# **Wetland Ways**







8

Interim Guidelines for Wetland Protection and Conservation in British Columbia

March 2009

# **Chapter Eight**

# RECREATIONAL ACTIVITIES

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These interim guidelines will be updated using experience from pilot testing and feedback from user groups. If you would like to comment on these guidelines, please send your comments to <a href="wsp@gov.bc.ca">wsp@gov.bc.ca</a>

Cover photos: Judith Cullington



# **CHAPTER 8: RECREATIONAL ACTIVITIES**

# 8.1. Introduction

This chapter provides guidelines for the protection and management of wetlands when recreational activities take place nearby. It is intended to be read in conjunction with <a href="#">CHAPTER 2: GENERAL GUIDELINES</a>.

Recreational activities can have many impacts on wetlands.

- Disturbance to wildlife: The simple presence of people and pets
  can disturb wildlife, including nesting birds. Noise and exhaust from
  vehicles, increased road access to wetlands, and road crossings of
  riparian areas can further disrupt fish and wildlife migration
  movements. People, animals and vehicles can accidentally crush bird,
  amphibian or reptile eggs.
- Soil compaction: Compaction can occur when soils are repeatedly subjected to foot, hoof, or vehicle traffic. Compaction reduces the amount of water that can enter the soil, in turn reducing the amount of moisture in the soil that is available to plants and micro-organisms; as well as reducing habitat quality and availability for fish, amphibians and invertebrates. It can also lead to increased surface runoff, which impact the cycles of flooding and drying of wetlands.
- Changes in vegetation: Loss of vegetation due to trampling or soil compaction can cause erosion of wetland edges and loss of wildlife habitat.
- Changes in water quality: Siltation from erosion and introduced pollutants can degrade water quality.
- Introduction and spread of invasive species: Invasive species such as purple loosestrife can be spread from one wetland to another by on the feet, hooves, or wheels of recreationists.

However, people get much enjoyment from visiting wetlands, and by learning about wetland values people often become passionate advocates and active stewards for wetland protection. This chapter suggests some ways that to balance wetland protection with greater understanding, appreciation, and enjoyment.



People get much enjoyment from visiting wetlands.
PHOTO: JUDITH CULLINGTON

#### USEFUL INFORMATION

Useful sources include <u>Access Near Aquatic Areas: A guide to sensitive planning, design and management</u> and <u>Best Management Practices to Recreational Activities on Grasslands.</u>



# 8.2. LEGISLATION

See <u>CHAPTER 2</u> for additional legislation that applies to all land managers. Legislation that applies to recreational land use and activities includes the following.

- Wildlife Act: Protects most vertebrates from direct harm or harassment, and regulates hunting and trapping.
  - Section 34 of the Act specifically protects specifically protects birds and their eggs from possession, molestation or destruction; the nests of eagles, Peregrine Falcons, Gyrfalcons, Ospreys, herons, and Burrowing Owls year-round; and the nests of all other birds when the birds or their eggs are in the nest.
  - Unless specifically authorized, it is an offence to 'disturb, molest or destroy' a beaver or muskrat's house or den, or a beaver dam (s.9).
  - ♦ The Motor Vehicle Prohibition Regulation governs areas that are closed to vehicles (including ATVs¹ and snowmobiles) for some or all of the year.
- Wildlife Amendment Act: Allows the provincial government to list animals, fish, plants, or invertebrates as species at risk, and to define and protect the residence of a listed species at risk. Listing provides prohibitions against the killing, harming, harassing, importing, exporting, trafficking, possession, and transport of that species on both provincial Crown land and private land except as authorized by regulation, permit, or agreement. As of March 2009, the Wildlife Amendment Act has not been brought into force, and regulations to list species and prescribe residences have not been prepared.
- Water Act: The primary provincial statute regulating water resources. Through regulation, manages changes in and about a stream, including stream crossings.
- <u>Fish Protection Act</u> and <u>Riparian Areas Regulation</u>: Regulates setbacks from streams and other watercourses that are fish-bearing, or have surface connections to fish-bearing waters. The Riparian Areas Regulation applies recreational activities that are part of residential and commercial development.
- Forest and Range Practices Act: Section 46 of the FPRA prohibits any activity that could cause damage to the environment, unless authorized. This can include mud bogging through wetlands. The

All B.C. legislation can be found at <a href="http://www.bclaws.ca/">http://www.bclaws.ca/</a>. Federal legislation can be found at <a href="http://laws.justice.gc.ca/">http://laws.justice.gc.ca/</a>.

<sup>&</sup>lt;sup>1</sup> All terrain vehicles



Forest Recreation Regulation prohibits damage or alterations to natural resources along recreational trails and sites.

- Environmental Assessment Act: Sets out procedures and requirements for major project reviews, for example ski hill developments. Legislation is managed by the Environmental Assessment Office.
- Canada Fisheries Act: Protects fish and fish habitat. The Act regulates the release of "deleterious substances" into fish bearing waters and prohibits the "harmful alteration, disruption, and destruction" of fish habitat (a HADD).

# 8.3. OBJECTIVES

As outlined in **Chapter 2**, there are three major objectives for the protection and management of wetlands:

- Protect and maintain water quantities;
- Protect and maintain water qualities; and,
- Protect and maintain habitats and species.

This can be achieved by:

- Knowing what you have (inventory and mapping) (see **CHAPTER 2**);
- Protecting wetlands with buffer zones; and,
- Minimizing impacts from human activities, such as recreational use.

Following the guidelines in this document will help landowners and land managers demonstrate that they have applied due diligence. Monitoring the impacts of activities will assist in meeting the objectives. For more information, see **CHAPTER 12: MONITORING AND REPORTING**.

Young trail riders. PHOTO: SARMA LIEPENS

The Creston Valley Wildlife Management Area is the first and largest wildlife management area in B.C., protecting an internationally significant wetland area. It is the main tourist attraction in the Creston Valley and of great economic benefit to the local community. An estimated 35,000 visitors pass through the Wildlife Management Area each

http://www.crestonwildlife.ca





Site trails away from the foreshore. PHOTO: SARMA LIEPENS

# 8.4. GUIDELINES

For all recreational activities, it is important to know where wetlands are and their level of sensitivity. For information on inventory and assessment, see **CHAPTER 2**.

# 8.4.1. Trails

# Trail Siting and Design

#### **AVOID SENSITIVE HABITATS**

Identify any areas within the wetland that would be particularly
sensitive to disturbance, such as waterfowl nesting or feeding areas
and habitats for species at risk.

Designate a no-disturbance buffer area (see <b>CHAPTER 2</b> for suggested
buffer distances), and locate trails outside of this buffer.

☐ Site trails away from the wetland foreshore.

#### **AVOID HABITAT FRAGMENTATION**

☐ Minimize the number of trails to avoid habitat fragmentation.

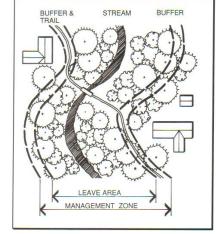
Identify wildlife travel corridors (e.g., for frog migration) and design the trail to accommodate wildlife movement.

# PROVIDE A BUFFER BETWEEN RECREATIONAL ACTIVITIES AND THE WETLAND

Provide visual barriers between trails and nesting habitats, to help minimize disturbance to nesting birds. Live (vegetated) barriers such as tall shrubbery are preferred to hard barriers (fencing) as they provide wildlife habitat. Select shrub species that are locally appropriate.

Design a no-disturbance buffer area.

DIAGRAM FROM ACCESS NEAR AQUATIC AREAS.





#### PROVIDE BOARDWALKS WHEN NECESSARY

	Provide boardwalks where the trail crosses wet areas. This provides a
	better surface for people using the trail, and also helps to avoid trail
	widening as people seek a drier route around the edge.
_	

☐ Keep boardwalks to a minimum. While boardwalks can be helpful, the area under the boardwalk gets little or no light or water, resulting in loss of wetland habitat.

#### PROVIDE A WELL DEFINED TRAIL EDGE

Use wooden risers or other edging structures to define the trail edge. This helps to keep people on the designated trail (and delineates the area for trail maintenance).

#### USE TRAIL SPURS TO PROVIDE ACCESS TO VIEWING AREAS

Use a trail spur to provide access to viewing area	as. This	design
minimizes the volume of 'through traffic'.		

☐ In high use areas, consider building a viewing platform that allows people to watch wildlife with minimal disturbance to the wildlife and to shoreline habitats.

#### **DISCOURAGE PET ACCESS**

☐ Keep pets out of wetlands, e.g., by using vegetation barriers or low fencing that will keep dogs out.

#### Trail Construction and Maintenance

#### **USE NON-TOXIC MATERIALS**

- Use natural surfaces where practical. However, soils near wetlands are often waterlogged: if mud and resultant trail widening are a concern, then some form of surfacing is desirable.
- Use permeable, non-toxic materials for trail surfacing, such as cleaned crushed aggregate. Bark mulch (hog fuel) should not be used as it produces a leachate which affects water quality. Asphalt should be avoided as it is impermeable and accelerates surface runoff.
- Avoid using treated wood for any structures (e.g., viewing platforms), as chemicals may leach into the wetland. Steel or concrete may be more expensive to install, but have a longer lifespan and may be more



Use non-toxic trail surfacing such as clean crushed aggregate.
PHOTO: JUDITH CULLINGTON



cost-effective in the long run.<sup>2</sup> If using wood, select wood that has been treated with products that will not be toxic to organisms.<sup>3</sup>

#### **ADHERE TO TIMING WINDOWS**

Ensure construction takes place only during approved fish windows and outside of bird nesting seasons. For information see timing windows specific to the various regions of British Columbia.<sup>4</sup>

#### **CONSIDER SEASONAL TRAIL CLOSURES**

Consider closing the trail to public access during sensitive nesting or spawning periods, or when the trail is flooded.

#### CHECK TO SEE IF APPROVALS ARE REQUIRED

- ☐ Check to see if the proposed trail, boardwalks or other structures require a permit under the B.C. *Water Act* (Changes in or about a stream) or the Canada *Fisheries Act*. Contact your <u>local Ministry of Environment</u> and *Fisheries and Oceans Canada* offices for details. Note that maintenance activities may also require approvals.
- Check with your local government to see if any additional permits or approvals are required.



Check to see if boardwalks require a permit. PHOTO: JUDITH CULLINGTON

B.C. Ministry of Environment offices: see http://www.env.gov.bc.ca/main/regions.html

Fisheries and Oceans Canada offices: see http://www.pac.dfompo.gc.ca/pages/default e. htm

<sup>&</sup>lt;sup>2</sup> Note that in marine or brackish environments, steel is unsuitable as it can corrode.

<sup>&</sup>lt;sup>3</sup> E.g., Chromated Copper Arsenate or Ammoniacal Copper Arsenate.

<sup>&</sup>lt;sup>4</sup> See the Ministry of Environment Guidelines and Best Practices website <a href="http://www.env.gov.bc.ca/wld/BMP/bmpintro.html">http://www.env.gov.bc.ca/wld/BMP/bmpintro.html</a>



# 8.4.2. Recreational Properties

Many people choose recreational properties that are near to wetland areas. For information on ways to protect the ecological values of nearby wetlands and lakeshores, see the <u>Living by Water</u> website and documents, and the <u>Green Cottager Guide</u>.



The Dock Primer: A Cottager's Guide to Waterfront-Friendly Docks provides information on environment-friendly docks and dock-building practices.
PHOTO: JUDITH CULLINGTON

- Do not mow grass to the water's edge. Leave natural vegetation to provide cover and nesting areas for birds and other wildlife.
- Do not use pesticides or herbicides as these could impact the wetland water quality.
- □ "Soften" your shoreline improve erosion protection with native trees, shrubs, grasses, and aquatic plants.
- Ensure your septic system is properly maintained, and does not leach into the wetland. If you need to replace your septic system, consider a holding tank that is pumped out on a regular basis.

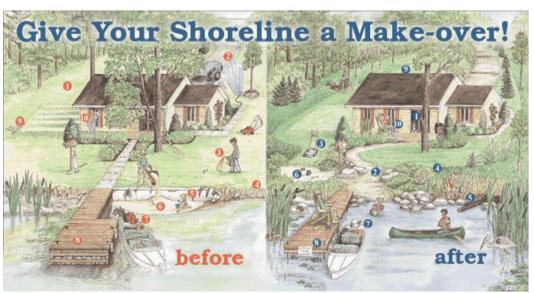


Diagram from the Living by Water website <a href="http://www.livingbywater.ca">http://www.livingbywater.ca</a>



# 8.4.3. Golf Courses

Golf courses often incorporate natural wetlands into their design. The <u>Royal Canadian Golf Association</u> provides environmental guidelines for golf course managers as well as players.

#### **DESIGN THE COURSE TO PROTECT WETLANDS**

STOP	Tivold construction hear wedards and watercourses. If construction
	is necessary, ensure adequate measures are in place to protect water quality, fisheries, and stream-side habitats. Contact the local regulatory agencies (Ministry of Environment and Fisheries and
	Oceans Canada) offices for guidance.
	Design the course to avoid streams and wetlands.
	Retain a minimum 15 m vegetated riparian buffers along streams and around wetlands and to assist in filtering any nutrients or pesticides from stormwater run-off, and to moderate water temperatures.
	Retain as much natural cover as possible and enhance vegetation through supplementary planting of native trees, shrubs, and grasses to provide wildlife habitat.
	Provide protected travel corridors for wildlife (including amphibians) travelling between wetland areas.
	Monitor groundwater quality and levels before, during and after any construction activities. If problems are found, take appropriate corrective action.
	Monitor streams at their entrance and exit from the property both before and after construction. The same monitoring should be applied to natural onsite lakes.

#### GOLF COURSE RESOURCES

More information on developing and managing golf courses in an environmentally sensitive manner is available from the following sources:

- Greening Your BC Golf Course: A guide to environmental management;
- The Royal Canadian Golf Association: <u>Environmental Guidelines</u>;
- The <u>Audubon Cooperative Sanctuary Program for Golf Courses</u>;
- Bird Conservation on Golf Courses: A Design and Management Manual;
- IPM (Integrated Pest Management) Handbook for Golf Courses.



#### CORDOVA BAY AUDUBON CERTIFICATION

The Cordova Bay Golf Course was the first course on Vancouver Island to receive Audubon certification. Some of the measures taken to earn this recognition were reduction in water use, use of stormwater runoff for irrigation, habitat restoration, reduction in pesticide use, and outreach/education. For more information see <a href="https://www.cordovabaygolf.com">www.cordovabaygolf.com</a>.



PHOTO: DEAN PILLAR

# 8.4.4. Recreational Activities

Recreationists can help to minimize impacts from their activities by following simple guidelines.

HELP TO PROTECT THE NATURAL ENVIRONMENT
☐ Stay on designated and existing trails, roads, and routes
☐ Read and obey all trail/road signs and closures.
Do not remove or damage wetland vegetation.
RESPECT WILDLIFE
Never pick wildflowers.
Never feed wildlife as this interferes with their natural diet. Human food may be harmful to wildlife.
Avoid known sites used for breeding and rearing young. Watch for amphibians that are migrating between wintering and breeding areas, and avoid disturbing them.
☐ If you encounter nest or brood sites, give them a wide berth so you don't disturb adults or young, or damage eggs.
LEAVE NO TRACE
Always take your garbage with you. Litter may be toxic to wildlife as well as being unsightly.
☐ If outhouses are not available in backcountry areas, dig waste pits at least 15-20 cm deep and 10-15 cm in diameter, and at least 60 m (about 70 adult paces) from wetlands. Cover and disguise pits when finished.
☐ Pack out all toilet paper and hygiene products.

Treat other trail users with courtesy

Respect all signage and property

Avoid environmental damage

Inform yourself about allowed trail uses and trail closures

Leave wildlife and plants alone

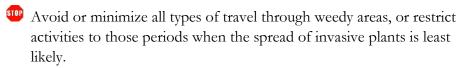
**S**tay on the trail: WADE DON'T BRAID

From British Columbia Trails Society:

http://www.trailsBC.ca/

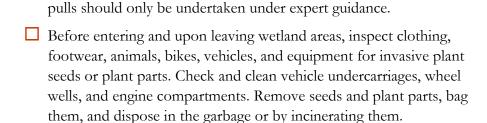


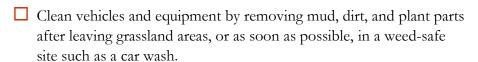
#### MINIMIZE THE SPREAD OF INVASIVE PLANTS

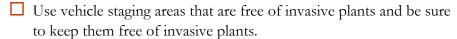


disturbing the soil, spreading seeds, or breaking plant roots. Weed

Don't pull invasive plants—you may be doing more damage by







Do not wash your vehicle in streams or waterways to prevent spreading invasive plants downstream and the impacts on habitats and species.

# Off-road Cycling

If you find yourself on a wet trail section, stay on the existing trail and avoid creating a new one. Wade Don't Braid: get wet, ride through the puddle. Riding around puddles widens trails and leads to erosion.

Yellow flag iris is an invasive wetland species. PHOTO: INVASIVE PLANT COUNCIL OF BC WEBSITE

#### IMBA RULES OF THE TRAIL

- Ride on Open Trails Only
- Control Your Bicycle
- Never Scare Animals
- Always Yield Trail
- Leave No Trace
- Plan Ahead

From International Mountain Biking Association (IMBA) website on Soft Cycling <a href="http://www.imba.com/resources/soft\_cycling/index.html">http://www.imba.com/resources/soft\_cycling/index.html</a>.





# Horse Riding

Avoid riding or grazing horses in wet or boggy areas as these are sensitive to hoof action.

☐ Keep campsites or areas where horses are contained at least 50 m from streams, lakes, and other riparian areas.

Lead horses to water or, preferably, haul water to them to avoid any shoreline damage.

Use clean feed in the backcountry to prevent spread of invasive species.

# Off-highway Vehicles

☐ Drive around, not through! Keep all off-highway vehicles out of wetlands.

Stay on managed or established trails, roads, and routes. Stay in the middle of trails to avoid widening them.

☐ Park or stage only in designated parking areas or turnaround sites.

Hill climb and mud bog in permitted areas only.

Accelerate slowly. Avoid spinning wheels/tracks to avoid creating rooster tails. 'Rip and Tear' acceleration causes many times the impact than that of conservative driving.

Ride where exposed soil/plants are not visible to avoid damaging soils and vegetation.

Many of these best practices come from the Grasslands Conservation Council of British Columbia's pocketbook guide Best Management Practices for Motorized Recreation on BC's Grasslands.

http://www.bcgrasslands.or g/conservationcampaigns/bmp.htm



Results of mud bogging through wetlands. PHOTO SARMA LIEPENS



- When snowmobiling, ride only when the snow cover is at least 30 cm and when vegetation is not exposed. Snowmobiling can impact wetlands, even when the ground is frozen and snow-covered, as the snow compaction reduces the insulating value of the snowpack and can result in increased runoff during the spring thaw.
- Avoid trails that are narrower than your vehicle.
- Avoid creating switchbacks, shortcuts, or new paths for others to follow.
- Avoid muddy trails, wet areas, or travelling through water holes.
- Never fuel up within 30 m of wetlands.

# **Boating and Fishing**

- Only launch and take out at designated locations.
- Use only boats that will not pollute the water, e.g., electric motors or rowboats.
- Reduce speeds close to shore to minimize shoreline erosion from wave action. Do not disturb shoreline vegetation.
- Reduce speeds in shallow areas with soft bottoms as this can disturb and re-suspend sediments.
- ☐ Be careful when refuelling boat motors or portable equipment. Take portable tanks ashore for refilling.
- ☐ Observe all fishing regulations and catch limits.
- Never discharge black or grey water into wetland waters—use a pump-out station.
- Never harass wildlife by chasing or otherwise disturbing, particularly during sensitive nesting and breeding seasons.
- Avoid known nesting sites and obey any seasonal closures.

Browse the <u>Fish Wizard</u> interactive map of fisheries resources information for up-to-date information.



Use boats that will not pollute the water. Photo: Judith Cullington

### NOISE IMPACTS FROM RECREATION

A study of bird use of riparian habitats in California's Mojave Desert found that more birds and species of birds used riparian habitats that received low levels of off-road vehicle use compared to sites that were frequently used. Birds also flew at the sound of approaching vehicles, even if the vehicles were far away and out of sight. Some birds moved up to 3.2 km away from riparian areas that were used by off-road vehicles (Weinstein 1987).



#### **FUNDS FOR WETLANDS**

The North American Wetlands Conservation Act was passed by the United States in 1989 to aid in the conservation of wetlands through North America and to provide a mechanism to support North American Waterfowl Management Plan (NAWMP) objectives for waterfowl as well as for other wetland-related migratory species. Funds generated under the Act may also be used in Canada and Mexico. This is managed in British Columbia by the Pacific Coast Joint Venture and the Canadian Intermountain Joint Venture to support coastal wetland ecosystems (<a href="http://www.pcjv.org/">http://www.pcjv.org/</a>).

### Hunting

Many game species are dependent on wetlands for at least part of their lifecycle. Protecting the wetlands helps to protect future hunting opportunities.

Respect all hunting regulations and closures.

# 8.4.5. Commercial Recreation

Guided recreational activities are often a way to bring less experienced people into the backcountry, and give them an appreciation of the values of wetlands and other natural areas.

	Follow the Wildlife Guidelines for Backcountry Tourism/
	Commercial Recreation. The guidelines were developed "to ensure
	that backcountry recreation activities are conducted in a manner that
	does not compromise the current distribution of wildlife, the
	sustainability of their populations, or the integrity of their habitats."
_	

- ☐ Ensure that sensitive sites (including wetlands) are identified and addressed in Commercial Recreation management plans that form part of the Commercial Recreation tenure document.
- ☐ Educate guests about the values of wetlands and the ways that they can help to protect these values.

### SUSTAINABLE TOURISM, SUSTAINABLE WETLANDS

Siwash Lake Ranch is a luxury tourism operation and a family farm in the Cariboo Region. Siwash has an Ecorating of Five Green Keys (the highest) with the Hotel Association of Canada for its sustainable tourism approach. The ranch is committed to conservation and has completed a project in concert with Ducks Unlimited to enhance the delicate wetlands surrounding Siwash Lake, for the benefits of many endangered and threatened species, including amphibians, reptiles, insects, plants, birds, and animals that make their home there. http://www.siwashlakeranch.com/





Highway billboard. PHOTO: SARMA LIEPENS

# 8.4.6. Education, Interpretation and **Stewardship**

#### PROVIDE INFORMATION TO THE PUBLIC

- Use interpretive signage to let people know about the importance of the wetland and the species that it supports.
- Let people know about ways that they can help to protect the wetland and wetland species.

#### PROVIDE INFORMATION TO EDUCATORS

- Encourage teachers and other educators to use the Project WET and Project Webfoot materials in their programs.
  - Project WET (Water Education for Teachers) is a non-profit water education program and publisher. The program facilitates and promotes awareness, appreciation, knowledge, and stewardship of water resources through the dissemination of classroom-ready teaching aids and the establishment of internationally sponsored Project WET programs. Their mission is to reach children, parents, educators, and communities of the world with water education.
  - Project Webfoot is a wetlands education program for formal and non-formal educators, established as a partnership between Ducks Unlimited and Project WET. Its mission is "to promote responsible wetland stewardship through excellent and effective conservation education."

The BC Wildlife Federation offer an annual "Wetlands Institute", an intensive seven-day course. Participants learn about the importance and diversity of wetlands, practice current field techniques to inventory wetlands vegetation mapping, water quality, soils, birds, amphibians, and fish, and discuss ways to raise public awareness.

http://www.bcwf.bc.ca/progr ams/wetlands/institutes/





Long toed salamander. PHOTO: SARMA LIEPENS

- "Wetkit" is a web-based tool kit to access practical tools to understand and manage wetlands. The program was initiated in 1998 as a joint project of the North American Wetlands Conservation Council (Canada) and Environment Canada's Canadian Wildlife Service.
- Encourage people to learn about wetland stewardship and management through training programs such as Wetlandkeepers, a wetland education program run by the B.C. Wildlife Federation. Wetlandkeepers are volunteers trained to map wetland boundaries, conduct plant and bird inventories, and sample soils.

# 8.5. REFERENCES AND FURTHER READING

#### Government Offices

B.C. Ministry of Environment regional offices. http://www.env.gov.bc.ca/main/regions.html

Fisheries and Oceans Canada offices. <a href="http://www.pac.dfo-mpo.gc.ca/pages/default-e.htm">http://www.pac.dfo-mpo.gc.ca/pages/default-e.htm</a>

#### Websites

B.C. legislation. <a href="http://www.bclaws.ca/">http://www.bclaws.ca/</a>

Federal legislation. <a href="http://laws.justice.gc.ca/">http://laws.justice.gc.ca/</a>

Audubon Cooperative Sanctuary Program for Golf Courses. <a href="http://acspgolf.auduboninternational.org/">http://acspgolf.auduboninternational.org/</a>

B.C. Ministry of Environment Guidelines and Best Practices website. http://www.env.gov.bc.ca/wld/BMP/bmpintro.html

Ducks Unlimited BC. <a href="http://www.ducks.ca/province/bc/index.html">http://www.ducks.ca/province/bc/index.html</a>

International Mountain Biking Association (IMBA) website on Soft Cycling.

http://www.imba.com/resources/soft\_cycling/index.html

Fish Wizard. http://www.fishwizard.com/

Grasslands Conservation Council—best management practices for recreational activities on grasslands in the Thompson and Okanagan Basins.

http://www.bcgrasslands.org/conservationcampaigns/bmp.htm

Living by Water. <a href="http://www.livingbywater.ca/">http://www.livingbywater.ca/</a>

Pacific Coast Joint Venture. <a href="http://www.pcjv.org/">http://www.pcjv.org/</a>

Project Webfoot. <a href="http://www.ducks.org/projectwebfoot/">http://www.ducks.org/projectwebfoot/</a>



Project WET (Water Education for Teachers). http://www.projectwet.org/

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http://www.bcwf.bc.ca/programs/wetlands/wetlandkeepers/

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