



**Georgia Strait Alliance**

# Georgia Strait Alliance comments for the Trans Mountain Expansion Project Reconsideration

Georgia Strait Alliance (GSA) submits the following comments on the Environmental Assessment Office's Analysis of the National Energy Board Reconsideration Report Trans Mountain Expansion Project EA, Certificate #E17-01, Draft Report for Public Comment (the Draft Report).

Our submission comments on the proposed amendment to conditions 35 and the proposed Human Health Risk Report condition. It also contains concerns about the EAO's approach to Indigenous Rights and Title, and its lack of regulation on issues pertaining to shorelines.

While we believe that the amendments proposed by the EAO to the Fate and Behaviour of Bitumen Research condition, and the new Human Health Risk Report condition contain positive changes that can result in better outcomes for British Columbia in the event of a worst case oil spill, we believe that there is a need for more detail, greater granularity, and stronger condition language.

We believe this process has not done justice to Indigenous participants, and has ignored the Province's commitment to the B.C. Declaration on the Rights of Indigenous Peoples Act in favour of a consultation effort that aims to reach a legal floor.

GSA remains deeply concerned about the lack of shoreline protections from the risk of a catastrophic oil tanker spill. As discussed below, we believe the issue passes the test set

by the EAO in the Draft Report. Outstanding issues that require standard setting include baseline data collection, at-risk shoreline identification and spill projections, shoreline cleanup techniques, and shoreline cleanup labour requirements. There remains a need for a comprehensive set of shoreline conditions to regulate this project.

Throughout this report, we will make reference to the National Energy Board (NEB) reconsideration of aspects of its OH-001-2014 Report MH-052-2018 ([the Reconsideration Report](#)), as well as the Final Argument of the Province of B.C. for Hearing Order MH-052-2018 ([the Final Argument](#)).

## Comments on EAO's proposed conditions

Georgia Strait Alliance is pleased to see the EAO propose changes, in the form of amending their condition on the Fate and Behaviour of Bitumen Research, and a new Human Health Risk Report condition. These are important areas of concern and study. We have concerns about specific elements of each condition, however as both conditions lack specificity in areas of study, and run the risk of incompletely achieving their goals.

In their [Final Argument](#), the Province urged the NEB to add specificity and granularity to the language governing mitigation measures, in an effort to produce “clear, measurable, and enforceable” conditions. We urge the EAO to do the same here.

## Comments on proposed amendments and conditions

### Fate and Behaviour of Bitumen Research

Georgia Strait Alliance strongly supports the addition of local governments as parties to engagement on this condition, as well changes to reporting timelines.

We are concerned, however, that the changes proposed may not accomplish what the EAO intends. The EAO states that “[t]he consultation requirement will ensure that the

scope, objectives, methods and timeframe for the research topics are appropriate, and the applicable results will be incorporated into emergency preparedness and response plans.”

The language in the condition does not seem to ensure such an outcome. Is this condition fulfilled if Trans Mountain discusses the research with all named parties, or must it satisfy those parties? If a section of consulted stakeholders are adamant that certain research should be done, and Trans Mountain refuses, what recourse do parties have? If research is done, but is not considered to be of sufficient quality by a section of stakeholders, who decides on it's sufficiency? Will the EAO perform this task? If so, what criteria will it apply?

Given the controversy around the fate and behaviour of diluted bitumen, these are not unlikely scenarios. The public debate on this topic has been one of deep disagreement, and the NEB Reconsideration Report covers many of these disputes in section 8.2. Their determination may be sufficient for federal approval, but it clearly has not halted disputes by interested parties.

In our previous submission in this process, GSA made a number of suggestions to increase the granularity of this section. We continue to believe these changes are necessary to achieve the EAO's stated goals. While it is likely that areas of research will emerge, and therefore that the agenda for research need not be laid out in full, it is possible here for the EAO to ensure specific areas of debate are settled by science .

The EAO can do this by identifying specific areas of study, ensuring that they reflect the real-world conditions of a spill of specific product blends into the Salish Sea. Making peer review a requirement will increase the confidence of stakeholders and the public in the results themselves. Reporting on how emergency preparedness and response will be operationally impacted by research findings will increase stakeholder and public confidence in the spill response regime.

None of these suggested changes contradict the EAO's stated outcome for this condition, they simply dispel grey areas. Collectively, these changes will make the condition clearer in outcome, measurable in compliance, and highly enforceable. We have included below our previously suggested amendments to report criteria points c) through f).

- c) Research topics, including the different physical and chemical properties of the **specific blends of** oil and other products intended to be shipped from the Westridge Marine Terminal, product weathering, dispersion and oil/sediment interactions, product submergence, product behaviour and cleanup following in-situ burning, and cleanup and remediation options for sediments and shoreline;
- d) The scope, objectives, methods, and timeframe for the research topics, **ensuring that studies are peer reviewed, and that research topics focus on approximating real world conditions found in areas at risk of a spill, including but not limited to the properties of the specific products to be transported, temperature, salinity, sediment load, seasonality, weather conditions, and possible delays in response;**
- e) How the Holder will incorporate applicable results of the research into its emergency preparedness and response plans, **with specific reference to operational impacts, constraints and considerations, on rate of recovery for various stages of weathering, and various recovery methods;**
- f) How the Holder will work with spill responders to support the incorporation of the results of the research into their emergency preparedness plans and programs, **with specific reference to operational impacts, constraints and considerations, on rate of recovery for various stages of weathering, and various recovery methods;**

## Human Health Risk Report

Georgia Strait Alliance is supportive of the proposed condition on a human health risk report. We believe, however, that the language in the condition requires refinement. Such a report should have its requirements expanded to cover the mental health impacts of a potential spill, and must ensure the report discusses health impacts with regards to the Social Determinants of Health (SDoH).

## Mental Health Impacts of Oil Spills

There is a growing body of research on the mental health impacts of oil spills, stemming in large part from studies on past large spills like the Exxon Valdez and Deepwater Horizon disasters. They have revealed a number of impacts on the people in communities local to a spill. A [literature review](#) for the National Institute of Environmental Health Sciences (NIEHS) done in the light of the Deepwater Horizon disaster found elevated rates of “[s]tress, anxiety, depression, PTSD, suicide, domestic violence, heavy alcohol use and increased drug abuse” in impacted communities in the wake of environmental disasters like oil spills; [studies](#) on the Exxon Valdez incident found Increases in generalized anxiety disorder, PTSD, and depressive symptoms (n=599). A [study](#) involving a cohort of workers and volunteers involved in oil spill clean-up after the Deepwater Horizon disaster found spill response and clean up work was associated with increased prevalence of depression and PTSD (n=8986). [A comparison of the Exxon Valdez and Deepwater Horizon](#) events found “[t]he strongest predictors of stress were family health concerns, commercial ties to renewable resources, and concern about economic future, economic loss, and exposure to the oil.” A number of long term impacts on mental health were found in the wake of the [Exxon Valdez](#):

Figure1. Summary of Social Structural, Cultural and Individual Impacts Resulting from the EVOS.

**Social Structural Impacts**

- Increase population size<sup>1</sup>
- Competition for labor between local businesses and government with the cleanup industry<sup>1</sup>
- Housing shortages<sup>1</sup>
- Increase demands for childcare and childcare services<sup>1</sup>
- Decrease in tax revenues<sup>1,2</sup>
- Decrease and increase in crime<sup>2</sup>
- Delayed infrastructure projects<sup>2</sup>
- Concerns over public perceptions on the price, quality and demand of fish<sup>2</sup>
- Using reserves and investments to pay for cleanup<sup>1</sup>
- Closure of the drift-net fishery
- Loss of staff because of strains associated with excessive work<sup>1,2</sup>
- Economic losses for commercial fishers and support business<sup>1,2,3</sup>

**Cultural Impacts**

- Social conflict between drift and set letters fishers<sup>2</sup>
- Strained community relations<sup>1,2,3</sup>
- Declines in community cohesiveness<sup>1,2,3</sup>
- Disruption of a subsistence lifestyle<sup>2,3</sup>
- Some archaeological resources were damages or stolen<sup>2</sup>
- Sense of place and evaluation of has safe were threatened and/or damaged<sup>1,2</sup>
- Uncertainty about the short and long-term effects of the EVOS on ecosystems and human communities<sup>1,2,3</sup>
- Loss to trust for parties responsible for protecting the community from threat of oil transport<sup>2,3</sup>
- Social conflict between those who worked the cleanup and those who did not<sup>1,2</sup>
- Public distrust of oil transportation and oil corporations<sup>2,3</sup>
- Long-term loss of social and economic resources<sup>1,2,3</sup>
- Community mental health organizations overstressed<sup>1,2</sup>

**Individual Impacts**

- Declines in children’s grades<sup>1</sup>
- Increased levels of collective stress<sup>3</sup>
- Increased drug and alcohol abuse<sup>1</sup>
- Increased mental distress<sup>1,2,3</sup>
- Children were often left unsupervised<sup>1</sup>
- Disruptions to daily life<sup>1,2,3</sup>
- Disruptions to family life<sup>1,2,3</sup>
- Feelings of helplessness, betrayal and anger characterized the emotional state of community members<sup>3</sup>
- Increased prevalence of mental disorders such as depression, anxiety and Post-Traumatic Stress Disorder<sup>1,3</sup>
- Children experienced a range of problems such as fear of being left alone, problems getting along with other parents and fighting with other children<sup>1</sup>
- Self-isolation and avoidance of spill-related discourse<sup>1,2,3</sup>
- Long-term income loss spirals for commercial fishers<sup>1,3</sup>
- Litigation stress as a chronic pattern<sup>3</sup>

<sup>1</sup> Oiled Mayors Study  
<sup>2</sup> Social Indicators Study (TR 155)  
<sup>3</sup> Cordova Community Study

Long term mental health impacts and slow recovery were also found after the [Deepwater Horizon](#) disaster, with a need for continued mental health support beyond the traditional disaster recovery timeline.

The significant mental health impacts of oil spills are being increasingly recognized as a matter of clinical concern. [Conceptual frameworks](#) for mental health response in the wake of a spill have begun being developed. More work can and must be done: [a literature review](#) by Vancouver Coastal Health found evidence “suggesting that mental health and community impacts can be mitigated, in some cases, by easing financial uncertainty through timely and satisfactory compensation and through mechanisms that encourage or utilize social support.” The explicit addition of mental health into the proposed condition would better support the condition goal of providing relevant information for spill response planning.

## **The Social Determinants of Health**

The Social Determinants of Health (SDoH) are [defined by the World Health Organization](#) (WHO) as “the non-medical factors that influence health outcomes.” The WHO states that “numerous studies suggest that [SDoH] account for between 30-55% of health outcomes.” The relationship between these factors and health outcomes is [durable across a number of settings, populations, and cultures](#). Determinants of health more broadly have been found to be connected to [disaster vulnerability](#), and [environmental exposures may interact with social stressors](#) to worsen health outcomes.

SDoH are an area of [growing](#) study in [Canada](#) and [B.C.](#). At the national level, the impacts of SDoH on [Indigenous peoples](#) are being [examined](#) in a growing body of literature, both in [study](#) and in [practical guides](#) for [dealing with their impacts](#). In B.C., work has been done examining the impacts of resource extraction in [rural and remote communities](#) in the context of Northern B.C. by Northern Health. In this context, the NEB Reconsideration Report noted the specific impacts a spill event would have on Indigenous communities and the resources they rely on.

A number of studies demonstrate the intersection between DOH and mental health outcomes: the [Exxon Valdez incident was found](#) to put Indigenous Alaskans, women, and people aged 18-44 particularly at risk from psychiatric disorders (n=594); low incomes and low levels of social support [were found to predict depression symptoms](#) in communities impacted by the Deepwater Horizon disaster (n=219); and [long term mental health impacts](#) were found in women impacted by Deepwater Horizon (n=2038).

The EAO should ensure the report studies the role SDoH would play in a possible spill event. A VCH [literature review](#) of oil spill health impacts identified a number of gaps in the field of study, including the effects on residents, vulnerable populations, the role of gender and income, and impacts on people with chronic health conditions. Such gaps would be explicitly addressed in the human health risk report if a social determinants lens is explicitly added. This would ensure the intent of the condition is better achieved.

### **Amendments to Human Health Risk Report condition**

GSA proposes that this condition should be amended to specify that mental health must be an area of study, and that human health impacts must be studied with reference to the social determinants of health.

The following amendments to the sections detailing the requirements for the report should be made:

The report must include:

- a) The identification of human exposure pathways in the event of a Project-related ship-source marine spill scenario of 16,500 m<sup>3</sup> at Arachne Reef, including but not limited to exposure via marine subsistence foods and air emissions, **with specific references made to the social determinants of health;**
- b) **The identification of possible mental health impacts on spill responders and affected communities, with specific reference made to the social**

determinants of health, and discussion of possible measures to mitigate those impacts;

c) The roles and responsibilities of local, provincial, and federal authorities related to impacts to human and mental health in the event of a ship-source marine spill;

d) Modelling potential mental and community health impacts and mitigation measures, with specific reference to indigenous communities, individuals and communities dependent on natural resources, and geographically isolated communities;

e) In the event of a Project-related ship-source marine oil spill scenario of 16,500 m<sup>3</sup> at Arachne Reef, the measures that should be taken to reduce exposure, and the appropriate party or parties to carry out the measures.

## Indigenous Rights and Title

In spite of high profile announcements to implement UNDRIP and base all government policies and initiatives on its principles, the B.C. EAO has issued a report that pushes aside the concerns of participating First Nations. The Draft Report acknowledges that an oil spill would have serious impacts on Indigenous interests, then goes on to cite only federal government efforts to directly address the concerns raised by the Squamish Nation and Tsleil-Waututh Nation. There is no examination of what the Province itself can do.

Affected nations have withheld their free, prior, and informed consent for this project. Rather than grapple with this fact, the EAO has proceeded under a consultation framework. Consultation has been characterized by some observers as being a process “aiming at the floor,” a process by which governments begin with an outcome and then tailor their efforts to inch over legal minimums. This seems to be the approach the EAO has taken here.

The Province has recognized that consultation is insufficient to respect Indigenous rights. One purpose of the B.C. Declaration on the Rights of Indigenous Peoples Act was to replace a standard of consultation with one that respects Indigenous institutions of government. DRIPA provides for the use of frameworks for joint decision-making; if the EAO made an effort to utilize them here, the record does not reflect it.



Given the potential impact of this project on Indigenous territories, it is beyond disappointing that B.C. has failed to address the promise of aligning provincial rules with Indigenous rights in their conditions. If a project with an impact as large as Trans Mountain is not subject to DRIPA principles, this raises deep concerns about what it would take for a project to qualify. The act was passed in 2019, this reconsideration process began in 2020, and will conclude in 2021. Why was the alignment of DRIPA not incorporated into these conditions? There is no reasonable explanation for ignoring the government's own legislation.

## Shorelines

GSA remains deeply concerned about the lack of shoreline protection from the risk of a catastrophic tanker spill. As discussed below, we believe the issue passes the test set by the EAO in the Draft Report: there is significant new information within the Reconsideration report, it pertains to an area of provincial jurisdiction, and federal accommodation measures do not sufficiently address the risk. Outstanding issues that require standard setting include baseline data collection, at-risk shoreline identification and spill projections, shoreline cleanup techniques, and shoreline cleanup labour requirements. There remains a need for a comprehensive set of shoreline conditions to regulate this project.

### **Outstanding shoreline issues**

Shoreline baseline data collection in the Project area has issues with completeness, standards, and compatibility. Although there are many partial baseline sets in the Project area, their quality and compatibility are in question, as the record in the Reconsideration Report demonstrates. There is an incomplete collection of certain categories of information, including the economic values of sections of shoreline. Other important categories of information, like recreational and public use values, are not mentioned at all. It is unclear what sensitivity values have been collected by WCMRC through the Coastal Response Program, as the mapping utility only shows their Geographic Response Strategies (GRS). As noted on their site, their mapping program may not catalogue all sensitive areas along the coast.

At-risk shoreline identification is also not well covered. Unlike their Alaskan counterparts, WCMRC GRSs do not list the natural and community resources at risk from spills. As far as we are aware, there is no matrix or model available that demonstrates the intersections between vulnerable resources, spill trajectories, spill response strategies and techniques, response gaps, seasonal factors, and the range of environmental conditions during a possible spill event; even if there were, incomplete baseline data would render them partial.

Shoreline protection measures are limited, primarily consisting of WCMRC's GRS program. As discussed below, the Province leveled serious, and as yet unanswered, criticisms of this effort. WCMRC GRSs are far less detailed than the Alaskan equivalent, lacking implementation detail, personnel strategy outlines, and indication of testing status.

In this report, there are currently no good answers to important questions about shoreline response to a worst case spill. There is no specific standard set for cleanup. There is no publicly available analysis of what differences there might be in shoreline cleanup between diluted or weathered bitumen and standard shoreline cleanup techniques. There is no modelling presented for how cleanup will proceed or what the rate and intensity of cleanup will be. We do not know what types and amounts of equipment are required. There is nothing to indicate how testing and verification of plan assumptions will occur. We do not know what onshore labour requirements are, either in numbers or in specific roles. As noted in evidence submitted by [Cowichan Tribes](#) in the MH-052-2018 Hearing:

To establish a timely and effective oiled shoreline workforce requires a minimum of 3,000 personnel during an oil spill incident. This is a conservative number when compared to large spill incidents world-wide. This level of workforce effort for shoreline cleanup, oily waste management and wildlife rescue/rehabilitation requires people that are willing and able to commit to services for up to one month under all seasonal conditions within the Salish Sea.

While this number of workers can serve as a benchmark, it only indicates scale. Cowichan Tribes evidence goes on to give labour counts from real world spill incidents. This includes the example of the Hebei Spirit oil tanker incident in South Korea in 2007. This event saw a spill volume of an estimated 10,800 tonnes of oil, less than the worst case scenario spill scenarios for the Project, and engaged over a million people for shoreline cleanup.

Even if we accept 3000 personnel as a ballpark figure, we do not know how shoreline cleanup labour will be sourced, screened, trained, housed, and demobilized. This is especially concerning given the likeliest spill scenario, at Arachne Reef, will present many challenges to effectively mobilize this labour in the numbers likely to be required.

As a consequence of these gaps, GSA believes the EAO should re-examine shoreline protection conditions submitted to them in the past, and begin the work of drafting conditions on that topic for this process. We believe the EAO has erred in choosing not to adopt new conditions, either those advanced by the Squamish Nation, Tsleil-Waututh Nation, and City of Vancouver, or the series of interlocking conditions proposed by GSA. We believe this error is visible when examining the EAO's test for determining whether conditions changes are required.

### **Federal and Provincial roles in shoreline protection**

The EAO notes in several places that the federal government is the lead for spill response regulation, with the province playing a supporting role. They also note that “[t]he provincial government has authority for the management of provincial lands and natural resources that may be impacted by the Project.”

Conditions to protect shoreline would not alter the balance of this arrangement. It would not impact the vast majority of federal areas of direction in spill response, or the broader regulation of marine shipping. The Province putting in place regulations that set standards for baseline data collection, at-risk shoreline identification, shoreline protection measures, and shoreline cleanup would not undermine or infringe on federal requirements, but merely elevate the level of preparedness in an area of special concern for the Province. A lead role does not imply absolute deference.

The Province adopting conditions pertaining to shoreline protection is roughly analogous to their enacting a Project condition on the Fate and Behaviour of diluted bitumen. This was another area of specific provincial concern, and for the same reason: the possible impact on provincially managed ecosystems and the health of British Columbians by a possible Project-tanker related spill was considered too important to leave to existing measures. Voluntary research programs into fate and behaviour, many sponsored by the federal

government, were underway at the time that condition was adopted, and an NEB condition, what is now 121, was already in development that would commit Trans Mountain to demonstrating how fate and behaviour would impact spill response. The Province decided to adopt a condition to ensure a higher level of understanding of this contentious and important issue. They did not leave it to a relatively low level of regulation - a single detail point in a broader condition without specificity, and voluntary research initiatives. At present, shoreline protection specific to this Project are in a similar place.

The EAO notes many areas of voluntary accommodation measures being taken by the federal government and WCMRC, stemming from spill response conditions set by the NEB. The Province criticized many of these measures in its [Final Argument](#) in the MH-052-2018 Hearing, and saw the NEB as putting forward conditions lacking specificity and granularity. They explicitly called for the NEB to set a regulatory standard for geographic response and baseline data collection for shorelines. This process is the Province's opportunity to address many of those concerns. Setting standards here for what is expected would not force duplicative mitigation measures, as many of these initiatives could potentially fulfil, in whole or in part, the kind of clear, measurable, and enforceable conditions called for by the Province in its Final Argument. If such conditions require changes in those programs in type or quality, or if they require new measures to fulfill those conditions, this would be a good thing: these changes would represent significant and important improvements for the protection of the coast and address concerns the Province itself raised during the NEB process.

It has long been apparent that environmental law in Canada is not a matter of "watertight compartments" of jurisdiction, but one of flexible federalism, with inevitable areas of legal and regulatory overlap. To the extent those areas of overlap result in better protections of land, sea, and air, they are a net benefit to Canadians. Given the potential catastrophic impact of a credible worst-case spill of diluted bitumen to the coast, the Province cannot stand behind measures it has rightfully called unacceptable in an on-the-record proceeding. The standard the EAO applies here cannot be deference to the federal government, it must be enhanced protection of the coast the Province is responsible for.

### **The Draft Report test for new conditions**

The Draft Report contains a three-part test to determine whether they will recommend new conditions, or amend existing ones.

- Whether issues raised pertained to differences between the two NEB reports;
- The Ministers' jurisdiction to make changes to EAC conditions or add new ones;
- Avoiding unnecessary duplication

The EAO do not, however, express their decisions in the light of this test schema. In the Draft Report, the EAO has rejected any measures pertaining to shorelines, and it is unclear as to why as different reasons are advanced in different sections. In the body of the report, the EAO indicates deference is due to the lead role of the federal government on spills. They also approvingly cite ongoing spill prevention and response initiatives underway by the federal government and WCMRC. These seem to pertain to the second and third points of the test.

However, in Appendix B, the EAO advances a different argument: that shoreline issues are out of scope as having not been sufficiently addressed in the Reconsideration Report, thus running afoul of the first point. The test, then, is laid out with clarity, but its use within the Draft Report is not. To simplify matters, we will take each of these three points in turn.

### **Were shoreline issues addressed in changes to the Reconsideration Report?**

Appendix B contains the EAO response conditions proposed and/supported by Squamish Nation, Tsleil-Waututh Nation, and City of Vancouver. In response to two proposed conditions, one pertaining to shoreline protection and another to at-risk shorelines, the EAO states that:

There are no changes to the sub-section describing potential environmental effects of a tanker marine spill on shorelines and near shore habitat, Section 14.9.4, apart from concerns raised by Tsawout First Nation about impacts from Project related marine shipping on the Sand-verbena moth's critical habitat within Tsawout territory.

If it is the EAO's belief that the identification of at-risk shorelines are out of scope due to the minimal changes in 14.9.4, GSA believes this judgement is in error. Shoreline issues were raised by numerous intervenors in the MH-052-2018 hearing, and there are significant differences between the two reports.

For shoreline protection measures to be in scope, there is no need for there to be new information in the Reconsideration Report in 14.9.4 pertaining to specific shoreline impacts. What is required is new information on the topic of shoreline risk and protection. The Reconsideration Report contained significant new information about baseline shoreline data collection, how it may be determined what shorelines are at risk from a likely spill scenario, possible protection measures for shorelines, and research into the potential difficulties in responding to stranded oil. The Reconsideration Report discussed, with depth, the issues the proposed conditions pertaining to shorelines introduced by the Squamish Nation, Tsleil-Waututh Nation, and City of Vancouver was intended to address. The conclusion of section 14.9.4 actually underlines this point: the NEB directly links potential impacts on shorelines to “the area of spill prevention, and emergency preparedness and response, as discussed in Section 14.11 of this chapter.” That section, of course, contains significant new information on the subject of shoreline protection in the context of spill response.

The Reconsideration Report mentions shoreline data collection, response strategies, and clean up efforts, in the following places in the MH-052-2018 portions:

- Table 23 of the Reconsideration Reports summarizes environmental mitigation measures considered in the MH-052-2018 hearing. It includes WCMRC’s Coastal Response Program (CRP). WCMRC describes the CRP as including the collection of “critical local resources and coastal sensitivities” and cataloguing “protection strategies for at-risk ecological, cultural and economic resources.” Geographic Response Strategies are described by WCMRC as being “site-specific response plans tailored to protect sensitive areas threatened by an oil spill,” and WCMRC describes them as including “sensitive shorelines.” The GRS component goes on to be discussed in a number of places in the Reconsideration Report. This includes the description as “operational documents that detail the location of vulnerable and sensitive shoreline areas and describe how to protect them.”

In Chapter 8, Environmental behavior of spilled oil, the topic of shoreline stranding and possible clean up is discussed in the following sections:

- In 8.2.2, federal government initiatives to studying a number of issues related to the fate and behaviour of bitumen are listed, including shoreline cleanup;
- In 8.2.4, the NEB discusses the potential difficulty of shoreline cleanup:

The extent of shoreline stranding and residency on the shoreline would depend on environmental and shoreline conditions...The Board accepts that shoreline stranding would necessitate shoreline cleanup activities which could be challenging due to the persistent nature and viscosity of weathered-diluted bitumen.

Later in the same section the NEB says

Specific to the modelling conducted by the Tsleil-Waututh Nation, City of Vancouver and the City of Burnaby, the Board accepts the parties' position that oil could strand on shore within Burrard Inlet and area.

And

Nonetheless, the Board is of the view that weathered diluted bitumen could pose particular challenges in response and clean-up due to its potential for submergence and emulsion formation, persistent chemical and physical properties, and potential for shoreline stranding.

In Chapter 14, Project-related increase in shipping activities, shoreline related issues are discussed at length:

- In 14.9.2, the NEB discusses a number of shoreline data sets:

ECCC said that the south coast of B.C. and the Fraser River has an extensive shoreline data set collected over many years by several agencies. ECCC said that it utilizes shoreline data collected by the Province of B.C. and shared with ECCC for spill preparedness- and response-related activities. ECCC said that it and other organizations administer a variety of monitoring and research programs which have included nearshore and pelagic vessel-based surveys, aerial surveys for large congregations of marine birds, and long-term shore-based surveys. In the past few years, several groups including the Tsleil-Waututh Nation, ECCC, and Fisheries and

Oceans Canada have undertaken work to update the shoreline data set. This included aerial overflights and ground surveys at selected locations. The Burrard Inlet was one of areas recently surveyed in 2018. The Burrard Inlet shoreline data has been segmented and is currently being reviewed for quality control.

- In 14.11.3, the NEB discusses a number of issues pertaining to shorelines including:

the collection of pre-shoreline cleanup and assessment technique shoreline data sets by Environment and Climate Change Canada.

[...]

Environment and Climate Change Canada noted research that it has undertaken to advance the collective understanding of the fate and behaviour of diluted bitumen on shoreline sediments and a review of response tactics. It said that it makes its research available to Transport Canada and the Canadian Coast Guard to support risk assessments. Environment and Climate Change Canada also works with Response Organizations and the Canadian Coast Guard to conduct exercises specific to spills of diluted bitumen.

[...]

Trans Mountain said that it had undertaken a project to collect, update and store information about the shoreline and backshore environment in the vicinity of the WMT. The data collected would be used to inform the Shoreline Cleanup Assessment Technique process and the shoreline protection and cleanup response functions in the event of a future oil spill.

[...]

Environment and Climate Change Canada said that the recovery rate or efficacy for any spill is a challenge to quantify. Each incident is unique and the response efficacy varies with the circumstances of the incident. It said that the recovery of oil from shorelines can be quite high under favourable conditions but that the actual recovery rate will depend on spill conditions and aggressiveness of clean-up



operations. The selection of clean-up objectives and endpoints is key in determining the extent of recoverable oil. Environment and Climate Change Canada noted that clean-up objectives and endpoints are established based on net environmental benefit analysis in consultation with the responsible party, regulatory agencies and operational group.

The NEB goes on to discuss the possibility of shoreline protection measures and cleanup being used during periods when environmental conditions do not allow for on water spill response.

The MH-052-2018 hearing, therefore, goes into the topics of baseline data collection, at risk shoreline identification, and the analysis of different strategies for response for spilled diluted bitumen. Placed in context, these are clearly all steps towards planning for more effective shoreline cleanup. The EAO's argument in Appendix B is flawed in the light of these references, and the matter of shorelines seems in scope for the EAO process.

### **Do the Ministers have jurisdiction to regulate shorelines?**

The EAO's second test is whether "the Ministers' jurisdiction to make changes to EAC conditions or add new ones." Based on the EAO's statement in the report, "[t]he provincial government has authority for the management of provincial lands and natural resources that may be impacted by the Project."

In this case, shorelines are quite clearly in B.C.'s jurisdiction. A reference [publication](#) by East Coast Environmental Law states that "[t]he Oceans Act, a federal statute, makes the provinces responsible for coastal lands inland from the ordinary low water mark."

A publication issued by West Coast Environmental Law (WCEL) on the matter of provincial jurisdiction of coastal matters [notes](#)

The boundaries for coastal provinces typically include all land to the "low tide mark" (the level reached by the tide at low water), as well as all "inland waters," meaning the area between headlands such as bays, harbours, and coves (historically referred to as *inter fauces terrae*, "within the jaws of the land"), including the seabed in those areas.

This does not seem to be contested by the federal government. In a joint report with the federal government titled [The Role of the Provincial and Territorial Governments in the Oceans Sector](#), the Province of B.C. plainly stated there is “provincial jurisdiction of foreshore areas.”

WCEL goes on to note that B.C. has relatively more expansive jurisdiction:

The waters between Vancouver Island and the Lower Mainland have been interpreted to be “inland waters” within the Province of B.C. by the Supreme Court of Canada, following a reference case brought by the Province that was decided in 1984.<sup>i</sup> This includes the Strait of Juan de Fuca, the Strait of Georgia, Johnstone Strait and Queen Charlotte Strait. This gives the province the power to legislate over the seabed and waters in these areas, on subject matters within its jurisdiction.

The second question, whether shorelines might be impacted by the project, is also directly answerable. In the [Arachne Reef scenario](#), as accepted by the NEB, Table 4.1 indicates that a 16,500 m<sup>3</sup> spill would result in 4,240.5 m<sup>3</sup> of oil on shore. In section 8.1.3.2 of the Reconsideration Report, Trans Mountain reports “[t]he length of shoreline oiled depended on location and conditions modeled and ranged from approximately 30 km to 450 km.”

### **Would shoreline conditions be unnecessary duplication?**

The EAO expresses a desire to avoid unnecessary duplication, and makes reference to these areas of potential overlap:

- Existing EAC conditions;
- Existing NEB conditions;
- Existing federal or provincial regulatory mechanisms;
- NEB recommendations to the GIC;
- Federal government accommodation measures

GSA respectfully suggests that this list mixes matters best kept separate; matters of law and regulation in the first four cases, and matters of judgement on effectiveness on the final measure.

Avoiding duplication at the level of laws and regulations make sense from the standpoint of keeping requirements as efficient as possible, but not to the degree that this undermines

actions that can increase environmental, economic and social sustainability. The EAO must differentiate between areas where laws and regulations are mature, well developed, and of demonstrated efficacy, and areas where these qualities are not in effect. Current regulations for Response Organizations on shoreline treatment, for example, exist but are minimal. This is understood as not being sufficient by WCMRC, who have voluntarily aimed to increase their capacity to treat shorelines. As noted above, the Province adopted a condition to regulate the study of the fate and behaviour of diluted bitumen, even though an NEB condition contained that idea in weak form.

This caveat should be elevated in regards to NEB Recommendations to the GIC: as terms and conditions, scope, and timelines for any federal reviews they may trigger are unclear, they cannot be weighted to the same degree as existing laws and regulations. They are not entirely notional, but they are not measures in force at this time, and there cannot be demonstrated effectiveness of measures not in place. The Province, in its Final Argument, cautioned the NEB against relying on speculative measures, and that must be kept in mind in this process.

Efficiency at the level of accommodation measures is a separate issue, and must be balanced with efficacy. Simply having measures is not enough; these measures must be assessed against the EAO's stated goals of environmental, economic and social sustainability. This must be underlined in this case, because as we will see, the Province of B.C. is on record criticizing many of these measures as being inadequate to safeguard the coast it is responsible for. The EAO is now citing these same measures as being adequate accommodation.

We will survey the matters of law and regulation, before turning to matters of judgement.

### **EAC conditions**

The only references to shorelines are contained with Condition 35. As noted in our comments on that condition above, we support added granularity to that condition. As a research condition, it can supply valuable information about the behaviour of diluted bitumen on shore, but does not address the bulk of shoreline issues.

### **NEB conditions**

Condition 97 references foreshores, but only in the context of construction efforts at Westridge Marine Terminal (WMT).

None of the conditions pertaining to spill response specifically address shoreline issues.

This omission was noted by many intervenors over the course of both Trans Mountain hearings. Among them was the Province. They raised this issue in the Reconsideration Hearing, [suggesting amendments](#) to condition 124 to reflect shoreline concerns from a spill at WMT. They also authored two [proposed conditions](#) relevant to shorelines for the NEB to consider. The first, in the topic area of Marine Geographic Response Plans, aimed to make GRPs along the Project route a matter of regulation, and not simply a voluntary initiative. The second, in the area of Baseline Data Collection, included requirements for shoreline mapping and bio-physical inventories for the express purpose of informing spill preparedness and response planning. Neither condition was adopted.

### **Existing federal or provincial regulatory mechanisms**

Shoreline protection is minimally regulated.

Transport Canada's Response Organization Standards state that Response Organizations must be able to treat 500m of shorelines per day. There is no mention to what standard. Response organizations must also provide training on spill response, and as part of this requirement, WCMRC does provide Shoreline Cleanup Assessment Team (SCAT) Training.

### **NEB recommendations to the GIC**

Recommendation 7 includes the following points that could touch on shoreline matters:

a) updating the 1995 Response Organization Standards

[...]

d) how completed and ongoing research related to oil fate and behaviour and response methods and technology will be considered in response planning, procedures, and equipment;

The standards mentioned in point a) contain the current shoreline treatment requirement. Point b) could involve shoreline cleanup considerations. In neither case are shoreline considerations made explicit.

At page 536, where the NEB discusses their desire for Recommendation 7 to involve “oil fate and behaviour and associated response planning and response gaps,” they do not specify shoreline cleanup, while making reference to other specific issues. It should be noted that while changes may come in this area of regulation as a consequence of this review, they are not currently in place, and no timeline for an outcome is associated with this recommendation.

### **Federal government accommodation measures**

GSA respectfully suggests that these accommodation measures, which the EAO has interpreted so broadly as to encompass Response Organization measures beyond the efforts of the federal government, are not simply a matter of considering duplication. Because these are no binding regulatory or legislative requirements, they cannot be considered disqualifying of regulatory efforts through certificate conditions, but must be weighed as to their effectiveness.

A set of criteria for analyzing effectiveness of these measures already exists. In its Final Argument, B.C. advanced a number of principles that it thought should inform the approach of the NEB.

These included:

- Mitigation measures for the project should have specific outcomes in mind
- Mitigation measure should have demonstrated effectiveness
- Mitigation measures should have a long-term time horizon
- Project conditions should be clear, measurable, and enforceable

These amount to a simple and common sense test: do these measures have a goal? Do we know these measures work, and are they in place right now? Can we rely on these measures in the long run? If these measures do not reach their intended standard, can the Province do something about it?

It is troubling to see the EAO reject these principles, and the common sense test they imply, in their comments on shorelines and spill response. The EAO is recommending that we discard these principles in favour of measures that are, variously, voluntary, future-facing, uncertain in their duration, and of no specific standard or outcome. For this reason, they do not propose setting clear, measurable, and enforceable conditions. We believe a closer examination of these measures is in order.

Some of the principles above were expressed by the Province in terms of specific criticisms of project mitigation measures advanced by the federal government. In discussing the various Oceans Protection Plan (OPP) measures in their Final Argument, the Province said:

Despite its significant focus on the OPP, the evidence filed by the federal government does not identify the specific outcomes of OPP initiatives with any precision. Instead, the evidence provides vague, high-level information on an assortment of initiatives designed to “address marine safety and environmental protection reoccurring issues and themes affecting all of Canada’s coastlines.”

[...]

Furthermore, as those initiatives are not yet fully implemented, their effectiveness remains untested. Whether those measures will actually lead to real and measurable improvements to the existing spill response regime is unknown, As one intervenor’s expert witness concludes: “Until Oceans Protection Plan initiatives are completed and fully operational, they should be considered as mitigation for Project-related impacts.”

They continued to criticize OPP measures for their short time scale:

The OPP is described as a five-year plan with over fifty initiatives being implemented over the course of five years. When pressed to identify how it will continue to meet the objectives of the OPP beyond the first five years, Transport Canada states, on behalf of federal government intervenors: “the results in this period will inform the ongoing implementation beyond five years...” As the evidence provides no further information with respect to the future of those initiatives, it is

unclear whether the federal government has turned its mind to their continuing implementation beyond five years.

Despite this cogent criticism, the EAO indicates that OPP measures should now be considered reliable. The Planning for Integrated Environmental Response (PIER) initiative, for example, is presented by the EAO as a measure helping to protect shorelines from a potential spill. Publicly available information on PIER is limited, but this [briefing document](#) seems to indicate funding is only in place for one key participant, ECCO, until 2021-2022. The paucity of public information on this program makes it impossible to independently assess what the specific outcomes of this program are, or whether they have demonstrated effectiveness. For measures like PIER, even the outcome the EAO points to, area response plans, are themselves not a guarantee of effectiveness. Although a broad consultative process involving multiple stakeholders will provide some measure of vetting, it is unclear to whose standard they are being held; and even a completed set of plans cannot be considered effective until they have been thoroughly tested. The EAO cites the Coastal Environmental Baseline Program as a baseline data collection program. This program, which was launched in 2017, is a 5-year program, therefore having very limited duration. In contrast, its geography is quite far flung, covering 6 ports in different regions of Canada. The program is only partially relevant to the Project area, as only one of those ports, the Port of Vancouver, is along the Project tanker route. It is a measure intended to address an issue other than baseline data collection for the Project-area that could be an aid in only a limited portion of said area.

The EAO also puts their faith in WCMRC measures. These now go beyond the test the EAO has set out - these are not federal accommodation measures, but are instead voluntary measures from the Response Organization. These measures include the Geographic Response Strategy initiative. The EAO, again, ignores the criticisms of this very mitigation measure the Province levied in its Final Argument. At paragraph 50, they quoted Nuka Research's assessment of WCMRC's Geographic Response Strategy, which says the information publicly available "lacks the level of specificity necessary for these plans to be operationalized." B.C. goes on to say "it is unclear whether the GRSs developed to date meet international best practices, address local environmental, economic, social and cultural values, or would be an effective tool to mitigate the effects of a spill in a sensitive area." The Nuka assessment of WCMRC's GRS initiative, contained in

[TWN evidence](#) filed in the Reconsideration hearing, goes on to question whether multiple GRSs could be deployed at the same time, due to equipment and labour constraints. This initiative may be successfully deployed, or it may not be. It cannot be considered an effective measure at present.

WCMRC has other measures pertaining to shoreline protection. They have voluntarily aimed to increase their capacity to treat 3000m a day, and to issue Revised Shoreline Cleanup and Convergent Volunteer Plans. Were these to be done to a high standard, these could directly address many shoreline response concerns. However, according to [CER filings](#) for January 2020, these are incomplete, with increased shoreline cleanup capacity remaining an aspiration, and revised plans remaining in draft form. As far as GSA is aware, their contents have not been made public, meaning that the assumptions and measures contained therein have not been subjected to outside expert or public scrutiny. In its Final Argument, the Province criticized WCMRC for providing only schematic, high-level information about specific spill response plans:

A table of contents does not allow for an assessment of the adequacy of the plan for any conclusions to be drawn with respect to the operational capacity available to support its implementation.

Strong conditions issued by the EAO on this topic would allow for the level of scrutiny required, and could transform these voluntary measures into something effective. As they stand, there is no demonstrated effectiveness.

The lack of demonstrated effectiveness for these initiatives has been hand-waved away by Trans Mountain, the federal government, and now the EAO, with references to future improvement. This topic has also been addressed by the Province in the past. In their [Argument-in-Chief](#) for the MH-052-2018 Hearing, Trans Mountain stated:

The prospect of further research and refinement of mitigation in the future should provide comfort to the Board that mitigation measures will not be frozen in time at the conclusion of this Reconsideration process; rather, they will appropriately evolve and improve over time with the science to ensure that the best mitigation options continue to be implemented over the life of the Project



The Province of B.C. responded in their [Final Argument](#)

The Province submits ...it would be wholly inappropriate for the Board to take into consideration hypothetical future enhancements to the mitigation measures that would be in place or the Project, and to allow itself to be “comforted” by Trans Mountain’s conjectures about the continuous improvement of the Project...[T]he Board must have sole regard to the evidence on the record with respect to the environmental effects of Project-related marine shipping the proven effectiveness of mitigation measures. There is no place for speculation in the discharge of that duty.

This argument is key. The EAO has detailed many of the host of measures involving the federal government, Trans Mountain, and WCMRC. Continued collaboration, voluntary efforts, future-facing efforts, research initiatives, and working groups are all good things. There is no desire from Georgia Strait Alliance to see them end. They may provide information important to achieving better spill response and, in this specific instance, protecting B.C.s shorelines from a catastrophic oil spill from a Project-associated tanker. But they are not a substitute for regulations constructed for that purpose, and none of them amount to functional measures of protection right now.

With that said, whatever voluntary or future-facing initiatives are underway may already meet the standards that were suggested in proposed conditions from Squamish Nation, Tsleil-Waututh Nation, and City of Vancouver; and separately, GSA. If so, it’s a simple administrative matter to introduce them as measures fulfilling conditions. If they are not sufficient, however, detailing requirements will ensure that something is.

GSA’s position is similar to the position once taken by the Province: mitigation measures for the Project should have specific outcomes in mind, have demonstrated effectiveness, and a long time horizon. Speculation about future measures is not good enough for the coast the province is responsible for.