

Burrard Inlet  
Environmental  
Action  
Program



Fraser River  
Estuary  
Management  
Program

# **Consolidated Environmental Management Plan For Burrard Inlet**

## **Plan Implementation Tracking Report 2006**

**November 15, 2006**

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## 1. INTRODUCTION

The Consolidated Environmental Management Plan (CEMP) for Burrard Inlet was approved by the BIEAP partners in 2002, and contains 21 action items to achieve four shared goals:

- Goal #1** Improve water quality in Burrard Inlet  
**Goal #2** Minimize the effects of contaminated soils and sediments on human and ecological health  
**Goal #3** Maintain and enhance productive fish and wildlife habitat and the natural biodiversity of Burrard Inlet  
**Goal #4** Encourage human and economic development activities that enhance the environmental quality of Burrard Inlet

These four goals are also grouped under three themes:

- Water Quality/Waste Management & Air Quality;
- Historically Contaminated Lands and Sediments; and
- Healthy Ecosystems and Biodiversity.

In support of the goals, 21 action items are identified as follows:

### **Improve water quality in Burrard Inlet (Goal #1)**

- 1.1 Continue to coordinate the management of liquid waste in Burrard Inlet
- 1.2 Develop and implement a coordinated ambient water quality monitoring program in Burrard Inlet
- 1.3 Review and make recommendations on the provincial permit discharge standards for industrial wastes
- 1.4 Share information and contribute to the effort to eliminate non-point source pollution in Burrard Inlet
- 1.5 Develop and enhance Industrial Best Management Practices (BMPs) and strengthen partnerships with the industrial sector
- 1.6 Share information and explore ways how BIEAP could contribute to air quality initiatives in the region

### **Minimize the effects of contaminated soils and sediments on human and ecological health (Goal #2)**

- 2.1 Develop and implement a risk-based sediment management plan for False Creek
- 2.2 Develop a database to monitor historically contaminated lands and sediments in Burrard Inlet
- 2.3 Develop risk-based sediment management plans for historically contaminated areas of Burrard Inlet as required
- 2.4 Make use of global research efforts to provide management options for contaminated lands and sediments

**Maintain and enhance productive fish and wildlife habitat and the natural biodiversity of Burrard Inlet (Goal #3)**

- 3.1 Confirm and acknowledge existing “protected” areas in Burrard Inlet
- 3.2 Assist the Greater Vancouver Biodiversity Conservation Strategy by identifying areas of ecological significance in Burrard Inlet for future protection and enhancement
- 3.3 Use legislative tools such as Marine Protected Areas, Wildlife Management Areas and ecological corridors to protect and enhance valuable areas in the Burrard Inlet ecosystem

**Encourage human activities and economic development activities that enhance the environmental quality of Burrard Inlet. (Goal #4)**

- 4.1 Provide information and resources to all municipal, regional and port planning initiatives along the shoreline and in adjoining watersheds
- 4.2 Coordinate and provide support and technical expertise to stewardship and community stakeholder groups in their efforts to improve the environment
- 4.3 Identify areas for habitat compensation banking
- 4.4 Develop environmental guidelines for recreation access, and park development and maintenance
- 4.5 Update and promote the BIEAP Shoreline Development Guidelines
- 4.6 Develop pilot projects in cooperation with the public and private sectors to showcase innovative environmentally sensitive designs
- 4.7 Develop an inventory of archeologically significant sites
- 4.8 Explore and develop models to deal with the cumulative effects of development within Burrard Inlet.

In addition to the above, the CEMP identifies:

- Six sub-basins within Burrard Inlet and describes partnership actions for each sub-basin. The 6 sub-basins are the Outer Harbour, False Creek, Inner Harbour, Central Harbour, Port Moody Arm and Indian Arm. For a map of the BIEAP area of interest, go to <http://www.bieapfrempp.org/maps.html>.
- Stakeholders including community groups, First Nations, municipal governments, and agencies within regional government, provincial government and federal government.

The CEMP is documented in a second print issued in November 2002 (BIEAP, 2002).

## 2. REPORT OUTLINE

The CEMP contains a commitment towards an annual reporting system, namely, that BIEAP will institute an annual public reporting system on the work achieved through the partnership. The *CEMP Tracking Report* is part of annual progress-reporting; which is also achieved via BIEAP-FREMP Annual Reports.

The BIEAP Plan Implementation Committee (PIC) guides Plan implementation and consists of representatives from the BIEAP partner agencies, First Nations and surrounding municipalities: Environment Canada, Fisheries and Oceans Canada (DFO), Vancouver Port Authority (VPA), BC Ministry of Environment (MOE), Greater Vancouver Regional District (GVRD), City of Burnaby, City of North Vancouver, City of Port Moody, City of Vancouver, District of North Vancouver, District of West Vancouver, Squamish First Nation (SFN), Musqueam First Nation, Tsleil-Waututh First Nation (TWFN), Village of Anmore, and Village of Belcarra.

The goal of the 2006 *CEMP Tracking Report* is to acquire information for nine CEMP actions as identified by the PIC. Information was gathered from a number of the stakeholders in the period June-October 2006, and focused on ongoing and future projects related to progress on the selected Actions. Where information was gathered in 2005 for the same action, an update was obtained. Table 1 below outlines the nine CEMP actions whose implementation was tracked for this report, and those who provided information.

<b>CEMP Action Item</b>	<b>Stakeholders Involved</b>
CEMP action 1.1 Continue to coordinate the management of liquid waste in Burrard Inlet	GVRD
CEMP action 1.2 Develop and implement a coordinated ambient water quality monitoring program in Burrard Inlet.	GVRD, MOE, BIEAP, DFO
CEMP action 1.4 Share information and contribute to the effort to eliminate non-point source pollution in Burrard Inlet.	Environment Canada, District of North Vancouver (DNV), City of North Vancouver, District of West Vancouver, GVRD, VPA, City of Port Moody, City of Vancouver, BIEAP
CEMP action 1.6 Share information and explore ways how BIEAP could contribute to air quality initiatives in the region.	GVRD, VPA, Environment Canada
CEMP action 2.1 Develop an implement a risk-based sediment management plan for False Creek	City of Vancouver, BIEAP
CEMP action 3.1 Confirm and acknowledge existing protected areas in Burrard Inlet	DNV, Environment Canada, GVRD, MOE, BIEAP, Tlseil Waututh First Nation
CEMP action 4.1 Provide information and resources to all municipal, regional and port planning initiatives along the shoreline and in adjoining watersheds.	District of North Vancouver, City of North Vancouver, District of West Vancouver, City of Port Moody, City of Vancouver, VPA, GVRD
CEMP action 4.4 Develop environmental guidelines for recreation access, park development and maintenance.	City of Port Moody, District of North Vancouver, District of West Vancouver, City of North Vancouver
CEMP action 4.8 Explore and develop models to deal with the cumulative effects of development within Burrard Inlet.	BIEAP

### 3. PROGRESS REPORTED

The information gathered for this report is summarized below.

***CEMP action 1.1: Continue to coordinate the management of liquid waste in Burrard Inlet***

#### ***GVRD***

The GVRD and member municipalities have been continuously working to follow the policies and fulfill the commitments and Minister's requirements of the LMWP since it was approved in 2002. Two biennial reports, February 2004 and March 2006, have been produced along with interim annual reports in 2003 and 2005. All reports are available on the GVRD website at <http://www.gvrd.bc.ca/sewerage/plans.htm>.

***CEMP action 1.2: Develop and implement a coordinated ambient water quality monitoring program in Burrard Inlet.***

#### ***BIEAP***

BIEAP continues to develop indicators for a future Burrard Inlet State of Environment (SOE) Report, including on water and sediment quality. Indicators are being developed in 2006-2007 and will include baseline and trend measurements for copper, PAHs and PCBs in Burrard Inlet.

#### ***Greater Vancouver Regional District (GVRD)***

No coordinated ambient water quality monitoring program has been undertaken in Burrard Inlet since June 2005. A variety of supporting programs have been undertaken including regular effluent toxicity testing at Lions Gate WWTP, a receiving environment monitoring program at the Lions Gate WWTP marine outfall, and a caged mussel monitoring program which is a cooperative research program between GVRD, NWRI and UBC.

No coordinated ambient water quality sampling program will be conducted in Burrard Inlet in 2006. GVRD will initiate a Burrard Inlet ambient water quality monitoring program in 2007. The ambient water quality plan report will be completed in fall 2006 by a consulting company. The GVRD budget for 2007 has been submitted for approval, and funding has been requested to conduct an ambient water quality monitoring program in Burrard Inlet as per the recommendations of the draft consultants' report.

#### ***Ministry of Environment (MOE)***

MOE monitors ambient water quality at sites in each basin to determine if the Burrard Inlet Water Quality Objectives (1990) are being met. Much of the Burrard Inlet data is available online, including the most recent report showing 2002 sampling program results. The Ministry is also undertaking a collaborative sampling project with SFU to study bio-accumulative impacts to the marine trophic food web.

Since June 2004, there has been no Water Quality Objectives (WQO) attainment monitoring. In 2005-2006, biological tissue PCB levels were sampled under the joint SFU-MOE investigation on appropriate sediment PCB levels. In 2006/07, resources were not available for WQO attainment monitoring. It is anticipated that future ambient monitoring in the Inlet will be conducted by, or on behalf of, GVRD.

In 2006-2007 the Province is planning to proceed with an amendment to the Burrard Inlet WQ Objectives to change the sediment PCB guideline, based on work by the SFU team led by Dr. Frank Gobas. This proposal will need to be reviewed by the GVRD Environmental Monitoring Committee, following the LWMP requirements.

Because CSOs, vessel sewage and stormwater can all contribute to the elevated bacteriological levels, MOE is working with other agencies to explore amendments to the WQ objectives for False Creek. The intent has been to amend the WQO to include bacteriological objectives for False Creek, to protect the public that engage in secondary contact recreational activities in that water body. The Province also undertakes surface microlayer monitoring in Burrard Inlet, monitoring the top layer of the water column to explore potential toxic impacts to some egg and larval stages. Microlayer monitoring has been deferred by the MOE at this time; the need for such monitoring will again be assessed when resources become available.

Water quality monitoring data and guidelines are available on the web at [www.waterquality.ec.gc.ca](http://www.waterquality.ec.gc.ca) including for the provincial-federal monitoring stations.

### ***Fisheries & Oceans Canada***

In 2005, DFO scientists at the Institute of Ocean Sciences (IOS) in Sidney published a paper<sup>1</sup> about historical and modern deposition of mercury in the Strait of Georgia and connected inlets, determined from sediment cores. There is one sediment core from each of Burrard Inlet, Indian Arm and Port Moody Arm, as well as some from the Strait of Georgia and Howe Sound. The paper showed that the surface concentration of mercury (or of any other contaminant) does not necessarily reflect the inventory in the sediments or even the current flux, because of spatial differences in the rates of sediment accumulation and mixing. For example, the Fraser delta receives a lot of mercury but the surface concentration is low because of the high rate of accumulation of non-mercury sediment. Howe Sound, conversely, has a relatively high surface concentration, but almost no modern source, because old mercury from the 1960s is still being mixed to the surface by the benthos, even though the source has been turned off. Burrard Inlet receives a high flux of mercury and has done for at least 100 years. That source continues today, and the surface sediments are contaminated above the level of possible benthic effects.

***CEMP action 1.4: Share information and contribute to the effort to eliminate non-point source (NPS) pollution in Burrard Inlet.***

### ***BIEAP***

In 2005, BIEAP completed a review of upland and watershed issues impacting on Burrard Inlet. The review is part of a risk management approach to monitoring environmental conditions in the Inlet, and will help identify the key ecosystem threats from a watershed perspective. With these risks identified, environmental indicators have been selected that are tied to decision-making, for use in reporting and monitoring through BIEAP. This will help meet the CEMP goal (in Part D of the Plan) to develop a State of the Environment Report for Burrard Inlet. The indicators are being developed in 2006-2007.

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<sup>1</sup> Johannessen, S. C., R. W. Macdonald and K. M. Eek 2005. Historical Trends in Mercury Sedimentation and Mixing in the Strait of Georgia, Canada. *Environmental Science and Technology*, 39: 4361-4368.

***City of North Vancouver (CNV)***

CNV has completed a background report for the ISMP for the Mission/Wagg Creek watershed, and undertaken some conceptual design work for online stormwater management projects. This work will continue into 2007.

The City adopted a “Stream & Drainage System Protection Bylaw” in 2004, which provided new mechanisms for compliance and increase penalties and enforcement and thereby brought in requirements for sediment and erosion control at construction sites.

In 2006 the City created “Development Permit Areas for Streamside Protection and Enhancement” in response to the province’s Riparian Areas Regulation. Invasive plant species management recommendations have been developed, and educational efforts focus on the management of invasive exotic plant species (particularly giant hogweed).

***City of Port Moody***

The City is currently involved in creating rain gardens and bio-swales as part of the Rocky Point Boathouse restaurant development. Wetland ponds with plantings are being created to treat stormwater runoff at Rocky Point Park, and stormceptors are being incorporated at Onni-Suter Brook development for first flush runoff. Port Moody is also developing a Homeowner Manual for new residents at the Onni-Suter Brook and Polygon developments that includes a section on non-point source pollution.

In 2005 the City updated its Zoning Bylaw and OCP in response to the Province’s Riparian Area Regulation. Invasive plant management has also been increased including GPS mapping and removal of Giant Hogweed. On Jan.1, 2006 Port Moody's Pesticide Control Bylaw came into full effect: cosmetic pesticides were banned including common herbicides and broad-spectrum lawn care pesticides.

***City of Vancouver***

The City of Vancouver continues with the combined sewer main and house connection separation program. GVRD is considering adjustments to flows in the sewer mains to get more sewage to the sewage treatment plants and less through CSOs. In terms of BMPs, the City's Green Building Strategy will be introduced in fall 2006.

In the summer of 2006 False Creek Water Quality was the best in recorded history. Fecal coliform counts were within primary recreation use guidelines. The transient moorage program was also implemented in 2006 and after its implementation water quality was seen to improve.

***District of North Vancouver (DNV)***

The Ecology Centre has a display on pollution prevention for the storm drainage system. Staff at the District also place articles in the local newspaper from time to time, on various topics including non-point pollution and contamination of the storm system and ultimately the streams.

An Integrated Stormwater Management Plan (ISMP) is being developed for watersheds in the DNV. This includes baseline flow and benthic monitoring on several creeks.

In conjunction with the City of North Vancouver and District of West Vancouver, the DNV has sponsored a pesticide reduction education campaign through the North Shore Recycling Program. As

well public consultation on a draft DNV Pesticide Use Control Bylaw is now complete; a report is going to DNV Council in November 2006 seeking Council's direction on the various options to regulate pesticide use in the District.

### ***District of West Vancouver***

The District's Environmental Strategy and Watercourse protection Bylaw are both aimed at reducing pollution. A suite of FAQ's sheet has been developed, along with a full-time environmental protection officer to help implement and enforce BMPs. A significant amount of literature and Web content has also been added to the District's website.

Cosmetic pesticides were banned as of January 1, 2006; restrictions include common herbicides and broad-spectrum lawn care pesticides.

### ***Environment Canada***

Environment Canada worked with the Capital Regional District to develop an NPS educational tool which can also be used to support outreach activities in the Burrard Inlet. The tool consists of an interactive web-based representation of a watershed and is aimed at helping people understand the basic concept of a watershed and the effects that non-point source pollution can have on watersheds and the marine receiving environment. This tool is accessible from the Capital Regional District's website at: <http://www.crd.bc.ca/watersheds/watershedworld/index.htm>.

Environment Canada is promoting Best Management Practices (BMPs) for hull maintenance at boatyards and marinas as part of its compliance promotion efforts to prevent releases of anti-foulant paint from these facilities. Environment Canada has focused on compliance promotion for the first phase of the program, and enforcement activities are planned as the second phase of the project, anticipated to begin in 2007. Workshops were also held in Vancouver, Victoria and Nanaimo in October 2006.

Environment Canada is involved in the development of a web-based, GIS-linked atlas of information on toxic substances in the GB. This is currently under development with input by various stakeholders. The principal partners in the design and development of this system are EC, DFO, and BC Conservation Foundation. This website will provide a repository of historical and current information and published reports relating to priority environmental contaminants in the GB. This website will be of interest to a variety of stakeholders including researchers, regulatory agencies, educators and the public.

Environment Canada is also working on toxics identification and reduction program through GBAP and the Puget Sound/Georgia Basin International Task Force Canadian Toxics Work Group (TWG). The TWG reports to the Puget Sound/Georgia Basin International Task Force and has been preparing recommendations and an action plan to address toxics in the Georgia Basin (GB). The recommendations relate to both research and monitoring needs and management actions which are needed to address high priority toxics-related issues in the GB. A wide range of potential sources of toxics to the GB have been reviewed under this initiative, including NPS, and recommendations relating to NPS are included. In addition to making recommendations for future actions, the reports review the actions which have been taken to date.

### ***Greater Vancouver Regional District (GVRD)***

The GVRD identified that stormwater management is the responsibility of the member municipalities. Several municipal Integrated Stormwater Management Plans (ISMPs) are underway in the region that will likely result in reduced NPS pollution into streams and Burrard Inlet. GVRD revised the Integrated Stormwater Management Plan (ISMP) template in 2006, and infiltration BMP design guideline posters and a report were finalized in 2005. GVRD helped to develop the Rainwater Community-of-Interest page on [www.waterbucket.ca](http://www.waterbucket.ca) to present case studies and facilitate discussions on rainwater management.

Upgrades to the Water Balance Model also continue, for example a tree canopy interception module and incorporation of QUALHYMO (a type of model).

### ***Transport Canada***

New federal regulations under the Canada Shipping Act are being considered that would prohibit dumping of raw sewage from small boats (e.g. pleasure boats) within 5.5 km of the coastline. Larger vessels would also be prohibited from dumping untreated sewage within 12 nautical miles (22 km) of shore. The comment period for the initial publication of the proposed changes listed in the Gazette 1 closed on September 15, 2006.

### ***Vancouver Port Authority***

The Vancouver Port Authority attempts to mitigate effects of NPS through project review by the Burrard Environmental Review Committee (BERC). Any project with potential to impact the BIEAP mandate area is referred to BERC for review. BERC gives advice for the mitigation of impacts, which include any NPS discharges that would result from the project. Referrals and projects are ongoing, and the intent is to continue in this manner indefinitely. Information on projects under BERC review is available at [http://www.bieapfrempp.org/referral\\_logs.html](http://www.bieapfrempp.org/referral_logs.html).

***CEMP Action 1.6: Share information and explore ways how BIEAP could contribute to air quality initiatives in the region.***

### ***Environment Canada***

The Georgia Basin Diesel Emissions Reduction Partnership (2006/07) offers a funding opportunity to public and private operators of diesel equipment to implement emission reductions. Eligible projects include retrofits, engine repowers (i.e., replacements), the adoption of cleaner fuels, and idle reduction strategies. This is an excellent opportunity for diesel operators to improve employee and community health, be a leader in an important environmental initiative, and embrace corporate social responsibility.

Grants of up to 75% of the project cost to a maximum of \$50,000 are available to support projects in the Georgia Basin region that use verified emission reduction methods.

Marine emission activities in 2006/07 include:

- Developing emission inventories for marine vessels and land-based port-related sources including cargo handling equipment, trucks and rail
- Development of action plans for reducing maritime/port emissions
- AQ mitigation measures under federal environmental assessments
- Study on best emission-reducing practices for marine terminals

### ***Greater Vancouver Regional District***

The GVRD has completed an inventory of air emissions, including common air contaminants and greenhouse gases, from all sources at the municipal and regional levels for the year 2000. An inventory of marine vessel emissions includes detailed spatial and geographic data for all areas, including Burrard Inlet.

The GVRD has also completed a forecast of emissions in the Lower Fraser Valley airshed from 2000 to 2025, in five-year increments. The emission inventories and forecasts are carried out for the following compounds: CO, NO<sub>x</sub>, VOC, PM, PM10, PM2.5, SO<sub>x</sub>, NH<sub>3</sub>, CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O. The GVRD will complete a 2005 update to the emission inventories and forecast in 2007.

In the fall of 2005, the GVRD Board approved a new Air Quality Management Plan (AQMP) for Greater Vancouver. The new AQMP has three primary goals:

1. Minimize the risk to public health from air pollution
2. Improve visibility
3. Minimize Greater Vancouver's contribution to global climate change

The GVRD, and other partner agencies where appropriate, will implement 33 actions which aim to reduce air emissions and enhance air quality information. Major emission source categories include:

1. Marine sources (vessels and ports),
2. Cars, trucks and buses,
3. Construction, rail and agricultural equipment,
4. Industrial, commercial and institutional sources,
5. Communities, and
6. Agriculture.

#### ***Vancouver Port Authority***

The Vancouver Port Authority (VPA) continues to address air quality and climate change through our Integrated Air Emissions Reduction Program, building on previous and existing efforts (go to [www.portvancouver.com](http://www.portvancouver.com) for more information). The VPA program has four main components:

- Data baseline
- Operational efficiency
- Technological innovation
- Regulatory change

Through the BC Marine Vessel Air Quality Work Group (BCMVAQWG) of which the VPA, Environment Canada, Greater Vancouver Regional District, Chamber of Shipping, Transport Canada, BC Ferries and others are members, a detailed local ocean going vessel emission inventory is nearing completion. A Lower Mainland Port Land-Based Emission Inventory is planned for 2006-2007 that will include cargo handling equipment, rail and truck emissions. Accurate, local estimates of emissions and emission reduction efforts will be used in tracking progress towards and supporting decision-making processes in developing a sustainable port.

VPA continues to work with stakeholders on operational efficiency with the most recent improvements including:

- Implementation of a truck reservation system
- Extended container terminal gate hours
- Radio frequency identification tag pilot
- Truck idle reduction education program
- Port-targeted AirCare On-Road testing and safety inspections for trucks

These efficiencies are designed to help improve the flow of goods through the port and minimize unnecessary emissions.

In addition to reducing emissions through improved operational efficiency, technological innovations are also being studied and applied by both the VPA and its terminal operators including:

- Use of biodiesel in cargo handling equipment and trucks
- Requiring use of hybrid vehicles by security contractors

- Purchasing BC Hydro Green Power Certificates
- Assessment of shore power feasibility for ships
- Expanding use of fuel-borne catalysts to ocean going vessels
- Testing of a hybrid diesel-electric rubber tired gantry crane or RTG
- Development of construction emission reduction options for port projects

The VPA also supports regulatory change both independently and through its ongoing participation in the BCMVAQWG and the West Coast Collaborative, a North American industry-government-environmental group partnership dedicated to reducing diesel emissions.

### ***CEMP action 2.1***

#### ***Develop an implement a risk-based sediment management plan for False Creek***

##### ***BIEAP***

Through BIEAP, the partners developed a False Creek Sediment database in 2002.

##### ***City of Vancouver***

Work on remediating portions of False Creek upland continues through the City of Vancouver, GVRD, the Province, and the federal government (Fisheries & Oceans Canada and Environment Canada). The City of Vancouver submitted a draft report on sediment quality in the East Basin of False Creek in July 2006. The working group, including environmental agencies, will be meeting to discuss the report in fall 2006.

### ***CEMP action 3.1***

#### ***Confirm and acknowledge existing protected areas in Burrard Inlet***

##### ***District of North Vancouver***

DNV will be amending the OCP to establish “Development Permit areas for the protection of the Natural Environment” with the intent to protect riparian areas next to creeks and possibly wetlands and the foreshore.

##### ***Environment Canada/Ministry of Environment/GVRD/BIEAP:***

The Biodiversity Conservation Strategy for the Greater Vancouver Region aims to facilitate partnerships, provide information and tools to help prioritize resources and conservation efforts for biological diversity in our region. The Strategy is being developed by a number of partners, including Environment Canada, BC Ministry of Environment, GVRD and BIEAP-FREMP.

The partners are now in the final phase of the strategy development after years of consultative and technical data assessments. An important component was the assessment of regional biodiversity and the development of the spatial framework. A variety of existing habitat data was integrated to create maps that identified regionally significant habitat reservoirs, refuges, corridors and a series of management area. This information and the awareness of biodiversity “hot spots” falling outside the managed areas will be used to guide strategies to conserve biodiversity in the region.

In April 2006 a consulting team was hired to prepare an implementation plan. The development of the Biodiversity Action Plan involves participation from senior governments, local municipalities, non government organizations, stewardship groups and post-secondary institutions.

On July 13, 2006, 70 people attended a workshop to provide input on how to conserve biodiversity under four overarching goals aimed to:

- understand the status of biodiversity in the region and communicate the importance of conserving biodiversity;
- conserve important refuges and reservoirs in the region;
- connect patches of habitat creating corridors; and
- enhance the quality and diversity of habitats.

The next step is a review the draft Biodiversity Action Plan with the steering committee developing a series of principle statements with goals and objectives. There will be an additional workshop this fall.

### ***Tsleil Waututh First Nation***

For Indian Arm Provincial Park, a park management plan consultation process is underway jointly by TWFN and BC Parks. An open house was held in September 2006 to provide information on the park management plan process, the co-management agreement between the First Nation and BC Parks, and introduce a Bioregional Inventory Atlas.

***CEMP Action 4.1: Provide information and resources to all municipal, regional and port planning initiatives along the shoreline and in adjoining watersheds.***

The BIEAP partners are regularly consulted on development of land use plans around Burrard Inlet. Information about the various initiatives is also shared at the quarterly meetings of the BIEAP Plan Implementation Committee; below is a list of some of the planning initiatives ongoing around the Inlet and its watersheds.

### ***City of North Vancouver***

The City is proceeding with the Versatile Shipyards redevelopment on the waterfront. Major redevelopment and densification is taking place within the Lower Lonsdale town centre with excellent alternative transportation options. Implementation also continues on a Local Action Plan for the Management of Energy and Greenhouse Gas Emissions, and the City has created a District Energy System to provide efficient heating to Lower Lonsdale town centre.

### ***City of Port Moody***

The City is currently working on the Rocky Point Park redevelopment. City development is mainly taking place in the Inlet Centre (downtown) and includes multi-housing development at Klahanie.

The City is embarking on an OCP update in fall 2006. Major infrastructure planning is also proceeding for Light Rail Transit (LRT) and the Murray-Clarke Connector (involves shoreline approvals for bridge structure), as well as upgrades to the sanitary line on Alderside and pump station.

### ***City of Vancouver***

The City of Vancouver, Vancouver Port Authority, and Burrardview Community Association have been working together to develop a plan for the East Vancouver Port Lands (EVPL). While work is ongoing, guidelines have been drafted for land use, building heights, and view preservation. Noise levels have been monitored across the neighbourhood, and mitigation strategies are being investigated. In June 2006, the City of Vancouver presented a planning study update to the Advisory Group, followed by a public open house.

The City of Vancouver is proceeding with planning the South East False Creek flats development, and a Transient Boat Management Plan for False Creek will be implemented in 2006.

***District of North Vancouver***

The Lynnmour/Inter-River Local Plan (between Lynn Creek and Seymour River) will be considered by Council in Nov. 2006. The plan includes provisions for flood protection measures and environmental enhancement. For more information, go to <http://www.district.north-van.bc.ca/>. The District is also coordinating with the Tlseil Waututh First Nation on development of a Cates Park management plan.

For the Cates Park Master Plan, the District of North Vancouver and the Tsleil-Waututh Nation have been working together since the conclusion of the public review and feedback stages completed in the fall of 2005, with the consultant team to revise and fine tune the Master Plan and Cultural Resources Interpretive Management Plan. The draft planning document and appendices represent the final edit and plan directives and is now available on the DNV website for public review. Once approved by both Councils, the plan document will be posted on the DNV website.

***District of West Vancouver***

Intertidal and Subtidal habitat enhancement works have just been approved by DFO and BERC (Burrard Environmental Review Committee). These sites will be monitored for success.

***GVRD***

Work on the review of the Livable Region Strategic Plan update continues, with public consultation expected in 2007. Several workshops have been held with the GVRD Board and the Technical Advisory Committee on key areas of the Plan, and proposals for updating the LRSP are currently under internal review.

***Vancouver Port Authority***

See above for update on East Vancouver Port Lands (under City of Vancouver section).

***CEMP action 4.4***

***Develop environmental guidelines for recreation access, park development and maintenance.***

***City of Port Moody***

The City is replacing and upgrading bridges in Shoreline Park at Suter Brook. A new initiative will be to ensure that bridge infrastructure (abutments and stringers) are more permanent with wood decking on top to minimize the need for future disturbance of this sensitive habitat

***City of North Vancouver***

The City of North Vancouver is in the process of developing a new Parks Master Plan, which should be completed by the end of 2006. In 2005 the City adopted a new Integrated Pest Management Policy, reducing pesticide use on public lands.

***District of North Vancouver***

DNV Parks has completed the Cates Park Management Plan with TWFN and will begin implementation. An erosion control and habitat enhancement project for the foreshore of Cates Park is also being developed.

The DNV Alpine Recreation Study has been completed and will be refined to include BMPs for recreation use and access to the upper watersheds.

***District of West Vancouver***

The District is working on an entire foreshore strategy for 2007.

***CEMP action 4.8***

***Explore and develop models to deal with the cumulative effects of development within Burrard Inlet***

***BIEAP***

In 2006, BIEAP partners completed a study on the cumulative impacts of sanitary sewage discharges into Indian Arm. Chief concerns related to the uncertainty around cumulative effects or capacity threshold of residential sewer discharges to the water. In 2004, BERC discussed a project to gather data that would support decision-making and the permitting of these discharges. Until the study was completed, BERC indicated that it would not approve any discharges to Indian Arm.

BERC continued discussions around a project to study Indian Arm's capacity to accept sanitary sewage discharges, and developed project Terms of Reference which were shared with the PIC in February and July 2005. Following a Request for Proposals in August 2005, the consulting firm of WorleyParsons Komex was retained. Project funding of \$50,000 was brought together through BIEAP.

The project with Komex began last fall and was recently completed with the submission of a final report in mid-May. A panel of technical advisors was established by VPA and BERC to oversee the technical aspects of the study. Meetings with the consulting team were held throughout the project, including a meeting held April 7/06 to review their draft findings.

The screening-level study investigated aspects of existing and potential future private domestic wastewater discharges into Indian Arm. Local oceanography, and nutrient, sediment and fresh water inputs were quantified based on existing literature and data sources. A 2-D model of the Arm circulation was prepared as well as dilution modeling for a range of discharge scenarios, ranging from worst case (septic tank discharge for all existing outfalls) to all outfalls having high-quality secondary treatment.

Among their findings were the following:

- The number of existing outfalls around the perimeter of the Arm was estimated to be 64, with a future maximum number estimated at 233.
- The optimal discharge depth to Indian Arm is at 10m regardless of discharge volume, time of year, or position along the Arm. This depth was considered optimal as it minimized the residence time while ensuring that the effluent plume remained trapped below the surface of the Arm.
- The diluted effluent is therefore not predicted to reach the shoreline and impacts to human health are predicted to be negligible for outfalls built at 10m or deeper. Effluent plumes at these depths are predicted to be carried out of the Arm within the surface layer.
- Two areas within the Arm were not recommended for outfall discharge - Deep Cove and Bedwell Bay.

VPA and BERC will be following up on these recommendations in the course of reviewing applications.