Field Studies Information Sheet – June 2012

Port Metro Vancouver is continuing field studies in June 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 more than two 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.

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

Field Studies – June 2012

An overview of field studies that will be taking place in June 2012 is below. There are no anticipated impacts to communities from noise or light due to any of these studies.

Overview
Marine Fish
• Eelgrass Fish Community Study
• Juvenile Salmon Study
• Fish Spawn Habitat Study
Marine Vegetation
• Eelgrass Study
• Marine Vegetation Habitat Study
Coastal Seabirds
• Impacts of Overhead Transmission Wires and Vehicular Traffic on Coastal Seabirds Study
• General Bird Abundance and Distribution Study
Coastal Geomorphology
• Continuous Measurement of Discharge Study
• Sediment Concentration and Grain Size Study
• Salinity and Suspended Solids Study
• Direct Observations and Measurements of Flow Study
• Bathymetric (Ocean Floor) Study
• Erosion and Deposition Study
• Wave Height Study
Marine Mammals
• Underwater Noise Study
Terrestrial Wildlife
• Rare Plants Study
• Small Mammals Study
• Terrestrial Invertebrates 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.portmetrovancouver.com/CCIP.

Study Name	Summary
Marine Fish – Eelgrass Fish Community Study (continued from May 2012)	Purpose: The purpose of this study is to document the diversity and condition of the fish community living within eelgrass beds on Roberts Bank. The study will: • Identify potential trends in fish habitat use within the eelgrass beds in the area of the proposed Roberts Bank Terminal 2 Project. • Draw linkages between eelgrass health, fish community composition and other parameters such as temperature and salinity. Study Area: The study area consists of the dense bed of eelgrass located to the north of the existing Deltaport terminal at Roberts Bank. Methods: 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. Timing: This study is continuing in June 2012. Studies will take place during the day and in the evening.
Marine Fish – Juvenile Salmon Study (continued from April 2012)	Purpose: 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. Study Area: 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. Methods: Two methodologies will be used to assess juvenile salmon habitat use and movement: • 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. • Deploying directional nets at the same six sites along the causeway during different tides to document juvenile salmon movements.

Study Name	Summary
	Timing: This study is continuing in June 2012. Studies will take place during the day and in the evening.
Marine Fish – Fish Spawn Habitat Study	Purpose: The purpose of this study is to: 1. Identify suitable fish (surf smelt and sand lance) beach spawning habitat along the length of the Roberts Bank causeway. 2. Document habitat characteristics of suitable spawning beaches. 3. Collect sediment for grain size analysis and egg examination. Study Area: The study area includes the western side of the Roberts Bank causeway. Methods: Sediment samples will be collected and examined for fish eggs and grain size. Any eggs found will be analyzed to identify approximate time of spawning events. Timing: The study will begin in June 2012 and will occur during daylight hours.
Marine Vegetation – Eelgrass Study	Purpose: The purpose of this study is to identify the density and distribution of eelgrass within the study area. Study Area: The study area is composed of three main regions at Roberts Bank: 1. Northern end of the mudflats that lie to the west of Westham Island. This region encompasses the mudflats southward to Canoe Pass. 2. The mudflats south of Canoe Pass (Brunswick Point) to the Roberts Bank causeway. 3. The “inter-causeway” which includes the mudflat between the Roberts Bank causeway and the BC Ferries terminal causeway. Methods: Multiple methods will be used to identify the density and distribution of eelgrass: • Confirm and map the distribution of eelgrass habitat along the Roberts Bank mudflats at very low tides, and collect data. • Map the underwater distribution of eelgrass using an underwater video system towed by a slow moving boat. Timing: The study will begin in June 2012 and will occur during daylight hours.

Study Name	Summary
Marine Vegetation – Marine Vegetation Habitat Study	Purpose: To confirm the distribution of marine vegetation habitat at Roberts Bank. Study Area: The study area is composed of three main regions at Roberts Bank: 1. Northern end of the mudflats that lie to the west of Westham Island. This region encompasses the mudflats southward to Canoe Pass. 2. The mudflats south of Canoe Pass (Brunswick Point) to the Roberts Bank causeway. 3. The "inter-causeway" which includes the mudflat between the Roberts Bank causeway and the BC Ferries terminal causeway Methods: Confirm the presence of marine habitats (Eelgrass, Ulva, Salt Marsh) within the study area by walking transects through habitats and recording their spatial extent using GPS and hand-held habitat maps. Timing: This study will begin in June 2012 and will occur during daylight hours at low tide.
Coastal Seabirds – Impacts of Overhead Transmission Wires and Vehicular Traffic on Coastal Seabirds Study (continued from May 2012)	Purpose: Bird diverters, which are special units installed on power lines, 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. Methods: The study will examine flight patterns, distribution, abundance and behaviour of birds as they cross the Roberts Bank Transmission Corridor. Where bird collisions do occur within 20 metres of the transmission wire and road, birds will be collected and studied. Timing: Flight surveys will be undertaken every two weeks at each station. Assessments will occur during daylight hours, weather permitting and bird removal will occur every four days. This study began in mid-April and will continue in June 2012.
Coastal Seabirds – General Bird Abundance and Distribution Study (continued from May 2012)	Purpose: The purpose of this study is to determine and observe Coastal Seabirds, Shorebirds and Waterfowl abundance and seasonal distribution at Roberts Bank. Study Area: The study area includes: • Brunswick Marsh • Roberts Bank Causeway • Around the perimeter of the Deltaport and Westshore terminals

Study Name	Summary
	Methods: A team of two biologists will conduct surveys where birds will be observed, counted and species identified. The biologists will use binoculars and spotting scopes to count and identify species. There are 13 observation points and each one will be identified with flagging tape, spray paint on the ground surface or a stake. Timing: The study will continue in June 2012 and will occur during daylight hours.
Coastal Geomorphology – Continuous Measurement of Discharge Study	Purpose: The purpose of the study is to continuously monitor discharge in Canoe Pass during the summer high flow season. Specifically, the study will collect data relating to flow discharge in Canoe Pass. Study Area: The study area includes Canoe Pass (the southern-most arm of the Fraser River). Methods: Multiple methods will be used to collect data: 1. Sensors and probes will be installed within the study area. These will be connected to computers to collect and monitor data. 2. Boat-mounted sensors will be deployed within the study area to gather data. Timing: The study will begin in June 2012 and will occur during daylight hours.
Coastal Geomorphology – Sediment Concentration and Grain Size Study	Purpose: The purpose of the study is to continuously monitor sediment concentration in Canoe Pass. Specifically, the study will determine the amount of sediment that exits Canoe Pass and arrives at Roberts Bank. Study Area: The study area includes Canoe Pass (the southern-most arm of the Fraser River). Methods: To determine the amount of sediment present, a sensor will be installed and used to collect data on the number of particles in the water. Samples will be collected to help determine sediment concentration and grain size. Timing: The study will begin in June 2012 and will occur during daylight hours.

Study Name	Summary
Coastal Geomorphology – Salinity and Suspended Solids Study	Purpose: The purpose of the study is to measure water salinity and suspended solids in Canoe Pass and over the Roberts Bank tidal flats. Study Area: The study area includes Canoe Pass (the southern-most arm of the Fraser River) and Roberts Bank to the north of the Roberts Bank causeway. Methods: To measure the salinity, a sensor will be deployed (at a minimum of three different depths) from a boat during various tide conditions and at different Fraser River discharges. Suspended sediment water samples will be collected by bottling water samples. Timing: The study will begin in June 2012 and will occur during daylight hours.
Coastal Geomorphology – Direct Observations and Measurements of Flow Study	Purpose: The purpose of the study is to observe and measure tidal channels and flow within the proposed project area. Study Area: The study area includes: • Canoe Pass (the southern-most arm of the Fraser River) • Roberts Bank between Canoe Pass and the Roberts Bank causeway Methods: Direct observations will occur during low tides to observe flow and sediment transport within selected channels. Measurement of flow speed will be accomplished using a hand-held velocity meter. Field observations will be supplemented by photographs taken using a digital camera with onboard GPS. Flow measurements and general observations will be recorded. Timing: The study will begin in June 2012 and will occur during daylight hours.
Coastal Geomorphology – Bathymetric (Ocean Floor) Study	Purpose: The purpose of the study is to conduct focused bathymetric (ocean floor) surveys and collect data on the Canoe Pass Channel. Study Area: The study area includes Canoe Pass (the southern-most arm of the Fraser River). Methods: A boat-mounted sensor will be used to survey selected cross-sections within Canoe Pass.

Study Name	Summary
	Timing: The study will begin in June 2012 and will occur during daylight hours.
Coastal Geomorphology – Erosion and Deposition Study	Purpose: The purpose of the study is to measure and collect data on the short-term changes in the sediment surface of the tidal flats. Study Area: The study area includes the tidal flats in the vicinity of the Roberts Bank causeway. Methods: 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. Timing: The study will begin in June 2012 and will occur during daylight hours.
Coastal Geomorphology – Wave Height Study	Purpose: The purpose of the study is to collect ongoing measurements of wave heights at three locations on the tidal flats at Roberts Bank. Study Area: The study area includes the tidal flats in the vicinity of the Roberts Bank causeway. Methods: Wave sensors will be deployed on the seabed and will collect date and take continuous measurements of wave heights. Timing: The study will begin in June 2012 and will occur during daylight hours.
Marine Mammals – Underwater Noise Study	Purpose: The purpose of this study is to capture baseline data on ambient underwater noise levels and marine mammal presence at Roberts Bank. Study Area: The study area is the waters in the vicinity of Roberts Bank. Methods: To capture baseline data on ambient noise levels at Roberts Bank, two noise monitoring sensors will be deployed on the sea floor and will record ambient noise levels. Timing: The study will begin in June 2012.

Study Name	Summary
Terrestrial Wildlife – Rare Plants Study	Purpose: The purpose of the study is to: • Determine ecosystems that may be present in the study area • Describe any wetlands in the study area • Identify vegetation in the study area • Determine if rare plants occur in the study area Study Area: The study area is 10 kilometres-long, and will include a 500-metre buffer on either side of the existing rail line. Methods: Multiple methods will be used to collect data: 1. Air photos will be obtained and scanned into a model for three-dimensional viewing. 2. Surveys will be conducted by walking through each high-potential site identified through air photo analysis. 3. Data will be collected and digital photos of each plot will be taken. Full plant specimens will not be collected – if a rare species is encountered it will be photographed. Timing: Data collection and survey work will begin in June 2012.
Terrestrial Wildlife – Small Mammals Study	Purpose: The purpose of this study is to document small mammal habitat in the study area. Study Area: The study area will be approximately 10 square kilometres extending from the base of the Roberts Bank causeway to 72nd Street in Delta. Methods: A field crew will conduct field inspections and collect data on the habitat of small mammals. The data collected will include: • Coordinates of vegetation plots • Photos • Vegetation identified and coverage • Wildlife encountered • Wildlife habitat attributes Timing: Data collection and field work will begin in June 2012.

Study Name	Summary
Terrestrial Wildlife – Terrestrial Invertebrates Study	Purpose: The purpose of this study is to identify and document the occurrence of terrestrial invertebrates that are species at risk at Roberts Bank. Study Area: The study area is 10 kilometres-long, and will include a 500-metre buffer on either side of the existing rail line. This area will be reduced based on the results of the reconnaissance survey, to focus subsequent survey efforts on habitats where the species of interest are more likely to occur. Methods: Multiple methods will be used in this study: 1. Walking the study area to identify habitats that may contain terrestrial invertebrates that are species at risk and conducting visual surveys. 2. Collecting and identifying terrestrial invertebrates and recording the location, date and time of collection. The locations of suitable habitats will be delineated and mapped. Timing: The study will begin in June 2012.

For Further Information

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

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