

6.2 Managing the Ottawa River as a Canadian Heritage River: Challenges and Opportunities

6.2.1 Benefits and Opportunities Associated With Canadian Heritage River Designation

The ORHDC has worked hard to communicate the benefits of CHR designation to residents and community groups along the Ottawa River, using outreach tools such as a website (www.ottawariver.org), poster and brochure, as well as numerous meetings with community leaders. This grass-roots process is meant to lead residents, local organizations and government situated along the Ottawa to take ownership and responsibility of the river.

With two provinces and numerous municipalities, First Nations communities, organizations and agencies concerned with the river, a common vision and commitment to action is essential to reducing the duplication of efforts and coordinating the sustainable management of the river. Multiple uses of the river are widely diverse, ranging from wilderness canoeing to atomic energy research. Coordinating the stakeholders and users of the river will be essential to developing an integrated management plan for the Ottawa. Sustainable economic development hinges on the wise use and sharing of these resources. Healthy communities depend on water quality and the overall health of the river.

Designation could lead to the following direct benefits to communities along the river:

- A clean environment for living and raising children
- Healthy ecosystems rich in wildlife and biodiversity
- The preservation and transmission of a rich cultural heritage
- The protection of key cultural heritage sites
- Greater opportunities for cultural exchange along the river
- Greater contact and communication between communities and government in Ontario and Quebec
- Greater visibility and promotion for communities and for the river, e.g. through the CHRS website.
- A more inclusive and citizen-oriented decision-making process
- Opportunities to highlight the beliefs and teachings of Aboriginal Peoples about the river
- Enhanced opportunities for outdoor recreation and sustainable ecotourism development
- Opportunities for outdoor education and bringing history alive
- Increased business opportunities
- An enhanced sense of community pride
- Ideal communities for retirement

Gaining CHR designation will provide additional opportunities to highlight conservation success stories along the river, and will generate new possibilities for cooperation around conservation, education and economic development.

6.2.2 Potential Challenges in Managing the Ottawa River as a Canadian Heritage River

For the most part, the Ottawa River is a managed river. The numerous agencies and private corporations that own and manage the reservoirs and generating stations of the Ottawa River are coordinated through the Ottawa River Regulation Planning Board (ORRPB).

CHR designation provides an opportunity for residents and organizations of the provinces of Quebec and Ontario to generate an integrated management plan for the river, further coordinating the river's management along the themes of preserving ecosystems, species at risk, and cultural heritage, as well as sustainable community economic and ecotourism development. Community support for the initiative has been extremely positive, pointing to a willingness and a desire to manage the Ottawa River sustainably, and to honour its heritage through CHR status. This support will form the basis for management of the Ottawa River as a CHR.

In managing the Ottawa River as a CHR, certain challenges can be anticipated, the greatest of which may be negotiating the complexity of jurisdictions over the river. The Federal Department of Fisheries and Oceans has authority over fisheries habitat and waterway navigation. Federal jurisdiction over the river dates back to the Ottawa River Act of 1870:

The navigation of the River Ottawa, as well by vessels and boats as by rafts and cribs of timber or logs, is hereby declared to be subject to the exclusive legislative authority of the parliament of Canada, and all canals or other cuttings for facilitating such navigation, and all dams, slides, piers, boms, embankments, and other works of what kind or nature soever in the channel or waters of the said River, ... shall be held to be works for the general advantage of Canada, and ... shall be subject to the exclusive legislative authority of the Parliament of Canada ...

Conservation Authorities in Ontario have some of the mechanisms necessary to protect the river for small sections of the watershed within Ontario. Quebec and Ontario provincial governments have various responsibilities including water level regulation, water quality monitoring, parks, sustainable forestry management and power generation. Dozens of municipalities and several First Nations communities have river-related responsibilities and a stake in the river's development. In addition to this complex jurisdiction, there are significant legal and linguistic differences between the Ontario and Quebec governments; hence communication will be an important factor in managing the river.

The number and scope of different stakeholders along the river means that any proposed development of the river will have to take into account potentially conflicting uses and divergent priorities. The Ottawa River plays many important roles: supporting species at risk, biodiversity, rich ecosystems, ecotourism, fishing, swimming, boating, hydroelectric power generation and nuclear power generation. These uses require careful planning to be compatible.

Conflicting Use For Water Resources

The impacts of one usage of water resources often affects the quality of the resource itself, thus diminishing the capacity for other stakeholders to benefit from the same resource. Canadian Heritage River status may provide a mechanism by which stakeholders can negotiate potential resource-use conflicts with one another. In a report entitled "Portrait environnemental de la région de l'Outaouais," the

Conseil régional de l'environnement et du développement durable de l'Outaouais (CREDDO) put forth several examples of conflicts related to water use in the Outaouais region and described the resolutions of these conflicts:

Conflicting Uses for Water Resources in the Outaouais Region

A spring-water bottling project initiated by Aquaterra Labrador was abandoned due to citizen pressure in the late 1990s. An environmental impact assessment had not been conducted, but was mandated for similar projects in 2002 under the *Règlement sur le captage des eaux souterraines*.

In Aylmer, the development of a golf course without authorization of the proper authorities and without conducting an environmental impact assessment sparked controversy in 1999. The enormous quantities of water used daily by golf courses may have caused over 25 wells in the municipality to dry up. Furthermore, the pesticides and herbicides used in large quantities can affect the quality of nearby water.

Gatineau City's water intake source is contaminated by waste effluents downstream from Aylmer. Containment cells and other mitigation measures are under development (CREDDO 19).

The above examples of resource-use conflicts in the Outaouais region illustrate two key challenges related to water management. First, there appears to be a lack of general knowledge about the likely environmental impacts of resource-use activities. Second, the responsibilities of various actors are not clear.

Managing the Natural Heritage of the Ottawa River

Several existing efforts to conserve the health of the Ottawa River's natural systems have been described in Chapter 3.8: Conservation Along the Ottawa River. These efforts respond to specific conservation needs along the river. To preserve the precious resource of the Ottawa River for future generations, challenges in conservation management will need to continue to be addressed. An integrated heritage strategy for the Ottawa River, facilitated through the CHRS process, would provide a framework through which stakeholders can respond effectively to many of these challenges.

Loss of habitat

Settlement and urban development have had a dramatic impact on the landscape and the wildlife, particularly along the southern stretches of the Ottawa River. Clearing the land meant that entire forests were cut down, wetlands filled, river flows altered, and creeks dried. Species respond to habitat loss in one of three ways: through emigration, adaptation, or population decline. Some species can respond to habitat loss by emigrating to a new area in which conditions are similar to those of their original habitat. A few species can adapt to their changed environment, becoming what we often call "urban wildlife." In many cases, a loss of habitat causes indigenous wildlife populations to fall dramatically, sometimes irreversibly. The population decline of one species can have important ramifications for other species in its ecosystem.

Wildlife Diversity Decline

The diversity and distribution of fish and wildlife species have been affected by development of the Ottawa River. In particular, hydroelectric dams have blocked migratory species such as the shad and eels, so that these species are today either very low in numbers or absent from the river (Haxton and Chubbuck 3).

Changes due to hydroelectric development have had other impacts on wildlife habitat. The loss of historic mud flats and the creation of new habitat has affected shorebird populations. Flooding has created wetlands for others such as waterfowl. Waterfowl nesting is common on floodplain wetlands within or next to the river (Haxton and Chubbuck 4).

Even before the hydroelectric era on the Ottawa, bird species and populations were greatly affected by human development. Species such as raptors (e.g. Breeding Golden Eagles) and migrating waterfowl were decreasing in number and variety by 1889 as a result of hunting (Haxton and Chubbuck 4).

Ecological Effects of Dams

Urbanisation and the increasing need for electricity resulted in the creation of reservoirs for hydroelectric production along the northern stretch of the river. Dams impact significantly on local wildlife. They alter the natural flow of the river and result in the flooding of large forested areas in a short period of time. This process has altered, reduced or destroyed the habitat of many plant and animal species.

When fish migration is blocked by a concrete wall, species such as the American shad can no longer reach their colder water spawning sites upriver. Management of the dams and water pumps often does not consider the biological clock of flora and fauna. Riverine organisms are adapted to seasonal flooding, often occurring in the spring. Fluctuations in water level may kill certain organisms, or delay their reproduction. Changes in the current may have driven certain species out of their habitat. Changes in the current and force of the water can cause increased erosion of the banks, further altering habitat. Siltation occurring upstream of dams can change the water quality and temperature in the lake-like environment above the dams.

Reduced Water Quality

The water quality in the Ottawa River is considered much better than it was thirty years ago. This is primarily due to regulations on industrial effluents and the decline of the log drives along the river (Haxton and Chubbuck 3). Despite this, water quality remains a concern. Contaminant sources of groundwater in urban areas include industrial sites, gas stations, garbage dumps, snow-disposal dumps, and dry cleaning facilities. Municipal waste-disposal sites in Carp, Gloucester, and Aylmer have leaked, contaminating aquifers. In rural areas, livestock wastes, pesticides, and fertilizers have polluted groundwater (Geoscape Canada: "Ottawa – Land Use").

Forests and wetlands, two rich habitats with productive soils, are increasingly under pressure near urban areas. This has affected both terrestrial wildlife and the river's ecosystem health. Agricultural runoff carries sediment and chemical products. Pesticides and fertilizers join with soil particles and are carried to the river through the watershed or by wind. Without the tall and/or rooted vegetation associated with wetlands to retain particles, pollutants may more easily enter bodies of water. As a result, persistent

pesticides such as chlorinated hydrocarbons and organophosphates enter the Ottawa River or its tributaries. Clear, deep lakes begin a process of eutrophication and become increasingly shallow and turbid. Nitrogen, an essential nutrient for plants and animals, represents a major source of pollution when present in excessive amounts. It promotes plant growth and decay, which in turn increases biochemical oxygen demand.

Deforestation reduces shady areas, warming the runoff into the Ottawa River. Deforestation also induces soil erosion, increasing the amount of suspended solids in the river's water. This turbid, cloudy water is more absorbent of the sun's energy, causing water temperatures to rise. As water temperatures rise, the rate of photosynthesis and plant growth increases. More plants grow and die, consuming oxygen and thus reducing the oxygen available for other living organisms (SEED: "Hudson River Project"). The effects of deforestation can be felt on both the Ottawa River and its tributaries.

Industrial development contributes to water pollution. Industries lacking an effective wastewater treatment process may release harmful substances directly into the water (SEED: "Hudson River Project"). The release of this wastewater into lakes and rivers has a negative effect on habitat quality. Petroleum waste harms wildlife and persists for a long time in riverbed sediments. Detergents cause algal blooms and eutrophication, reducing available light and oxygen for bottom organisms.

Some industries may use river water to cool machinery and release the warmed water back into the river, causing an increase in the rate of photosynthesis and plant growth, reducing available oxygen. This results in the formation of a microhabitat, forcing native organisms to either adapt or leave.

What is Eutrophication?

Eutrophication is an increase in the concentration of chemical elements required for living things. Increased nutrient loading may lead to a population explosion of photosynthetic algae and blue-green bacteria that become so thick that light cannot penetrate the water. Bacteria deprived of light beneath the surface die; as they decompose, dissolved oxygen in the lake is lowered and eventually a fish kill may result.

Eutrophication caused by human-induced processes, such as nutrient-rich sewage water entering a body of water, is called cultural eutrophication (Botkin and Keller G-7).

Exotic Species

Since the increase of worldwide transportation, exotic species have fewer barriers. Exotic species are plants or animals that enter an ecosystem from beyond their native ranges. They are called *invasive* because they take over a habitat, competing with and threatening native species. Many aquatic species were introduced accidentally, such as the Zebra Mussel, which competes with native mussels (this species is mentioned in Chapter 3.6.5: Invertebrates). Other exotic species were deliberately introduced, such as game fish for sport and aquarium fish released in the wild. Plants imported for water gardens have found their way to rivers, ponds and lakes and have reduced their biodiversity as a result.

Forest Fragmentation

According to a recent study conducted in Prescott-Russell, the county forest is highly fragmented. Woodlands have been divided due to development, logging, and agriculture. There are 3405 woodland areas with an average size of only 18.8 ha. The implications for the health of the forest ecosystem are noteworthy. Fragmented forests are less resilient to disease, predators, parasites, climatic effects, and other damage resulting from acid rain or pesticide use (Van Der Velden).

Impacts of Recreation

Recreation has had local impacts on habitat and wildlife. For instance, a lake crowded with motorboats may have higher concentrations of pollutants in the water, affecting the shells of birds' eggs as well as other biota. Wakes caused by fast-moving boats and SeaDoos can impact negatively on bird reproduction. For instance, wakes can drown common loon nests, sweep eggs out of the nest or scare the parents away. They may kill riverine plants, doubling erosion of the banks and therefore water turbidity. An increase in the suspended sediments in the water column results in an increase of turbidity, which in turn increases the temperature and reduces the level of oxygen. Mussels feed by filtering food particles in the water and are often victims of increased turbidity. They are very sensitive to silt which clogs their feeding siphons.

Each of the challenges highlighted above represents a complex interaction between various human and natural systems. Each of these challenges also presents an opportunity for stakeholders to work together to develop and to implement a shared vision for the Ottawa River's natural, cultural, and recreational opportunities.

6.2.3 Toward a Shared Vision of the Ottawa River

Despite the multiple stakeholders and jurisdictions surrounding the river, common ground can be found within the core values of conservation, recreation, participation, celebration and sustainable economic development. In February 2005, the Executive Committee of the ORHDC met to begin to generate a shared vision of the Ottawa River. When asked what the river meant to them, Committee members had

similar answers:

Figure 6.4 Sunset on the Ottawa River



- A giver of life
- A spiritual entity; not merely a commodity
- A source of daily inspiration
- A living, animate river deserving of our respect
- A teacher
- An important contributor to quality of life; a source of recreation as well as of tranquility and reflection
- A source of connections between people across distances, through time, between cultures, and with the greater ecological system

- A traditional territory: the watershed corresponds to traditional Algonquin territory
- A sense of home and of connection with ancestors
- A fundamental aspect of the existence of the Algonquin people
- An opportunity to honour history

While sharing their visions for the river 30 years from now, committee members suggested the following steps related to participation, education and tourism, conservation, and management. Many of these visions and suggestions could be achieved more readily if the Ottawa River attains designation as a CHR.

Participation

- Efforts to protect and showcase the river's cultural heritage, natural heritage, and recreational values should be coordinated for a comprehensive and therefore stronger approach.
- The Algonquin people should play an integral role in developing and implementing the CHR approach to managing the Ottawa River.
- A volunteer/citizen association that functions in this capacity could relate stories about successful conservation, education, or tourism efforts of one community to other communities along the river. In this way, more people may become inspired to share and act upon a coordinated vision for the river.

Education and Tourism

- This nomination/designation initiative can serve as an initiator of a project such as a museum that showcases Algonquin history and values and links these with a greater vision for respecting water on a societal level.
- Creating a common "brand" for the river could promote its cultural heritage, natural heritage, and recreational opportunities. By developing a "package" that encompasses the entire river and includes these different types of values, tourism could be both increased and directed to sustainable activities.
- The human and natural heritage of the Ottawa River should serve as a springboard for place-based history and nature education.
- The Algonquin people and their heritage should receive greater recognition.

Conservation

- Industry and conservation must find common ground.
- Sources of pollution should be addressed, including the South Nation River
- The Chalk River Laboratories should receive additional funding to become cleaner.
- "Green" energy generation should be further supported.
- Sustainable transportation along the river could be an alternative to cars should be improved.
- The natural beauty of the Chaudiere Falls should be restored.

Figure 6.5 Changeling



Source: Kathrin Winkler

Management

- The river should have Canadian Heritage River Status!
- A deepened pride in the river should translate into other planning and management decisions.
- Algonquin people should have a greater role in management decisions.
- The river's original name, Kichi Sibi, should be restored.
- Conservation, education and tourism initiatives should be based on previous successes where possible.
- Features of the river and/or surrounding landscape that represent aspects of heritage (natural or cultural) need to be identified and protected.
- A review of existing development plans should be conducted, and these plans should be reviewed and consolidated.
- Development initiatives (such as constructing cottages, developing communities, and building tourism and recreational infrastructure) should be planned so that they enhance instead of destroy heritage features.
- More bridges between the river's two shores should be constructed.
- Conservation and development goals should be aligned.

In reviewing the heritage values of the Ottawa and Mattawa Rivers, the Mattawa delegates to the designation committee developed a vision reflecting the multiple goals of conservation, economic development, recreation and visibility:

It is our hope that if the Ottawa River is declared a heritage river, it will have a positive economic effect on our area... Heritage designation will publicize our river and its place in the history of our nation...

Heritage designation should help us to preserve the river and its watershed. We would like to see the water quality improved by better methods of pollution control. We hope that the management plan for our heritage river will find that successful balance between industrial and recreational needs on the one hand and the preservation and improvement of our environment on the other...

We live in one of the most beautiful places in Canada. Heritage designation will bring more people to see the beauty of the fall colors of the forest that lines the shores of the Ottawa and to skidoo and cross country ski the many trails that network our area...

It is our sincere hope that heritage designation for the Ottawa River will make these ideas not a dream, but a reality.

- Mattawa heritage designation committee, 2005

Many individuals and organizations have great hopes for the Ottawa River, and believe that their visions could be achieved through CHR designation. Building the movement toward stewardship of the cultural, natural and recreational values of the river will help respond to the many conservation challenges inherent to the management of the Ottawa River. In addition, CHR designation could strengthen and build bridges between communities along the river, leading to greater inclusiveness and community health.