Meeting #3
May 27th, 2014
Afternoon Session

(NOTE: contains preliminary information subject to revision)
PROPOSED BIOPHYSICAL VALUED COMPONENTS

Presenter: Ben Wheeler, Marine Technical Director
Hemmera

Objective: To provide an summary of proposed biophysical valued components including:
- Rational for selection as VC
- Sub-components to support VC assessments
- Assessment areas
RBT2 EIS PROPOSED VALUED COMPONENTS

Biophysical

- Marine Vegetation and Biofilm
- Marine Invertebrates
- Marine Fish
- Marine Mammals
- Coastal Birds
- Roberts Bank Ecosystem Productivity
- Ongoing Productivity of CRA Fisheries

PRELIMINARY INFORMATION SUBJECT TO REVISION
• Biophysical VC sub-components represented by focal species or groups:
  • Were chosen for their ability to represent other species or groups that are similar in nature;
  • as they occupy comparable types of habitats;
  • they serve similar ecological roles, or could otherwise be affected by the Project in an analogous way.

• In selecting focal species and species groups, species of specific importance to regulatory agencies, Aboriginal groups, and the public, were considered.

• Example: focal species selected for Marine Mammals are: Southern Resident Killer Whales, Humpback Whales and Steller Sea Lions
Purpose: To identify and quantify potential effects to marine vegetation and biofilm resulting from the proposed RBT2 Project.
MARINE VEGETATION AND BIOFILM
BASIS FOR PROPOSED SELECTION AS VC

- Ecological basis for VC selection:
  - Habitat and resource for invertebrates, fish and birds.
  - Specific focal groups stabilize sediment, and are proxies of ecosystem health and water quality.
  - Guidance from scientific experts and regulators.
  - Engagement with the Technical Advisory Group on Biofilm, Shorebirds and Invertebrates.
• Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

<table>
<thead>
<tr>
<th>Aboriginal Groups</th>
<th>Local Gov’t, Public &amp; Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacts to brackish marshes and eelgrass beds</td>
<td>Ecosystem vitality, including food source for migratory birds</td>
</tr>
<tr>
<td>Health of marine ecosystem</td>
<td>Health of marine ecosystem</td>
</tr>
<tr>
<td>Traditional use practices</td>
<td>Loss of habitat</td>
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</tbody>
</table>
MARINE VEGETATION & BIOFILM PROPOSED SUB-COMPONENTS

- Eelgrass
- Inter-tidal Marsh
- Macroalgae
- Biomat
- Biofilm

MARINE VEGETATION & BIOFILM

PRELIMINARY INFORMATION SUBJECT TO REVISION
Roberts Bank, from the north side of the B.C. Ferries causeway to Canoe Passage and high water mark to –40 m depth CD.

Rationale:
- Area where project-related effects are expected to occur.
- Includes the local distribution of focal species and takes into consideration Aboriginal use for traditional purposes.
The LAA at Roberts Bank plus Boundary Bay, east side of B.C. Ferries causeway, Roberts Bank North and Sturgeon Bank, plus Fraser River north and south arms and mainstem to Mission.

Rationale:
• Provides ecological context for the LAA - has similar habitat that can be used for comparative purposes.
• Considers Aboriginal use for traditional purposes.
Purpose: To identify and quantify potential effects to marine invertebrates resulting from the proposed RBT2 Project.
Ecological basis for VC selection:
- Ecological value as food, substrate, refuge and rearing habitat for other invertebrates, birds, mammals, and fish.
- Guidance from scientific experts and regulators.
- Engagement with the Technical Advisory Group on Biofilm, Shorebirds and Invertebrates.
MARINE INVERTEBRATES
BASIS FOR PROPOSED SELECTION AS VC

- Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

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<tr>
<th>Aboriginal Groups</th>
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<tbody>
<tr>
<td>Importance as traditional resource and cultural icon of First Nations (e.g. Dungeness crabs)</td>
<td>Health of marine ecosystem</td>
</tr>
<tr>
<td>Changes in the ability to carry out traditional use practices (e.g. shellfish harvesting)</td>
<td>Impacts to marine invertebrates and habitat</td>
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</table>
MARINE INVERTEBRATES
PROPOSED SUB-COMPONENTS

- Benthic Invertebrates
- Dungeness Crabs
- Orange Sea Pens
- Bivalve Shellfish

PRELIMINARY INFORMATION SUBJECT TO REVISION
Roberts Bank, from the north side of the B.C. Ferries causeway to Canoe Passage and from high water mark to -140 m depth CD.

Rationale:
• Area where project-related effects are expected to occur.
• Considers distribution and localized movements of each species/guild.
• Considers traditional use activities.
The LAA at Roberts Bank plus Boundary Bay, east side of the B.C. Ferries causeway, Roberts Bank North and Sturgeon Bank.

Rationale:
- Provides ecological context for LAA; considers historical and current traditional use activities.
**Purpose**: To identify and quantify potential effects to marine fish resulting from the proposed RBT2 Project.
Ecological basis for VC selection:

- Marine fish are key components of estuarine and marine food webs and influence the structure and function of nearshore and coastal ecosystems.
**MARINE FISH BASIS FOR PROPOSED SELECTION AS VC**

- Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

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<tbody>
<tr>
<td>Health of marine ecosystem</td>
<td>Marine Fish supporting commercial, recreational, and aboriginal fisheries are protected under Section 2 of the <em>Fisheries Act</em></td>
</tr>
<tr>
<td>Access to resource and traditional use areas</td>
<td>Health of marine ecosystem</td>
</tr>
<tr>
<td>Changes in the ability to carry out traditional use practices</td>
<td>Changes to fish populations and distribution, and habitat</td>
</tr>
<tr>
<td>Changes to fish populations and distribution, and habitat</td>
<td>Fish species are important to the provincial economy</td>
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</tbody>
</table>
MARINE FISH
PROPOSED SUB-COMPONENTS

- Reef Fish
- Forage Fish
- Flatfish
- Pacific Salmon
- Demersal Fish

PRELIMINARY INFORMATION SUBJECT TO REVISION
Roberts Bank, from the north side of the B.C. Ferries causeway to Canoe Passage and high water mark to -100 m depth CD.

Rationale:
- Area where project-related effects are expected to occur.
- Spatial and temporal movements of focal groups have been considered.
- Traditional use information has been considered.
- Canoe Passage is a natural Boundary for fish movement.
The Fraser River Estuary to -100 m CD, plus the Fraser River to Hope. DFO FM subareas included are 29-6 to 29-17. Waters of the Pitt River bounded by subareas 29-15 are included.

Rationale:
- Provides ecological context, and considers current and traditional use.
- Estuarine waters contain similar habitats, while Fraser River areas provide habitat for migrating fish present in the LAA.
**Purpose:** To identify and quantify potential effects to marine mammals resulting from the proposed RBT2 Project.
Ecological basis for VC selection:

- Whales, sea lions and seals are top predators in the marine ecosystem
- Species at risk
- Guidance from scientific experts and regulators
- Engagement with the Technical Advisory Group on Southern Resident Killer Whales
MARINE MAMMALS
BASIS FOR PROPOSED SELECTION AS VC

- Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

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<tr>
<td>Cultural, spiritual, social and ceremonial value</td>
<td>Economic value (e.g., whale watching)</td>
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<td></td>
<td>Social value</td>
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PRELIMINARY INFORMATION SUBJECT TO REVISION
MARINE MAMMALS
PROPOSED SUB-COMPONENTS

- Southern Resident Killer Whales
- Humpback Whales
- Steller Sea Lions

Photo courtesy of Vancouver Aquarium

PRELIMINARY INFORMATION SUBJECT TO REVISION

portmetrovancouver.com
Working Group #3 – May 27, 2014.
Roberts Bank west to the Gulf Islands and within ~90 km north and south from the Project area.

Rationale:

• Area where project-related effects could potentially occur.

• Boundary limits based on marine mammal focal species zone of audibility for project-related activities that generate underwater noise.
Canadian and US critical habitat for endangered Southern Resident Killer Whales, including the Strait of Georgia, Puget Sound and Juan de Fuca Strait.

Rationale:
• to provide regulatory and biological context to the LAA.
Purpose: To identify and quantify potential effects to coastal birds resulting from the proposed RBT2 Project.
Ecological basis for VC selection:

- Ecological Importance.
- Species at risk.
- Guidance from scientific experts and regulators.
- Engagement with the Technical Advisory Group on Biofilm, Shorebirds and Invertebrates.
COASTAL BIRDS BASIS FOR PROPOSED SELECTION AS VC

• Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

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<tr>
<td>Impacts on ability to carry out traditional use practices</td>
<td>Ecological importance</td>
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<tr>
<td>Food, social and ceremonial value</td>
<td>Changes to populations and distribution of species</td>
</tr>
<tr>
<td>Impacts to migratory birds and habitat</td>
<td>Effects of the Project on birds and bird habitat</td>
</tr>
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<td></td>
<td>Effects of power lines on birds</td>
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</table>
COASTAL BIRDS
PROPOSED SUB-COMPONENTS

Shorebirds
Waterfowl
Heron
Diving Birds
Raptors
Gulls and Terns
Passerines

PRELIMINARY INFORMATION SUBJECT TO REVISION
Roberts Bank, from the B.C. Ferries causeway to Canoe Passage and from the high water mark to -5 m depth CD.

Rationale:
- Area where project-related effects are expected to occur.
- Includes the local distribution of representative species and takes into consideration Aboriginal use for traditional purposes.
The LAA at Roberts Bank plus, Roberts Bank North, the Fraser River South Arm Marshes, Sturgeon Bank, Boundary Bay, and agricultural habitat extending 8 km inland.

Rationale:

- Provides ecological context.
- Contains similar habitats to those of the LAA.
- Agricultural areas provide additional habitat for feeding and roosting.
Purpose: To identify and quantify potential effects to the Roberts Bank Ecosystem resulting from the proposed RBT2 Project.
ROBERTS BANK ECOSYSTEM BASIS FOR PROPOSED SELECTION AS VC

- Ecological basis for VC selection:
  - Provides spawning, rearing, feeding, refuge and migratory habitat for wide variety of fish and birds; stabilize sediment, buffers against wave erosion, important in nutrient cycling, carbon sink, and aesthetic reasons.
  - Guidance from scientific experts and regulators.
  - Engagement with the Technical Advisory Group on Productive Capacity.
Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

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Roberts Bank, from the north side of the B.C. Ferries causeway to Canoe Passage and from high water mark to -100 m depth CD.

Rationale:
• Area where project-related effects are expected to occur.
• Encompasses area of highest productivity for other VCs (vegetation and biofilm, invertebrates, fish and birds).
The Fraser River Estuary, from Boundary Bay to Sturgeon Bank from the high water mark to -100 m CD, plus the Fraser River north and south arms and mainstem to Hope.

Rationale:
• Provides ecological context.
• Contains similar habitats to those of the LAA.
Purpose: To identify and quantify potential effects to the ongoing productivity of commercial, recreational and aboriginal (CRA) fisheries resulting from the proposed RBT2 Project.
Ecological basis for VC selection:
- Fish (including invertebrates) that support or are part of these fisheries spend all or a part of their life history at near Roberts Bank.

Federal and Provincial Legislation:
- The *Fisheries Act* protects the sustainability and ongoing productivity of commercial, recreational, and aboriginal (CRA) fisheries.
Key interests and issues as raised by Aboriginal groups, the public and stakeholders:

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ONGOING PRODUCTIVITY OF CRA FISHERIES PROPOSED SUB-COMPONENTS

Ongoing Productivity of CRA fisheries

- Commercial Fishery
- Recreational Fishery
- Aboriginal Fishery

PRELIMINARY INFORMATION SUBJECT TO REVISION
ONGOING PRODUCTIVITY OF CRA FISHERIES PROPOSED LOCAL ASSESSMENT AREA

Contained within DFO Pacific Fishery Management Areas 29-6, 29-7, 29-9. Roberts Bank, from the surfline to boundaries of DFO FM subareas.

Rationale:

- encompasses all areas where project-related effects (direct and indirect) are expected to occur.
- overlaps with the 4 marine VC's and encompasses their distribution and localized movements.
- considers historical and current traditional use activities and CRA management.
Includes Boundary Bay and Semiahmoo Bay (north of the international boundary between Canada and the United States), the Strait of Georgia and the Fraser River from the surfline, plus the Fraser River north and south arms and mainstem to Hope.

Rationale:

• Provides ecological context for LAA.
• Considers historical and current traditional use activities.
QUESTIONS?
**SUMMARY OF PROPOSED SOCIAL AND ECONOMIC VALUED COMPONENTS**

**Presenter:** Joe Truscott, Socio-Economic Technical Director Hemmera

**Objectives:**
- Overview of social and economic valued components
- Discuss valued components of interest for Working Group #4 (June 17th)
PMV proposes to assess potential effects resulting from both RBT2 construction and operation phases as per the descriptions that follow for each proposed economic VC.
PROPOSED ECONOMIC VALUED COMPONENTS

Assessment of labour market to include:
- Direct, indirect and induced employment levels
- Direct, indirect and induced employment income
- Project-related training requirements

Assessment of economic development to include:
- Business contracting opportunities
- Goods and services supply opportunities
PROPOSED ECONOMIC VALUED COMPONENTS

Local Government Finances

Assessment of local and regional government finances to include:
• Additional expenditures incurred
• Additional revenues received

Marine Commercial use

Assessment of commercial use in marine waters to include:
• Commercial fishing industry
• Tourism industry

PRELIMINARY INFORMATION SUBJECT TO REVISION
PMV proposes to assess potential effects resulting from both RBT2 construction and operation phases as per the descriptions that follow for each proposed social VC.
PROPOSED SOCIAL VALUED COMPONENTS

Services and Infrastructure

Assessment of increased demand to local services and infrastructure to include:

- Housing
- Emergency and health services
- Municipal infrastructure

Outdoor Recreation

Assessment of outdoor recreational land and marine use

Visual Resources

Assessment of visual resources to include:

- Changes to local viewscapes
- Additional light trespass
- Sky glow

PRELIMINARY INFORMATION SUBJECT TO REVISION
Assessment of land and land under water to include:
- **Land ownership** and jurisdiction
- Land use **planning designations**
- Land and water uses

Assessment of **archaeological resources**

Assessment of human health includes:
- **Human health risks** related to:
  - Changes to **air and noise emissions**, from ship, road and rail traffic within the Project area
  - Potential **shellfish contamination**
- **Human health effects** related to stress and annoyance, employment, and food security.
SUMMARY OF PROPOSED ECONOMIC AND SOCIAL VALUED COMPONENTS

- Labour Market
- Economic Development
- Services and Infrastructure
- Outdoor Recreation
- Visual Resources
- Local Government Finances
- Marine Commercial use
- Land and Water Use
- Physical and Cultural Heritage
- Human Health

PRELIMINARY INFORMATION – FOR DISCUSSION
NEXT STEPS

Facilitator: Malcolm Smith
Hemmera
FOLLOW UP FROM WG #3

• Feedback on WG #3
  • Today’s Q&A
  • Via hardcopy feedback form (provided)
  • Via Email: container.improvement@portmetrovancouver.com
    • Please include “Follow Up To WG # 3” in the subject line of your email
  • Or to WG facilitator Malcolm Smith via Email: msmith@hemmera.com
FOLLOW UP FROM WG #3

• Feedback on next WG topics

• **Working Group #4 – June 17, 2014**
  Details pertaining to the effects assessment for 4-5 proposed Social and Economic Valued Components (as selected by the WG), plus an introduction to ecosystem-based productivity

• **Feedback**

  container.improvement@portmetrovancouver.com
THANK YOU