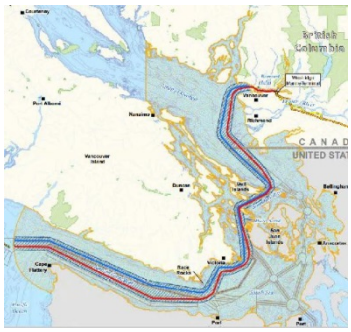
Trans Mountain Expansion Project
NEB Hearing Order OH-001-2014

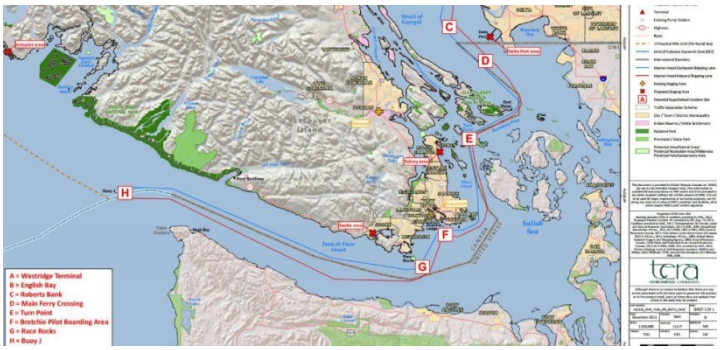
Government of Canada Responses to:
The Board of Friends of Ecological Reserves

Please note that these responses do not imply acceptance of any or all of the facts alleged in the Preambles contained in the Information Requests.

1) Preamble:

The Ocean's Act pre-amble states "WHEREAS Canada promotes the wide application of the precautionary approach to the conservation, management and exploitation of marine resources in order to protect these resources and preserve the marine environment". This signals the need for government departments to take a precautionary approach to protection of the marine environments to be consistent with the legislated intensions. The Board of FER is seeking information on improving marine safety and reducing risk of groundings due to tanker and cargo ship malfunctions through a change in the existing marine tanker route along the Victoria water front away from Oak Bay Island and Trial Islands Ecological Reserves. We do not understand the status quo and why a realignment of shipping routes requiring ALL cargo ships and tankers to enter and exit further off shore would not be better, in keeping with the Ocean's Act precautionary and safest option. We seek information on why a change in the route related to point F, referred to as the Brotchie Pilot Boarding area, is needed as it appears to force large ships to make 3 course corrections for both incoming and outgoing ships. We presume this is for the convenience of the Government of Canada Coast Guard to facilitate "dropping of pilots" at Brotchie Ledge (Location F in the maps below) nearer (Ogden Point). If two course corrections were adopted then ALL tankers would remain further off shore. It is our understanding that in reading TMX reports on rudder malfunctions, even with escort tugs, there are less than a dozen minutes to avoid a grounding when within a kilometer of shore or avoid a collision if near another ship. The further off shore a tanker or other cargo ships is routed, the great the time afforded to take corrective action in the event of malfunctions or human error. Finally if the shipping routes were straightened out, it is possible to provide greater separation within Canadian waters between incoming and outgoing. See maps below.





A 2015 image of an Oil Tanker and Escort Tug off Oak Bay Islands Ecological Reserves is included to show the proximity of the route to the Ecological Reserve.

Information request 1. A request to Transport Canada

Request:

1.1 Are the longer tanker routes for incoming and outgoing shipping (routes that more closely parallel the Victoria water front and bring all shipping closer to Trial, Oak Bay and Race Rocks Ecological Reserves) principally for the convenience of pilot drop off at Brotchie Ledge?

Response [TC]:

Existing vessel traffic is required to follow the traffic separation scheme, established to ensure the safe passage of all vessels in the Salish Sea.

The location of pilot boarding and disembarkation was chosen principally for the safety of the pilots and proximity to pilot vessel mooring locations. As noted in Finding 18 of the TERMPOL report (C353-4-3 - TMEP TERMPOL Report December 11 2014 - A4F8Z4), the TERMPOL Review Committee supports an extension of the pilot disembarkation station and tethered tug escort requirements for Project tankers to an

area in the vicinity of Race Rocks, weather permitting and subject to the requirements identified in a Pacific Pilotage Authority 'Notice to Industry'.

Request:

1.2 How and when will the current tanker route be reassessed from a safety and risk of groundings perspective? If there is a strong rationale that supports improved safety and it is found that there is lower risk afforded by moving shipping routes further off shore, when can the safer and further off shore and shorter tanker route be implemented?

1.3 How is the current shipping route consistent with the Ocean Act "precautionary approach" to the marine environment since there are three course corrections needed by all cargo ships and tankers and this brings all shipping nearer to the Trial Island, Oak Bay Islands and Race Rocks Ecological Reserves as well as the Victoria waterfront?

Response [TC] to 1.2 -1.3:

Trans Mountain conducted a risk assessment that included the probability of a grounding event occurring along the existing shipping route. Trans Mountain committed to mitigation measures to address the increased risks associated with the project. Please refer to the TERMPOL report for further information (C353-4-3 - TMEP TERMPOL Report December 11 2014 - A4F8Z4).

2) Preamble: (A request to Natural Resources Canada (NRCan)

Natural Resources Canada in their IR1 identified in an appendix a Cabinet Directive. (https://docs.neb-one.gc.ca/lleng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2451199/2786712/C249-9-2_-_NRCan_Written_Evidence_ANNEX_A-K_27May15_A4Q0V3.pdf?nodeid=2786907&vernum=-2).

This directive includes direction on monitoring and states on page 6

"On going monitoring, including the establishment of baseline monitoring for the regulatory system."

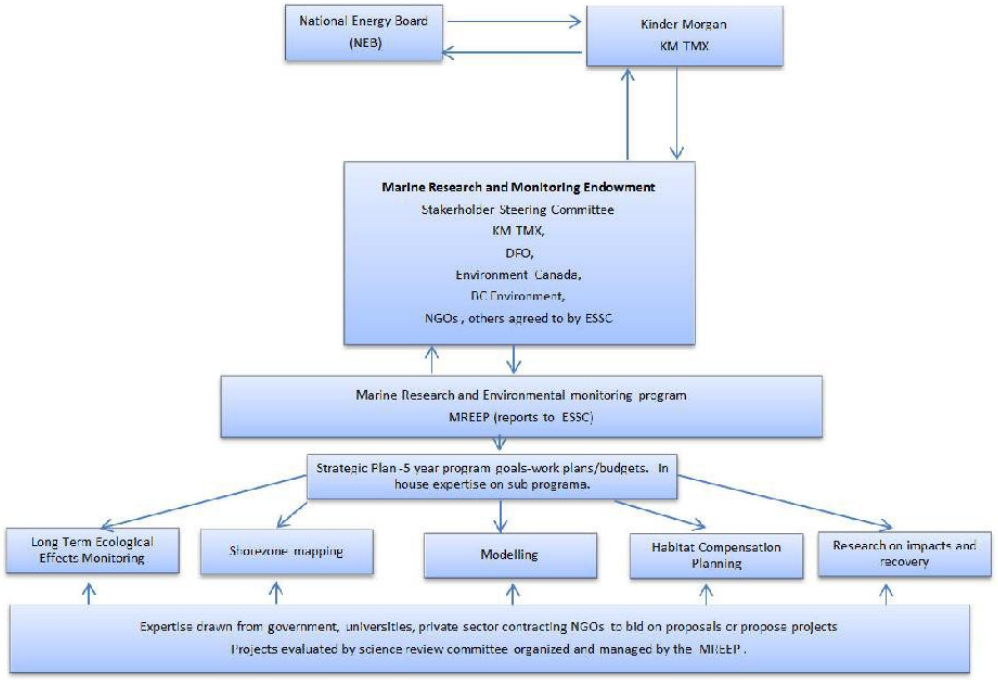
It is also noted that NRCan states that under the Major Projects Management Office. "*The Minister of Natural Resources has established a Major Projects Management Office within the Department of Natural Resources. The objectives of the Office are to improve public oversight of the regulatory system for major resource projects by enhancing transparency and monitoring: and its public accountability through the use of timelines and other service standards."*

It is encouraging that baseline monitoring for the regulatory system is identified as needs as is transparency and that this is Cabinet direction to NRCan. NRCan in the IR

to KM- TMX also identified the need for baseline monitoring. Our interpretation of this direction to NRCan is that NEB can, in good faith, place conditions on KM-TMX that require longer term monitoring as a permit condition as was done for the Northern Gateway permit and this is consistent with these directives.

The Board of Friends of Ecological Reserves (FER) has been seeking pre-spill baseline monitoring for the marine ecosystems along the tanker route as a permit condition for KM-TMX. The need for pre-spill baseline information was informed by the Exxon Valdez spill and the post spill monitoring programs and regret over the lack of pre-spill data. The Board of FER has proposed to the NEB a pre-spill fund (Endowment) supported by KM-TMX with a Trustee Council to guide longer term monitoring. This industry-government-stakeholder Trustee Council would provide oversight to ensure there is sufficient baseline data consistently collected over the life of the KM-TMX project. Such a structure appears to be consistent with the NRCan mandate, Cabinet Directive and enhancing transparency and consistency for monitoring information and afford public accountability.

The structure and outline of the Endowment and multi-agency oversight Trustees is included in the Board of FER Final Evidence report and the flowchart for reporting is included here. (https://docs.neb-one.gc.ca/lleng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450919/2786560/C33-6-1_-_Friends_of_Ecological_Reserves_Evidence_KM_TMX_for_NEB Report_A4Q2T7.pdf?nodeid=2786371&vernum=-2)



Information request 2 for Natural Resources Canada.

Request:

2.1 What baseline environmental monitoring and inventory does NRCan currently conduct in the marine ecosystems of Pacific Coast along the tanker route that would inform pre-spill environmental conditions?

Response [NRCan, EC]:

NRCan does not conduct any baseline environmental monitoring of marine ecosystems of the Pacific Coast along the tanker route as this is outside the scope of NRCan's mandate under the "Public Safety Geoscience Program".

Request:

2.2 If NRCan does collect marine monitoring information, what type of data is the data collected and where and how can it be accessed by Canadians? For NRCan maintained marine monitoring data, please provide links to data custodians, protocols and standards and the data warehouse where data can be accessed.

Response [NRCan, EC]:

NRCan makes use of some ocean current and turbidity monitoring in the Strait of Georgia through Ocean Networks Canada (ONC)'s VENUS observatory (Victoria Experimental Network Under the Sea) at the University of Victoria in British Columbia. ONC is the observatory operator and maintains the data archive. This data is made available to the public through their website. http://www.oceannetworks.ca/

Request:

2.3 Does NRCan support a multi-agency-stakeholder approach to governance of major projects as a means to meet Cabinet Directives for monitoring and transparency along the lines proposed by Board of Friends of Ecological Reserves to the NEB?

Response [NRCan-MPMO]:

Natural Resources Canada's Major Projects Management Office (MPMO) is open to meeting with stakeholders to discuss potential improvements to the regulatory system for major projects. However, this question is outside the scope of the List of Issues for the Project and is not relevant to the Panel's decision making process.

3) Preamble: Information request for Environment Canada (EC)

Environment Canada (EC) in an information request to KM-TMX sought from KM-TMX all records of past consultation activities with Environment Canada (i.e. meeting

minutes). Here is that request. Environment Canada 2.023 Page 58. SPECIES AT RISK, MIGRATORY BIRDS AND WETLANDS

Environment Canada Request: EC requests that the Proponent file all records of past consultation activities with Environment Canada (i.e. meeting minutes).

KM TMX Response:

Please find attached seven sets of meeting notes; six attachments related to the list requested in this IR and one attachment providing the meeting minutes for a conference call between Trans Mountain Pipeline ULC (Trans Mountain) and Environment Canada on December 16, 2014 about Trans Mountain providing support to Environment Canada's collection of baseline data on marine birds.

- GoC EC IR No. 2.023 - Attachment 1 (EC TMEP Meeting Notes April 17 2013)
- GoC EC IR No. 2.023 - Attachment 2 (EC TMEP Meeting Notes May 24 2013)
- GoC EC IR No. 2.023 - Attachment 3 (EC TMEP Meeting Notes July 3 2014)
- GoC EC IR No. 2.023 - Attachment 4 (EC TMEP Meeting Notes Oct 10 2014)
- GoC EC IR No. 2.023 - Attachment 5 (EC TMEP Meeting Notes Oct 22 2013)
- GoC EC IR No. 2.023 - Attachment 6 (EC TMEP Meeting Notes Oct 23 2014)
- GoC EC IR No. 2.023 - Attachment 7 (EC TMEP Meeting Notes Dec 16 2014)

These attachments could not be found on the KM-TMX web site.

Board of FER believes these meeting notes are important to the process and should be available to all intervenors.

Request:

3) Please provide to the Board of FER, minutes of meetings between Environment Canada and KM-TMX. Ideally these should be made available on the NEB web site for other intervenors.

Response [EC]:

The requested meeting notes are Exhibits B310-5 to B310-11 and are available at:

B310-5 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_1 - A4H6A8

B310-6 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_2 - A4H6A

B310-7 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_3 - A4H6C0

B310-8 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_4 - A4H6C1

B310-9 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_5 - A4H6C2

B310-10 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_6 - A4H6C3

B310-11 - Trans_Mountain_Response_to_GoC_EC_IR_No._2.023-Attachment_7 - A4H6C4

4) Preamble: Information request for Environment Canada (EC)

The above meetings (IR-3) focused on terrestrial wetland systems and species at risk and not on species listed in marine environments listed by COSEWIC or under the SARA. We do note there was considerable dialogue between EC and KM-TMX on other terrestrial species too. The Board of FER listed all species at risk for marine Ecological Reserves but we are unclear about the EC activities on these species and their recovery plans. For an ER-specific listed species, see the Board of FER final written evidence filing https://docs.neb-one.gc.ca/lleng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450919/2786560/C33-6-1_-_Friends_of_Ecological_Reserves_Evidence_KM_TMX_for_NEBReport_A4Q2T7.pdf?nodeid=2786371&vernum=-2

Request: A request to Environment Canada

4.1 What baseline environmental monitoring and inventory does EC currently conduct in the marine ecosystems of Pacific Coast along the tanker route that would inform pre-spill environmental condition?

4.2 If EC does collect marine monitoring information, what type of data is collected and where and how can it be accessed by Canadians? For EC-maintained monitoring data please provide links to data custodians, protocols and standards and where data can be accessed.

Response [EC] for 4.1-4.2:

EC-CWS (Canadian Wildlife Service) Programs

EC-CWS (Canadian Wildlife Service) implements a number of programs and initiatives in marine ecosystems along the Pacific Coast. These primarily relate to migratory birds. Current monitoring activities focus on tracking populations (e.g. generating population estimates, identifying bird use of important habitats or generating population trend estimates for migratory bird species and some SARA-listed Migratory Birds). In the past, EC-CWS was also engaged in migratory bird inventory work and the results of past regional migratory bird inventories are available in CWS technical reports. Because of our mandate on migratory bird populations, EC-CWS, generally speaking, does not

currently engage in broad monitoring activities that evaluate 'baseline state' of specific marine habitats or ecosystems.

The following is a list of EC-CWS current monitoring activities or programs undertaken along the tanker route:

- **Pelagic Marine Bird Monitoring Program**: Trained observers (staff or contractors) are placed on 'ships-of-opportunity' traversing the pelagic waters of the Canadian Pacific Exclusive Economic Zone, and collect pelagic bird data according to an established protocol. All data are entered into the 'Pacific Seabird Database'.

- **Estuary and nearshore surveys:** Estuary and nearshore surveys of waterbirds and waterfowl have been conducted from the ground and from the air (float plane) in portions of the tanker route in parts of Georgia Basin to capture mid-winter and early spring (January to March) distribution and abundance of waterfowl and waterbirds.

- **Shorebird Migration Surveys:**
    - Roberts Bank Shorebird Counts - conducted during northward migration (focal species: Western Sandpiper and Dunlin)
    - Sidney Island Shorebird Counts - conducted during southern migration (focal species: Western Sandpiper and Least Sandpiper)

Identification of marine bird sensitivities under the World Class Tanker Safety System (EC-CWS):

As a component of the World Class Tanker Safety System initiative (Phase 1a - focused on the mid- and north coast regions, Phase 2 – focusing on the Salish Sea and waters off western Vancouver Island), EC-CWS has been resourced to collect additional marine bird data. We are using these additional resources to collect two basic types of data:

- Under both Phase 1a and Phase 2, a suite of remote tracking studies (i.e. via geolocation archival [GLS], global positioning system [GPS] and platform terminal transmitters [PTT, or simply satellite] tags) designed to link baseline marine survey data with potential impacts of an oil spill event to regional populations of focal marine bird species, through tracking spatial-temporal movement patterns of birds captured and tagged on the water or at important local breeding colonies. Although many of the marine bird tagging programs have not taken place in areas adjacent to the TMX proposed tanker route, marine

birds tagged elsewhere in BC waters may move through or utilize the region, so any of these projects have the potential to generate relevant data.

- Under Phase 2 only, an additional suite of marine bird survey and inventory activities, targeting priority bird groups or areas of aggregation within the region. Most of these survey activities are concentrated in the fall and winter periods when marine bird abundance and species diversity are highest.

Data from the World Class Tanker Safety System is processed and stored in a number of ways:

- Satellite telemetry data are regularly uploaded to Movebank, a free, online database of animal tracking data https://www.movebank.org

- Other tagging data (i.e. data from retrieved geolocator and GPS data-loggers) are currently being collected, processed, and integrated into spatial modelling products.

- Occurrence data or other products generated by marine bird monitoring activities funded under WCTS Phase 2 will be stored, either in existing databases or in new databases, as appropriate.

COSEWIC-listed and SARA-listed species that occur along the tanker route that are monitored by EC-CWS:

Table 1. COSEWIC-listed and SARA-listed species that occur along the tanker route that are monitored by EC-CWS. The surveys are described above. Please note this list may not be exhaustive.

Species of Interest	COSEWIC Status	SARA Status	Survey	Type of Data
Albatross, Short-tailed	Threatened	Threatened	Pelagic	Presence/absence
Murrelet, Marbled	Threatened	Threatened	Pelagic	Presence/absence
Shearwater, Pink-footed	Threatened	Threatened	Pelagic	Presence/absence; at-sea density estimates
Auklet, Cassin's	Special Concern	No Status	Pelagic; WCTSS*	Geo-locator tracking; at-sea density estimates; at-sea presence/absence
Grebe, Horned	Special Concern	No Status	Estuary, nearshore	Presence/absence
Grebe, Western	Special Concern	No Status	Estuary, nearshore	Presence/absence
Murrelet, Ancient	Special Concern	Special Concern	Pelagic; WCTSS*	Geo-locator tracking; at-sea density estimates
Phalarope, Red-necked	Special Concern	No status	Pelagic	Presence/absence

**WCTSS = World Class Tanker Safety System – remote tracking studies*

Data access to EC-CWS monitoring information:

EC-CWS is in the process of uploading data that is validated and checked for sensitivities from EC-CWS monitoring activities or programs, to the Open Data Portal,

which will provide full access to data for Canadians (http://open.canada.ca/data/en/dataset).

Before making the data available to the public, all datasets must be entered and verified for accuracy and limitations under data sharing agreements. The verification of data necessitates a delay in release of data that, depending on the complexity of the data, could be one or more years. Data available publicly, via the Open Data Portal will therefore be at least a year old. Information regarding data custodians, protocols, and standards (and any other metadata) will be included with the metadata that will accompany any dataset available online.

EC-Science and Technology (S&T) Programs

Species-specific long-term monitoring programs (EC-S&T):

EC-S&T branch conducts the following long-term monitoring on marine bird populations:

- Harlequin duck surveys between White Rock and Crescent Beach from 1994-present (bird counts)
- Wrangel Island Snow Geese surveys on the Fraser River Delta (1987-present) and Skagit River deltas (1992-present)
    - Note the State of Washington has taken over this monitoring in the last 2 years
- Black brant spring migration counts at Parksville-Qualicum Beach from 1989-present (abdominal profiles since 1999)

Long-term monitoring of contaminants in eggs of Pacific seabirds (EC-S&T):

- Eggs of three colonial seabird species (Leach's storm petrel, double-crested cormorant, rhinoceros auklet) are collected from coastal colonies (including within the Strait of Georgia for cormorants), every four years for analysis of legacy persistent organic pollutants, flame retardants, perfluorinated compounds and mercury (1985 to present).
- Eggs of glaucous-winged gulls are collected annually at two islands in the Strait of Georgia as part of the Chemicals Management Plan Monitoring and Surveillance Program. Eggs are analyzed for emerging and priority compounds (2008 to present).

It is expected that the above EC-S&T studies will be published in peer-reviewed research articles in the next few years; many have already resulted in publications. Once a study is published, any associated datasets or other metadata (e.g. protocols and standards) not included in the published article may be accessed by the public by

contacting the author of the article (contact information is generally included with the article).

Egg contaminants data from the Chemicals Management Plan Monitoring and Surveillance Program is in the process of being posted on EC's Open Data Portal (http://open.canada.ca/data/en/dataset). Information regarding data custodians, protocols, and standards (and any other metadata) will be included with the metadata that will accompany any dataset available online.

Long-term programs coordinated and implemented by EC-CWS partner Bird Studies Canada

The following long-term programs, coordinated and implemented by EC-CWS partner Birds Studies Canada, also collect data relevant to monitoring marine birds:

- British Columbia Coastal Waterbird Survey (http://www.bsc-eoc.org/volunteer/bccws/)
    - This survey is a citizen-science initiative wherein volunteers conduct monthly bird counts throughout BC's coastal shorelines. The survey is coordinated by Bird Studies Canada, and funded through multi-year Grants and Contributions from the Canadian Wildlife Service, Environment Canada.

- British Columbia Beached Birds Survey (http://www.bsc-eoc.org/volunteer/bcbeachbird/)
    - This survey collects *"baseline information on the causes and rates of seabird mortality. This program relies on volunteers who conduct monthly beach walks, looking for seabird carcasses that have washed up onshore."*

Please contact Bird Studies Canada for more information regarding these programs:

- Phone: 1-877-349-2473
- Email: bcprograms@birdscanada.org

Request:

4.3 Does EC have responsibility for COSEWIC and SARA listed species and recovery plans being implemented in the marine environments along the tanker route and for species that may be impacted by an oil spill?

Response [EC]:

In the marine environments along the tanker route, EC has responsibilities under the *Species at Risk Act* (SARA) for marine migratory bird species at risk. Aquatic species at

risk are the responsibility of Fisheries and Oceans Canada. The marine bird species at risk that have the potential to be impacted by the Project are listed in Table 2-4 of EC's Written Evidence (Exhibit C121-3-1, starting on PDF page 66). Additionally, EC notes that there are several terrestrial species located along shorelines within the Marine Project Area, for which critical habitat has been identified (Exhibit C121-3-1, PDF page 35). These habitats have the potential to be impacted by a marine oil spill. For terrestrial species, EC has responsibilities under SARA for those individuals of a wildlife species that are not located in or on lands administered by Parks Canada Agency.

As described in EC's Written Evidence (Exhibit C121-3-1, PDF page 10), EC has responsibilities under SARA regarding recovery planning, protection, permitting, and other activities identified within the legislation. EC has responsibilities regarding the preparation of recovery plans (recovery strategies, action plans, and management plans); however, it is recognized that successful implementation of recovery plans depends on the commitment and cooperation of many different constituencies and stakeholders and cannot be achieved by EC or another jurisdiction alone. For terrestrial species that are not a migratory bird, and which do not occur on federal land, the provinces and territories carry considerable responsibility for recovery of species at risk within their jurisdiction.

Based on the best available information, SARA requires an identification of critical habitat for Threatened, Endangered, and Extirpated species to the extent possible in a recovery strategy or action plan. Once critical habitat is identified in a final recovery strategy or action plan, SARA sets out a process to evaluate existing protection mechanisms, and if necessary, to put in place additional protection under SARA. EC focused its species at risk review and recommendations on those species for which there is a greater level of concern with respect to potential adverse impacts from the Project, including species for which critical habitat has been identified in areas overlapping with the Project. Marine bird species currently do not have marine critical habitat identified; however, work is underway to develop marine critical habitat for marine bird species, and marine critical habitat will be posted on the SAR Public Registry once available as an amendment to or part of a recovery strategy or action plan.

Although COSEWIC is created by legislation (SARA S.14), species assessed as at risk by COSEWIC are not automatically protected under SARA. Once the Governor in Council decides to list a species under SARA, then EC has responsibilities regarding the species. However, EC generally recommends that COSEWIC-listed species be included in the assessment of project effects as a best management practice in advance of the species being considered for listing under the SARA in the future.

In addition to responsibilities for marine bird species protected under SARA, EC is responsible for enforcing the prohibitions of the *Migratory Birds Convention Act*, 1994 (MBCA) for all migratory birds. These prohibitions are described in EC's Written Evidence (Exhibit C121-3-1, PDF page 37), and include the prohibition of the deposition of a substance that is harmful to migratory birds in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area (see Section 5.1 of the MBCA).

Request:

4.4 We request summaries of meetings between EC-Canada and KM-TMX on marine species recovery plans for SARA and any decisions on monitoring, practices and research that have been made by either party or/and KM-TMX of EC that resulted from such meeting?

Response [EC]:

While meetings were held between EC and the Proponent regarding marine bird baseline and monitoring, and species at risk were discussed as part of a broader discussion on marine birds within the Marine Project Area, no meetings were held that specifically targeted marine bird species or their *Species at Risk Act* (SARA) recovery plans. Refer to EC's response to IR3 for the location of minutes of meetings between EC and the Proponent.

Refer to EC's response to IR 4.3 above for information regarding EC's responsibilities under SARA and a discussion of the focus of EC's analysis and recommendations for species at risk in EC's Written Evidence (Exhibit C-121-3).

EC's recommendations on the collection of marine bird baseline data were not developed in consultation with the Proponent. Rather, EC developed the recommendations. The recommendations follow a multi-species approach rather than focusing on single species for two reasons (the approach was noted in Meeting Minutes from Oct. 2014, Exhibit B310-11, PDF page 1). First, many marine bird species, including, but not limited to species at risk, have specific vulnerabilities to oil spills.

Second, with respect to baseline and monitoring activities, EC views a multi-species approach as more effective at describing species composition and their spatial and temporal abundance patterns within the Project Marine Area. Consequently, a multi-species approach will be more effective at identifying high consequence areas/habitats in the event of an oil spill. Species of conservation concern can be especially vulnerable to oil spills in the marine environment because their populations are subject to other ongoing threats. However, EC highlights that bird species found in much greater

numbers are similarly important (as noted in Meeting Minutes from Dec. 2014, Exhibit B310-10, PDF page 2).

High consequence areas would need to be considered in order to effectively prioritize cleanup sites and direct management actions to locations that will have the most impact; inform the development of recovery initiatives; determine the types and levels of compensation measures; and, allow for an evaluation of recovery success in the event of a spill. The main role of emergency response and recovery measures is to mitigate, to the greatest extent possible, impacts to marine birds in the event of an oil spill. Given that such measures would be most effective at reducing impacts to marine birds when planned on the basis of high consequence areas, no specific recommendations on species of conservation concern were deemed essential.

5) Preamble. Information Request for Environment Canada (EC)

Page 230 GOC IR 1 request states from EC to KM-TMX. Emphasis added by Board of FER.

*While Environment Canada recognizes that some of the details of this plan may be determined post-environmental assessment, a detailed outline of the plan, including the main points highlighted below, should be provided as part of this environmental assessment review. The **stated objectives for the baseline monitoring** plan should describe and quantify the spatial and temporal abundance and distribution patterns (i.e. for four seasons) of marine and near-shore birds (including seabirds, waterbirds, waterfowl, and shorebirds, where relevant) within the project area, including Burrard Inlet and the Juan de Fuca Strait.*

Specifically, the activities and programs associated with the baseline to be collected as part of the monitoring plan should: Specifically, the activities and programs associated with the baseline to be collected as part of the monitoring plan should:

a) *Focus on marine bird community use of marine and nearshore (subtidal/intertidal) habitats throughout the project area and identify how those habitat types would be impacted should a spill occur.*
b) *Ensure that key, sensitive habitats are sampled at such effort to allow an assessment of their use by marine birds. Specifically sampling efforts should include:*
    - i) *Aerial and boat-based surveys;*
    - ii) *Surveys conducted three years pre-expansion activities, three years post-expansion activities (throughout the annual cycle and consecutive), as well as ongoing monitoring after this period at a reduced intensity; and*
    - iii) *Surveys conducted at such a frequency that information on distribution, abundance and habitat use of marine and near-shore species will be obtained during the breeding, wintering, and spring and fall migration seasons. In this respect, Environment Canada recommends a minimum of monthly surveys or a survey frequency that result in a coefficient of variation of ca. 20% for priority species or assemblages*

(Smith, 1995).

Board of FER is pleased that EC has identify a longer term KM TMX obligation (permit condition) for increased monitoring.

Request:

5.1 Please supply the wording and commitments made by KM-TMX of other assurances EC will supply EC requested 3 years of pre-expansion monitoring.

Response [EC]:

EC notes that the Department has received clarification from the Intervenor, Friends of Ecological Reserves, regarding this question. The Intervenor has indicated that it does not believe that 6 years of pre-spill data is sufficient and is unsure if EC is able or willing to continue monitoring after 6 years.

EC recommends that the Responsible Authority require that the Proponent develop a marine bird baseline monitoring plan (see Recommendation 2-16, EC Written Evidence, Exhibit C121-3-1, PDF pages 77-80), and that the Proponent work in consultation with EC-CWS, as well as others, as appropriate, during the development and implementation of the plan. The responsibility for the development and implementation of the monitoring plan lies with the Proponent.

In EC's Written Evidence (C121-3-1, PDF page 78), EC recommends that the marine bird baseline monitoring plan include surveys conducted 3 years pre- and 3 years post-expansion activities, as well as ongoing monitoring after this period; however, EC is not providing this data. Some collaboration between EC and the Proponent has occurred though, as noted by the Proponent in their response to EC IR 2.047 (Exhibit B310-2, PDF page 232): "*Trans Mountain has provided support for Environment Canada to expand on the agency's existing program of collecting marine bird data from operating vessels.*" This pilot project involved placing an observer contracted by EC on a tug that accompanied a tanker to conduct marine bird surveys along the tanker route. EC believes that this approach would be beneficial as one component of the Proponent's overall marine bird baseline monitoring plan. However, the Proponent would be responsible for implementing further monitoring along the tanker route as part of that plan.

Request:

5.2 Are assurances consistent with the request that EC specified for a monitoring program?

Response [EC]:

The Proponent's responses regarding EC`s information request that the Proponent provide a marine bird baseline monitoring program are outlined in the Trans Mountain Response to GoC EC IR No. 2 (Exhibit B310-2, PDF pages 232-233). In particular, the Proponent indicated that it "*is supportive of forming a collaborative partnership to collect data on baseline physiological condition of marine birds with other industry stakeholders operating in Burrard Inlet and along the shipping route. Trans Mountain encourages further consultation with Environment Canada and other industry stakeholders on the structure and scope of such a monitoring program."*

EC is not aware of an assurance by the Proponent that it will develop or implement a marine bird baseline monitoring plan consistent with the specific requests outlined by EC in the Government of Canada IR No. 2.047 (Exhibit B310-2, PDF pages 229-231), and as further refined in Recommendation 2-16 of EC's Written Evidence (Exhibit C121-3-1, PDF pages 77-80) (e.g. surveys conducted 3 years pre- and post-expansion activities, as well as ongoing monitoring after this period).

Request:

5.3 EC has recognized the need for KM-TMX to conduct pre-spill monitoring. Would EC support a sampling program that goes beyond the 6 year-program it has proposed be conducted by KM TMX? Would EC in the 7th year be continuing the program begun by KM-TMX?

Response [EC]:

In Recommendation 2-16 of Environment Canada's Written Evidence (Exhibit C121-3-1, PDF pages 77-80), EC recommends that the marine bird baseline monitoring plan include "*surveys conducted three (3) years pre- and three (3) years post-expansion activities, (throughout the annual cycle and consecutive), as well as <u>ongoing monitoring after this period</u> at a reduced intensity for a subset of indicators*" (emphasis added). The intended approach for the recommended monitoring plan is that the Proponent is responsible for the implementation, including the ongoing monitoring after the three (3) years post-expansion activities. Thus, EC does not intend to continue any monitoring program initiated by the Proponent.

Request:

5.4 Does EC support a multi-agency-stakeholder approach for marine monitoring and transparency funded by an Endowment as outlined in IR 2 and as proposed to NEB as a condition?

Response [EC]:

In general, a collaborative approach to monitoring could involve benefits such as opportunities for sharing of expertise, skills, and resources, as well as enhanced oversight. EC recognizes that a collaborative approach to research has been used in the context of some environmental assessments. In an environmental assessment context, it is understood that monitoring associated with projects would be funded by proponents and endowments can be appropriate in funding long term monitoring.

Request:

5.5 Would EC Canada agree to provide management direction toward managing funds and inputs to setting priorities for projects funded through a Marine Endowment Fund for Research and Long-term Monitoring?

Response [EC]:

EC has an interest in marine research and monitoring related to its mandate. EC could, if capacity allows, provide expert advice on marine bird monitoring and modeling associated with the Project. In general, EC's involvement in trusts or initiatives, such as the one proposed by Friends of Ecological Reserves, would be considered in the context of EC's mandate, capacity, and role; the role of EC employees; and the extent to which the activity would further EC's mandate. EC would not manage funds.

6) Preamble: EC stated in its IR 1to KM-TMX the following:

Use the most appropriate scale/resolution to inform effects and guide studies, in both confined marine and near shore areas;

e) Include data sharing agreements that allow Environment Canada (and other departments and organizations, as deemed appropriate) to access the data collected to further build on:

- *i) value-added predictive modeling activities already underway;*
- *ii) existing emergency response databases;*
- *iii) Area Response Planning (ARP) initiatives and products for the Southern BC ARP, as part of a set of federal measures designed to achieve a World Class Marine Tanker Safety System in Canada; and*
- *iv) Species at Risk recovery planning, where applicable.*

Further EC stated on data management:

The Board of FER strongly supports the EC request for KM-TMX on data sharing and transparency. The Board of FER in our final written evidence report, does not support

industry-only lead modeling as the basis for planning for marine oil spills, quantifying environmental impacts as there is a vested interest in understanding impacts and industry will not self impose on changes to any practices should these increase costs. The Board of FER therefore has proposed that a multi-stakeholder group including industry (such as the Western Marine Resources Corporation) will be needed for a more objective and transparent approach to pre-spill planning and monitoring. The Board of FER recommends that a financial obligation be placed on KM-TMX, as this project brings the highest known risk to the marine ecosystems. The Board of FER requests an Endowment provide funds for modeling, research and monitoring with a multi-stakeholder group of Trustees to set strategic direction. This is proposed so that KM-TMX is not the sole determiner of what is done for setting priorities or selecting modeling approaches for the marine environment over the life of the project. See IR 2 for disclosure on the Board Proposal to NEB. The structure and outline of the Endowment and multi-agency oversight Trustees is included in the Board of FER Final Evidence report and the flowchart for reporting is included here. (https://docs.neb-one.gc.ca/lleng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450919/2786560/C33-6-1_-_Friends_of_Ecological_Reserves_Evidence_KM_TMX_for_NEB_Report-_A4Q2T7.pdf?nodeid=2786371&vernum=-2).

Request:

6.1 Does EC support a modeling and monitoring forum guided by a multi-stakeholder Trustee Council such as that proposed by Board of FER?

Response [EC]:

Please see EC's response to IR 5.4.

Request:

6.2 Would EC Canada provide expertise to participate as a Trustee over the governance and guide strategic directions for monitoring and modeling in the marine environment in the event that NEB establishes conditions for Endowment Funds as proposed by the Board of FER?

Response [EC]:

Please see EC's response to IR 5.5.

7) Preamble: IR for EC.

In a response to EC during the IR-1 round and specific to monitoring, KM-TMX stated they had provided $50,000 to the Pacific Salmon Foundation and $27,000 to Bird Studies Canada for work in Burrard Inlet. Board of FER has interpreted this to show that KM-TMX identifies its obligations ending at the Westridge Terminal and before dilbit is loaded on tankers, hence the restrictions on monitoring to only sites adjacent to the

Westridge Terminal. The Board of FER interprets the NEB mandate to mean that KM-TMX has long-term (life of the project) marine obligations. This is due to the issues listed by the NEB which are:

Issue 4: cumulative environmental effects that are likely to result from the project;

Issue 5: potential environmental and socio-economic effects of marine shipping activities including the potential effects of accidents or malfunctions that may occur;

Issue 11: contingency planning for spills, accidents or malfunctions during operation of the project.

The funds provided by KM-TMX are restricted by KM-TMX to projects strictly in Burrard Inlet within sight of the Westridge Terminal. Clearly direction for involvement in the marine ecosystem obligation go beyond the marine environment within sight of the Westridge Terminal. Further, on their response to G of C Page 232, KM-TMX states to EC that “In addition to these initial commitments (S77,500), Trans Mountain will continue to identify, select and evaluate potential environmental stewardship initiatives that align with priority areas of their Environmental Stewardship Program”.

This shows that KM-TMX sees environmental stewardship obligations as voluntary and discretionary where KM-TMX will pick what it wants to support in terms of Environmental Stewardship Programs and to what level they will provide funds. The Board of FER does not support the voluntary and discretionary approach by KM-TMX in light of Issues 4, 5 and 11. We maintain that KM-TMX has no discretion with longer term involvement along the tanker route and that only through a permit condition and inclusions of oversight by a multi- stakeholder Trustee Council and specified annual budget over the long term will these issues be adequately dealt with. See the Board of FER final written evidence filing for more detail on https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450919/2786560/C33-6-1_-_Friends_of_Ecological_Reserves_Evidence_KM_TMX_for_NEB Report-_A4Q2T7.pdf?nodeid=2786371&vernum=-2

Request:

7) A request to Environment Canada: Does EC support the need for long term monitoring of marine ecosystems and species along the oil tanker route and a long term role for KM-TMX to provide the resources and guidance to consistently deal with Issues 4, 5 and 11? Does EC believe that there will be new information on which to make incremental improvements in practices, training and infra- structure that will occur over the next 30 years with regard to environmental understanding and option to mitigate environmental risk?

Response [EC]:

In Recommendation 2-16 (C121-3 – Filing A70281 - Environment Canada - Written Evidence, PDF page 78), EC indicates that "*the objectives for the baseline monitoring plan should focus on the spatial/temporal abundance and distribution patterns (over four seasons) of marine birds (including seabirds, waterbirds, waterfowl, and shorebirds, where relevant) within the Project Marine Area, including Burrard Inlet, the southern Georgia Strait, southern Gulf Islands and the Juan de Fuca Strait*" (emphasis added). EC recommends that the marine bird baseline monitoring plan include "*surveys conducted three (3) years pre- and three (3) years post-expansion activities, (throughout the annual cycle and consecutive), as well as ongoing monitoring after this period at a reduced intensity for a subset of indicators*" (C121-3-1 Environment Canada - Written Evidence, PDF page 78).

Additionally, EC has made a recommendation relevant to Issue 11. Recommendation 4-5 (C121-3-1 - Environment Canada - Written Evidence, PDF page 132) states:

> *"EC recommends that the Proponent commit to supporting research on the development of standardized methods and research protocols for characterizing hydrocarbon behaviours in the environment, and to applying the new knowledge to the specific hydrocarbon products to be shipped. The resulting enhanced data and information on compositions, evaporation, emulsification, sediment mixing and other behaviours for the specific hydrocarbon products being shipped should be readily accessible to spill responders and regulators prior to transport."*

EC believes that new information may become available over the long-term that would allow for improvements in practices, training and infrastructure with regard to environmental understanding and options to mitigate environmental risk.

8) Preamble: IR 8 through 26 are for DFO

In the Recovery strategy for the northern and southern resident killer whales (Orcinus orca) in Canada http://www.sararegistry.gc.ca/default.asp?lang=En&n=A9748209-1&offset=3&toc=show The following two quotes are made:

2.2.3 ***Disturbance***

Shipping: Commercial shipping has increased dramatically in recent years. For example, between 1995 and 1999 the worldwide commercial shipping fleet increased 12% (NRC 2003). There are few studies that have measured changes in the background underwater noise levels over time, but those that do suggest that increased vessel traffic is responsible for the increase in ambient noise over the last 100 years

(e.g. Andrew et al. 2002). In the northern hemisphere, shipping noise is the dominant source of ambient noise between 10 to 200 Hz (NRC 2003).

While shipping energy is concentrated at low frequencies, ships produce significant amounts of high frequency noise as well. The consequences of these chronic sources of noise on killer whales have not been assessed.

2.2.4 Oil spills

While the probability of either northern or southern resident killer whales being exposed to an oil spill is low, the impact of such an event is potentially catastrophic. Both populations are at risk of an oil spill because of the large volume of tanker traffic that travels in and out of Puget Sound and the Strait of Georgia (Baird 2001, Grant and Ross 2002) and the proposed expansion of tanker traffic in the north and central coast of BC. In 2003, 746 tankers and barges transported over 55 billion litres of oil and fuel through the Puget Sound (WDOE 2004). If the moratorium on oil and gas exploration and development is lifted in British Columbia, the extraction and transport of oil may put northern resident killer whales at additional risk.

Killer whales do not appear to avoid oil, as evidenced by the 1989 Exxon Valdez oil spill in Prince William Sound, Alaska. Less than a week after the spill, resident whales from one pod were observed surfacing directly in the slick (Matkin et al. 1999). Seven whales from the pod were missing at this time, and within a year, 13 of them were dead. This rate of mortality was unprecedented, and there was strong spatial and temporal correlation between the spill and the deaths (Dahlheim and Matkin 1994, Matkin et al. 1999). The whales probably died from the inhalation of petroleum vapours (Matkin et al. 1999). Exposure to hydrocarbons can be through inhalation or ingestion, and has been reported to cause behavioural changes, inflammation of mucous membranes, lung congestion, pneumonia, liver disorders, and neurological damage (Geraci and St. Aubin 1982).

In the Fisheries and Oceans Canada report of the Science Response –Pacific Region 2015/007 of January 2015 titled: **SUFFICIENCY REVIEW OF THE INFORMATION ON EFFECTS OF UNDERWATER NOISE AND THE POTENTIAL FOR SHIP STRIKES FROM MARINE SHIPPING ON MARINE MAMMALS IN THE FACILITIES APPLICATION FOR THE TRANS MOUNTAIN EXPANSION PROJECT**

A number of criticisms of the Environmental Assessment done by the Project Application were clearly outlined:

- *There are deficiencies in both the assessment of potential effects resulting from ships strikes and exposure to underwater noise in the Trans Mountain Expansion Project Application documents.*

- *There is insufficient information and analysis provided with which to assess ship strike risk in the Marine RSA from either existing or Project-related traffic. Ship strike is a threat of conservation concern, particularly for baleen whales such as Fin Whales, Humpback Whales and other baleen whales (Gregr et al. 2006). If shipping intensity increases as projected in Section 4.4 in the Marine RSA and the Strait of Georgia and Juan de Fuca Strait as a whole, the significance of this threat to cetacean populations that occupy the region will increase.*
- *The underwater noise environment in the Marine RSA is not adequately modelled in the Project Application; only Project-related ship noise is modeled, and not the additive and cumulative effects of existing ship source noise.*
- *The JASCO MONM model, as it has been applied by the Proponent, is not adequate to assess the overall impact of noise from increased Project-related traffic. Although state-of-the- art acoustic modelling has been used to model the noise propagation associated with a single Project-related tanker in the Marine RSA, only four locations were chosen to represent the Marine RSA; therefore, the assessment does not adequately represent the noise exposure for the entire time a marine mammal would be in the RSA. The assessment represents only Project-related tanker traffic and not the current noise environment or the potential increase due to Project-related traffic.*

In the written evidence of DFO:

15-05-27 Fisheries and Oceans Canada and the Canadian Coast Guard - Written Evidence (A70242)—May 27 https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450436/2785182/C97-2-2_-_Attachment_1

on page 2:“ *Although the Proponent does not own or operate the vessels calling at the Westridge Marine Terminal, it does anticipate effects as a result of underwater noise from Project- related vessel traffic on the endangered Southern Resident Killer Whale. To address this concern, the Proponent has proposed actions as part of its Marine Mammal Protection Program to support recovery of this species, which includes participation in the Enhancing Cetacean Habitat and Observation (ECHO) Program led by Port Metro Vancouver and in the Green Marine Environmental Program. DFO is supportive of these multi-stakeholder partnerships and initiatives, which are necessary for ensuring recovery of this and other aquatic species at risk.”*

Request:

8) Have the concerns addressed by the “Sufficiency review” been adequately addressed by TMX?

Response [DFO]:

The sufficiency review referenced in the information request pertains to the following Fisheries and Oceans Canada (DFO) publication:

DFO. 2015. Sufficiency review of the information on effects of underwater noise and the potential for ship strikes from Marine Shipping on Marine Mammals in the Facilities Application for the Trans Mountain Expansion Project. DFO Can. Sci. Advis. Sec. Sci. Resp. 2015/007. Available at: http://www.dfo-mpo.gc.ca/csas-sccs/publications/scr-rs/2015/2015_007-eng.pdf

The findings of the sufficiency review noted that the Proponent utilized less preferred methods of assessing impacts from acoustic disturbance and vessel strikes on marine mammals (e.g., utilization of a qualitative methodology for their ship strike assessment, and fewer sites for acoustic disturbance were modelled than preferred within the Marine RSA). However, based on the information that was provided by the Proponent, DFO was able to provide a technical review of the effects of increased Project-related marine vessel traffic on marine mammals. The findings of this technical review are available in the following publication and in subsection 5.2.2 of DFO's written evidence (NEB Document No. A4L7D4).

DFO. 2015. Technical review of predicted effects and proposed mitigation of underwater noise and potential vessel strikes on marine mammals, from the December 2013 Facilities Application and supplemental information for the Trans Mountain Expansion Project. DFO Can. Sci. Advis. Sec. Sci. Resp. 2015/022. Available at: http://www.dfo-mpo.gc.ca/csas-sccs/publications/scr-rs/2015/2015_022-eng.pdf

Request:

9) Has the limiting of vessel speeds throughout the whole of the RSA been proposed or even considered and if so what would be the speed limit placed on all tankers in the Strait of Juan de Fuca and throughout the RSA?

Response [DFO]:

The Proponent has recognized that alterations in ship speed and navigation can be very effective mitigation measures to reduce marine mammal-vessel collisions in the Marine RSA. Fisheries and Oceans Canada (DFO) is not aware of marine vessel speed restrictions under consideration within the Marine RSA at this time.

Request:

10) How does DFO anticipate that it would enforce noise reduction regulations throughout the marine RSA??

Response [DFO]:

Fisheries and Oceans Canada does not currently administer or enforce any noise reduction regulations in the Marine Regional Study Area (RSA); however, Section 7 of the Marine Mammal Regulations made under the Fisheries Act protects marine mammals by prohibiting their disturbance, subject to the exception set out therein.

Request:

11) In the Recovery Strategy there is a statement *"The consequences of these chronic sources of noise on killer whales have not been assessed*." Has it now been assessed and what are the implications for regulations that will come into effect for all vessels in the areas frequented by these whales?

Response [DFO]:

Fisheries and Oceans Canada (DFO) is currently engaged in on-going research related to acoustic disturbance of Killer Whales, including:

- Potential physical and acoustic interactions between vessels and Resident Killer Whales within their critical habitat;
- Assessment of ocean noise levels in Resident Killer Whale range using calibrated hydrophone networks; and
- Real-time acoustic monitoring, which involves a pilot project in partnership with Port Metro Vancouver and Transport Canada to use various technologies to monitor vessel traffic, underwater noise levels, and Resident Killer Whale presence in their critical habitat.

As research and implementation of recovery measures for Resident Killer Whales is ongoing DFO cannot comment on any potential future regulations.

Request:

12) What is the current level of funding provided by DFO for enforcement of the terms of the Recovery Strategy?

Response [DFO]:

The information requested is outside the scope of the written evidence of Fisheries and Oceans Canada filed with the National Energy Board on May 27, 2015 (NEB Document No. A4L7D4). As noted in Appendix 1 Revised hearing events and steps table (4 June 2015) of Procedural Direction No. 12, provided by the National Energy Board, "Information requests to another Intervenor must pertain to matters discussed in that other Intervenor's filed written evidence."

Request:

13) What additional expenditures by the taxpayer would be involved in enforcing regulations pertaining to this Recovery Strategy?

Response [DFO]:

The information requested is outside the scope of the written evidence of Fisheries and Oceans Canada filed with the National Energy Board on May 27, 2015 (NEB Document No. A4L7D4). As noted in Appendix 1 Revised hearing events and steps table (4 June 2015) of Procedural Direction No. 12, provided by the National Energy Board, "Information requests to another Intervenor must pertain to matters discussed in that other Intervenor's filed written evidence."

Request:

14) Will any requirements for control of vessel speed be classified as a "guideline" or will they be subject to legal regulation?

Response [DFO]:

Fisheries and Oceans Canada (DFO) does not regulate marine vessel speed.

Request:

15) Another concern of the Sufficiency Report was the collision with large cetaceans. Concern for this has not been mentioned in the written evidence of DFO. Please explain why and what measures are being proposed to address this problem?

Response [DFO]:

Subsection 5.2.2.2 of the written evidence of Fisheries and Oceans Canada (NEB Document No. A4L7D4) discusses the Department's views on potential Project-related marine mammal-vessel collisions. Alteration of shipping lanes and vessel speed have been suggested by the Proponent as potential mitigation measures. Implementation of similar measures in the Marine RSA may further reduce the likelihood of mammal-vessel collision for Project-related vessels and other marine vessels transiting through the Marine RSA.

Request:

16) In the written evidence provided by the Board of FER, updated information on population numbers of elephant seals and Cetacean whale sightings in the area of the Race Rocks Ecological reserve has been provided. C33-6 Since up-to-date information such as this was not included in the Consultants reports (Stantec) of TMX, has the DFO

made any attempt to correct previous estimates of Cetacean residence in the Marine RSA?

Response [DFO]:

The information requested is outside the scope of the written evidence of Fisheries and Oceans Canada filed with the National Energy Board on May 27, 2015 (NEB Document No. A4L7D4). As noted in Appendix 1 Revised hearing events and steps table (4 June 2015) of Procedural Direction No. 12, provided by the National Energy Board, "Information requests to another Intervenor must pertain to matters discussed in that other Intervenor's filed written evidence."

Request:

17) Given that the proposed outbound traffic lanes are very close to Race Rocks Ecological Reserve, and given that the largest colonies in the marine RSA of 4 species of marine mammals are present year-round in this Reserve, and since two species annually use this Ecological reserve as birthing colonies, and since DFO is responsible for the welfare of all marine mammals, what if any regulations has the DFO provided that ensure that this resource is protected from catastrophic and chronic oil spills?

Response [DFO]:

The information requested is outside the scope of the written evidence of Fisheries and Oceans Canada filed with the National Energy Board on May 27, 2015 (NEB Document No. A4L7D4). As noted in Appendix 1 Revised hearing events and steps table (4 June 2015) of Procedural Direction No. 12, provided by the National Energy Board, "Information requests to another Intervenor must pertain to matters discussed in that other Intervenor's filed written evidence."

However, please note that Section 7 of the Marine Mammal Regulations made under the Fisheries Act protects marine mammals by prohibiting their disturbance, subject to the exception set out therein, and that administration and enforcement of the pollution prevention provisions of the Fisheries Act (Subsections 36(3) to (6)) are the responsibility of Environment Canada.

Request:

18) https://docs.neb-one.gc.ca/ll eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2450436/2526178/C97-1-2__DFO_Resident_Killer_Whale_Action_Plan__A4C9X2.pdf?nodeid=2526375&vernum=-2

High priority was assigned to a number of Actions such as .

1. Undertake an annual census to monitor and assess Resident Killer Whale population dynamics (multi-species ship surveys and dedicated vessel surveys).

Has this data been made available to the NEB and TMX? And if not when will it be made available?

Response [DFO]:

The information requested is outside the scope of the written evidence of Fisheries and Oceans Canada (DFO) filed with the National Energy Board on May 27, 2015 (NEB Document No. A4L7D4). As noted in Appendix 1 Revised hearing events and steps table (4 June 2015) of Procedural Direction No. 12, provided by the National Energy Board, "Information requests to another Intervenor must pertain to matters discussed in that other Intervenor's filed written evidence."

However, DFO would like to note that annual census information for Southern Resident Killer Whales is publicly available on the Center for Whale Research Website: http://www.whaleresearch.com

Requests:

19) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as .**

2. Identify year round Resident Killer Whale distribution and diet using acoustic monitoring and dedicated vessel surveys.

Has this data been made available to the NEB and TMX? And if not when will it be made available?

20) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as .**

4. Examine the CANFIS/catch per unit effort (CPUE) records to assist in identifying areas of prey aggregation in order to anticipate Resident Killer Whale foraging grounds.

Please provide the results of this annual census for 2014 so that TMX has the most up-to-date information?

21) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as.**

35 -Work with other government departments, non-governmental organizations, and industry to promote best practices, mitigation protocols and outreach efforts for the protection of
Resident Killer Whales and their habitat from pollution (e.g., spill response protocols)

Please provide a list of what best practices, mitigation protocols and outreach efforts for the protection of Killer whales have been identified and agreed upon by those departments and
agencies since the release of this report in 2013.

22) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as.**

46 Utilize Automatic Identification System (AIS) data in conjunction with hydrophone networks to identify vessel tracks and types and correlate sound signatures. IR-Please provide your findings so far on this High priority Action.

23) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as.**

48. Determine acoustic profiles of vessel type and speed to noise output, and utilize sound propagation models to yield source patterns. .

Please provide your findings so far on this High priority Action.

24) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as.**

54. Develop an acoustic model that incorporates effects of increasing ambient noise levels on communication signals of Killer Whales
IR Please provide your findings so far on this High priority Action?

25) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as.**

72. Continue efforts outlined in Broad Strategy 3 to ensure disturbance from human activities does not prevent access of Resident Killer Whales to their critical habitat.

Please provide a summary of your efforts so far on this High priority Action.

26) In the 2013 issued Draft Action Plan: **High priority was assigned to a number of Actions such as.**

26. Identify and monitor contaminants of concern, and conduct a risk-based assessment of different chemicals of concern in Killer Whales, their prey, and their habitat .

If this has been done, please provide information gleaned through this exercise on the chemical components of Dilbit, and indicate how Killer whales fare in the Risk-based Assessment? If it has not been done yet, does DFO anticipate that this information will be available prior to any government approval of the TMX project.?

27) In the March 2015 paper prepared for DF0 : http://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2015/2015_007-eng.html. **A literature review on the aquatic toxicology of petroleum oil: An overview of oil properties and effects to aquatic biota** Alain Dupuis1 and Francisco Ucan-Marin2 Fisheries and Oceans Canada Ecosystems and Oceans Science Sector National Contaminants Advisory Group 501 University Crescent Winnipeg, Manitoba R3T 2N6

A number of serious concerns related to the toxicity of dilbit in the marine environment were raised how does DFO plans to respond to these concerns .Since DFO scientists have identified concerns of about **toxicology** what measures will DFO seek through the NEB process for KM TMX project application?

Response [DFO] to IRs 19-27:

The information requested is outside the scope of the written evidence of Fisheries and Oceans Canada filed with the National Energy Board on May 27, 2015 (NEB Document No. A4L7D4). As noted in Appendix 1 Revised hearing events and steps table (4 June 2015) of Procedural Direction No. 12, provided by the National Energy Board, "Information requests to another Intervenor must pertain to matters discussed in that other Intervenor's filed written evidence."