

# Appendices

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# Appendix 1. Internet Sources of Environmental Data for Community Groups and Regional Planners in British Columbia

The following is only a small selection from an ever-growing list of organizations assembling and distributing environmental datasets for easy access by the public. Many of the following groups employ (or are moving towards) web sites with interactive GIS map interfaces that provide an understandable geographic context for their data, and allow the information to be used within formal planning exercises. Additionally, some of the organizations presently accessed through the umbrella of the Community Mapping Network now promote mapping functions that allow community members (with the appropriate qualifications and password access) to directly contribute to developing databases by entering new spatially-linked information directly over the internet. A fuller listing of informative environmental websites can be accessed at:

<http://www.shim.bc.ca/links2.html>.

The listing of supporting partners provided for each group is generally only a sample of the players involved in these undertakings. The full partnerships are more fully detailed within the individual websites.

## 1) Community Mapping Network

URL: <http://www.shim.bc.ca/>

**Supporting Partners:** Fisheries and Oceans Canada, Environment Canada (Canadian Wildlife Service), B.C. Ministry of Water, Land and Air Protection, Ministry of Energy and Mines, Habitat Conservation Trust Fund, Fraser Valley Regional District, Inner Coast Natural Resource Centre, The Real Estate Foundation of British Columbia,

Langley Environmental Protection Society, B.C. Conservation Foundation, Integrated Mapping Technologies Inc., Fraser River Estuary Management Program, Comox Valley Project Watershed Society, City of Surrey

**Abstract:** The Community Mapping Network was created to display and describe watershed-based community mapping projects that are either in progress or have been completed, and to make this valuable information available to both local and international communities. This information has been and will continue to be used for land use planning purposes as well as a vehicle for empowering community conservation and stewardship of natural resources.

A community mapping network is made up of a number of groups, organizations, and/or individuals that collect and map similar information about their community. Although standard methods of collecting and mapping community information are promoted, all community mapping projects, regardless of methodology, are welcome to become part of the community mapping network. The aim of many of the mapping projects is to collect inventory information for fish presence and habitat, wildlife, mapped and unmapped streams and wetlands, sensitive areas, and possible restoration sites. Mapping typically takes place in rural and urban communities where humans land use may influence the riparian areas. For each project the geographic location, and in some cases specific features, of the project sites are shown on an interactive map. A detailed description of each project is also available, and outlines the project's

goals, methods, and status. Contact information for the organization(s) responsible for each project is also provided, and interested viewers are encouraged to contact the organization to ask questions or find out how they can get involved. Since many of the community mapping projects are ongoing, information found in this atlas is constantly being updated. Inventory and mapping projects currently accessible through the Community Mapping Network include:

- Sensitive Habitat Inventory and Mapping Project (SHIM)
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley
- Frogwatch Sighting Mapping Tool
- Wildlife Observations Mapping Tool
- Sensitive Ecosystems Inventory
- Inner Coast Natural Resource Centre (ICNRC) Stream Observation Mapping Tool
- B.C. Wetlands Atlas
- Pacific Coastal Resources Atlas
- Upper Skeena Atlas
- Watersheds B.C. Atlas
- South Coast Cutthroat Atlas
- Bald Eagle and Heron Atlas
- Comox Valley Project Watershed
- Community Mapping Network Directory

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## 2) Sensitive Ecosystems Inventory Project (SEI)

**URL:**  
<http://www.shim.bc.ca/sei/seimain.html>

**Supporting Partners:** Fisheries and Oceans Canada, Environment Canada (Canadian Wildlife Service), B.C. Ministry of Water, Land and Air Protection, B.C. Ministry of Sustainable Resource Management, Sunshine Coast Regional District, Regional District of Central Okanagan, Habitat Conservation Trust Fund

**Abstract:** The purpose of the Sensitive Ecosystems Inventory (SEI) project is to identify remnants of rare and fragile terrestrial ecosystems and to encourage land-use decisions that will ensure the continued integrity of these ecosystems. It is intended for use in a variety of land-use planning processes.

Sensitive ecosystems are first identified on aerial photographs. Identified sites are then field checked to verify boundaries, classify, photograph and evaluate present conditions. This information is placed into a GIS (Geographic Information System) database, and the maps are made available both in hard copy and digital formats. Maps will be at a 1:20,000 scale on the TRIM map base.

SEI project staff work with local governments, landowners, developers and others to use existing tools and mechanisms to protect and conserve the sites identified. Every one of these sites is potentially a valuable component of the area's natural landscape. The SEI is a "flagging" tool that identifies sensitive ecosystems and provides scientific information and support to local

governments and others who are trying to maintain biodiversity.

### Contacts:

- Southeast Vancouver Island and Gulf Islands:  
<http://srmwww.gov.bc.ca/cdc/sei/vancouverisland/information.htm>
- Sunshine Coast:  
<http://srmwww.gov.bc.ca/cdc/sei/sunshinecoast/contacts.htm>
- Central Okanagan:  
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### 3) Sensitive Habitat Inventory and Mapping (SHIM)

#### URL:

<http://www.shim.bc.ca/method2.html>

**Supporting Partners:** Fisheries and Oceans Canada, Environment Canada (Canadian Wildlife Service), B.C. Ministry of Water, Land and Air Protection, Ministry of Energy and Mines, Habitat Conservation Trust Fund, Fraser Valley Regional District, Inner Coast Natural Resource Centre, The Real Estate Foundation of British Columbia, Langley Environmental Protection Society, B.C. Conservation Foundation, Fraser River Estuary Management Program, Comox Valley Project Watershed Society

**Abstract:** The Sensitive Habitat Inventory and Mapping (SHIM) method is intended as a standard for fish and aquatic mapping in urban and rural watersheds in British Columbia. The principal objective is to identify, inventory and map all watercourses, their associated riparian habitats and important fish and wildlife habitat features at a scale of approximately 1:5000. SHIM methodology involves field collection of

aquatic information using high-end global positioning systems (GPS) and subsequent data incorporation into geographic information systems (GIS).

This method attempts to ensure the collection and mapping of reliable, high quality, current and spatially accurate information about local freshwater habitats and watercourses. Watercourses in residential, commercial, agricultural, industrial and recreational land use areas in coastal British Columbia are the primary focus of this standard, but these methods can be applied for use across all areas of British Columbia. These methods have been designed to capture information not currently identified or acknowledged in local/regional plans and maps. SHIM is designed to provide the basis for accurately mapped baseline data that can be integrated into local mapping and planning initiatives. The mapping information collected is intended to augment and potentially enhance local land use planning maps and/or specific site or detailed planning surveys.

SHIM information can be applied to:

- Identify sensitive habitats for fish and wildlife along watercourses;
- Assist in determining setbacks and fish/wildlife-sensitive zones;
- Help guide management decisions and priorities with respect to habitat restoration and enhancement projects;
- Assist in the design of storm water or runoff management plans;
- Monitor for changes in habitat resulting from known disturbance;
- Provide a means of highlighting areas that may have problems with channel stability or water quality, and require more detailed study;
- Identify and map point and non-point sources of pollution;

- Provide current information, not previously available to urban planners, to allow more informed planning decisions and provide inventory information for Official Community Plans;
- Provide baseline mapping data for future monitoring activities;
- Map and identify the extent of riparian vegetation available and used by wildlife and fisheries resources;
- Provide preliminary data for analyses which can be used to indicate potential trends in resources that may require further study;
- Integrate new map information with existing TRIM and municipal planning maps;
- Contribute information towards an inventory of fish distribution and limiting factors to watershed based fish production;
- Assist in understanding urban water runoff patterns and help determine areas of impervious surfaces in urban watersheds.

During the past five years local communities have performed trials and reviews of SHIM methods to collect and integrate accurate and precise watercourse information. At least 30 separate community SHIM based mapping projects have been completed throughout the Georgia Basin and west coast Vancouver Island. Two workshops have also been held in Nanaimo and Abbotsford to review the status of all SHIM mapping projects, consider potential data gaps, review and improve methods, and provide recommendation for future method development.

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## 4) Sensitive Habitat Atlases

### URLs:

- [http://www.shim.bc.ca/sens\\_hab\\_atlas.es.htm](http://www.shim.bc.ca/sens_hab_atlas.es.htm)
- <http://www.user.dccnet.com/ctrent/>
- <http://www.naturalareasatlas.ca>
- [http://www.fvrd.bc.ca/growth/RGS\\_Concepts/Habitat\\_Atlas/habitat\\_atlas.html](http://www.fvrd.bc.ca/growth/RGS_Concepts/Habitat_Atlas/habitat_atlas.html)

**Supporting Partners:** Fisheries and Oceans Canada, Ministry of Environment Lands and Parks, Comox-Strathcona Regional District, Sunshine Coast Regional District, Fisheries Renewal, Urban Salmon Habitat Program, Habitat Conservation and Stewardship Program, Real Estate Foundation of British Columbia, Veins of Life Watershed Society, South Island Aquatic Stewardship Society, Islands Trust, City of Victoria

**Abstract:** The Sensitive Habitat Atlases are land planning, computer-generated tools that identify sensitive aquatic and terrestrial habitats within a district. A Sensitive Habitat Atlas consists of several map layers: the backdrop consists of an up-to-date aerial photograph. This is overlaid with property boundaries, land parcels, and road networks. Additional overlays include land use information and the locations of sensitive resources compiled from existing information sources and through interpretation of

## *Appendix 1. Internet Data Sources for Community Groups and Planners*

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aerial photographs. Colour-coding of the resources facilitates their identification. By combining resource information from a variety of sources the Atlases provide a strong foundation for integrated resource management and planning in urban areas. The development of Habitat Atlases is the recognized initial step towards the protection of natural areas. These atlases are one of the primary tools used by local government planners and engineers who are responsible for making day-to-day decisions regarding land use and development in and around environmentally significant landscapes. An atlas can locate and describe natural areas in relation to property boundaries, road networks and other cadastral information. In this respect, natural areas atlases are excellent 'flagging devices' for planners, consultants, architects, engineers and the development community to inform them that further study of a proposed development or activity may be required. These atlases also provide essential background information for tasks such as defining setbacks on watercourses and can also be used to complement land use bylaws and Official Community Plans (OCPs).

In addition to resource and land use planning, government and non-government agencies and community groups are able to use the atlas to highlight and prioritize areas that may be in need of protection and/or restoration. By compiling information from a wide variety of sources and making it easily accessible, the Natural Areas Atlas will become an essential education and information tool for land use planning decision-makers and the public.

The Atlases may also be readily incorporated into habitat resource databases and used in geographic information systems. The first generation of Sensitive Habitat Atlases were produced in the late 1990's for the Comox-Strathcona, Nanaimo, Squamish

and Saanich Regional Districts. A new generation of Sensitive Habitat Atlases are currently being developed for the Sunshine Coast, Fraser Valley and Capital Regional Districts. These Habitat Atlases will be created as digital Geographic Information System (GIS) databases. The database will provide constantly up-dated information to planners, developers, government organizations, municipalities, First Nations, community organizations and local businesses, enabling them to make informed land use and stewardship decisions in support of the protection, enhancement, and restoration of fish habitat and sensitive ecosystems.

Some of the themes to be included in these new Atlases are: all water courses and associated information (enhancements, obstructions, artificial modifications), fish presence and species information, parks and protected areas, and land use. These themes will serve to identify the location of important habitat and its relation to other features. The Atlases will provide accurate mapping for enforcement of the Fish Protection Act (including the Streamside Protection Regulation), the Forest Practices Code, the Water Act, the Land Development Guidelines, and the Local Government Act.

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### 5) Vancouver Island Wildlife Tree Atlas

**URL:**  
<http://www.shim.bc.ca/eagle/main.htm>

**Supporting Partners:** Community Mapping Network, Vancouver Island Region FBCN, Canadian Wildlife Service (CWS), Ministry of Water, Land, and Air Protection (MWLAP), BC Hydro, Cowichan Community Land Trust (CCLT), Land Trust Alliance of B.C. (LTABC).

**Abstract:** The Vancouver Wildlife Tree Atlas has been developed by the Wildlife Tree

Stewards (WITS), a stewardship initiative of the Vancouver Island Region of the Federation of B.C. Naturalists (FBCN). Volunteers document the location and monitor use of wildlife trees. Landowners provide access to, and information regarding, their trees. The Wildlife Tree database and interactive GIS display system are maintained by the Community Mapping Network. New and spatially accurate wildlife tree locations and associated information can be entered by qualified community members with appropriate password clearance. The goal is to conserve dwindling coastal wildlife tree habitats through volunteer monitoring, landowner agreements, and community education along the Strait of Georgia on Vancouver Island. Of particular concern are mature coastal trees and mixed tree stands with documented high levels of wildlife use. Volunteer wildlife tree stewards and cooperative landowners are crucial to this initiative. The WiTS initiative is built on the results of a decade of fieldwork conducted on Great Blue Herons (a threatened species in B.C.) and on Bald Eagles by Vancouver Island naturalists and biologists. This new initiative is expanding to include trees and habitat important to other wildlife species.

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### 6) Fisheries Data Warehouse

**URL:**  
<http://www.shim.bc.ca/shim/main.htm>  
or  
<http://www.bcfisheries.gov.bc.ca/fishinv/>



## Appendix 1. Internet Data Sources for Community Groups and Planners

**Supporting Partners:** B.C. Ministry of Sustainable Resource Management, Fisheries and Oceans Canada

**Abstract:** The Fisheries Data Warehouse provides access to federal-provincial fisheries datasets compiled under the Canada-B.C. Agreement on the Management of Pacific Salmon Fishery Issues. All data are linked to “active” maps and to standard tables and reports that allow you to choose detailed information from any location. The simple map-based interface allows easy access to the most recent information from government data sets that include:

- **Salmon Escapement:** data from Fisheries and Oceans Canada
- **B.C. Watershed Atlas:** detailed 1:50,000 maps of watersheds, stream networks and lakes
- **Fisheries Information Summary System (FISS):** summarized fish, fish habitat and resource use data for over 27,400 provincial streams and lakes
- **B.C. Lakes and Release Records:** physical, chemical, and fish data for over 3,500 lakes
- **Release Records:** hatchery fish stocking data
- **Lake Depth Maps:** for over 2,500 lakes.
- **FFHI Reports:** provincial fish and fish habitat reports and associated data files

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### **7) Inner Coast Natural Resource Centre (ICNRC)**

**URL:**

<http://www.shim.bc.ca/icnrc2/main.htm>

**Supporting Partners:** Fisheries and Oceans Canada, B.C. Ministry of Water, Land and Air Protection, Ministry of Forests, Namgis

First Nations, Kwakwaka'wakw Traditional Fisheries Commission, Sayward Chamber of Commerce, Town of Port McNeil, Village of Alert Bay, Village of Port Alice, District of Port Hardy, Ecotrust Canada, U'Mista Cultural Society, VINVA, Community Futures Development Corporation, Intergraph Canada

**Abstract:** The Inner Coast Natural Resource Centre (ICNRC) was created to provide a forum for North Island Communities to recognize, enhance and sustain social, cultural, economic, and environmental values. The ICNRC has gathered local information pertaining to the marine and watershed ecosystems of the region, including their geology and forests, fish and wildlife. This information has been built into an interactive on-line stream habitat data entry and mapping tool primarily for the use of Northern Vancouver Island Stewardship Groups. New information put into the ICNRC streams database is instantly viewable as points or zones on the maps and associated data reports. The stream habitat database is to be used as a tool in setting priorities for restoration projects in the Combined North Island Fisheries Center area and to catalogue new fisheries related information collected by local stewardship groups and individuals.

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### **8) B.C. Coastal Resources Atlas**

**URL:**

<http://www.shim.bc.ca/coastal2/main.htm>

**Supporting Partners:** Community Mapping Network

**Abstract:** The B.C. Coastal Resources Atlas has been designed to display the data from a series of inventories undertaken to identify the location of commercial and recreational fishing activity on the coast of British Columbia. The application is intended for general interest and land use planning purposes. Areas of activity for a given fishery are represented as a series of polygon themes with common data structures. Each polygon represents an area where a particular type of fishery operates, with timing and intensity of use specific to that location. The marine fisheries data were compiled through interviews with DFO Fisheries Officers and Biologists and were performed by several contractors.

The coastal resources covered by this data set include:

1. *marine invertebrates:* Abalone, crabs, geoduck, octopus, prawn, scallop, sea cucumber, shrimp, sea urchins, squid;
2. *marine fish:* anchovy, groundfish, herring;
3. *anadromous fish:* salmon
4. *recreational fisheries:* Abalone, crab, fishing, prawn, scallop, squid

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### 9) Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley

**URL:**

<http://www.shim.bc.ca/shim/main.htm>

**Abstract:** This map and database product evaluated the condition of streams in the Lower Fraser Valley and classified them as lost, endangered, threatened, or wild, based on the number and types of impacts on the stream, including channelization, water diversion, removal or alteration of riparian vegetation, and pollution. Information on stream condition was derived from many sources – maps, airphotos, reports, various databases and interviews with field workers. The methodology also involved comparison of historical maps and surveyor field notes, circa the 1860's, with contemporary National Topographic System (NTS) maps (1:20,000 and 1:50,000) in order to identify streams that are no longer present in the lower Fraser Valley.

The assembled information can be used at a strategic level for determining needs for habitat protection and restoration for endangered and threatened streams which still have the potential to produce viable populations of salmon and other species of fish. Using the SHIM maps and data entry function on the CMN website, individual streams can be queried for watercourse classifications and downloading of either simple or detailed stream classification reports. Additionally, qualified individuals in the community (with appropriate password access) can enter the site directly over the internet, and update/edit the Lost Streams database and associated map linework with the most current information.

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## 10) B.C. FrogWatch

**URL:**

<http://www.shim.bc.ca/frog/main.htm>

or

<http://wlapwww.gov.bc.ca/wld/frogwatch/index.htm>

**Supporting Partners:** Habitat Conservation Trust Fund (HCTF), B.C. Ministry of Water, Land and Air Protection (MWLAP) Wildlife Branch, B.C. Ministry of Sustainable Resource Management (MSRM) Inventory Branches and Conservation Data Centre, Environmental Monitoring and Assessment Network (EMAN)

**Abstract:** BC FrogWatch is a program to collect information on frog and toad populations in British Columbia. The program will soon expand to include salamanders. The website contains lists of the amphibians to be found in each area of B.C. and this information is stored and accessed through an interactive GIS system. Information has been derived from museum collections and government records to determine the historical distributions of the species, but volunteer input is used to assess current range and species movements. The Ministry of Water, Land, Air and Water Protection maintains the Oracle database that stores the assembled information; the Community Mapping Network (CMN) maintains the GIS interface that allows display of the data and (with proper password access) updating of frog records directly over the internet. Government Supporting Partners re-

ceive this information and make it available for amphibian conservation. Biologists, naturalists, teachers and students are all working together, and sharing their information across B.C. and Canada.

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## 11) Conservation Data Centre (CDC)

**URL:**

<http://srmwww.gov.bc.ca/cdc/index.htm>

**Supporting Partners:** B.C. Ministry of Sustainable Resource Management, Nature-Serve

**Abstract:** The British Columbia Conservation Data Centre (CDC) systematically collects and disseminates information on the rare and endangered plants, animals and plant communities of British Columbia. This information is compiled and maintained in a computerized database that provides a centralized and scientific source of information on the status, locations and level of protection of these rare organisms and ecosystems. Information accessible through the CDC includes:

1. Species Tracking Lists (names, conservation status ranks and Red or Blue List status of animal/plant communities)
2. Element Occurrence Reports (individual, verified locations for rare species or plant communities in a requested geographic area)

3. Species/Plant Association Summary Reports (all verified locations in the province for an individual species, group of species or plant communities)

4. Detailed Individual Occurrence Records (all the information recorded for a single species or natural plant community occurrence)

5. Electronic files (DBase files and digital ArcView shapefiles)

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### 12) Fisheries Project Registry (FPR)

**URL:** [http://www.canbcdw.pac.dfo-mpo.gc.ca/FPR/Qf\\_Welcome.asp](http://www.canbcdw.pac.dfo-mpo.gc.ca/FPR/Qf_Welcome.asp)

**Supporting Partners:** Fisheries and Oceans Canada, B.C. Ministry of Land, Air and Water Protection, B.C. Ministry of Sustainable Resource Management, Fisheries Renewal BC, Forest Renewal BC (Resource Inventory and Watershed Restoration Programs), Habitat Conservation Trust Fund, Urban Salmon Habitat Program, Habitat Restoration and Salmon Enhancement Program, Pacific Streamkeepers Federation, Columbia Basin Fish and Wildlife Compensation Program, Peace Williston Fish and Wildlife Compensation Program, BC Hydro

**Abstract:** The Fisheries Project Registry (FPR) is a map-enabled database management system, accessible on the Internet, which tracks minimum data about the existence, general nature, location and key contacts for specific categories of fisheries-related projects including: inventory, re-

search, restoration and enhancement, resource use planning, stewardship and economic development. The purposes of the Registry are: to identify who is doing what where, using which standards or methods; co-ordinate projects and activities; promote partnerships among organizations; and reduce project duplication. The Registry contains projects approved by funding Supporting Partners or sponsoring organizations, giving other individuals and groups the ability to quickly and easily identify and get basic information about projects in any watershed or within any stream, lake, wetland or marine statistical area/sub area. It is planned that the existing FPR will be merged into a consolidated Natural Resources Project registry in the coming year.

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### 13) Pacific Streamkeepers Federation (PSKF)

**URL:** <http://www.pskf.ca/>

**Supporting Partners:** Fisheries and Oceans Canada

**Abstract:** The Pacific Streamkeepers Federation (PSKF) is a non-profit society helping individuals take action through support, education and building partnerships. PSKF assists British Columbians in improving their communities by helping them become involved in their local streams and watersheds. Streamkeepers offers training on

procedures to assess, monitor and protect local streams. The Streamkeepers methodology is scientifically sound, and uses every day English, so non-professionals can understand it. The Streamkeepers Central Database allows information gathered using the Streamkeepers methodology to be uploaded and queried, and customized reports can be generated, all via the Internet. The database works hand in hand with the Streamkeepers Handbook and Modules. The streamkeepers methods do not represent a direct mapping protocol *per se*, and have been designed primarily for use in inventory and monitoring. Coupling the existing information with a GIS system would be a useful dimension in future developments of the Streamkeeper database.

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### 14) Shorekeepers

**URL:** <http://www-sci.pac.dfo-mpo.gc.ca/protocol/shorekeepers/>

**Supporting Partners:** Fisheries and Oceans Canada

**Abstract:** Shorekeepers is a monitoring methodology designed specifically for community groups and for people who may not have a strong science background to be able to contribute to scientific data collection. Having local community groups and individuals take an active role in looking after their coastline fosters "local ownership" and interest. The Shorekeepers' Guide developed by Fisheries and Oceans Canada

presents an intertidal surveying methodology. The method is presented in a logical step-by-step manner starting from selecting a study area through each type of measurement to entering the field data into the database, to final map and report generation. To detect gradual changes to habitats and local biodiversity Shorekeepers generates long term datasets by collecting detailed data annually at the same site(s) for 3 or more years. Shorekeepers is a rigorous monitoring methodology using standard survey methods at all sites.

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### 15) Reefkeepers

**URL:** <http://www-sci.pac.dfo-mpo.gc.ca/protocol/reefkeepers/>

**Supporting Partners:** Fisheries and Oceans Canada, Royal British Columbia Museum, PADI Project AWARE

**Abstract:** Reefkeepers is a protocol for non-professionals, certified and experienced in scuba diving, to survey and monitor subtidal habitats. The data collected is intended for use by resource managers, environmental biologists, and marine researchers, who are monitoring and assessing long-term changes in marine communities. Reefkeepers is a rigorous subtidal survey methodology, with data collected in the same way at all sites over time. To detect gradual changes in subtidal habitats and local biodiversity. Reefkeepers is designed to collect detailed data at regular frequent in-

tervals at the same site for 5 or more years. The goal is to enable interested non-professional individuals and community groups to obtain standardized, credible data over time from a specific physical site – and use these data to document and evaluate the nature of change, if any, that is occurring. Once project data are entered into the Reefkeepers database, various summary reports can be created. Coastal stewardship involves the voluntary conservation of natural marine resources and habitat. Having local community groups and individuals take an active role in looking after their coastline fosters “local ownership” and interest.

**Contact:**

Gaye Sihin  
Reefkeepers Co-ordinator  
Pacific Shorekeepers & Reefkeepers Association  
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### 16) WetlandKeepers

**URL:**

<http://www.bcwf.bc.ca/programs/wetlands/wetlands.html>

**Supporting Partners:** B.C. Wildlife Federation

**Abstract:** WetlandKeepers is a program aimed at teaching individuals and community groups across British Columbia to inventory and monitor local habitats. Many of the participants in the Wetlandkeepers program are working towards wetland conservation in their communities and the program is planning to build a network of mentors throughout the province. The WetlandKeepers program outlines step by step procedures for conducting wetland inventories, cleaning-up saltwater marshes

and for raising awareness of wetlands. The intended steps are:

1. Initial Wetland Assessment
2. Survey of Wetland Plants
3. Survey of Wetland Birds
4. Developing and implementing a Public Education Program
5. Marsh Cleanup

**Contact:**

Theresa Southam  
Provincial Co-ordinator  
Wetland Keepers  
Email: [tsouth@netidea.com](mailto:tsouth@netidea.com)

### 17) Environmental Trends in British Columbia

**URL:**

<http://wlapwww.gov.bc.ca/soerpt/index.html>

**Supporting Partners:** Ministry of Water, Land and Air Protection

**Abstract:** Steady population growth in British Columbia, combined with high rates of consumption and waste generation, place stress on the environment. By incorporating environmental concerns into all decisions, we can reduce this stress and promote sustainability. The State of Environment Reporting Office provides timely, accurate, and easily understood information on environmental conditions and trends in B.C. that encourages better decision-making.

The objectives of the State of Environment Reporting Office are to provide a comprehensive analysis of environmental conditions and trends and to measure progress towards sustainability, and to contribute to informed and open decision-making. These objectives are served through the development and regular release of environmental

## Appendix 1. Internet Data Sources for Community Groups and Planners

indicators and the production of periodic, comprehensive reports.

Information on the individual environmental indicators for the province, along with supporting data, can be accessed at the Internet site. Environmental indicators that are monitored for British Columbia include:

- protected areas
- water use
- air quality
- species at risk
- domestic waste
- greenhouse gases
- wildlife
- forest species
- fish
- climate change
- riparian ecosystems
- surface water quality
- groundwater
- toxic contaminants
- green economy

### **18) Environmental Indicators—Pacific and Yukon Region**

**URL:**

[http://www.ecoinfo.org/env\\_ind/default.htm](http://www.ecoinfo.org/env_ind/default.htm)

**Supporting Partners:** Environment Canada

**Abstract:** Environmental Canada maintains information on a dynamic set of environmental indicators on priority issues for which Environment Canada maintains monitoring programs. The indicators describe the state of the environment for particular issues in a scientifically concise and easily understood manner. The indicators are described by answering the four state of the environment questions: what's happening, why is it happening, why is it significant and what is being done. All indicators will be updated on an on-going basis,

as more recent information becomes available. The key indicators that are tracked include:

- Marine ecosystems
- Biodiversity (selected species)
- Sensitive ecosystems
- Toxic contaminants
- Climate change
- Urban air quality
- Stratospheric ozone depletion
- Urban water use and wastewater treatment
- Freshwater quality

**Contact:**

Environment Canada  
Ecosystem Information  
Email: [ecoinfo@ec.gc.ca](mailto:ecoinfo@ec.gc.ca)

### **19) Community Involvement Projects**

**URL:**

<http://www-heb.pac.dfo-mpo.gc.ca/english/community/advisor.htm>

**Supporting Partners:** Fisheries and Oceans Canada

**Abstract:** The Community Involvement Division of the Habitat & Enhancement Branch was established by Fisheries and Oceans Canada to foster the expressed desire of the people of B.C. for stewardship over the resource. Specifically, people from communities throughout the province wanted locally based enhancement efforts in which they could participate directly. Many local groups are working to try to reverse the declines through enhancement, stream restoration, and protection of salmon streams from further damage. The Community Involvement site lists and describes related project proponents, loca-

tions, activities, dates, and targeted fish species.

**Contact:**

Joanne Day  
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Fisheries and Oceans Canada  
Pacific Region  
Habitat & Enhancement Branch  
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### 20) Bird Studies Canada

URL: <http://www.bsc-eoc.org/regional.html>

**Supporting Partners:** Ontario Trillium Foundation, Ontario Ministry of Natural Resources, Habitat Conservation Trust Fund, Vancouver Foundation, British Columbia Field Ornithologists

**Abstract:** Bird Studies Canada is recognized nation-wide as a leading and respected not-for-profit conservation organization dedicated to advancing the understanding, appreciation and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm and support of its members, volunteers, staff and the interested public. Wherever possible, regional projects have a large, and very important, volunteer component. Current programs in British Columbia include the British Columbia Coastal Waterbird Survey and the British Columbia Nocturnal Owl Survey.

**Contact:**

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### 21) Important Bird Areas of Canada (IBA)

URL: <http://www.ibacanada.com/>

**Supporting Partners:** Bird Studies Canada, Canadian Nature Federation (CNF-FCN)), Birdlife International, Weyerhaeuser, Wildlife Habitat Canada, Alberta Conservation Association

**Abstract:** The IBA process is designed to identify a network of sites that conserve the natural diversity of Canadian bird species and are critical for the long-term viability of naturally occurring bird populations. For each identified site protection or stewardship requirements are determined, and partnerships are developed with local stakeholders to implement appropriate on-the-ground conservation plans. Sites are identified using a set of standardized and internationally agreed upon criteria that have gained worldwide recognition. IBAs can be identified under four main categories: sites regularly holding significant numbers of threatened species; sites regularly holding endemic species or species with restricted ranges; sites regularly holding an assemblage of species largely restricted to a biome or a unique or threatened community type; and sites where birds congregate in significant numbers when breeding, in winter, or during migration.

The identification of important bird habitat is a necessary first step in establishing habitat-based priorities in bird conservation. The designation of a network of sites can help decision-makers focus their efforts and protect the most critical bird habitat. The program is inclusive and identifies important sites for all groups of birds. It integrates aquatic and terrestrial habitat conservation by protecting seabird, shorebird, landbird, and waterfowl habitat. Most importantly, the program is community-driven, and cooperative. It relies on grass-



roots involvement to develop and implement effective conservation plans. The program will also help generate widespread public awareness about birds and will help build partnerships at all levels: international, national, provincial, and local.

### Contacts:

IBA Technical Coordinator  
Tel: 519-586-3531  
Email: [rchaundy@bsc-eoc.org](mailto:rchaundy@bsc-eoc.org)

## 22) Wormwatch

### URL:

<http://www.naturewatch.ca/english/wormwatch/>

**Supporting Partners:** Environment Canada, Agriculture and Agri-Food Canada, Environmental Monitoring and Assessment Network (EMAN), Science Alberta Foundation, Lethbridge Research Centre, SCLINKS, Canadian Nature Federation (CNF-FCN)

**Abstract:** Worm Watch is part of a national volunteer monitoring program designed to help identify ecological changes that may be affecting our environment. Using monitoring methods created by scientists working with Environment Canada's Ecological Monitoring and Assessment Network (EMAN), it allows Canadians of all ages to participate in discovering how – and more importantly, why – our natural environment is changing. Worm Watch is designed to get everyone (gardeners, naturalists, farmers and schoolchildren etc.) contributing information about soil biodiversity. The data received from volunteers will be used to create a Canadian database of earthworm species and habitat distribution and may lead to the use of earthworms as indicators of soil changes. The information is entered into a national database for creation of interactive maps showing the species present at observation sites and the location of other Worm Watch volunteers across Canada.

### Contact:

Ecological Monitoring and Assessment  
Network Coordinating Office  
Environment Canada  
Canada Centre for Inland Waters  
867 Lakeshore Road  
Burlington, Ontario, Canada  
L7R 4A6  
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Fax: 905-336-4499  
Email: [eman@ec.gc.ca](mailto:eman@ec.gc.ca)

## 23) The B.C. Stewardship Centre

**URL:** <http://www.stewardshipcentre.org>

**Supporting Partners:** Fisheries and Oceans Canada, Environment Canada, Ministry of Water, Land and Air Protection, Habitat Conservation Trust Fund, Ministry of Sustainable Resource Management, Ministry of Transportation, Ministry of Municipal Affairs, BC Hydro, Provincial Capital Commission

**Abstract:** There is an increasing awareness of the importance of stewardship. Better decisions require information and technical advice, and there is a need for improved access to information and advice on stewardship in British Columbia. Many people simply lack the information and the tools they need to carry on their activities sensitively. In B.C. over the last few years, a number of Supporting Partners and organizations have cooperated in creating the *Stewardship Series* – a world-class series of publications that offer such stewardship information to landowners, developers, volunteers, professionals, local governments and Supporting Partners. A large body of information has been gathered – not only in the *Stewardship Series* but also in other initiatives. But there is a need to bring all information together in one central place – and then to make sure that information is accessible and gets out to the right people. The Stewardship Centre endeav-

ours to get critical stewardship information and conservation tools into the hands of all people who touch the land.

**Contact:**

Stewardship Centre Administrator

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## Appendix 2. Guide to Acronyms Used

<b>CMN</b> .....	Community Mapping Network
<b>CVCDP</b> .....	Cedar Valley Comprehensive Development Plan
<b>DFO</b> .....	Fisheries and Oceans Canada
<b>FISS</b> .....	Fisheries Information Summary System
<b>FRBC</b> .....	Forest Renewal BC
<b>FsRBC</b> .....	Fisheries Renewal BC
<b>FSZ</b> .....	Fisheries Sensitive Zone
<b>FVRD</b> .....	Fraser Valley Regional District
<b>GIS</b> .....	geographic information system
<b>GPS</b> .....	global positioning system
<b>GVRD</b> .....	Greater Vancouver Regional District
<b>HRDC</b> .....	Human Resources Development Canada
<b>LEPS</b> .....	Langley Environmental Partners Society
<b>MAFF</b> .....	Ministry of Agriculture, Food and Fisheries
<b>MDP</b> .....	Master Drainage Plan
<b>MELP</b> .....	Ministry of Environment, Lands and Parks
<b>MWLAP</b> ...	Ministry of Water, Land and Air Protection
<b>NTS</b> .....	National Topographic System
<b>OCP</b> .....	Official Community Plan
<b>RAMS</b> .....	Regional Aquatic Management Society
<b>RIC</b> .....	Resources Inventory Committee
<b>SHIM</b> .....	Sensitive Habitat Inventory and Mapping
<b>ToB</b> .....	Top of Bank
<b>TRIM</b> .....	Terrain Resource Information Management
<b>UBC</b> .....	University of British Columbia
<b>UCFV</b> .....	University College of the Fraser Valley
<b>USHP</b> .....	Urban Salmon Habitat Program
<b>WMP</b> .....	Watershed Management Plan
<b>WRMS</b> .....	Water Resources Management Strategy