

**Field Studies Information Sheet – October 2012**

Port Metro Vancouver is continuing field studies in October as part of ongoing environmental and technical work for the proposed Roberts Bank Terminal 2 Project. The studies are part of the early planning phase focused on collecting baseline inventory information to help identify aspects of water and sediment quality, biofilm, marine fish, marine vegetation, marine invertebrates, coastal seabirds, coastal geomorphology, marine mammals and terrestrial wildlife that may be affected by the proposed project. The results of the studies would serve as preparatory information for impact assessments as part of the environmental assessment process.

**Roberts Bank Terminal 2 Project**

The Roberts Bank Terminal 2 Project is a proposed new multi-berth container terminal at Roberts Bank in Delta, B.C. that would provide 2.4 million TEUs (twenty-foot equivalent unit containers) of container capacity. The project is part of Port Metro Vancouver's Container Capacity Improvement Program, a long-term strategy to deliver projects to meet anticipated growth in demand for container capacity to 2030.

No decision has been made to proceed with the proposed Roberts Bank Terminal 2 Project. Port Metro Vancouver is undertaking a comprehensive multi-round, multi-year community, stakeholder and public consultation process regarding the project, which began in June 2011 with Pre-Consultation and will continue in October 2012 with Project Definition Consultation.

The proposed Roberts Bank Terminal 2 Project will be subject to a thorough and independent environmental assessment.

**Field Studies – October 2012**

An overview of field studies that will be taking place in October 2012 is below.

<b>Overview</b>
<b>Water and Sediment Quality</b>
Water and Sediment Quality Study
<b>Marine Fish</b>
Flatfish Trawl Study
Eelgrass Fish Community Study
Juvenile Salmon Study
Reef Fish Survey
<b>Marine Invertebrates</b>
Cockles Study
<b>Coastal Seabirds</b>
Impacts of Overhead Transmission Wires and Vehicular Traffic on Coastal Seabirds Study
General Bird Abundance and Distribution Study
<b>Coastal Geomorphology</b>
Continuous Measurement of Discharge Study
Erosion and Deposition Study
<b>Terrestrial Wildlife</b>
Terrestrial Invertebrates
<b>Fresh Water Fish</b>
Fresh Water Fish Study

Some field studies may require access to public and private land. Port Metro Vancouver will obtain permission before accessing private property. As part of the Adaptive Management Strategy developed as part of the Deltaport Third Berth Project, Port Metro Vancouver will continue studies at Roberts Bank in addition to those outlined in this information sheet.

Port Metro Vancouver will produce monthly Field Studies information sheets summarizing work to occur each month. These updates will be available at [www.portmetrovancover.com/RBT2](http://www.portmetrovancover.com/RBT2).

Study Name	Summary
<p><b>Sediment and Water Quality – Sediment and Water Quality Study</b></p> <p>(continued from September 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to collect data on sediment and water quality throughout the study area. Furthermore, the study will examine the connection between water and sediment quality and the health of:</p> <ul style="list-style-type: none"> <li>• Marine invertebrates;</li> <li>• Biofilm;</li> <li>• Eelgrass;</li> <li>• Sea pens; and</li> <li>• Biological resources and communities.</li> </ul> <p><u>Study Area:</u> The study area is comprised of three sites within the Fraser River Estuary:</p> <ul style="list-style-type: none"> <li>• Sturgeon Bank</li> <li>• Roberts Bank</li> <li>• Boundary Bay</li> </ul> <p><u>Methods:</u> Throughout the study area, sediment samples will be taken during daylight hours. Sensors (light and temperature) will be installed in the study area to collect data on water quality.</p> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>
<p><b>Marine Fish – Flatfish and Forage Fish Surveys</b></p> <p>(continued from August 2012)</p>	<p><u>Purpose:</u> The purpose of this study is:</p> <ul style="list-style-type: none"> <li>• Collect seasonal data on the presence of flatfish and forage fish (sand lance) in shallow and deep habitats; and</li> <li>• Collect temperature and salinity data at the time of fish sampling.</li> </ul> <p><u>Study Area:</u> The study area includes the shallow and deep sand habitat adjacent to the current Deltaport Terminal.</p> <p><u>Methods:</u> Fish will be collected, identified, counted and then released using a trawl net at the sample sites. Water samples will also be taken.</p> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>

Study Name	Summary
<p><b>Marine Fish – Eelgrass Fish Community Study</b></p> <p>(continued from June 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to document the diversity and condition of the fish community living within eelgrass beds.</p> <p>The study will:</p> <ul style="list-style-type: none"> <li>• Identify potential trends in fish habitat use within the eelgrass beds in the area of the proposed Roberts Bank Terminal 2 Project; and</li> <li>• Draw linkages between eelgrass health, fish community composition and other parameters such as temperature and salinity.</li> </ul> <p><u>Study Area:</u> The study area consists of the dense bed of eelgrass located to the north of the existing Deltaport Terminal at Roberts Bank.</p> <p><u>Methods:</u> Large nets will be deployed from a boat at four sites during high tide over the eelgrass bed. Fish will be identified, counted, measured and released.</p> <p><u>Timing:</u> This study will continue in October 2012. Studies will take place during the day and in the evening.</p>
<p><b>Marine Fish – Juvenile Salmon Study</b></p> <p>(continued from June 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to document the use of habitat by juvenile salmon along the Roberts Bank causeway. It is also to collect data on juvenile salmon movements. The study will assess the presence, abundance and condition of juvenile salmon, and assist in developing a long-term monitoring strategy.</p> <p><u>Study Area:</u> The study area consists of the portion of Roberts Bank to the north and south side of the existing Deltaport Terminal and Roberts Bank causeway.</p> <p><u>Methods:</u> Two methodologies will be used to assess juvenile salmon habitat use and movement:</p> <ul style="list-style-type: none"> <li>• Deploying large nets at six sites representing different habitat types (such as sand, pocket beach, rip rap etc.) along the causeway. Fish will be identified, counted, measured and released.</li> <li>• Deploying directional nets at the same six sites along the causeway during different tides to document juvenile salmon movements.</li> </ul> <p><u>Timing:</u> This study will continue in October 2012. Studies will take place during the day and in the evening.</p>

Study Name	Summary
<p><b>Marine Fish – Reef Fish Study</b></p> <p>(continued from August 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to document the use of the artificial reefs off the south face of the Westshore Terminal by fish species.</p> <p><u>Study Area:</u> The study area includes the 10 artificial reefs southwest of the Westshore Terminal.</p> <p><u>Methods:</u> Divers will identify and count fish present on the artificial reefs at different depths in the subtidal zone.</p> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>
<p><b>Marine Invertebrates – Cockles Study</b></p> <p>(continued from September 2012)</p>	<p><u>Purpose:</u> The purpose of the cockles study is to:</p> <ul style="list-style-type: none"> <li>• Survey cockle populations in the Fraser River Estuary; and</li> <li>• Examine and quantify the chemical composition of cockle tissue samples.</li> </ul> <p><u>Study Area:</u> The study area is comprised of three sites within the Fraser River Estuary:</p> <ul style="list-style-type: none"> <li>• Sturgeon Bank</li> <li>• Roberts Bank</li> <li>• Boundary Bay</li> </ul> <p><u>Methods:</u> The cockle study will be conducted by walking 200 meter transect lines at predetermined sampling locations and digging for cockles at reference points every 50 meters. The locations will be identified using a combination of factors, including local knowledge, and information from previous studies. Sampling locations, in which cockle populations are found will be recorded with a handheld GPS.</p> <p>During field sampling, 20 cockles from one point along each transect will be collected. Soft tissue will be harvested from each individual for analysis of tissue chemistry at each sampling location.</p> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>
<p><b>Coastal Seabirds – Impacts of Overhead Transmission Wires and Vehicular Traffic on Coastal Seabirds Study</b></p>	<p><u>Purpose:</u> Bird diverters are special units installed on power lines that help birds see power lines and avoid potentially fatal collisions. The purpose of the study is to calculate the effectiveness of existing bird diverters, while identifying opportunities to further reduce bird collisions with transmission wires and vehicular traffic.</p>

Study Name	Summary
(continued from September 2012)	<p><u>Methods:</u> The study will examine flight patterns, distribution, abundance and behaviour of birds as they cross the Roberts Bank transmission line. Where bird collisions do occur within 20 metres of the transmission wire and road, birds will be collected and studied.</p> <p><u>Timing:</u> Flight surveys will be undertaken every two weeks at each station. Assessments will occur during daylight hours, weather permitting. This study began in mid-April and will continue in October 2012.</p>
<p><b>Coastal Seabirds – General Bird Abundance and Distribution Study</b></p> <p>(continued from September 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to determine and observe Coastal Seabirds, Shorebirds and Waterfowl abundance and seasonal distribution at Roberts Bank.</p> <p><u>Study Area:</u> The study area includes:</p> <ul style="list-style-type: none"> <li>• Brunswick Marsh;</li> <li>• Roberts Bank Causeway; and</li> <li>• The perimeter of the Deltaport and Westshore terminals.</li> </ul> <p><u>Methods:</u> A team of two biologists will conduct bird observation surveys, where bird species will be identified and individuals counted.</p> <p>The biologists will use binoculars and spotting scopes to count and identify species.</p> <p>There are 13 observation points and each one will be identified with flagging tape, and spray paint on the ground surface or with a stake.</p> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>
<p><b>Coastal Geomorphology – Continuous Measurement of Discharge Study</b></p> <p>(continued from September 2012)</p>	<p><u>Purpose:</u> The purpose of the study is to continuously monitor discharge in Canoe Pass during the summer high flow season.</p> <p>Specifically, the study will collect data relating to flow discharge in Canoe Pass.</p> <p><u>Study Area:</u> The study area includes Canoe Pass (the southern-most arm of the Fraser River).</p> <p><u>Methods:</u> Multiple methods will be used to collect data:</p> <ul style="list-style-type: none"> <li>• Sensors and probes will be installed within the study area. These will be connected to computers to collect and monitor data.</li> </ul>

Study Name	Summary
	<ul style="list-style-type: none"> <li>Boat-mounted sensors will be deployed within the study area to gather data.</li> </ul> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>
<p><b>Coastal Geomorphology – Erosion and Deposition Study</b></p> <p>(continued from Septmeber2012)</p>	<p><u>Purpose:</u> The purpose of the study is to measure and collect data on the short-term changes in the sediment surface of the tidal flats.</p> <p><u>Study Area:</u> The study area includes the tidal flats in the vicinity of the Roberts Bank causeway.</p> <p><u>Methods:</u> Depth of disturbance rods will be installed in the sediment and monitored on a monthly basis to assess changes in the elevation of the sediment surface.</p> <p><u>Timing:</u> The study will continue in October 2012 and will take place during daylight hours.</p>
<p><b>Terrestrial Wildlife – Terrestrial Invertebrates Study</b></p> <p>(continued from August 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to identify and document the occurrence of terrestrial invertebrates that are species-at-risk in the study area.</p> <p><u>Study Area:</u> The study area is 10 kilometres-long, and will include a 500-metre buffer on either side of the existing Roberts Bank rail corridor between the shore end of the causeway and east end of Fisher Yard. This study area may be reduced based on the results of the July 2012 reconnaissance survey, to focus subsequent survey efforts on habitats where the species of interest are more likely to occur.</p> <p><u>Methods:</u> Multiple methods will be used in this study:</p> <ul style="list-style-type: none"> <li>Walking the study area to identify habitats that may contain terrestrial invertebrates that are species at risk</li> <li>Visual observation surveys.</li> <li>Collecting and identifying terrestrial invertebrates and recording the location, date and time of collection. The locations of suitable habitats will be determined and mapped.</li> </ul> <p><u>Timing:</u> The study will continue in October 2012 and will occur during daylight hours.</p>

Study Name	Summary
<p><b>Freshwater Fish – Freshwater Fish Study</b></p> <p>(continued from September 2012)</p>	<p><u>Purpose:</u> This purpose of the study is to:</p> <ul style="list-style-type: none"> <li>• Provide a description of freshwater fish habitat and fish within the project study area; and</li> <li>• Assess potential impacts from the proposed Roberts Bank Terminal 2 Project on freshwater fish.</li> </ul> <p><u>Study Area:</u> The proposed study area includes freshwater ditches and streams along the 3.6 kilometer length of the rail corridor between 64th Avenue and 72nd Street, plus the turnouts at the east end of Fisher Yard located immediately east of 72nd Street.</p> <p><u>Methods:</u> Fish will be identified, counted, measured, and released live at the site of capture. Any other aquatic organisms (e.g., amphibians) will be identified and released.</p> <p>In addition to undertaking field investigations of fish and fish habitats within the study area, the field crew will identify and characterize aquatic habitats.</p> <p><u>Timing:</u> This study will continue in October 2012 and assessments will occur during daylight hours, weather permitting.</p>

**For Further Information**

For further information, please visit our website at [www.portmetrovancover.com/RBT2](http://www.portmetrovancover.com/RBT2) or contact us by:

**Phone:** 604-665-9337

**Fax:** 1-866-284-4271

**Email:** [container.improvement@portmetrovancover.com](mailto:container.improvement@portmetrovancover.com)