

Multi-species Action Plan for the **Alberta At-risk Native Trout in Canada**



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For copies of the action plan or for additional information on species at risk, including Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status report, and other related recovery documents, please visit the [Species at Risk Public Registry](#).

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Preface

Under the *Species at Risk Act* (S.C. 2002, c.29) (SARA), the federal competent ministers are responsible for the preparation of action plans for species listed as extirpated, endangered, or threatened for which recovery has been deemed feasible. They are also required to report on progress 5 years after the publication of the final document on the [Species at Risk Public Registry](#).

The Minister of Fisheries and the Minister responsible for the Parks Canada Agency are the competent ministers under SARA for the Rainbow Trout (Athabasca River populations), Bull Trout (Saskatchewan – Nelson Rivers populations), and Westslope Cutthroat Trout (Alberta population). This action plan has been prepared by Fisheries and Oceans Canada (DFO) based on the recovery strategies, as per section 47 of SARA. In preparing this action plan, the Minister of Fisheries has considered, as per section 38 of SARA, the commitment of the Government of Canada to conserving biological diversity and to the principle that, if there are threats of serious or irreversible damage to the listed species, cost-effective measures to prevent the reduction or loss of the species should not be postponed for a lack of full scientific certainty. To the extent possible, this action plan has been prepared in cooperation with other government authorities as per subsection 48(1) of SARA.

As stated in the preamble to SARA, success in the recovery of these species depends on the commitment and cooperation of many different groups that will be involved in implementing the directions and actions set out in this action plan and will not be achieved by DFO and Parks Canada (PC), or any other jurisdiction alone. The cost of conserving species at risk is shared amongst different constituencies. Indigenous¹ (First Nations, Inuit, and Métis) partners and all Canadians are invited to support and participate in the implementation of this action plan for the benefit of the Rainbow Trout (Athabasca River populations), Bull Trout (Saskatchewan – Nelson Rivers populations), and Westslope Cutthroat Trout (Alberta population) and society as a whole.

As defined in SARA, an action plan provides detailed recovery planning actions that support the strategic direction set out in the recovery strategies for these species. The plan outlines recovery measures to be taken by DFO, other governments, jurisdictions, and/or organizations to help achieve the population and distribution objectives identified in the recovery strategies. Implementation of this action plan is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations.

Acknowledgments

This action plan was prepared by Fisheries and Oceans Canada (DFO). To the extent possible, this action plan has been prepared with inputs from Parks Canada and other government authorities. DFO would also like to express its appreciation to all individuals and organizations who have contributed to the recovery of the Rainbow Trout (Athabasca River populations), Bull Trout (Saskatchewan – Nelson Rivers populations), and Westslope Cutthroat Trout (Alberta population).

¹ “Indigenous” used here and throughout the action plan recognizes First Nations, Inuit, and Métis as 3 distinct groups of Indigenous Peoples.

Executive summary

Rainbow Trout (Athabasca River populations), Bull Trout (Saskatchewan – Nelson Rivers populations), and Westslope Cutthroat Trout (Alberta population) were listed on schedule 1 of the *Species at Risk Act* (SARA) as endangered in 2019, threatened in 2019, and threatened in 2013, respectively.

The main threats facing these species described in sections 5 of the Athabasca Rainbow Trout and Bull Trout recovery strategies, and in part 2, section 3 of the Westslope Cutthroat Trout recovery strategy and action plan include:

- habitat loss and/or degradation (including fragmentation)
- human-induced mortality (for example, fishing-related mortality)
- interaction with other species (for example, hybridization and competition)

Climate change is also a threat to these species, reducing suitable habitat and increasing risks such as the spread of non-native species, pathogens, diseases, and displacement by warmer-water species. Actions included in this plan may help strengthen the species' resilience to these climate-related impacts.

This "Multi-species Action Plan for the Alberta At-risk Native Trout in Canada" (action plan) outlines measures that provide the best chance of achieving the population and distribution objectives for these species, including the measures to be taken to address the threats and monitor these species' recovery. The population and distribution objectives for Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout are outlined in the species' respective recovery strategies (DFO 2020b, 2020c, 2019).

Section 1.3 of this action plan outlines the measures to be taken to implement the recovery strategies of the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout to reduce threats, improve knowledge of population genetics, recover and monitor populations, restore habitat, and improve awareness of the species.

For the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout, critical habitat was identified in the recovery strategies to the extent possible, using the best available information, and describes the functions, features, and attributes necessary to support the species' lifecycle processes. This action plan does not identify additional critical habitat.

An evaluation of the socio-economic costs of implementing the action plan and the benefits to be derived from its implementation is provided in section 3.

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1 Recovery actions

1.1 Context and scope of the action plan

This multi-species action plan encompasses 3 species: the Rainbow Trout (*Oncorhynchus mykiss*), (Athabasca River populations; herein Athabasca Rainbow Trout), the Bull Trout (*Salvelinus confluentus*), (Saskatchewan – Nelson Rivers populations), and the Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*), (Alberta population). Athabasca Rainbow Trout were listed as endangered under schedule 1 of the *Species at Risk Act* (SARA) in 2019, Bull Trout (Saskatchewan - Nelson Rivers populations), were listed as threatened in 2019, and Westslope Cutthroat Trout (Alberta population) were listed as threatened in 2013. This multi-species action plan is part of a series of documents that are linked and should be taken into consideration together, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status reports ([COSEWIC 2012](#), [2014](#), [2016](#), [2025](#)), the science advisory reports from the recovery potential assessment ([DFO 2017](#), [2018a](#), [2020a](#)), the Recovery Strategy for the Rainbow Trout (*Oncorhynchus mykiss*) in Canada (Athabasca River populations; [DFO 2020b](#)), the Recovery Strategy for the Bull Trout (*Salvelinus confluentus*), Saskatchewan - Nelson Rivers populations ([DFO 2020c](#)), and the Recovery Strategy and Action Plan for the Westslope Cutthroat Trout (*Oncorhynchus clarkii lewisi*) Alberta population (also known as Saskatchewan-Nelson River populations) in Canada ([DFO 2019](#)). Under SARA, an action plan provides detailed recovery planning measures that support the strategic direction set out in a recovery strategy for the species. The recovery strategies also provide background information on the species' threats and critical habitat.

This action plan uses a multi-species approach, given that the at-risk native trout of Alberta face numerous similar threats on the landscape of the Eastern Slopes. This approach addresses the overlapping strategies for recovery of the at-risk native trout in Alberta. The intersecting distribution between Athabasca Rainbow Trout and Bull Trout, and between Westslope Cutthroat Trout and Bull Trout provides opportunities for collaborative restoration efforts. These 3 species are the only native trout that are considered at-risk in Alberta. Due to the risk that non-native (that is, introduced) fish pose, the plan focuses on protecting and restoring the native at-risk trout in Alberta.

Rainbow Trout is a salmonid species characterized by a silver body covered in black spots with a pink horizontal band. Rainbow Trout is native primarily to northeastern Siberia and western North America. In Canada there are only 3 drainages east of the continental divide known to contain native populations of Rainbow Trout: Peace, Liard, and Athabasca rivers. The Athabasca watershed populations of Rainbow Trout (that is, Athabasca Rainbow Trout) are not considered a distinct subspecies, but qualify as a single designatable unit (DU; COSEWIC 2014). Although not defined in the recovery strategy, the recovery area in which population and distribution objectives are being applied is the upper Athabasca watershed in west-central Alberta. Athabasca Rainbow Trout are uniquely adapted to small, cold, and unproductive headwater streams. There are 2 life history strategies observed within populations of Athabasca Rainbow Trout: “stream resident” and “river migrant”. “Stream residents” live in cold headwater streams, while “river migrants” live in the upper reaches of larger rivers and move into smaller streams for spawning.

Part of the salmonid family of fishes, the Bull Trout derives its name from its large head and jaws. In Canada, the distribution of Bull Trout is divided into 5 DUs: South Coast British Columbia populations, Western Arctic populations, Upper Yukon Watershed populations,

Saskatchewan – Nelson Rivers populations, and Pacific populations (COSEWIC 2012, 2025). Bull Trout exhibit stream resident, migratory or fluvial (riverine), and adfluvial (riverine-lake migrant) forms. Bull Trout are olive-green to blue-grey in colour, and pale round spots on their flanks and back distinguish them from most other similar-looking salmonids. Another distinguishing characteristic of Bull Trout is the lack of black spots/markings on the dorsal fin or body. Because of its very specific habitat requirements, particularly cold, clean, well oxygenated water and connected watersheds, this fish is highly sensitive to habitat changes, and is therefore viewed as an indicator species of general ecosystem health. This action plan includes only the Saskatchewan – Nelson River populations of Bull Trout (herein Bull Trout). For Bull Trout, the area where the population and distribution objectives are being applied is called the recovery area and encompasses the Hydrologic Unit Code (HUC) 8s and HUC 12s in the Saskatchewan – Nelson River population where there is current, and evidence of historic, Bull Trout occupancy.

Westslope Cutthroat Trout is a salmonid species and the only subspecies of Cutthroat Trout native to Alberta. The most conspicuous character distinguishing Cutthroat Trout throughout its range in Canada is the presence of orange-red slashes beneath the lower jaw. In Canada, the distribution of Westslope Cutthroat Trout is divided into 2 DUs: Saskatchewan – Nelson Rivers populations, and Pacific populations (COSEWIC 2016). This action plan includes only the Saskatchewan – Nelson River populations of Westslope Cutthroat Trout (herein Westslope Cutthroat Trout). Historically, the Westslope Cutthroat Trout inhabited most streams in south-western Alberta from the alpine to the prairies. Currently, non-hybridized Westslope Cutthroat Trout occupy only a small fraction of the original Westslope Cutthroat Trout distribution and occur as small, disconnected populations. The recovery area in which the stream and lake populations will be prioritized is defined in the recovery strategy and action plan ([DFO 2019](#)). Considerable overlap in morphological and meristic (countable) characteristics exists between Cutthroat Trout and Rainbow Trout; however, Cutthroat Trout is distinguished by the orange-red slash beneath the jaw and the black spotting increasing at the posterior end and concentrating above the lateral line.

The main threats facing these species include:

- habitat loss and/or degradation (including fragmentation)
- human-induced mortality (for example, fishing-related mortality)
- interaction with other species (for example, hybridization and competition)

Climate change poses a threat to these species by reducing suitable habitat and increasing risks such as the spread of non-native species, pathogens, diseases, and displacement by warmer-water species. Changes in precipitation patterns, including more winter rain and less summer rainfall, could damage spawning and rearing habitats, with the greatest impact on populations at the edge of their range. Actions in this plan may help improve species and habitat resilience to its effects.

The population and distribution objectives for the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout are outlined in the species' respective recovery strategies (DFO 2020b, 2020c, 2019), and summarized in table 1 below.

Table 1: Population and distribution objectives for Rainbow Trout (Athabasca River populations; Athabasca Rainbow Trout), Bull Trout (Saskatchewan – Nelson Rivers populations; Bull Trout), and Westslope Cutthroat Trout (Alberta population; Westslope Cutthroat Trout).

Objective ID	Objective
1	To increase the number of self-sustaining, non-hybridized ² populations of Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout.
2	To protect, maintain, and enhance self-sustaining populations in their native ranges.
3	Identify/refine and protect critical habitat for non-hybridized and self-sustaining populations.
4	Improve knowledge of populations genetics, size, distribution, and trends.
5	Increase conservation education and awareness.
6	Determine the role that translocated non-hybridized trout may play in the recovery effort. Re-establish non-hybridized populations of Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout at sites within their historical range or suitable expansion/refuge areas that accommodate the diversity of their life history strategies in Alberta.

Strategic approaches proposed to address the identified threats and to guide appropriate research and management activities to meet the population and distribution objectives are discussed under the broad strategies of:

- management and regulatory actions
- outreach, education, and stewardship
- monitoring and assessment
- research

The implementation schedule, including the recovery measures outlined in this action plan, may be updated in the future through an amendment to this action plan or the development of another action plan, depending on the progress made towards recovery.

1.2 Actions already completed or currently underway

The importance of the at-risk native trout in Alberta has resulted in collaborative efforts to protect these species and their habitat. The Government of Alberta has published several

² Non-hybridized populations of Athabasca Rainbow Trout and Westslope Cutthroat Trout are those populations that each have an admixture coefficient (Q_i ; the proportion of an individual's fish genome that was inferred to be of indigenous origin) value greater than or equal to 0.99 on average. Non-hybridized populations are the focus for Athabasca Rainbow Trout and Westslope Cutthroat Trout as they are at high risk of hybridization. Introgression is not considered a high risk to Bull Trout in Alberta (Franks et al. 2025), and while hybridization may interact with other stressors to affect populations, non-hybridized populations are not currently defined as a recovery goal, though increasing self-sustaining populations with limited hybridization remains important.

provincial recovery plans for these species: [Alberta Athabasca rainbow trout recovery plan 2014-2019](#), [Alberta Bull Trout Recovery Plan](#), and the [Alberta Westslope Cutthroat Trout Recovery Plan 2012-2017](#). The Government of Alberta's Native Trout Recovery Program is a comprehensive, long-term conservation initiative aimed at assessing, recovering, and monitoring populations of at-risk native trout in the watersheds of the Eastern Slopes. It is guided by provincial and federal recovery plans and strategies using a multi-species approach. The Alberta Native Trout Collaborative, a group of partner organizations, worked to advance at-risk native trout recovery in Alberta via cumulative effects analysis, habitat restoration, conservation translocation, land use planning, watershed and fish population assessments, and public education. Indigenous partners have contributed to the continued success of recovery of at-risk native trout (for example, Blackfoot Confederacy's Native Trout Recovery Project; Piikani Nation's Restoring Habitat for Westslope Cutthroat Trout, Bull Trout, and Lake Sturgeon in Alberta, Canada). Parks Canada (PC) has completed multiple restoration projects for native trout recovery including non-native trout removal, stream flow restoration, assessment and prioritization of restoration locations, genetic analysis, and the reintroduction of Westslope Cutthroat Trout into their multiple waterbodies within their historic range. Previous and on-going partners in Alberta at-risk native trout restoration have included Alberta Environment and Protected Areas, Fisheries and Oceans Canada (DFO), Blackfoot Confederacy Tribal Council, Stoney Tribal Administration, University of Montana, Alberta Conservation Association, Freshwater Conservation Canada, Canadian Parks and Wilderness Society Southern Alberta (CPAWS), Alberta Energy Regulator, fRI Research, Cows and Fish (Riparian Management Society), Canadian Wildlife Federation (CWF), Alberta Backcountry Hunters and Anglers, Ghost Watershed Alliance, Calgary ATV Riders Association, Oldman Watershed Council, and other watershed planning and advisory councils.

The presence of native trout in the Eastern Slopes of Alberta has resulted in completed and on-going efforts to protect these species, outlined in brief below. For further details, refer to the [Report on the Progress of Recovery Strategy Implementation for the Westslope Cutthroat Trout \(*Oncorhynchus clarkii lewisi*\) Alberta Population \(also known as the Saskatchewan-Nelson Rivers Populations\) in Canada for the Period 2014 to 2019](#), [Implementation Report: Multi-species Action Plan for Banff National Park of Canada \(2017 to 2022\)](#), [Implementation report: Multi-species action plan for Waterton Lakes National Park of Canada and Bar U Ranch National Historic Site of Canada \(2017 to 2022\)](#), and the federal at-risk native trout recovery plans. Details on ongoing and forthcoming actions will be provided in future progress reports.

Research

Refined genetic diagnostic methods of measuring hybridization and genetic diversity of Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout have improved the accuracy and precision of estimates of hybridization with non-native trout throughout their respective ranges. Ongoing work to further refine and understand the genetic make-up of these species will help guide the management and protection of these populations, as well as determine sources and suitable locations for conservation translocations.

Monitoring and assessment

Ongoing assessments and monitoring are being conducted to understand fish composition and abundance at a watershed scale where the at-risk native trout were historically present, currently present, and to assess areas with the potential for expansion, and/or refugia. Assessments include (but are not limited to) population estimates, absolute and/or relative

abundance, distribution, population structure, genetic status, stream temperature, spawning and/or redd surveys, as well as abundance and distribution of non-native species. Feasibility studies of recovering existing populations within historical range or suitable expansion/refuge areas are being conducted to classify and prioritize existing populations. Habitat, habitat fragmentation, and sedimentation assessments are also being conducted to understand landscape and localized effects. Knowledge gaps in data-poor areas are being identified for further assessment. Monitoring the effectiveness of mitigation and restoration measures, such as habitat remediation, riparian rehabilitation, and trail reclamation, is an important aspect of ensuring the recovery of these species.

Management and regulatory actions

Multi-jurisdictional adaptive management and multi-disciplinary regulatory actions have resulted in increased protections for the at-risk native trout. The Government of Alberta's fisheries management strategy includes the following: the Fish Conservation and Management Strategy for Alberta; developing Fisheries Management Objectives; and using its Fish Sustainability Index. Provincial and federal (in the case of National Parks) angling restrictions, such as time of day restrictions, possession limits, or waterbody closures, have been implemented when required. Other regulatory actions have been implemented, such as the Government of Alberta's Watercourse Crossing Program that addresses fish habitat fragmentation and sedimentation by repairing and upgrading water crossings along roads, rails, and trails to reduce their impact on fish habitats and water quality.

DFO is developing a SARA compliance plan that uses a strategic and focused enforcement approach to help reach the population and distribution objectives outlined in the recovery strategies for the at-risk native trout. The compliance plan outlines specific enforcement actions or activities that can combat the threats to each species, and ensure compliance with the SARA. The plan also serves to clarify the compliance and enforcement roles and responsibilities of various programs within DFO.

The Government of Alberta's cumulative effects threats model (or "Joe" model) has been used to quantify threats to the at-risk native trout to create population-specific recovery action hypotheses to inform management actions. These hypotheses are applied in case studies. The model helps prioritize watersheds for recovery projects, and supports the development of tactical watershed plans using a multi-species approach. The Cumulative Effects Model for Prioritizing Recovery Actions (CEMPRA) is a cumulative effects modelling framework, which contains the Joe Model as a subcomponent. It helps prioritize recovery actions for data-limited species and species at risk, with the flexibility to accommodate both data-rich and data-poor study systems. CEMPRA has been applied to case studies of species, including Athabasca Rainbow Trout (Bayly et al. 2023).

Efforts to limit the spread of invasive and non-native aquatic species are improving through government regulations and the implementation of preventative measures. The Government of Alberta's "Clean, Drain, Dry" campaign and decontamination protocol were developed to discourage aquatic invasive species and limit whirling disease introductions. PC has implemented a risk-based prevention program including education and outreach, watercraft permitting, restrictions on watercraft use, and area closures. In addition, PC is collaborating with the Government of Alberta and the Canadian Food Inspection Agency to sample watersheds inside and outside of National Parks in Alberta and British Columbia to determine whirling disease presence/absence in these areas.

The removal of non-native fish species and/or hybridized trout and subsequent conservation translocation of at-risk native trout is being conducted and/or explored (for example, removal of Brook Trout in Banff National Park for Westslope Cutthroat Trout restoration).

Outreach, education, and stewardship

Education and outreach efforts have been widespread, promoting at-risk native trout recovery efforts. For example, fish identification and fish handling education efforts are aimed at reducing angling-related mortalities. The development and posting of signage near waterways to target off-highway vehicle users and along streams designated as critical habitat to target all users have aided in efforts to improve user awareness and change user behaviour to limit destruction of at-risk native trout and their habitat.

Information factsheets have been made available to the public to promote the importance of protecting at-risk native trout. At-risk native trout and habitat restoration workshops and events have been hosted by various partners to share information and promote on-the-ground stewardship actions.

The Native Trout Communication Collaborative, part of the Alberta Native Trout Collaborative, developed an educational website and outreach materials. The Collaborative also attended events to share information and promote native trout recovery. Stewardship activities across the Eastern Slopes have benefited at-risk native trout through the restoration of degraded habitats and water quality. At-risk native trout and other fish species are considered and protections are implemented through provincial land use planning, processes, and practices.

PC launched a suite of outreach activities to highlight restoration work for native at-risk trout, including public presentations, social media, trail signage and interpretive programs at campgrounds and schools, guided hikes, and other non-personal media.

1.3 Measures to be taken to implement the recovery strategies

Successful recovery of these species is dependent on the actions of many different governments (both Indigenous and non-Indigenous), jurisdictions, industries, non-governmental organizations, and Canadians in general. It requires the commitment and cooperation of all those that will be involved in implementing the directions and measures set out in this action plan.

This action plan describes the measures that provide the best chance of achieving the population and distribution objectives for the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout, including measures to be taken to address threats to these species and monitor their recovery. These measures guide activities to be undertaken by DFO, and those for which other governments, jurisdictions, organizations, and individuals have a role to play. As new information becomes available, these measures and the priority of these measures may change. DFO strongly encourages Indigenous partners and all Canadians to participate in the conservation of the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout by undertaking measures outlined in this action plan.

The current Multi-Species Action Plan for Banff National Park, the Multi-Species Action Plan for Waterton Lakes National Park of Canada and Bar U Ranch National Historic Site of Canada, and the Multi-Species Action Plan for Jasper National Park and forthcoming amendments will

identify the recovery measures for Westslope Cutthroat Trout, Bull Trout and Athabasca Rainbow Trout that will be implemented and reported on in these protected heritage places.

Table 2 identifies the measures to be undertaken collaboratively between DFO and its partners including other governments, agencies, organizations, or individuals to support the recovery of the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout. Implementation of these measures will be dependent on a collaborative approach, in which DFO is a partner in recovery efforts, and may offer leadership in coordinating collaboration. However, DFO cannot implement the measures alone. Indigenous partners and all Canadians are invited to join in supporting and implementing the action plan for the at-risk native trout in Alberta for the benefit of these species and society as a whole.

Federal funding programs for species at risk that may provide opportunities to obtain funding to carry out some of the outlined activities include the [Habitat Stewardship Program for Aquatic Species at Risk](#) and the [Aboriginal Fund for Species at Risk](#). We encourage our partners to apply when appropriate.

The measures included in this action plan and that are to be implemented by DFO will be subject to the availability of funding and other required resources. As indicated in the table below, partnerships with other governments, agencies, organizations, or individuals will provide expertise and capacity to carry out some of the listed recovery measures. The identification of partners is intended to highlight opportunities for collaboration, recognizing that carrying out these actions will be subject to each partner's priorities and budgetary constraints.

1.3.1 Implementation schedule

Table 2. Recovery measures to be undertaken collaboratively between Fisheries and Oceans Canada and its partners for the Rainbow Trout (Athabasca River populations), Bull Trout (Saskatchewan – Nelson Rivers populations), and Westslope Cutthroat Trout (Alberta population).

#	Broad strategy	Recovery measure	Priority ³	Objective ID addressed ⁴	Status/timeline ⁵	Lead and partner(s)
1	Management and regulatory actions	Develop (or refine) and implement regulatory guidance to address main threats (for example, under the <i>Fisheries Act</i> and the <i>Species at Risk Act</i>).	Medium	1 and 2	Ongoing; short term planning, long term to implement	Fisheries and Oceans Canada (DFO), others
2	Management and regulatory actions	Apply cumulative effects considerations to manage effects of resource extraction, land, and water use (for example, following DFO 2022, 2025).	High	1 and 2	Ongoing; short term planning, long term to implement	DFO, others
3	Management and regulatory actions	Ensure Alberta's at-risk native trout conservation and protection issues are identified and prioritized in land use plans and resource management plans for all regions that intersect with the recovery areas.	Medium	1 and 2	Ongoing; short term planning, long term to implement	DFO, others

³ "Priority" reflects the degree to which the measure contributes directly to the recovery of the species or is an essential precursor to an approach that contributes to the recovery of the species:

- "High" priority measures are considered likely to have an immediate and/or direct influence on the recovery of the species
- "Medium" priority measures are important but considered to have an indirect or less immediate influence on the recovery of the species
- "Low" priority measures are considered important contributions to the knowledge base about the species and mitigation of threats

⁴ Objectives are the population and distribution objectives referenced in table 1 in section 1.1.

⁵ The status indicates whether it is a new measure or whether it is already being implemented (that is "Ongoing"). The timeline required to implement each measure is approximated as follows: short term (less than 5 years), long term (more than 10 years) and should be interpreted based on the publication date of the final action plan.

#	Broad strategy	Recovery measure	Priority ³	Objective ID addressed ⁴	Status/timeline ⁵	Lead and partner(s)
4	Management and regulatory actions	Assess current rule applications and processes within departments and across jurisdictions (for example, municipal, provincial, federal) to review regulations, implementation, planning, guidelines, and compliance monitoring used to manage human-caused priority threats (for example, habitat loss and degradation, fishing-related mortality). If there are gaps or areas for improvement, develop and implement options to address them.	Medium	1 and 2	Ongoing; short term	DFO, others
5	Management and regulatory actions	Protect aquatic and riparian habitat and prioritize areas of degraded habitat that require restoration by: • ensuring compliance with all relevant federal and provincial acts aimed at protection of aquatic and riparian habitats • maintaining regulatory measures (for example, under the <i>Fisheries Act</i>) to ensure both sedimentation and fragmentation are managed effectively • maintaining natural stream flow and temperature regimes (for example, through spatial stream network modelling) • identifying and decreasing the number of point sources and legacy infrastructure contributing to sedimentation, contaminant and nutrient loading (for example, selenium and phosphorus), and water quality degradation and reversing the trends of degradation from non-point sources (for example, roadways, stream crossings, unmanaged grazing) • closing industrial roads to public access, adding signage and developing a compliance plan, and when feasible, ensuring new roads are not developed close to at-risk native trout streams	High	1 and 2	Ongoing; short term planning, long term to implement	DFO, others

#	Broad strategy	Recovery measure	Priority ³	Objective ID addressed ⁴	Status/timeline ⁵	Lead and partner(s)
6	Management and regulatory actions	Prepare a priority list of waterbodies where suppression or removal of non-native species and/or a genetic recovery may be feasible. Based on this list, conduct suppression, removal, and conservation translocation projects on candidate waterbodies and evaluate effectiveness through monitoring (for example, following DFO 2023).	High	1, 2, 6	Ongoing; short term for priority list but long term to implement	DFO, others
7	Management and regulatory actions	Develop recovery implementation group(s) made up of Government of Canada, other government agencies, stakeholders, and First Nations, Inuit, and Métis rightsholders to assist in the development and implementation of watershed restoration projects. To the extent possible, implementation will be integrated with all 3 at-risk native trout species and be coordinated with other watershed conservation activities.	Medium	1 and 3	Ongoing; short term to develop, long term to implement	DFO, others
8	Management and regulatory actions	Address fragmentation due to human-caused barriers by: - identifying and addressing problematic stream crossings, linear disturbances, and other barriers to fish passage (for example, through compliance monitoring) - working with partners and government agencies to inspect, remove, or remediate existing barriers and ensure there is a common understanding of the priority of fish passage issues - identifying migratory routes for fluvial at-risk native trout and addressing barriers to fish passage	High	1, 2, 3	Ongoing; short term to develop, long term to implement	DFO, others
9	Management and regulatory actions	Review current studies on climate change specific to the range of the 3 at-risk native trout species and determine how recommendations from these studies can be incorporated into future recovery efforts	Low	1, 2, 5	Ongoing; short term	DFO, others

#	Broad strategy	Recovery measure	Priority ³	Objective ID addressed ⁴	Status/timeline ⁵	Lead and partner(s)
10	Outreach, education, and stewardship	Identify unengaged or underserved audiences, assess their potential roles in action plan delivery, and tailor outreach to clearly communicate the importance of conserving non-hybridized ⁶ at-risk native trout. Review and refine existing outreach materials, prioritize and expand effective outreach methods (for example, social media, community meetings, workshops, signage), and use adaptive management to revise or develop outreach materials based on effectiveness.	Medium	5	Ongoing; short term to develop, long term to implement	DFO, others
11	Outreach, education, and stewardship	Develop and deliver an at-risk native trout conservation outreach and education program for federal regulators, provincial regulators, and partner agencies that regulate land use in at-risk native trout areas. The conservation status, recovery documents, and implications of the federal <i>Species at Risk Act</i> will be used to communicate the need to accommodate the needs of at-risk native trout in Alberta's land management system.	Medium	5	Ongoing; short term planning, long term to implement	DFO, others

⁶ Non-hybridized populations of Athabasca Rainbow Trout and Westslope Cutthroat Trout are those populations that each have an admixture coefficient (Q_i ; the proportion of an individual's fish genome that was inferred to be of indigenous origin) value greater than or equal to 0.99 on average. Non-hybridized populations are the focus for Athabasca Rainbow Trout and Westslope Cutthroat Trout as they are at high risk of hybridization. Introgression is not considered a high risk to Bull Trout in Alberta (Franks et al. 2025), and while hybridization may interact with other stressors to affect populations, non-hybridized populations are not currently defined as a recovery goal, though increasing self-sustaining populations with limited hybridization remains important.

#	Broad strategy	Recovery measure	Priority ³	Objective ID addressed ⁴	Status/timeline ⁵	Lead and partner(s)
12	Outreach, education, and stewardship	Establish education and outreach messaging and programming to promote a high standard of practice for recreational activities in at-risk native trout habitat (for example, catch-and-release angling, off-highway vehicle use). Increase recreational user knowledge pertaining to at-risk native trout species (for example, biology, species identification, threats, regulations, recovery measures), and of reporting systems for invasive species. Deter illegal activities using enhanced education and enforcement. Promote recreational best management practices that are coordinated and co-delivered with partners.	High	2 and 5	Ongoing; short term planning, long term to implement	DFO, others
13	Monitoring and assessment	Continue to monitor for whirling disease, emerging invasive species, parasites and other diseases. Complete a risk analysis to better understand and characterize the threat of whirling disease.	High	1, 2, 3, 6	Ongoing; long term	DFO, others
14	Monitoring and assessment	Monitor populations spatially and temporally for changes in population status to evaluate the efficacy of recovery measures or to improve knowledge of the species. Depending on the population and existing knowledge, monitoring may include population estimates, absolute and/or relative abundance, distribution, population structure (for example, size-frequency distribution, life history stage), genetic status, as well as abundance and distribution of non-native species.	High	1, 2, 3, 4	Ongoing; long term	DFO, others

#	Broad strategy	Recovery measure	Priority ³	Objective ID addressed ⁴	Status/timeline ⁵	Lead and partner(s)
15	Monitoring and assessment	Using standardized sampling techniques and genetic analysis, conduct surveys to characterize the genetic structure, gene flow, hybridization, and status of populations in the species' original distribution. Consideration will be applied to areas with no or incomplete information to determine whether additional populations exist within their original distribution.	Medium	4	Ongoing; long term	DFO, others
16	Research	Conduct research to better characterize fishing effort in at-risk native trout habitat and understand the impact of catch-and-release fishing on at-risk native trout. Use population/spatial modelling to inform outcomes of sportfishing regulation options.	High	4 and 5	Ongoing; long term	DFO, others
17	Research	Classify and prioritize existing stream and lake populations according to status of threats and determine where populations can be restored, improved, re-established, or expanded. Determine how threat elimination and mitigation might contribute to an increase in non-hybridized populations that are sustainable and resilient (including thermally resilient). Examine the feasibility of implementing conservation translocation following guidance outlined in DFO 2023.	High	1, 3, 4, 6	Ongoing; short term	DFO, others

2 Critical habitat

2.1 Identification of the species' critical habitat

2.1.1 General description of the species' critical habitat

Critical habitat is defined in SARA as "... the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species." [subsection 2(1)]

Also, SARA defines habitat for aquatic species as "... spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced." [subsection 2(1)]

Critical habitat for Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout is identified in the species' recovery strategies, and in section 4.3 of the Westslope Cutthroat Trout recovery strategy and action plan. The recovery strategies also contain details about the identified critical habitat including geographic location and biophysical functions, features, and attributes.

2.2 Activities likely to result in the destruction of critical habitat

Examples of activities likely to result in destruction of critical habitat may be found in section 8.3 of the Athabasca Rainbow Trout and Bull Trout recovery strategies, and section 4.3 of the Westslope Cutthroat Trout recovery strategy and action plan.

2.3 Measures to protect critical habitat

Under SARA, critical habitat must be legally protected within 180 days of being identified in a final recovery strategy or action plan and included on the Species at Risk Public Registry.

For the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout, critical habitat has been identified in the recovery strategy or recovery strategy and action plan, and protected by a SARA critical habitat order made under subsections 58(4) and (5), [Critical Habitat of the Rainbow Trout \(*Oncorhynchus mykiss*\) Athabasca River Populations Order](#), [Critical Habitat of the Bull Trout \(*Salvelinus confluentus*\) Saskatchewan-Nelson Rivers Populations Order](#), and [Westslope cutthroat trout \(*Oncorhynchus clarkii lewisi*\), Alberta: critical habitat order](#), which invoked the prohibition in subsection 58(1) against the destruction of the identified critical habitat.

For those areas of critical habitat located within Jasper National Park, Banff National Park, and Waterton Lakes National Park, descriptions of the critical habitat were published in the *Canada Gazette* pursuant to subsection 58(2). Ninety days following publication in the *Canada Gazette*, the subsection 58(1) prohibition against the destruction of the identified critical habitat was applied.

3 Evaluation of socio-economic costs and of benefits

SARA requires the competent ministers to undertake an evaluation of the socio-economic impacts of the action plan. The evaluation includes the socio-economic costs of the action plan and the benefits to be derived from its implementation (SARA paragraph 49(1)(e)). This evaluation addresses only the incremental impacts of 'new' recovery measures outlined in this action plan (that is, measures that have not yet been implemented), recognizing that not all aspects of its implementation are under the jurisdiction of the federal government. This evaluation does not address any 'underway' measures (that is, measures that were initiated or implemented prior to the development of the action plan but have not yet been completed) as they are not considered as incremental costs to the government and other partners (for example, research studies to identify critical habitat).

The protection and recovery of species at risk can result in both benefits and costs. The preamble to SARA recognizes that "wildlife, in all its forms, has value in and of itself and is valued by Canadians for aesthetic, cultural, spiritual, recreational, educational, historical, economic, medical, ecological and scientific reasons". Self-sustaining and healthy ecosystems with their various elements in place, including species at risk, contribute positively to the livelihoods and the quality of life of Indigenous Peoples and all Canadians. Actions taken to preserve a species, such as habitat protection and restoration, are also valued. In addition, the more an action contributes to the recovery of a species, the higher the value the public places on such actions (Loomis and White 1996; DFO 2008).

An estimate of the costs and benefits associated with this action plan are described below.

Since socio-economic impacts (costs and benefits) associated with critical habitat orders are considered in their regulatory processes, this action plan does not further assess them to avoid duplication. Under SARA, DFO must ensure that critical habitat identified in a recovery strategy or action plan is legally protected within 180 days of the final posting of the recovery strategy or action plan. Where a SARA critical habitat order will be used for critical habitat protection, the development of the order follows a regulatory process in compliance with the [Cabinet Directive on Regulation](#), including an analysis of any potential incremental impacts of the SARA critical habitat order that was included in the regulatory impact analysis statement ([Critical Habitat of the Rainbow Trout \(*Oncorhynchus mykiss*\) Athabasca River Populations Order: SOR/2021-31, Canada Gazette, Part II, Volume 155, Number 7](#); [Critical Habitat of the Bull Trout \(*Salvelinus confluentus*\) Saskatchewan-Nelson Rivers Populations Order: SOR/2021-31, Canada Gazette, Part II, Volume 155, Number 7](#); and [Critical Habitat of the Westslope Cutthroat Trout \(*Oncorhynchus clarkia lewisi*\) Alberta Population Order: SOR/2015-241, Canada Gazette Part II, Volume 149, Number 24](#)). As a consequence, no additional analysis of critical habitat protection has been undertaken for the assessment of costs and benefits of this action plan.

3.1 Socio-economic costs of implementing this action plan

The recovery measures of this plan are grouped under 4 broad strategies: 1) management and regulatory actions, 2) outreach, education, and stewardship, 3) monitoring and assessment, and 4) research. Costs would be incurred by lead agencies to implement the measures listed in the action plan, and by partners who choose to participate in the recovery measures. The present value of the overall costs of implementing this action plan, should all proposed recovery

measures be implemented, is anticipated to total approximately \$3.63M over a 3-year period⁷. However, implementation of the actions within this plan is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations. Costs would be incurred by the federal government to support the implementation of the activities listed in the action plan. In-kind costs, such as volunteer time, the provision of expertise, and equipment, would be incurred as a result of implementing activities listed in the action plan; however, these costs were not assigned a dollar value within the costing exercise due to uncertainty around the extent and intensity of the listed activities.

3.2 Socio-economic benefits of implementing this action plan

The benefits of recovery measures outlined in this action plan are difficult to quantify due to unknown level of outcomes but are believed to be generally positive. If implemented, stewardship programs to improve habitat conditions and reduce threats within the species' ranges could help to improve riverine habitat and lead to healthier watersheds through improved water quality. Healthy and healing ecosystems are vital to Indigenous Peoples' connection to the land, and the benefits of conserving habitat to maintain traditional cultural values are multi-faceted.

While challenging to quantify due to time and cost constraints, some non-market benefits could result from the successful implementation of recovery measures that could be enjoyed by Indigenous Peoples and the Canadian public. While these trout species are well known amongst the regional public, research (Rudd et al. 2016) found that Canadian households had positive and significant willingness to pay values for recovery actions that led to improvements, even for little known species at risk. This suggests that public support for conservation is not solely driven by familiarity with specific species, but reflects a broader value Canadians place on biodiversity conservation.

In the absence of information on biological outcomes of the measures identified in the action plan, it is not possible to estimate the incremental benefits that can be directly attributed to the implementation of the recovery measures. However, should the recovery measures lead to positive biological outcomes, some potential benefits could include increased opportunities related to recreational and sport fishing; job creation across relevant sectors, as well as contribution to social, cultural, or spiritual well-being of Indigenous Peoples.

3.3 Socio-cultural impacts on Indigenous Peoples

Indigenous Peoples who benefit from the at-risk native trout found within this multi-species action plan have made DFO aware that the conservation of these species and their ecosystems would have tremendous benefits for their communities.

Self-sustaining, healthy, and healing ecosystems and their components, including species at risk, contribute positively to the subsistence and the quality of life of Indigenous Peoples and all Canadians. Indigenous Peoples have lived on the land and have deep connections with it since time immemorial. Connection to the land and water is important for Indigenous Peoples, demonstrated by their interconnected and interdependent relationships with nature and

⁷ The present value of the total incremental costs of the Alberta Trout action plan was estimated with a discount rate of 7% over the 3 year period with a base year being 2024/25.

biodiversity. Having intact areas (for example, old-growth forests, undisturbed sections of waterbodies) where ceremony and learning tied to the land and water can be practiced and passed on is closely tied to community and individual well-being, mental and physical health, and can have social, cultural, spiritual, and economic significance for Indigenous Peoples. The acknowledgement of regional Indigenous Peoples regarding the importance of native trout has been well documented in the past (COSEWIC 2016, COSEWIC 2012, COSEWIC 2025; DFO 2018b; Siksikaitsitapi Blackfoot Confederacy 2021).

3.4 Distributional analysis

The Government of Canada will likely incur the majority of costs of implementing this action plan. Due to the unknown levels of recovery, it is not feasible to determine which socio-economic groups would benefit the most from these activities.

4 Measuring progress

4.1 Monitoring species' recovery

The performance indicators presented in sections 9 of the recovery strategies for Athabasca Rainbow Trout and Bull Trout provide a way to define and measure progress toward achieving the population and distribution objectives. For Westslope Cutthroat Trout, the recovery strategy and action plan did not include performance indicators; therefore, the progress towards achieving population and distribution objectives will be measured by the progress made under the approaches and studies in section 3 of the recovery strategy and action plan. The measures in this action plan will further increase our understanding of these species and their status and contribute to monitoring of the Athabasca Rainbow Trout, Bull Trout, and Westslope Cutthroat Trout in Canada. This monitoring information will be used to report on the performance indicators and progress towards recovery in future reports on the progress towards recovery strategy implementation.

4.2 Reporting on the implementation of the action plan

The Minister will monitor the implementation of the action plan, and progress towards meeting its objectives, by assessing progress towards completing the recovery measures identified in this action plan (under section 55 of SARA), and the Minister will report on the plan's implementation 5 years after it comes into effect. This information will be published in a report on the progress towards action plan implementation in 5 years and will be included in the [Species at Risk Public Registry](#).

4.3 Reporting on ecological and socio-economic impacts

Ecological impacts may be defined as changes in the structure or function of ecosystems. The assessment of ecological impacts may be limited to species, their immediate habitats, or general natural resource categories. The broader ecological impacts of the implementation of this action plan have been considered in its development. In order to report on the ecological impacts of implementation (under section 55 of SARA), monitoring data for one or more ecological components have been identified under the broad strategy of 'Monitoring' in table 2.

Reporting on the socio-economic impacts of the action plan (under section 55 of SARA) will be done by providing information on the costs incurred to implement the action plan. Note that

there may be additional impacts on Indigenous Peoples and their communities associated with some recovery measures. DFO will continue to work with Indigenous governments and partners to analyze the costs and benefits associated with ongoing and future recovery measures.

The Minister must assess and report on its ecological and socio-economic impacts 5 years after the plan comes into effect. This information will be published in a report on the progress towards action plan implementation in 5 years and included in the [Species at Risk Public Registry](#).

5 References

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Appendix A: record of cooperation and consultation

Action plans are to be prepared in cooperation and consultation with other governments, jurisdictions, organizations, affected parties, and others as outlined in the *Species at Risk Act* section 48. Fisheries and Oceans Canada (DFO) has utilized a process of engagement and recovery document review to seek input for the development of this action plan. Information on participation is included below.

Table 1. List of partners and stakeholder groups that DFO received input from for the development of the action plan for the Alberta at-risk native trout.

Partners and stakeholders
Parks Canada
Other government authorities
Swan River First Nation
Alberta Conservation Association
fRI Research
Freshwater Conservation Canada

In addition, consultation on the draft action plan occurred through an online feedback form, letters, meetings, and correspondence with partners and stakeholders.

Additional Indigenous, stakeholder, and public input was sought through the publication of the proposed document on the [Species at Risk Public Registry](#) for a 60-day public comment period held from March 26, 2026 to May 25, 2026. All feedback received was considered in the finalization of the action plan.