

# Burrard Inlet Ambient Water Quality Report

Presentation to: Environment and Energy Committee

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A scenic landscape photograph showing a wide river valley. The river flows from the foreground towards the distance, flanked by steep, forested mountains. The sky is filled with soft, white clouds, and the overall atmosphere is calm and natural. The lighting suggests either early morning or late afternoon, with a gentle glow on the clouds.

## **LWMP Commitment C4:**

*“Ambient receiving environment monitoring in areas where water quality (as indicated by water quality objective criteria) is potentially affected by wastewater and/or storm water”*

# Liquid Waste Management Plan Commitment

- **Metro Vancouver has initiated ambient monitoring programs for Burrard Inlet, Fraser River, Strait of Georgia, and Boundary Bay**
- **Components of the programs include water column, biota, and sediment monitoring**



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# Burrard Inlet Ambient Water Quality Monitoring

- The focus of this presentation is the 2007 water column sampling results (first year of annual water column sampling)
- Sampling at seven sites conducted weekly over a five-week interval between October 29 and November 26, 2007
- The seven sites included Outer Harbour North, Outer Harbour South, Inner Harbour, Central Harbour, Port Moody Arm, Indian Arm South, and Indian Arm North
- For each site, samples were collected from two depths:
  - one meter below the surface
  - two meters above the ocean floor



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29/10/2007

## What we looked for...

- **Conventional parameters (pH, nutrients)**
- **Metals**
- **Organics (e.g., oil and grease)**
- **Bacteria**



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# Water Quality Criteria

- **Water quality objectives have been developed for Burrard Inlet**
  - Maximum contaminant concentrations, based on objectives developed specifically for Burrard Inlet, or on Provincial or Canadian (CCME) water quality guidelines
- **Sampling results were compared to these objectives**



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# What we found...

- **Dissolved Oxygen**
  - Lowest levels in Indian Arm
  - Historically, dissolved oxygen has been found to be depressed throughout the Inlet
- **Bacteria**
  - Highest levels in Outer, Inner, and Central Harbours
  - Historically, bacteria levels have exceeded objectives
- **Boron**
  - Exceeded water quality objective in all samples
  - All results were within range of expected levels found in seawater



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## Questions to answer...

- **What is the overall health status of Burrard Inlet?**
  - Water quality is protective of aquatic life
  - More to be learned from sediment and biota sampling results (Fall 2008)
- **Is the environmental quality the same from year-to-year?**
  - Current data is consistent with historical data for dissolved oxygen and bacteria
  - Metals results show an improvement over historical data



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## Questions to answer...

- **How does environmental quality vary within Burrard Inlet?**
  - Average bacterial results were higher in the Outer, Inner, and Central Harbours
  - Other parameters (dissolved oxygen, metals) show patterns consistent with physical oceanographic limitations



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## Questions to answer...

- **Does the observed quality suggest any significant environmental concerns?**
  - Dissolved oxygen levels in deep water samples may be the result of physical oceanographic features
  - Boron concentrations fall within expected range for Canadian coastal marine waters



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## What is being done?

- **To establish trends, conduct ambient monitoring of water column on an annual basis**
- **Monitoring sediment and biota**
  - Draft reports expected this fall
- **Reviewing and revising program as necessary**
- **Developing Best Management Practices to reduce non-point source pollution (in partnership with Burrard Inlet Environmental Action Program)**
- **Eliminating combined sewer overflows (City of Vancouver)**



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