

Field Studies Information Sheet – April 2013

Port Metro Vancouver is continuing field studies in April as part of ongoing environmental and technical work for the proposed Roberts Bank Terminal 2 Project.

Roberts Bank Terminal 2 Project

The Roberts Bank Terminal 2 Project is a proposed new multi-berth container terminal which would provide 2.4 million TEUs (twenty-foot equivalent unit containers) of additional container capacity. The project is part of the Container Capacity Improvement Program, Port Metro Vancouver's long-term strategy to deliver projects to meet anticipated growth and demand for container capacity until 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 continued from October 22 to November 30, 2012, with Project Definition Consultation.

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

Field Studies – April 2013

An overview of field studies that will be taking place in April 2013 is below.

Overview
Coastal Geomorphology
Continuous Measurement of Discharge Study
Erosion and Deposition Study
Wave Height Study
Coastal Seabirds
General Bird Abundance and Distribution Study
Impacts of Overhead Transmission Wires and Vehicular Traffic on Coastal Seabirds Study
Shorebird Use of Fraser River Estuary During Northward Migration
Marine Fish
Flatfish Trawl Survey
Juvenile Salmon Distribution Survey
Marine Invertebrates
Micro Invertebrates Study
Marine Mammals
Underwater Noise and Vessel Signature Study
Terrestrial Wildlife
Amphibians and Reptiles Study
Barn Owl Collision Study
Barn Owl Study
Songbird Study
Water and Sediment Quality
Water and Sediment Quality Study
Sediment Sampling and Pacific Sand Lance Habitat Suitability 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.

Study Name	Summary
<p>Coastal Geomorphology – Continuous Measurement of Discharge Study</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of the study is to collect data relating to the 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"> • Sensors and probes will be installed within the study area. These will be connected to computers to collect and monitor data. • Boat-mounted sensors will be deployed within the study area to gather data. <p><u>Timing:</u> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Coastal Geomorphology – Erosion and Deposition Study</p> <p>(continued from March 2013)</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> This study will continue in April 2013 and will take place primarily during daylight hours. Some data collection outside of daylight hours may be necessary due to timing of tidal fluctuations.</p>
<p>Coastal Geomorphology – Wave Height Study</p>	<p><u>Purpose:</u> The purpose of the study is to collect ongoing measurements of wave heights at three locations on the tidal flats at Roberts Bank.</p>

Study Name	Summary
(continued from March 2013)	<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> Wave sensors will be deployed on the seabed and will collect data and take continuous measurements of wave heights.</p> <p><u>Timing:</u> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Coastal Seabirds – General Bird Abundance and Distribution Study</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of the 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"> • Brunswick Marsh, • Roberts Bank causeway, and • The perimeter of the Deltaport and Westshore terminals. <p><u>Methods:</u> A team of two biologists will conduct bird observation surveys, where bird species will be identified and individual birds will be 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> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Coastal Seabirds – Impacts of Overhead Transmission Wires and Vehicular Traffic on Coastal Seabirds Study</p> <p>(continued from March 2013)</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> <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</p>

Study Name	Summary
	2012 and will continue in April 2013.
<p>Coastal Seabirds – Shorebird Use of Fraser River Estuary During Northward Migration Study</p> <p>(continued from May 2012)</p>	<p><u>Purpose:</u> The purpose of this study is to determine the abundance and distribution of shorebirds across the Fraser River Estuary during the northward migratory period.</p> <p><u>Study Area:</u> The study area is comprised of mudflats within three sites of the Fraser River Estuary:</p> <ul style="list-style-type: none"> • Sturgeon Bank • Roberts Bank • Boundary Bay <p><u>Methods:</u> The number and distribution of bird use will be assessed by conducting bird count surveys and counting droppings at low tide within 1m² quadrants.</p> <p><u>Timing:</u> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Marine Fish – Flatfish Trawl Survey</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of the study is to:</p> <ul style="list-style-type: none"> • Collect seasonal data on the presence of flatfish in shallow and deep habitats; and • Collect temperature and salinity data at the time of fish sampling. <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 April 2013 and will take place during daylight hours.</p>
<p>Marine Fish – Juvenile Salmon Distribution Survey</p>	<p><u>Purpose:</u> The purpose of the study is to document the relative abundance and distribution of juvenile salmonids in different habitat types along the existing shoreline and offshore.</p> <p>In addition, juvenile salmonid behavior at one site along the terminal rip rap will be documented at different tide states during the day and at night.</p> <p><u>Study Area:</u> The study will take place along Roberts Bank Causeway and Tsawwassen Ferry Terminal, as well as locations offshore of Deltaport Terminal.</p>

Study Name	Summary
	<p><u>Methods:</u> Fieldwork will include the capture and release of juvenile salmon using a combination of beach seine and purse seine methods. Seines will be deployed both from the shoreline and from a boat.</p> <p>Snorkel surveys will be used to assess juvenile salmon behavior.</p> <p><u>Timing:</u> This study will begin in April 2013 and is weather dependent. Studies will take place during the day and in the evening.</p>
<p>Marine Invertebrates – Micro Invertebrates Study</p> <p>(Continued from February 2013)</p>	<p><u>Purpose:</u> The purpose of the study is to determine the density and diversity of small marine invertebrates (meiofauna and macrofauna) living in the sediment at Roberts Bank, Sturgeon Bank and Boundary Bay. This study will also look at the role of small marine invertebrates as food for coastal birds.</p> <p><u>Study Area:</u> The study area includes:</p> <ul style="list-style-type: none"> • Roberts Bank • Sturgeon Bank • Boundary Bay <p><u>Methods:</u> Invertebrate field samples will be collected from a total of 60 intertidal sampling locations. Samples will be collected using syringes and will be sent to a laboratory for processing and analysis.</p> <p><u>Timing:</u> This study will continue in April 2013 and will take place during rare daylight low tide intervals.</p>
<p>Marine Mammals – Underwater Noise and Vessel Signature Study</p>	<p><u>Purpose:</u> The purpose of this study is to:</p> <ul style="list-style-type: none"> • Capture baseline data on ambient underwater noise levels and southern resident killer whale (SRKW) presence at Roberts Bank; and • Determine vessel signatures and transmission loss at Roberts Bank and Haro Strait. <p><u>Study Area:</u> The study area is the waters in the vicinity of Roberts Bank and Haro Strait.</p> <p><u>Methods:</u> At Roberts Bank, both ambient noise levels and SRKW vocalizations will be recorded continuously for one year using a hydrophone cabled to shore. Autonomous underwater recording devices will be deployed on the sea floor at Roberts Bank and Haro Strait to record vessel signatures. Boat-based playback</p>

Study Name	Summary
	<p>signals will also be broadcast to determine transmission loss within the study area.</p> <p><u>Timing:</u> Acoustic recordings at Roberts Bank will begin in April 2013. Vessel signature and transmission loss studies will occur in April 2013.</p>
<p>Terrestrial Wildlife – Amphibians and Reptiles Study</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of this study is to determine the presence/non-detection of selected amphibian and reptile species within the study area.</p> <p><u>Study Area:</u> The study area includes the road shoulders on either side of Deltaport Way, the SFPR grade, or either side of the existing rail right-of-way from the base of the Roberts Bank causeway, east towards 72nd Street.</p> <p><u>Methods:</u> Presence/non-detection in the study area will be determined using a combination of direct observation, auditory calls and egg mass surveys.</p> <p><u>Timing:</u> This study will continue in April 2013 and will take place during both daylight and night time hours.</p>
<p>Terrestrial Wildlife – Barn Owl Collision Study</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of this study is to estimate the number and distribution of Barn Owl collisions with vehicular and rail traffic and to identify opportunities to further reduce such collisions.</p> <p><u>Study Area:</u> The study area includes 10 metres on either side of Deltaport Way, and 10 metres on either side of the existing rail right-of-way for a length of 10 kilometres from the base of the causeway, east towards 72nd Street.</p> <p><u>Methods:</u> Carcass search surveys will be undertaken every four days along the length of the study area. Where bird collisions do occur within 10 metres of the road, birds will be collected and studied.</p> <p><u>Timing:</u> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Terrestrial Wildlife – Barn Owl Study</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of this study is to collect baseline data on barn owl use of habitats 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 Roberts</p>

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	<p>Bank causeway and the east end of the Fisher Yard.</p> <p><u>Methods:</u> Roadside surveys will be conducted along existing infrastructure to understand barn owl use of open habitat near existing road and rail lines. Biologists will record:</p> <ul style="list-style-type: none"> • General barn owl behaviour, • Number of barn owls (plus location), and • Age of barn owl, if possible. <p><u>Timing:</u> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Terrestrial Wildlife – Songbird Study</p>	<p><u>Purpose:</u> The purpose of this study is to determine songbird presence, relative abundance and species diversity across representative habitat types in the study area.</p> <p><u>Study Area:</u> The study area consists of 1.5 kilometres either side of the existing BC Rail line from the causeway end of Deltaport Way to approximately 200 metres east of 72nd Street.</p> <p><u>Methods:</u> Point count surveys will be conducted to record species observed inside or outside of a 50-metre radius from the survey location. Surveys will record all audio and visual bird detections. Observations will take places from public roadsides.</p> <p><u>Time:</u> This study will begin in April 2013 and will take place in the five hours following dawn.</p>
<p>Sediment and Water Quality – Sediment and Water Quality Study</p> <p>(continued from March 2013)</p>	<p><u>Purpose:</u> The purpose of the 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"> • Marine invertebrates, • Biofilm, • Eelgrass, • Sea pens, and • Biological resources and communities. <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"> • Sturgeon Bank • Roberts Bank • Boundary Bay

Study Name	Summary
	<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> This study will continue in April 2013 and will take place during daylight hours.</p>
<p>Sediment and Water Quality – Sediment Sampling and Pacific Sand Lance Habitat Suitability Study</p>	<p><u>Purpose:</u> The purpose of the study is to determine the suitability for Sand Lance habitat in sediment at Roberts Bank.</p> <p><u>Study Area:</u> The study will take place at Roberts Bank.</p> <p><u>Methods:</u> Sediment sampling will occur from a boat using Van Veen or Ponar Grabs, which are manually operated sediment sampling tools that are deployed from a boat to the sea floor to capture sediment samples. These samples will then be examined for the presence of Pacific Sand Lance. Any Sand Lance captured as part of this study will be released.</p> <p>No noise or light impacts on residents are anticipated.</p> <p><u>Timing:</u> This study will begin in April 2013 and is weather dependent. Studies will take place during the evening to coincide with Sand Lance nocturnal burrowing.</p>

For Further Information

For further information, please visit our website at www.portmetrovancover.com/RBT2 or contact us:

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