



Athabasca River

Canadian Heritage River System
Ten-Year Monitoring Report
2011 – 2020

Executive Summary

Parks Canada Agency reports to the Canadian Heritage Rivers Board every ten years on the condition of the 162 km section of the Athabasca River, designated to the Canadian Heritage Rivers System, and located entirely within Jasper National Park of Canada.

This report provides an overview of the natural heritage, cultural heritage, recreational and integrity values for which the Athabasca River was designated, and summarizes major events, management actions, research, monitoring and policy developments that have taken place in and around the designated portion of the river over the past decade. It describes major changes to the designation values since the previous ten-year monitoring report, and park management plan direction to maintain those values.

The report concludes that there have been no significant changes to the values for which the river was designated. Although global environmental change affects the watershed, active management has generated improvement on issues such as water quality, aquatic connectivity, recreational and transportation infrastructure, and interpretation of the river's human history. Appropriate tools are in place for managing recreational and other uses, and policy decisions taken in the past ten years support the river's natural and cultural heritage, and exceptional visitor experiences.

Parks Canada will continue to safeguard the integrity of the Athabasca River, protect its natural and cultural heritage values, and provide Canadians with opportunities to experience, connect with and learn about this heritage river.



Above and cover image: Winter sunrise over the Athabasca River, photo Parks Canada R. Gruys.



Athabasca River, photo Parks Canada.

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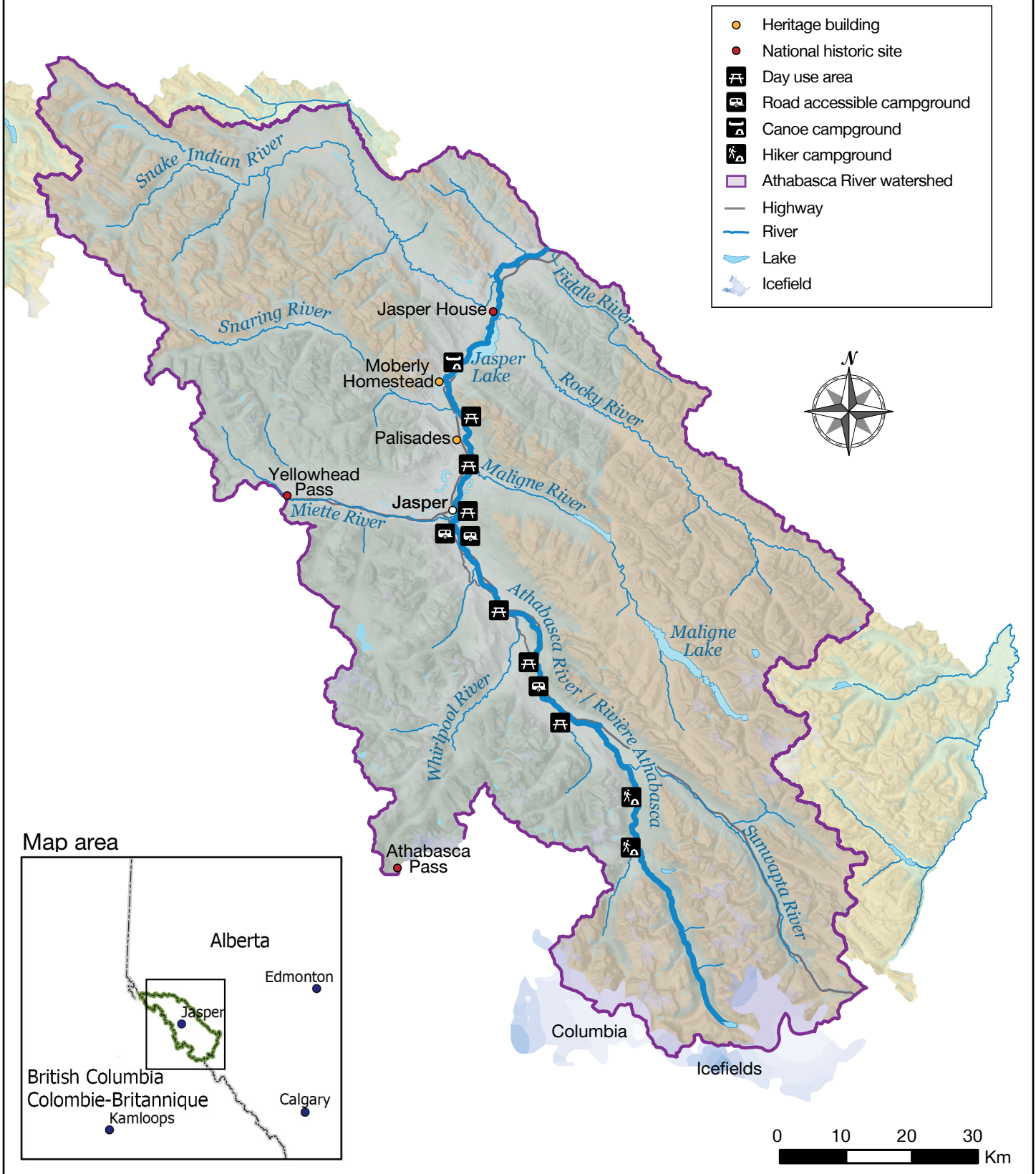
Introduction

The Canadian Heritage Rivers System is a national program that promotes river heritage conservation through the recognition of rivers deemed to be of outstanding Canadian value. A cooperative effort of federal, provincial and territorial governments, the Canadian Heritage Rivers System promotes, protects and enhances Canada’s river heritage, and ensures that Canada’s leading rivers are managed sustainably.

The Athabasca River is the longest river in the province of Alberta, spanning 1,538 km from its glacial headwaters in Jasper National Park to Lake Athabasca in Wood Buffalo National Park. The 162 km section of the Athabasca River located within Jasper National Park was designated a Canadian Heritage River in 1989. This designation reflects the Athabasca River’s importance to the human history of the region, in driving natural processes and safeguarding species to ensure ecological integrity, and as a venue for a variety of recreational and learning experiences.

The first monitoring report for the Athabasca River covered the years 1989 to 1998; the second monitoring report covered 1999 to 2010. Both reports concluded that despite increases in environmental stressors, the river had remained in good condition. This report covers 2011 to 2020, and documents changes to the natural heritage, cultural heritage, recreational and integrity values for which the river was designated. Most of the values described in the previous ten-year report have not changed.

Figure 1. Athabasca River watershed, major tributaries, and significant features of the Athabasca River in Jasper National Park





The river's watershed occupies 83% of Jasper National Park's 11 228 km² land base.

Athabasca River, photo Parks Canada.

Background

Parks Canada Agency is the land manager for Jasper National Park of Canada and the Athabasca Canadian Heritage River. The river's watershed occupies 83 percent of the park's 11,228 km² land base. The designated portion of the river stretches from its headwaters in the Columbia Icefield to the eastern park boundary, 162 km downstream. Jasper National Park also lies within the Canadian Rocky Mountain Parks UNESCO World Heritage Site, reflecting the global community's recognition of this region's outstanding heritage value.

Policies and guidelines specific to Jasper National Park, in particular the 2010 *Jasper National Park of Canada Management Plan*, guide management of the Athabasca River. Parks Canada is currently reviewing and updating the park management plan, with Indigenous, stakeholder and public engagement. The new plan will build on the strategies and actions described in the previous management plan to protect the ecological integrity of Jasper National Park and the Athabasca River. The plan will provide direction for enhancing recreational and educational opportunities for visitors on and around the river, and for promoting understanding of the values for which the Athabasca is designated a Canadian Heritage River.

The *Jasper National Park State of the Park Assessment*, completed in 2018, reported on ecological indicators and measures of relevance to the Athabasca River, such as aquatic connectivity, river fish index, amphibian occupancy and water quality.

New Canadian Heritage Rivers System frameworks for natural, cultural and recreational values that have been developed since the river's designation are incorporated into this report.

The portion of the Athabasca River within Jasper National Park was originally nominated as a Canadian Heritage River in 1984 for:

- Natural heritage values (representation of earth history, representation of ongoing processes and physiographic and landscape uniqueness);
- Historical heritage values (Canadian development, cultural associations and theme representation);
- Recreational values (recreational experience and environmental impact); and
- Integrity (size, viability and water quality).



Canoe brigade coming down the Athabasca River, photo Parks Canada L. Beaton

Chronology of significant events, actions and research since designation

The following section outlines significant events, actions and research that celebrate the Athabasca River’s designation and heritage values, contribute to responsible river stewardship, and educate the public about the health and use of the river and watershed.

Year	Significant events, actions, and research 2011 – 2020
2011	<ul style="list-style-type: none"> To commemorate the 200th anniversary of the explorer David Thompson’s voyage through Athabasca Pass, Parks Canada, the University of Alberta and the Royal Astronomical Society of Edmonton held events in Jasper, including a commemorative ski trip to Athabasca Pass. The Athabasca River Voyageur Canoe Brigade, a four-day voyageur canoe celebration, paddled from Jasper to the Emerson Creek Bridge (approximately 40 km downstream from the town of Hinton). Researchers from Mount Allison University carried out dendrochronology on the Moberly lobster tree (dated to 1911 CE), which added new information about this Athabasca River landmark that is important to Jasper and Métis communities with connections to the area.
2012	<ul style="list-style-type: none"> The Jasper National Park Cultural Use Area was established where the Maligne and Athabasca rivers meet as a place for Indigenous partners to hold ceremonies, traditional gatherings and teachings. The site is maintained by Parks Canada with the support and guidance of the Jasper Indigenous Forum, which is comprised of representatives from Indigenous communities with historical connections to what is now Jasper National Park. A water experience course was held at the Palisades Stewardship Education Centre in Jasper National Park. Students collected real-time digital data from various water sources in the park and shared their experiences with youth in Australia using online collaboration tools. Between 2012 and 2017, six road and railway stream crossings were improved from partial- or full-barrier to no-barrier crossings, improving aquatic connectivity in the Athabasca watershed.
2013	<ul style="list-style-type: none"> <i>Through Ice and Time</i>, a Parks Canada film connecting visitors to the Columbia Icefield area—headwaters of the Athabasca River—began showing at the Columbia Icefield Centre.
2014	<ul style="list-style-type: none"> An interpretive panel about the history of the Athabasca Pass National Historic Site was installed at the Meeting of the Waters Day Use Area—where the Whirlpool and Athabasca rivers meet. Ongoing: Parks Canada volunteers undertake yearly cleanups at a variety of lakes and shorelines in Jasper National Park. Between 3 and 20 cleanups are held each year.

Year	Significant events, actions, and research 2011 – 2020
2015	<ul style="list-style-type: none"> As part of the People of the Upper Athabasca Valley Project, interpretive panels telling homesteaders' stories in English, French and Cree were installed at historical homestead locations along the Athabasca River. Ongoing: Teachings of the Mountain People is offered at the Palisades Stewardship Education Centre. The program focuses on Métis traditions, the history of Jasper House National Historic Site and the people who homesteaded along the Athabasca River. In 2015, the Federal Infrastructure Investment was launched which allocated \$312 million between 2015 and 2022 to rehabilitate roads, highways, visitor facilities and critical infrastructure in Jasper National Park. Projects directly associated with the Athabasca River included repairs to Trail 7, which has scenic views and rest stops located along the river, and reconstruction of the Athabasca East and West bridges on Highway 16.
2016	<ul style="list-style-type: none"> Ongoing research into the harvesting and transport of timber railway ties in the early 1900s revealed information about railroad construction and the location of tie camp operations and old roadways along the Athabasca River.
2017	<ul style="list-style-type: none"> Athabasca River Brigade Canada 150 celebrations: Over 100 paddlers, dressed in period attire, paddled from Jasper National Park to Fort Assiniboine, Alberta. The Jasper Yellowhead Museum and Archives carried out river-themed activities through the Canadian Heritage Rivers Celebrate Canada 150 Program, including youth raft trips with interpretation, displays at events and a twice-weekly walking tour. The Athabasca River was one of 14 rivers featured in the <i>Eau Canada!</i> video produced as part of the Canadian Heritage Rivers Celebrate Canada 150 Program. Local paddlers and Parks Canada staff participated. The video was shown on Parliament Hill and was seen by over 200,000 Canadians. Parks Canada interpretive voyageur programs linked to the Athabasca River and the Canadian Heritage Rivers System (CHRS). Guided walks on the Toe of the Glacier Trail at the Columbia Icefield highlighted the hydrological apex as well as the headwaters of the Athabasca River and its CHRS designation.
2018	<ul style="list-style-type: none"> Jasper National Park completed a <i>State of the Park Assessment</i> (https://www.pc.gc.ca/en/pn-np/ab/jasper/info/plan/involved/sop) that included measures of aquatic ecosystem conditions linked to the Athabasca River. Parks Canada presented an aquatic health exhibit to raise awareness about whirling disease, and to encourage visitors to help prevent the spread of the disease to the park's aquatic ecosystems by cleaning, draining and drying all watersport equipment. Parks Canada's Glacier Gallery at the Columbia Icefield Centre was refurbished, providing updated interpretation on the human history of the area, glacier science, water systems and climate change.
2019	<ul style="list-style-type: none"> Parks Canada widened Highway 16 and added a new parking area along a portion of the Athabasca River, known as "Jasper Lake," to increase visitor safety and better control visitor use to protect ecologically sensitive dunes. Jasper National Park contributed to the CHRS national Story Maps project. Content was sourced from current and retired Parks Canada staff, students, volunteers and Indigenous partners. The <i>Jasper National Park Shoreline Action Plan</i> (https://www.pc.gc.ca/en/pn-np/ab/jasper/info/plan/rivage-shoreline) was developed with the goal of improving ecological integrity and enhancing visitor experience by restoring and protecting lakes and rivers and their shoreline habitats. The Canadian Heritage Rivers System plaque mount was repaired.

Overview of natural heritage values, cultural heritage values and recreational values

Natural Heritage Values

The Athabasca River flows through a unique landscape, representative of ongoing alluvial, glacial and geological processes. Emerging from the Columbia Icefield, the Columbia Glacier is the source of the Athabasca River, which flows from the glacier between snow-capped mountains northward through the park.

Across the varied ecoregions in Jasper National Park, the Athabasca River supports one of the few large river fish communities in Alberta that is relatively undisturbed by human activities, and provides habitat to a variety of plant and animal species. Parks Canada is working to eradicate non-native invasive species, improve aquatic connectivity, reintroduce fire to the landscape and limit new anthropogenic disturbances to aquatic and riparian habitats to ensure the continued health of native flora and fauna.

The Athabasca River flows through the three ecoregions in Jasper National Park—alpine, subalpine and montane. Located along the river in the eastern part of the park, the sand dune area at Jasper Lake and the downstream wetlands support unique assemblages of vegetation and have been identified as vegetation communities of particular significance. Whitebark pine and Haller's Apple Moss, two plant species listed by the Committee on the Status of

Endangered Wildlife in Canada (COSEWIC), are found within the watershed.

In addition to the three hundred species of birds that call the Athabasca Valley home, there are several bird species of note connected with the river. The harlequin duck is a provincial species of Special Concern, and there are two species listed under the national *Species at Risk Act* (SARA): the black swift, which nests close to waterfalls, and the bank swallow, which forages for aerial insects above rivers.

Thirteen native and one non-native fish species occupy the Athabasca River in Jasper National Park. This species diversity is the benchmark for an undisturbed Alberta East Slopes mainstem river fish community (Parks Canada 2018). There are three listed species at risk in the Athabasca River: Athabasca rainbow trout are Endangered under Schedule 1 of SARA; bull trout are of Special Concern in the Athabasca watershed; and pygmy whitefish are Threatened in Alberta.

Grizzly and black bears, wolf, elk, deer and other smaller mammals, including muskrats, beavers and river otters, use the valley as a corridor for movement, and access the river and its banks for habitation, grazing, hunting and calving. Five species of amphibian can be found in riverine wetlands, including the calling population of the Western toad, which is listed as Special Concern under SARA.

Spotlight on: aquatic monitoring

The keystone fish of the Athabasca River is the mountain whitefish, which comprises over 90 percent of the fish captured in fisheries studies. The population of mountain whitefish in Jasper National Park is composed primarily of abundant spawning-sized fish indicative of an old-growth fish population. Due to this population's excellent status, it is currently the benchmark for all provincially-managed mountain whitefish assessments in Alberta. The same is true for the bull trout population in Jasper National Park, which is the benchmark for Alberta's east slope mainstem rivers.

For the 2018 *State of the Park Assessment*, Parks Canada gathered data from the Athabasca River, its tributaries, and water bodies within the river's watershed. The condition of freshwater ecosystems was rated "Good" overall, based on an assessment of five different measures, including a river fish community index.

The river fish community index was determined to be in "Good" condition with an "Improving" trend, based on river fish species composition and relative abundance.

The data indicates that the ecological integrity of the Jasper National Park Athabasca River fish community has improved since 1993. Improvements are likely due to increasingly protective sport fishing regulations, including autumn fishing closures for spawning, catch limits of two fish per day and live bait prohibitions. The influence of non-native fish species in the Athabasca River remains insignificant, in spite of populations of exotic brook trout in tributaries of the mainstem river.



Aquatic monitoring in Jasper National Park, photo Parks Canada

The Athabasca River is the longest river in the province of Alberta, measuring 1538 km from its glacial headwaters in Jasper National Park to Lake Athabasca in Wood Buffalo National Park.



Aerial panorama of Athabasca River,
photo Parks Canada R. Bray

Spotlight on: climate change

Climate change is impacting the Athabasca River and its source, the Columbia Glacier in the Columbia Icefield:

- Glacier meltwater has a cooling effect on streams, regulating summer temperatures along the water course and maintaining habitat for highly adapted cold-water species, including bull trout.
- Higher global temperatures are expected to accelerate glacier melt, altering the volume and timing of streamflow and water quality.
- Declines in late summer water flow have been documented in glacier-fed rivers; glacier area loss appears to be the primary contributor to these declines.

The Athabasca Glacier in the Columbia Icefield is the most visited glacier in North America. Its accessibility provides an opportunity for millions of visitors to witness and learn first-hand about the effects of climate change. The Parks Canada Glacier Gallery exhibits and panels along the Toe of the Glacier Trail help visitors understand and witness the impacts of climate change in a tangible way by displaying changes to the glacier.



Columbia Icefield, headwaters of the Athabasca River, and Columbia glacier lake, photo Parks Canada.



Scenic Athabasca River,
photo Parks Canada B. Morin

Cultural Heritage Values

The Athabasca River has been the focus of human activity for thousands of years. The Athabasca River landscape provided travel corridors through the Rocky Mountains for Indigenous peoples, was historically used by explorers and settlers, and was chosen as the route for two transnational railways.

Today, two major highways also follow the river's course. Highway 16 follows the ancient and historical route east-west through the mountains, while the world-renowned scenic Icefields Parkway follows the Upper Athabasca River from its headwaters in the Columbia Icefield to its confluence with the Miette River. Protection as a national park has ensured that the river routes and landscapes surrounding these transportation corridors have changed little in appearance from the historical period.

Within the park, the river is tied to three national historic sites (NHS) and a national historic event (NHE):

- Athabasca Pass NHS: part of the main fur trade route between Canada and the Oregon Country.
- Jasper House NHS: the archaeological remains of a historical provision post that supplied fur trade brigades crossing the mountains to the ocean.

- Yellowhead Pass NHS: an important travel route for Indigenous peoples and historically for fur traders. Today, it is a major transportation route.
- Henry House NHE: a historical fur trade post that became an important staging point for the difficult traverse through the Athabasca Pass.

Management statements that guide Parks Canada's management of the three historic sites were completed in 2017.

The Athabasca River is meaningful to Indigenous peoples, not only as a transportation route and part of a resource-rich landscape, but also culturally and spiritually. Over twenty Indigenous groups have traditional territories that include parts of what is now Jasper National Park.

Spotlight on: Indigenous engagement

Jasper National Park is committed to working towards reconciliation with the more than twenty Indigenous groups who have historical connections to the park. Through the Jasper Indigenous Forum (Forum) and various working groups of the Forum, Parks Canada and partners collaborate on issues related to park management and operations, Indigenous accessibility and inclusion, and returning Indigenous knowledge and practices to the landscape.

In 2012, Parks Canada and the Forum established a Cultural Use Area near the confluence of the Maligne and Athabasca rivers. A site blessing and powwow was held in August 2012 to initiate the dedication of the site. The primary purposes of the Cultural Use Area are: physical, spiritual and cultural reconnection and healing; education in traditional practice (particularly for youth); rebuilding relationships with Jasper National Park; and engaging in traditional practice in a pristine and private area. The site is closed to the general public to ensure privacy.

Jasper National Park worked with the Upper Athabasca Valley Elders Council (Council) on Parks Canada's Changing Relationships: People of the Upper Athabasca Valley Project, part of a five-year national initiative (2010-2015) celebrating Métis heritage in Canada's national parks. The Council is made up of descendants of the Moberly, Joachim and Findlay families who homesteaded in the Upper Athabasca Valley along the Athabasca River until they were forced to leave Jasper in 1910 after the park's creation. As part of the project, interpretive panels were placed at homestead sites along the Athabasca River to increase visitors' understanding

of the history and cultural heritage of this important waterway. The Council revised the texts and design of the panels throughout the process and, to ensure an authentic voice, the content was written in both official languages and in Cree as translated by a descendant.

Educational programming offered at the Jasper National Park Palisades Stewardship Education Centre incorporates an Indigenous focus. The Centre has been offering an education module for grades 5-9, Teachings of the Mountain People (part of Parks Canada's Changing Relationships Project). The module focuses on Métis traditions through traditional knowledge and living off the land; the history of Jasper House NHS and the fur trade; the identity of Indigenous peoples with connections to Jasper; and homesteading in the Upper Athabasca Valley in the 19th century.



Children playing at the Cultural Use Area during the site blessing and powwow in August 2012, photo Parks Canada G. Deagle

Recreational Values

The Athabasca River supports a diverse array of recreational opportunities in Jasper National Park. At the river's headwaters in the Columbia Icefield, visitors can explore the glaciers via a commercially-operated motorized Ice Explorer tour, a guided glacier hike and other mountaineering and backcountry experiences. Activities on the water include rafting, canoeing, kayaking and angling. Along the riverside, visitors and residents hike and bike along the trails, observe wildlife and beautiful scenery, and picnic at the many day use areas.

Commercial rafting companies offer short excursions on the river, and Parks Canada provides many staging areas for noncommercial canoeing and kayaking. Parks Canada has noted increased use of recreational watercraft such as canoes, kayaks and stand up paddle boards in the last decade. Although angling can be challenging on the river, access is easy and there are many locations from which to choose.

There are several places where visitors to Jasper can stay overnight alongside the river. Three road-accessible campgrounds—Wapiti, Wabasso and Kerkeslin—and five outlying commercial accommodations are located beside the river. The Snaring and Snaring Overflow campgrounds are located at the junction of the Snaring and Athabasca rivers. The road-accessible Whirlpool Winter Hub and Campground provides a basecamp for winter adventures like snowshoeing and cross-country skiing, where visitors can warm up, have a picnic or camp under the stars beside the frozen Athabasca and Whirlpool rivers. Two backcountry campgrounds located on the upper reaches of the river, Big Bend and Athabasca Crossing, are accessed on foot via the Chaba Trail. The Athabasca Island backcountry campground is only accessible by boat.



Family walking along Athabasca River,
photo Parks Canada D.McDonald



Parking area along Jasper Lake, photo Parks Canada J. Orfald-Clarke

Spotlight on: upgrades to Parks Canada infrastructure

Well-maintained infrastructure is key to providing a positive experience for visitors to access the Athabasca River safely and enjoyably. As part of the national Parks Canada Federal Infrastructure Investment (FII) Program, Jasper National Park undertook an infrastructure renewal program from 2015 to 2021. Construction activities in the park were part of the largest investment in infrastructure in Parks Canada's history. FII projects directly associated with the Athabasca River included repairs to Trail 7, which has scenic views and rest stops located along the river, and reconstruction of the Athabasca East and West bridges on Highway 16 (Yellowhead).

In addition to the infrastructure program of work, ongoing maintenance of roads, bridges, trails, campgrounds and day use areas has continued to ensure that visitors are able to appreciate the river in a variety of ways. As part of general park maintenance activities, the Snaring Overflow Campground, Athabasca Island Backcountry Campground and the special-event Athabasca Day Use Area were upgraded. Parks Canada

also completed work on the Overlander Trail (a 15.5 km trail adjacent to the Athabasca River that passes by historical homestead sites) and repairs to the stairs at Old Fort Point that lead to the Canadian Heritage Rivers System plaque.

Jasper Lake, a wide part of the Athabasca River between the townsite and the park's eastern boundary, has become increasingly popular with visitors as a wading location. In 2019, Parks Canada widened Highway 16 at Jasper Lake to create turning lanes and a parking area. Delineated parking helps to encourage people to stay in designated visitor zones and away from the ecologically sensitive sand dune system at Jasper Lake. Other infrastructure work to ensure a quality visitor experience while improving ecological integrity included the repair or replacement of eight vehicle bridges along the Highway 16 corridor, two on the Athabasca River and the others on adjacent tributaries. The removal of deck drains on the bridges to direct run-off into ditches and not into the river and tributaries was a significant environmental improvement.

Changes and threats to natural, cultural and recreational values since designation

The table below presents changes, both positive and negative, and threats to the natural, cultural and recreational values that have been observed since the last ten-year report, and identifies how they are being addressed. Issues highlighted for further discussion are presented following the table.

Natural, cultural or recreational value Description of change in value	Reason for change (e.g. threat, stressor, management action)	Actions taken in response
<p>Natural Value – Aquatic Ecosystems</p> <p>Potential threat identified. No change in natural value to date.</p>	<p>Whirling disease, quagga mussels and zebra mussels are three aquatic invasive species whose distributions are moving closer to the Athabasca watershed. No evidence of these invasive species has yet been found in Jasper National Park. These species have the potential to cause significant impacts to the ecological integrity of the Athabasca River watershed.</p>	<ul style="list-style-type: none"> • Parks Canada has a comprehensive ecological monitoring program which measures the river fish community, including species diversity, fish density, sucker proportion, keystone species proportion and native trout proportion of the Athabasca River. In 2018, this measure was assessed as “Good” and “Improving.” • Parks Canada is working with the Province of Alberta to produce an aquatic invasive species prevention plan to improve public awareness about decontaminating recreational watercraft and equipment prior to use. • Decontamination protocols are in place for Parks Canada and contractors working in Jasper National Park. • Interpretive programming by Parks Canada now includes information about diseases that can affect park ecosystems and the importance of the “clean/drain/dry” message. • Parks Canada repaired or replaced eight vehicle bridges along the Highway 16 corridor, two on the Athabasca River and the others on adjacent tributaries. The removal of deck drains on the bridges to direct run-off into ditches and not into the river and tributaries was a significant environmental improvement.
<p>Natural Value – Terrestrial Ecosystems</p> <p>Negative impact on natural values.</p>	<p>A mountain pine beetle infestation has significantly changed forests in the Athabasca watershed. The scenic forested landscape of Jasper National Park now contains a high percentage of standing “red and dead” lodgepole pine.</p> <p>Mass lodgepole pine die-off increases wildfire risk, creates hazards for public safety and impacts long-term forest succession. Significant pine tree mortality may have consequences for aquatic ecosystems as runoff volumes and sedimentation increase.</p> <p>Warmer winters and a lack of fire on the landscape over the past century allowed the mountain pine beetle to reach unnaturally high population levels, although cold spells in the winter of 2018-19 and 2019-20 brought high beetle mortality.</p>	<ul style="list-style-type: none"> • Parks Canada has a comprehensive ecological monitoring system which studies the state of forest ecosystems. In 2018, this measure was assessed as “Fair.” • Parks Canada has been working to ensure that fire remains the dominant natural process shaping the terrestrial ecosystem by implementing a program of prescribed fires in the park. • Parks Canada is working to develop new tools, such as advanced vegetation mapping, to understand forest change and its potential impacts on other ecosystem components. • A working group was formed in 2015 (Parks Canada, Natural Resources Canada, Canadian Forest Service and the Province of Alberta) to conduct surveillance and develop an action plan. • In 2016, Parks Canada completed and began implementing the <i>Mountain Pine Beetle Management Plan</i> for Jasper National Park.

Natural, cultural or recreational value Description of change in value	Reason for change (e.g. threat, stressor, management action)	Actions taken in response
<p>Natural Value – Rare Animal Species</p> <p>Negative impact on natural values</p>	<p>Rare fish species listed as endangered and threatened in the Athabasca River:</p> <ul style="list-style-type: none"> Athabasca rainbow trout: added to Schedule 1 of the Species at Risk Act as Endangered in 2019. Bull trout (Saskatchewan-Nelson Rivers population): added to Schedule 1 of the <i>Species at Risk Act</i> as Special Concern in 2019. Pygmy whitefish: Threatened in Alberta 	<ul style="list-style-type: none"> Jasper National Park worked with federal and regional agencies and partners to complete recovery strategies and delineate critical habitat for Athabasca rainbow trout and bull trout in 2020. Parks Canada participates in regional recovery initiatives for pygmy whitefish, bull trout and Athabasca rainbow trout. Provincial recovery strategies for native Athabasca rainbow trout and pygmy whitefish were approved in 2014. The multi-stakeholder recovery committees are led by Alberta Sustainable Resource Development and include Parks Canada Agency representatives. Existing measures in park angling regulations, such as catch-and-release since 1995, and spring and autumn angling closures since 2004, ensure a high level of protection for fish species at risk.
<p>Natural Value – Geomorphology</p> <p>Negative impact on natural values</p>	<p>Field data shows the Athabasca Glacier has been receding and/or melting for the last 125 years. During that time, it has lost half its volume and retreated more than 1.5 km.</p> <p>Over the past three decades, human influences on climate change account for about 70 percent of glacier mass loss from 1991 to 2010 (Marzeion et al. 2014).</p> <p>Monitoring glacier changes improves our understanding of the effects on downstream ecosystems, and aids in the development of effective conservation and restoration strategies for aquatic ecosystems.</p>	<ul style="list-style-type: none"> Glacier specialists from the University of British Columbia conducted field measurement and satellite image analysis under contract to Parks Canada. The Parks Canada Glacier Gallery exhibits and panels along the Toe of the Glacier Trail help visitors understand and witness the impacts of climate change in a tangible way by displaying changes to the glacier.
<p>Cultural Value – Cultural Landscapes, Cultural Expression</p> <p>Positive impact on interpretation of cultural landscape and access to landscape for cultural expression</p>	<p>Increased interpretive programming related to the historical use of the river by Indigenous peoples and Métis homesteaders.</p> <p>Establishment of a Cultural Use Area for Indigenous partners close to where the Maligne and Athabasca rivers meet.</p>	<ul style="list-style-type: none"> People of the Upper Athabasca Valley Project: panels telling homesteaders' stories in English, French and Cree were installed at historical homesteads on the Athabasca River. Indigenous partners expressed interest in establishing a Cultural Use Area to carry out ceremonies, traditional gatherings, and group activities and teachings. The area is maintained by Parks Canada with the support and guidance of the Jasper Indigenous Forum, which is comprised of representatives from local Indigenous communities with historical connections to what is now Jasper National Park.
<p>Recreational Value – Extended canoe-tripping; whitewater, canoe, kayak and raft</p> <p>Positive impact on recreation value</p>	<p>Parks Canada has significantly invested in new infrastructure in Jasper National Park. Three hundred and twelve million dollars from the Federal Infrastructure Initiative was allocated to improving highways, campgrounds, trails and other infrastructure in the park between 2015 and 2021.</p> <p>Jasper National Park offers six road-accessible campgrounds along the Athabasca River, as well as a paddling campground at Athabasca Island. Brule Campground, which received very little use, was taken out of service in 2015.</p> <p>Five commercial companies offer short rafting excursions on the Athabasca River. There has also been increased use of recreational watercraft such as canoes, kayaks and stand up paddleboards in the last decade.</p>	<ul style="list-style-type: none"> Athabasca Island Campground, which supports overnight river trips, received significant infrastructure upgrades in 2015. Parks Canada provides many staging areas for noncommercial canoeing and kayaking.

Integrity guidelines

The Athabasca River continues to meet the integrity values for which the river was designated. Since the last ten-year monitoring report, the designation values have not been subject to substantial changes or threats.

Natural, cultural or recreational integrity value	Change in integrity value threat or stressor	Action(s) taken to address that
<p>The water in the nominated section is uncontaminated to the extent that its natural aquatic ecosystem is intact.</p>	<p>Potential threats to water quality include addition of nutrients from wastewater effluent and sedimentation, aquatic invasive species, and terrestrial/riparian habitat impacts from transportation and utility corridors in the watershed.</p>	<ul style="list-style-type: none"> • The <i>Jasper Community Sustainability Plan</i> (2011) outlines goals to address threats to water quality and promote water conservation and wastewater treatment targets. • A decade of restoration work has improved aquatic connectivity. • As measured in 2017, in the Athabasca watershed within Jasper National Park, 21 percent of all catchments are impacted by infrastructure, such as roads or train tracks. As of 2017, 61 percent of these affected areas have barrier-free crossings for fish. This marks a 5 percent improvement since 2005. • Parks Canada and Environment and Climate Change Canada have collaborated in a jointly funded water quality monitoring program in Jasper and Banff national parks since 1972.
<p>The natural aesthetic character of the nominated section is free of, or not adversely affected by, human developments.</p>	<p>Historical and ongoing effects on aquatic environments, water quality and the natural aesthetic character of the nominated section of the Athabasca River result from the presence of highways and a transnational railway; utilities, including a major oil pipeline; and a community, with outlying facilities to support ever-increasing tourism.</p>	<ul style="list-style-type: none"> • Ecological integrity is the first priority in Parks Canada’s decision-making about new developments, and the maintenance and operation of existing developments. Zoning, environmental and cultural impact assessments, and permitting are key tools for managing existing and new facilities and activities.

Discussion on threats to integrity values

Natural aquatic ecosystem

In the Athabasca watershed within Jasper National Park, 83 percent of the stream catchment area is free of any impact from railway tracks or roads. Localized water quality issues are monitored and the river as a whole continues to meet guidelines for water quality and aquatic connectivity (percentage of the water catchment area that is open to the passage of fish and aquatic species).

The quality of freshwater ecosystems is rated as “Good” with an “Improving” trend (*State of the Park Assessment*, 2018). Five measures of aquatic ecological integrity (amphibian occupancy, water quality, aquatic connectivity, stream and lake fish assessments) were assessed to determine the overarching freshwater indicator rating.

Water quality evaluated using the Canadian Aquatics Biomonitoring Network (CABIN) assessment at 30 sites in Jasper National Park (including in the Athabasca watershed) showed that the overall condition for surface water quality indicated by the benthic macroinvertebrate count is “Good.”

This national program describes patterns in water quality on many major rivers. Water quality index calculations from this program show “Good” values for the Athabasca River for the last twelve years.

Natural aesthetic character

In 2019, ATCO Electric replaced an isolated power generation facility with a 45 km power line connecting Jasper National Park to the provincial electrical system. The new transmission line follows existing utility and transportation corridors that parallel the Athabasca River for much of its route, with one major crossing over the river. Parks Canada worked with ATCO Electric to ensure that the design and alignment of the new electricity transmission line minimized adverse effects on the park and the Athabasca Canadian Heritage River, by locating the line along existing transportation and utility corridors. Decommissioning the isolated generating facility will remove a source of industrial noise and gas emissions from the park, near the river.

In 2019, the Government of Canada approved the Trans Mountain Expansion Project (TMX). In conjunction with TMX, Trans Mountain Corporation is completing a program of work to reactivate one of their two existing pipeline segments which passes through Jasper National Park. Parks Canada completed

an environmental assessment for Trans Mountain's proposed pipeline reactivation work in Jasper National Park, which took into consideration the matters that fall under Parks Canada's responsibilities and mandate.

Indigenous groups with an interest in Jasper National Park have been engaged on an ongoing basis by federal agencies and Trans Mountain during project planning and into implementation. Parks Canada is also participating in the Indigenous monitoring program established by the Government of Canada and implemented through the Indigenous Advisory and Monitoring Committee. Trans Mountain's pipeline reactivation work in Jasper National Park is expected to be completed in late 2022, and the pipeline will be returned into service when the TMX Project is completed and certified for operations.

In 2014, a small section of overhead ATCO power line along the Athabasca River, from Alpine Village to Marmot Turnoff, was upgraded and buried underground, improving the natural aesthetic character of that stretch of river.

Current status of management objectives, key actions and recommendations

The portion of the Athabasca River designated a Canadian Heritage River is located within Jasper National Park of Canada. Management of the Athabasca River as a Canadian Heritage River is directed by the *Canada National Parks Act*, the *Jasper National Park of Canada Management Plan*, and policies and guidelines specific to Jasper National Park.

Management objectives, key actions and recommendations for the Athabasca River are documented in the *Jasper National Park of Canada Management Plan* (2010) and *Jasper National Park State of the Park Assessment* (2018), the annual reports submitted to the Canadian Heritage Rivers System, and the 2011 Canadian Heritage Rivers decadal monitoring report. The management plan for Jasper National Park is under review and a new plan is expected to be finalized in 2021.

Direction for the management of the Athabasca River, outlined in the *Jasper National Park of Canada Management Plan* (2010), includes:

- Continue to implement the Guidelines for River Use Management in Jasper National Park and work with river users and service providers to improve river experiences.

- Raise the profile and celebration of the Athabasca Canadian Heritage River and strengthen monitoring and reporting.
- Take steps to eliminate or control aquatic invasive species and diseases, with a priority on the most invasive and the most likely to have lasting negative effects on terrestrial or aquatic ecosystems.
- Maintain aquatic ecosystems within their range of natural variability, for factors such as native species, water quality, water levels and flow regimes.

Additional recommended direction for future management of the Athabasca River based on this report:

- Maintain collaborative activities with stakeholders to support and strengthen the ecological integrity, cultural heritage and recreational opportunities of the river.
- Continue to improve awareness among Canadians and park visitors of the cultures, histories and stories of Indigenous communities with historical connections to Jasper National Park and the Athabasca River.



Athabasca River, photo Parks Canada.

Summary of benefits since designation and previous monitoring report

The location of the designated section of the Athabasca River within a national park ensures a high level of protection for its natural and cultural heritage, and a focus on providing recreational and learning opportunities. The Canadian Heritage Rivers System designation has helped to improve public interest in the Athabasca River and awareness of its nationally significant values.

Summary of benefits since the previous ten-year report

Benefit	Description
Improved knowledge	<ul style="list-style-type: none"> • Parks Canada staff are aware of the river's Canadian Heritage River status and opportunistically include messages about its heritage values in interpretive programs and outreach initiatives. • Funding through the Canadian Heritage Rivers Celebrate Canada 150 Program enabled the Jasper Yellowhead Museum and Archives to provide significant programming to raise river awareness among park residents and visitors. • The CHRS website and Story Maps project augment and complement information about river conservation and recreation provided on the Parks Canada website for Jasper National Park.

Overall assessment

As the Athabasca River flows from the glaciers of the Columbia Icefield to the northeastern boundary of Jasper National Park, it moves through all the ecoregions of the park, creating important wildlife habitats. It flows amid significant cultural and historical landscapes, and moves past locations that provide rest and recreation. The river's presence is a fundamental reason why human activity commenced and persisted in the region, and its continued importance is evidenced by its place at the centre of many issues facing Jasper National Park.

The previous two Canadian Heritage Rivers ten-year monitoring reports for the Athabasca River concluded that despite increases in environmental stressors, the river had remained in good condition since it was nominated in 1984. This report likewise concludes that there have been no significant changes to the values for which the river was

designated, and that the management direction given in the 2010 *Jasper National Park of Canada Management Plan* has been adhered to. Although global environmental change affects the watershed, active management has generated improvement on issues such as water quality, aquatic connectivity, recreational and transportation infrastructure, and interpretation of the river's human history.

Based on the findings of this report, the natural heritage, cultural heritage, recreational values and integrity guidelines of the Athabasca River are intact and largely unchanged since the river received Canadian Heritage River designation in 1989. The Athabasca River continues to meet the criteria for designation as a Canadian Heritage River and it is therefore recommended that the Athabasca River maintains its Canadian Heritage River designation.

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