and plans."

In section 10.3.3 Economy of the Guidelines, the Proponent is required to "describe consistency of the Project with goals and objectives identified in provincial, regional and community economic development plans and strategies."

### *What the EIS says*

In section 9.3.9.1 of the EIS it states: “Local and regional economic development goals identified during public consultation focused on the fishery and ecotourism.”

The EIS concludes that the Project will have a long term, insignificant negative effect, of regional scale on both the nearshore fishery and the tourism industry.

In section 9.3.25 Other Undertakings in the Area it states: “In general, land and water based development at the present and in the future is apparently not in an expansionary mode in the community of Digby Neck.”

Section 9.3.9.1.2 concludes that “the Project fits the policies of the Government’s blueprint – “Minerals – A Policy for Nova Scotia”; and that it “fits with the desire to bring meaningful employment and investment to the area.”

### *Issues to be addressed*

The EIS does not actually evaluate the appropriateness of the Project with respect to local development plans and objectives, nor fully consider how the Project could impact these plans and objectives. The EIS suggests that the Project does not fit with local development goals, which are focused on ecotourism and the fishery. The lack of both local and regional support for the Project is further demonstrated by a refusal to consult with the Proponent by both tourism and fishery groups, the Partnership for the Sustainable Development of Digby Neck and Islands Society (PSDDNIS), the Digby Neck Community Development Association, and the Western Valley Development Authority (WVDA) (EIS section 9.3.9). Yet the EIS does not provide an impact statement regarding development plans and aspirations for the area. This is partially and indirectly stated through impacts on the tourism and inshore fishing industries, both of which are negative. Given this and the opposition expressed to the Project, it can be assumed that the Project will have a negative impact on the progress and attainment of local development goals. A more direct evaluation of the Project’s impacts on local, regional, and provincial development plans, strategies, and aspirations should be included.

The claim that there is not presently any growth or development occurring in the region is not accurate. For example, section 9.3.9.1.1 states that “infrastructure in the tourism market was greatly expanded in the 1980s and 1990s,” and Reference Vol. VI, Tab 32 shows that the tourism sector showed significant growth from 1991-2001. There is also the ongoing work by the

Discovery Centre Association to establish an interactive and interpretive Discovery Centre in the area. It is stated, however, that the Project will likely have a negative impact on the tourism industry, which could discourage future growth and investment in the industry. Failing to accurately portray current local development and future potential in sectors such as tourism leads to an inaccurate assessment of the potential impacts of the Project.

The claim that the Project fits with the province's policy on the mineral industry is not accurate. The "Opportunities for Prosperity" document (section 9.3.9.1.1) states that natural resource sectors should "continue efforts to add more value to resources to provide greater economic benefit." Similarly, the province's Mineral Policy encourages "value-added production and job opportunities with an increasing emphasis on cooperation and partnerships" and "higher value-added production to enhance the economic value of mineral resource extraction." The basalt aggregate that will be mined in this project is not a value-added product. Moreover, no royalties will be paid to the province for this material. Further, this development does not constitute a cooperative or partnership effort with any provincial or even Canadian entity. Although a Nova Scotia company was originally involved (Nova Stone), they subsequently withdrew, leaving a company controlled by a group based in New Jersey, US as the sole Proponent. Because this Project has limited regional and provincial economic benefit and a lack of local ownership, it is not in fact in line with the provincial strategy for the development of mineral resources. Rather, it encourages the exploitation of Nova Scotia's natural resources for the profit of foreign interests, with little short-term and no long-term local benefit, but high short- and long-term environmental costs to the region.

In sum, there is little local support for this development; it does not further local, regional, or provincial development objectives and aspirations; it would provide limited economic benefit to the region and the province; and it is proposed as a limited 50-year project. The statement that the project will provide "meaningful employment and investment" is therefore highly questionable. The Proponent must address these oversights.

## **5.0 Determination of Impact Significance**

*What the Guidelines say*

In section 12.7 Residual Impacts of the Guidelines, the Proponent is required to “describe and document how significance was determined” for the various impacts related to the Project, and to “describe specific methods where appropriate.”

In section 8.3 Selection of Valued Environmental Components, it states “the culture and way of life of the people using the region affected by the Project are themselves considered valued components.”

In section 10 Environmental Impact Analysis it states: “When considering local impacts on the human environment, have due regard for the attitudes and perceptions of local residents.”

#### *What the EIS says*

In section 8.1, it states: “Generally, to be considered *significant* the influence of effect would have to be greater than a regional scale.”

#### *Issues to be addressed*

Discounting impacts of a local or regional scale as not significant does not reflect the principle that the local people and their way of life are to be valued as important components in this review. Further, according to the CEAA reference guide “Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects” (available at [http://www.ceaa-acee.gc.ca/013/0001/0008/guide3\\_e.htm#Reference%20Guide](http://www.ceaa-acee.gc.ca/013/0001/0008/guide3_e.htm#Reference%20Guide)), localized adverse environmental effects *may not* be significant – but there is no indication that effects of a regional scale should not be seen as significant. Even local effects can sometimes be significant. It is inappropriate to consider as a rule that only provincial or national/international scale impacts are significant.

The EIS does not provide enough description of how impact significance is determined in each case. It is unclear in many cases what factors led to the conclusion reached (i.e. is the impact considered significant because of scale? likelihood? duration?). For example, the impact for Economy – Quarry Construction Employment is identified as being a *significant* positive effect, even though it is only of county (i.e. regional) scale, it is a short-term impact, and it is not certain what number of jobs will actually be held by people living in the local area versus people from other regions (despite stated hiring policies). Conversely, the impact for Economy – Fishery – Nearshore is identified as being an *insignificant* negative effect, even though it is also classified as a regional scale impact (in section 9.3; the Impact Summary Table incorrectly lists it as local),

it is a long-term impact, it is certain that a number of fishers will be displaced from the Project area thereby increasing fishing pressure in other areas in the region, and the Project has the potential to cause a variety of broader-scale fisheries impacts. More information on how impact significance is determined in each case must be provided.

Also, the Proponent doesn't include criteria of frequency or reversibility in determining significance, two criteria that are suggested in the CEAA reference guide "Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects". An explanation as to why these criteria were not used should be provided.

This CEAA reference guide also states that "the adverse environmental effects of projects may be significant if they occur in areas or regions that have already been adversely affected by human activities; and/or are ecologically fragile and have little resilience to imposed stresses." There are concerns that the lobster fishery in the region may already be under pressure from overfishing and the possible presence of a shell disease (as mentioned in section 2.2 of this report). The displacement of lobster fishers who fished in the Whites Point area to other areas could create an increased pressure on already stressed stocks, as could invasive species imported by ships travelling to the terminal. Also, the glaucous rattlesnake-root found on the property should be considered ecologically fragile, as it is a species previously thought to be extirpated from Nova Scotia. Any stress that is caused to these rare remaining plants must be considered a significant impact. A nearby quarry that will destroy surrounding habitat, limit proliferation of the plant, and cause dust and other potential disturbances must be considered a stress factor. There are other species at risk that also inhabit the area, and since there has been no previous industrial development of this scale in the area, we know little about resilience levels to the stresses the quarry and marine terminal will impose. Taking such factors into account is vital to accurately determining impact significance.

Further, because the Digby Neck and Islands area has been identified as the only area where it would currently be feasible to work toward the establishment of an NMCA in the Bay of Fundy region (Sheppard 2004), any impacts to the conservation value of this area could have national implications from the point of view of Parks Canada's ability to successfully complete a national network of NMCAs as committed. This should also be considered in determining impact significance.



Overall, the levels of impact significance stated in the EIS need to be re-evaluated, and a more transparent account must be given of how these conclusions were arrived at.

## **6.0 Ballast Water and Invasive Species**

### *What the Guidelines say*

In section 7.3 The Project, the Guidelines require the Proponent to describe management plans for shipping, including ballast water control.

In section 7.8 Operation and Maintenance Phase, the Proponent is required to “explain ballast and bilge water management”.

In section 10.3.3.1 Fishing and Harvesting, the Proponent is required to identify the predicted effects on fisheries and access to fishing grounds due to the Project, including consideration of effects from invasive organisms in ballast water.

### *What the EIS says*

Section 9.2.14.1 indicates that Transport Canada’s “Guidelines for the Control of Ballast Water Discharge from Ships in Waters Under Canadian Jurisdiction” strongly recommend “that ballast water originating from the eastern seaboard of the U.S. south of Cape Cod or south of 42° 00’ north latitude should not be released in defined vulnerable areas. The Bay of Fundy is considered a vulnerable area.” It should be noted that Perth Amboy is south of this mark.

In this section it also states that “Bilcon of Nova Scotia Corporation will have no control over what port ballast water is taken on or where exchanged en route to the Whites Point Terminal. Clearly the responsibility for ballast water management is with the shipping company.”

In Reference Volume II, Tab 13, it states that “a more extensive survey of the organisms which occur in South Amboy waters as well as data on their life-history characteristics would be required to provide a more complete evaluation of the risk of introduction.”

### *Issues to be addressed*

Given the high vulnerability of the Bay of Fundy region to the potential risks of invasive species introduction through ballast water exchange, Bilcon must take a more active role in the management of shipping activities to and from Whites Point. Information must be supplied on the

shipping company (or a list of potential shipping companies) that Bilcon intends to contract, their legal and environmental records, and their shipping management plans, including ballast water control, for transportation between Perth Amboy and Whites Point.

More information is required on potential invasive species occurring in the Raritan Bay area so that risks of transport and introduction to the Bay of Fundy may be adequately assessed.

More evidence of the Proponent's ability to strictly manage, monitor, and mitigate the potential introduction of invasive species to the Bay of Fundy must be provided as there is potential for significant negative impacts on biodiversity, fisheries, conservation value, sustainable development, and ecotourism in the area.

## **7.0 International Agreements**

### *What the Guidelines say*

Section 6.6 of the Guidelines requires the Proponent to “describe the implications of international agreements, designations, or action plans that may influence the Project or its environmental effects.”

### *What the EIS says*

Section 6.6 of the EIS gives consideration to NAFTA, Kyoto, World Biosphere Reserve and Gulf of Maine Agreements. It states that Bilcon is committed to the precautionary principle and environmental sustainability, and will work with the Gulf of Maine Council in achieving its goals or objectives.

### *Issues to be addressed*

The Gulf of Maine Council “supports the conservation of the coastal and marine environment, and urges its members to proceed with caution when scientific information is incomplete to avoid environmental degradation;” it seeks to “increase habitat protection” and also “develop and implement a nature-based tourism strategy that sustains the environment and the well-being of the local people” (EIS section 6.6). Conversely, the project will have negative effects on coastal and marine environments and will alter or destroy habitat. The EIS for the Project shows a number of areas where scientific information about potential impacts is lacking.

Further, although there has been a growing and successful local effort to build the local ecotourism industry in the Digby Neck and Islands, the Project will negatively impact this industry. For such reasons, it is questionable to what degree the Proponent will be able to aid the Gulf of Maine Council in achieving its goals and objectives. Rather, such coastal industrial developments pose an obstacle to these goals. The Proponent should outline in what ways it intends to work with the Gulf of Maine Council and how it will benefit this body.

The Digby Neck and Islands and surrounding marine area has been identified as the best candidate for establishing a National Marine Conservation Area (NMCA) in the Bay of Fundy (Sheppard 2004). It is therefore pertinent to consider, with respect to the project's environmental impacts, Canada's international agreements regarding marine conservation and the establishment of a network of marine protected areas.

For example, the Security and Prosperity Partnership of North America "commits the governments [of Canada, the US and Mexico] to develop complementary strategies for oceans stewardship by emphasizing an ecosystem approach, coordinating and integrating existing marine managed areas, and improving fisheries management" (DFO 2005). It also includes commitments "to conserve habitat for migratory species, thereby protecting biodiversity" and "to combat the spread of invasive species in both coastal and fresh waters" (DFO 2005). The Project could negatively affect habitat for migratory species (birds, whales, etc. – see, e.g., sections 1.2 and 2.1 of this report), as well as biodiversity (see section 1.4 of this report), and could contribute to the spread of invasive species (see section 6.0 of this report). It is being planned in the absence of any integrated or coordinated coastal/marine development plan for the area. It is also expected to have at least some negative impacts on fisheries. The effects of the Project are thus pertinent to achieving the goals set out in this agreement, yet the Project has not been considered in the context of the agreement.

Canada has also made commitments under the Convention on Biological Diversity's Protected Areas Programme of Work to establish a network of marine protected areas by 2012. Continuing coastal development in the absence of a comprehensive marine protected areas plan will limit the availability of relatively pristine sites with high conservation value. This will make it increasingly difficult for Canada to complete an effective network of marine protected areas. Any large coastal/marine development must be considered in the context of these commitments to marine conservation.

Finally, the potential impacts of the Project should also be considered in the context of the Migratory Birds Convention Act. This Act signifies an agreement between Canada and the United States and includes a commitment “to take appropriate measures to preserve and enhance the environment of migratory birds” and to “seek means to prevent damage to such birds and their environments” (Migratory Birds Convention Act, 1994, Article IV). Since the Project is proposed to take place in an area of significant migratory bird activity, implications related to this Act should also be discussed.

## **8.0 Cumulative Effects**

### *What the Guidelines say*

Section 11 of the Guidelines requires the Proponent to consider cumulative impacts.

### *What the EIS says*

Section 10.0.1 states that “only VECs potentially being effected at the regional scale, or at a sensitive level of concern (e.g. a species at risk), and for a long-term duration will be considered” for the cumulative effects assessment.

### *Issues to be addressed*

The proponent correctly cites the intent of the Canadian Environmental Assessment Agency’s Cumulative Effects Assessment Practitioner’s Guide, but incorrectly determines that, for the purposes of the CEA, only Valued Ecosystem Components (VECs) potentially being affected at the regional scale, or at a significant level of concern, and for a long-term duration, should be considered. This approach is inappropriate because VECs can be vulnerable to significant negative cumulative impacts even when they are affected only at a local scale, are not highly sensitive to impacts, or when the activity causing an effect occurs for only a short-term duration. Indeed, the purpose of considering cumulative effects is to understand how impacts that may, in isolation, seem insignificant due to their limited scale, duration, likelihood, etc., might gain in significance due to the presence of a number of factors which act cumulatively. For example, cumulative impacts on birds that use the Project property would consist of the combined impacts of direct habitat loss, noise, pollution, ship traffic, light pollution, further development that could occur as a result of this Project, etc., rather than simply the individual

impacts of any one of these factors. Further, in the EIS cumulative impacts are only considered within a 15-year timeframe (section 10.0.3). This is not a sufficiently long period to understand how cumulative impacts may emerge over time. The Proponent provides a poor representation of possible cumulative impacts by limiting the number of VECs considered, and by taking an overly narrow and short-term view of potential cumulative effects. The methodology employed by the proponent is seriously flawed in this chapter and must be significantly modified to provide an adequate analysis for the CEA.

## **9.0 Failure to outline the Proponent's environmental record**

### *What the Guidelines say*

Section 6.1 The Proponent is required to provide a record of their environmental performance as well as describe their experience and capabilities regarding this type of Project.

### *What the EIS says*

Section 6.0.1 provides minimal background information on the Proponent. Appendix 13 provides one example of a past project of the Clayton group of companies.

### *Issues to be addressed*

Very little information is given on the Proponent's environmental record and past activities and experience. More information is required to fulfill the requirements of the Guidelines on this subject.

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