

DISCOVER CANADA'S WATERSHEDS . . . EXPLORE YOURS!

What is a Watershed?

Everyone lives in a watershed. Wildlife lives there too. A watershed is an area of land that water flows across or through on its way to a particular water body, such as a stream, river, wetland, lake or coast. Think of it as the land upon which precipitation (such as rain) falls and flows to a common, watery place. Watersheds come in various sizes and shapes. They are critical to both you and wildlife.

Why Watersheds are Important

Water, land formations, wildlife and you are all part of watersheds. From towering mountains to flat prairies, from the tundra to all ocean coasts, from cities to towns, villages, ranches and farms, everyone lives in a watershed. Here's a list of some of the many vital needs served by watersheds:

Water: Watersheds supply water — a fundamental need of all living things. Without it, people and wildlife can't survive.

Drinking water: People and wildlife need drinkable water. Watersheds provide the water that enters our homes from wells or from systems of pipes from a treatment plant. We use it for cooking and other household needs. Wildlife also needs sources of safe drinking water.

A place to live: Watersheds are like huge neighbourhoods within which all living things — plants, animals and people — share water.

Wildlife habitat: Whether it's a bird, butterfly, bear or bat, all wildlife needs habitat. Water is a vital part of their habitat, which also includes food, shelter and space arranged just right for each species.

Agriculture and industry: Farmers draw on water in watersheds to irrigate crops for food and provide water for livestock. Most industries draw water from watersheds in manufacturing processes or for cooling and cleaning. Fish industries also depend on water from streams, lakes, rivers and oceans.

Hydroelectricity: Hydroelectric energy is produced by the force of falling water. The capacity to produce this energy is dependent on both the available flow and the height from which it falls. Building up behind a high dam, water accumulates potential energy. In Canada, hydroelectric plants satisfy 62 per cent of all electricity needs.

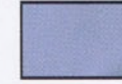



Recreation: Watersheds provide the lakes, streams and rivers we use for fishing, boating, swimming, ice fishing or relaxing on a beach.

Beauty: Scenic waterways or ocean coasts are among the natural features in our landscape that give us cause to reflect, admire and share in the beauty of our environment.

About This Map

Natural Resources Canada's Atlas of Canada, the Government of Canada's RésEau — Building Canadian Water Connections initiative and the Canadian Wildlife Federation have collaborated to produce this map that promotes the importance of watersheds through education.

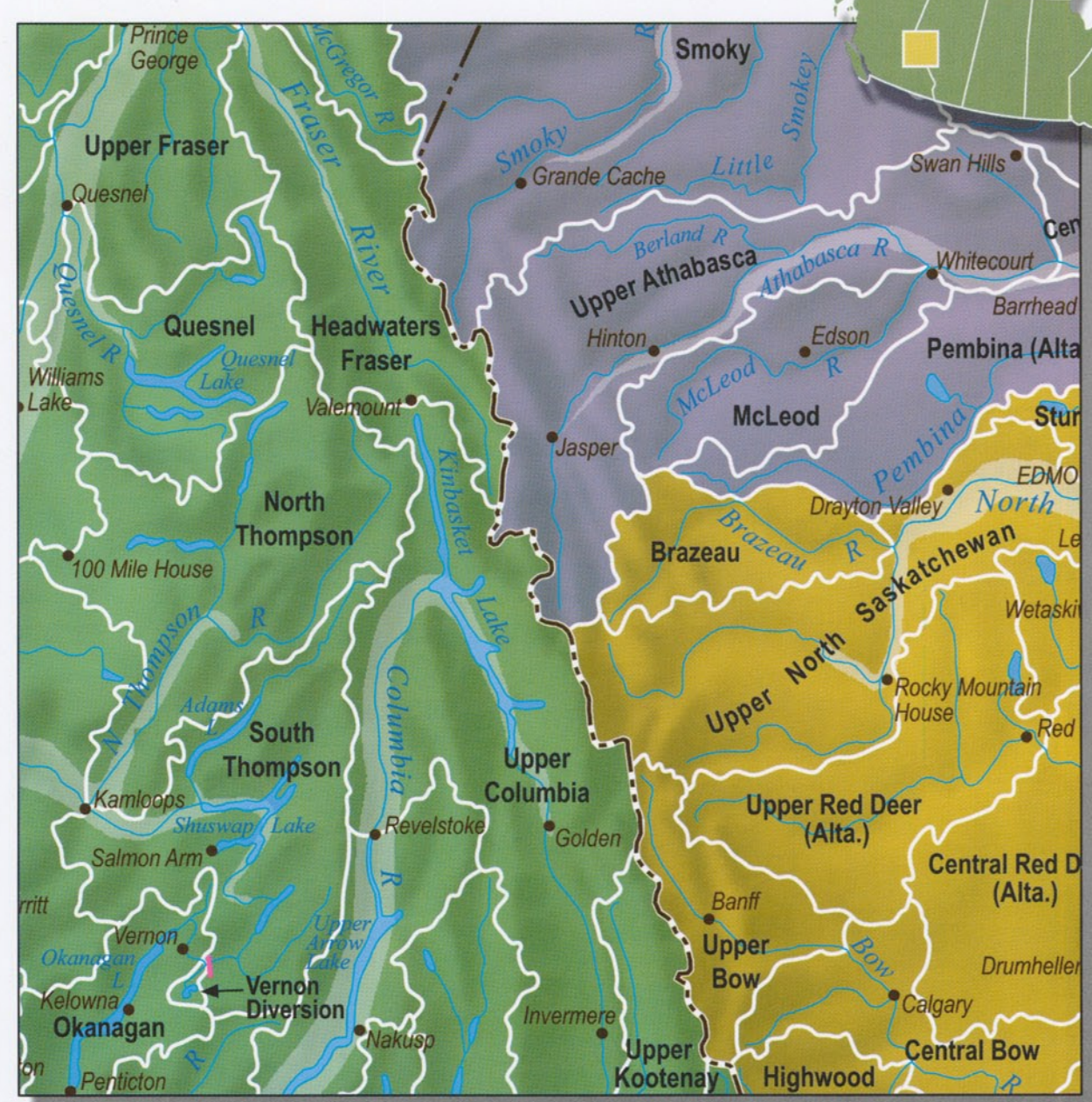
Canada's five ocean watersheds are colour-coded on the map:

-  Arctic Ocean
-  Atlantic Ocean
-  Gulf of Mexico
-  Hudson Bay
-  Pacific Ocean

- Each of these five massive landscapes contains a hierarchy of watersheds. This map depicts 594 watersheds, most of which are connected and ultimately flow into an ocean.
- Flow arrows through the United States indicate that water from Canada drains into the Gulf of Mexico and the Pacific Ocean.
- Light grey areas on the map, such as those associated with the Manitou Lake and Old Wives Lake watersheds in the provinces of Alberta and Saskatchewan, indicate watersheds that are "closed systems." Water in these systems typically flows to a lake and then either evaporates or seeps into the ground but does not flow to an ocean.
- The majority of Canada's watersheds are "open systems," meaning all water eventually drains into an ocean. Most Canadian watersheds are open systems.
- If you cannot find a river in your watershed on this map, your watershed may contain waterways too small to have been depicted, or you may live in a closed system.

Find Your Watershed on the Map

Start by locating your home area, town or city on the front of this map. We have chosen the town of Jasper in the Prairie province of Alberta as an example of how to locate your watershed and interpret the map's features.



- The irregular white line encircling the town of Jasper outlines the boundaries of its watershed.
- Jasper's watershed is called Upper Athabasca and includes the Athabasca River. Watersheds are typically named after a major river that runs through them.
- The white arrow (see the map on the reverse side) shows the general direction and volume of water flowing from the Upper Athabasca watershed.
- The Upper Athabasca watershed is coloured purple because it is within the greater Arctic watershed.
- The Arctic watershed, the entire area coloured purple, is one of Canada's five main ocean watersheds.
- Did you notice that Jasper is located in an area that adjoins three main watersheds? Water within the greater Arctic watershed flows into the Arctic Ocean. The area coloured green is another main watershed of Canada called the Pacific watershed. Water in this area flows west to the Pacific Ocean. The area coloured yellow shows yet another main watershed called Hudson Bay, where water flows east to Hudson Bay.
- The white arrows within each of these three main watersheds (see the map on the reverse side) show the direction of the flow of water and where water exits into Hudson Bay, and the Pacific and Arctic oceans.
- Did you notice the words "upper" (e.g., Upper Athabasca) or "headwater" (e.g., Headwaters Fraser) associated with the names of watersheds? They suggest the starting point where water begins to flow.

Now that you're familiar with the map and how it works, find your own watershed, its name and the river that runs through it.

Submit Photographs of Your Watershed

Becoming aware of your watershed is the first step toward caring for it. Showcase your watershed and the activities that take place within it by capturing photographs of it and sending them to CWF. Selected images will be featured in:

- the Explore Canada's Watersheds section of CWF's *WILD Education* website;
- CWF's *Canadian Wildlife* and *WILD* magazines; and
- the Government of Canada's new website called *Know Your Watershed*.

Get clicking and have your photos included in this exciting project. Visit [WILD Education](http://www.wildeeducation.org) at www.wildeeducation.org for more details.

Photograph Typical Features in Your Watershed

Watersheds come in all shapes and sizes. They can be very large, spanning hundreds of square kilometres, or so small that they only encompass a small stream or wetland area. They cross counties, provinces, territories and national boundaries. Besides physical formations, other vital elements of your watershed include industry, residences, agriculture and hydroelectric plants.

Land formations: Both gradual and catastrophic events such as the ice ages and volcanic eruptions sculpted many landforms, such as the mountains and valleys that we see today. Flowing water also plays a current role in forming, shaping and altering river channels, flood plains and their surrounding landscapes. Investigate your watershed for such notable landforms.

Wildlife habitat: Wildlife needs habitat, food, water, shelter and space arranged just right for each species. Without it, wildlife can't survive. How abundant and diverse are the species of wildlife living in your watershed?

Shoreline and upland vegetation: A shoreline is where water meets the land. It can also be called a river or stream bank. Well-vegetated ones serve as buffer zones as do vegetated areas growing in higher places above a water body (upland). Vegetation anchors the soil and protects edges from erosion. Its presence provides wildlife habitat. Its abundance helps to purify water by filtering out impurities as it flows into a water body. Its shade keeps temperatures cool for aquatic life. How lush are the buffer zones in your area?

Lakes: Lakes are valleys or depressions filled with standing water that are typically fed by rivers, springs or precipitation. Different types and sizes are found across Canada. For example, did you know that the Great Lakes are among the largest lakes in the world?

Rivers and streams: What do rivers, streams, creeks and brooks have in common? Flowing water! Smaller bodies of flowing water are typically called streams; larger ones are known as rivers. They're always heading downward — downstream — the path of least resistance. Find out which communities are upstream and downstream from you by noting the direction of the flow of a nearby river.

River systems: As creeks and streams join other streams, a branching effect starts. This network is a river system. Rivers start at a source (a high point that's a watery spot such as a spring or a wetland). Gravity propels their flow down channels to their mouth (end point). Ultimately, all river systems drain into the ocean (except in closed watersheds).

Wetlands: Wetlands are areas that are covered with water for part of a year (or even part of a day as in the case of tidal marshes). Several different types of these immensely productive areas for wildlife occur in Canada, such as marshes, swamps, fens and bogs.

Aquatic ecosystems: An aquatic ecosystem is a group of interacting organisms dependent on their watery environment for nutrients and shelter. Lakes, rivers, streams, estuaries and even floodplains are examples of different types. Each offers different habitat for the wildlife associated with it. For instance, fast-flowing streams appeal to wildlife adapted for moving water, such as salmon, which are not found in the still waters of lakes.

Urban and rural areas: Places where people live and work are also parts of watersheds, including urban and rural areas, industrial parks, manufacturing sites, forests, mines and hydroelectric plants. How we use land and water in these places often affects the quality of water and aquatic communities. For example, water from a rainfall drains into water bodies, washing along the pollutants we use on land, such as oil from cars or pesticides from lawns and fields. Waste-water treatment is an example of how we use water if water is required to dilute the effluent stream. Wetlands are also often used as a waste-water treatment method. Waste water includes water from bathtubs, sinks and toilets and the water discharged by industries in manufacturing processing. Many communities rely on treatment plants for safe water. How is land and water used in your area?

Coastal zones and oceans: Coastal zones and oceans are often the final destination of a watershed. Water can flow through an estuary, which is the interface between fresh and salt water, and through deltas where harbour seals, sea lions and seabirds live.

Get Involved in Your Watershed

Protect your watershed's unique role and important features by getting involved in its stewardship. Even small actions directly affect watersheds. Engage your friends, family or class in some of the following activities:

- Get to know your watershed. Take a walk around your nearest stream or wetland and discover all the wild species that make their homes there.
- Do a shoreline cleanup. Whether along a beach, lake or stream, cleaning up garbage can make a big, positive impact on all of the wildlife living in your watershed and will make it more beautiful for you to enjoy as well.
- Rehabilitate a wetland or plant some native vegetation along stream banks. Plants play an important role in stream-bank erosion control and provide food for aquatic life. Note that not all plants may be suitable for your area. Do your research and check with your local watershed authority before you undertake any rehabilitation activities.
- Keep current about water issues by visiting Environment Canada's *Freshwater* website and the online *RésEau* initiative (see the Visit our websites section).
- Help raise awareness about watersheds by ordering a FREE copy of the *Discover Canada's Watersheds* map to post at your local library, school, community centre, centre of faith or municipal office.

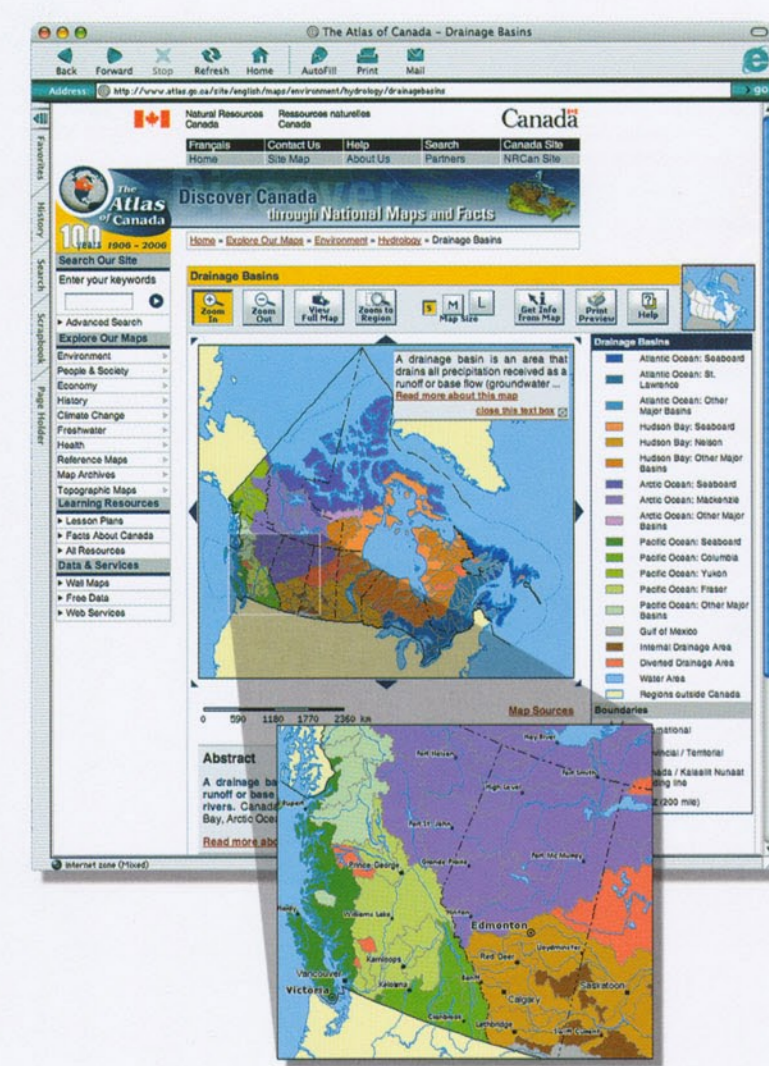
- Explore the Atlas of Canada's watershed maps and other related maps and facts about Canada.
- Do a WILD School or Blue School activity or organize a wildlife festival in your watershed. Visit the Canadian Wildlife Federation's *WILD Education* website for more information.
- Be careful with your water and conserve it wherever possible. Make sure you turn off the tap when you brush your teeth, use low-flow faucets and shower heads.
- Dispose of batteries, paint and other hazardous materials properly and never pour chemicals, waste oil or radiator fluids down the drain or on the ground.
- Reduce the amount of household chemicals you use because once they are down the drain they can enter our waterways and harm plants and animals.
- Use native plants in your garden: They have low requirements for water, fertilizers and pesticides.
- Get involved in your community and encourage local officials to prioritize the health of your watershed and limit the use of pesticides.
- If you see activities that could be harming the health of your watershed or if you have suggestions on how it could be improved, notify your local authorities or watershed stewardship group.



The Discover Your Watershed Poster
Each Canadian watershed has a unique combination of water and land features that are vital to both people and wildlife. This beautifully illustrated poster depicts a representative watershed that highlights features often found in many watersheds across Canada. View an interactive version of it online today at www.wildeeducation.org and use it as a reference to discover the watershed in your own area.

Explore Yours!

Visit Our Websites



Visit the Atlas of Canada at atlas.gc.ca

Here you can discover Canada through national maps and facts. Once you start exploring *The Atlas of Canada*, it's tough to stop. Each map offers more insight about Canada and its people . . . all for FREE.

The Atlas of Canada offers:

- over 1400 thematic interactive maps about the environment (including a series of maps on watersheds), people and society, economy and history
- reference maps of Canada, the provinces and territories and the world, in colour and black and white
- topographic maps with detailed information on landforms and terrains, lakes and rivers, populated areas, transportation routes, constructed features, parks and other areas
- learning resources such as lesson plans, facts about Canada, a section on map-making, customizable quizzes and wall maps

Atlas of Canada maps include interactive tools for:

- zooming in and out
- changing the map size
- reading informative descriptions
- searching for locations
- measuring distances
- getting information and data from the maps
- printing and saving

Contact the Atlas of Canada:

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Visit the Government of Canada's RésEau — Building Canadian Water Connections initiative at www.environmentandresources.gc.ca/reseau

RésEau is an online government demonstration initiative that focuses on water information. The initiative is led by Environment Canada in partnership with Natural Resources Canada and Health Canada.

RésEau's objectives include:

- supporting clean, safe and secure water for all Canadians and ecosystems
- establishing partnerships and projects to demonstrate the sharing, discovery, access and use of water information over the internet
- offering an interactive web portal that includes data, interpreted information, tools and services to help connect water information from different sources for better decision-making

On the RésEau site you can:

- discover water information
- interact with the *Know Your Watershed* project to learn more about your local watershed (the *Know Your Watershed* website provides customized maps of all watersheds — including yours — and local profiles and facts about water in your community)
- calculate your water use and learn how you can take conservation action with the interactive water calculator
- discover dynamic youth projects being led throughout Canada
- find links to further water resources and websites, reports and publications

Contact RésEau:

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E-mail: reseau@ec.gc.ca



Visit the Canadian Wildlife Federation at www.cwf-fcf.org

This site will lead you to all of our websites and programs, including *WILD Education*, *Hinterland Who's Who*, *Wild About Gardening* and *Space for Species*. CWF is one of Canada's largest non-profit, non-governmental conservation organizations.

CWF's objectives include:

- fostering awareness of the natural world
- spreading knowledge of human impacts on the environment
- sponsoring research
- recommending legislative changes
- co-operating with like-minded partners
- encouraging a future in which Canadians may live in harmony with nature

CWF's programs and websites will allow you to:

- download FREE teaching resources about watersheds and other wildlife-related topics
- discover how animals migrate over and across different watersheds
- create recovery strategies for wildlife species in trouble
- learn about how gardening with native plants can benefit watershed health
- read up on watersheds
- participate in quizzes and games
- download free species fact sheets to learn about the wildlife that lives across our watersheds
- learn about shoreline and habitat improvement projects by Blue and WILD Schools that have boosted watershed health

Contact the Canadian Wildlife Federation:

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The Discover Canada's Watersheds map is a joint project between the Canadian Wildlife Federation, Natural Resources Canada and Environment Canada. This map and the watershed theme are part of larger programs belonging to the partners, such as Oceans Day and National Wildlife Week. The Atlas of Canada Watershed Framework 2006, developed in partnership with Environment Canada's Water Survey of Canada and Statistics Canada's Environmental Accounts and Statistics Division, is part of a group of national framework data sets available for free online at atlas.gc.ca. © 2006, Canadian Wildlife Federation. ISBN: 1-55029-180-7

How to Order the Discover Canada's Watersheds Map

Order an additional copy of the map online at www.wildeeducation.org or contact: Canadian Wildlife Federation 350 Michael Cowpland Dr. Kanata, ON K2M 2W1 Tel: 1-800-563-9453 Tel: 613-599-9594 (Ottawa region) Fax: 613-599-4428 E-mail: info@cwf-fcf.org