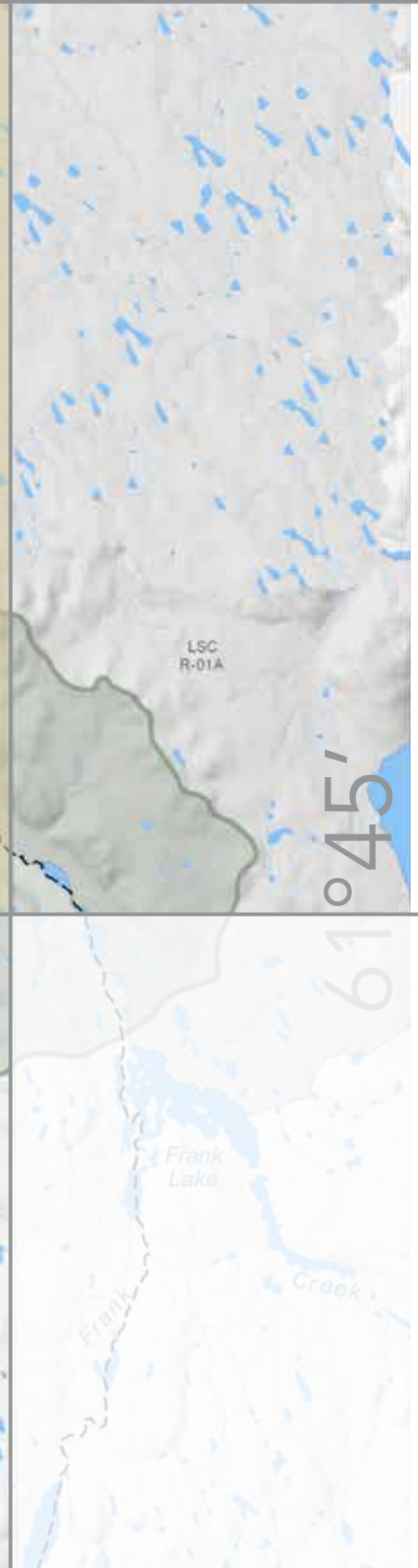
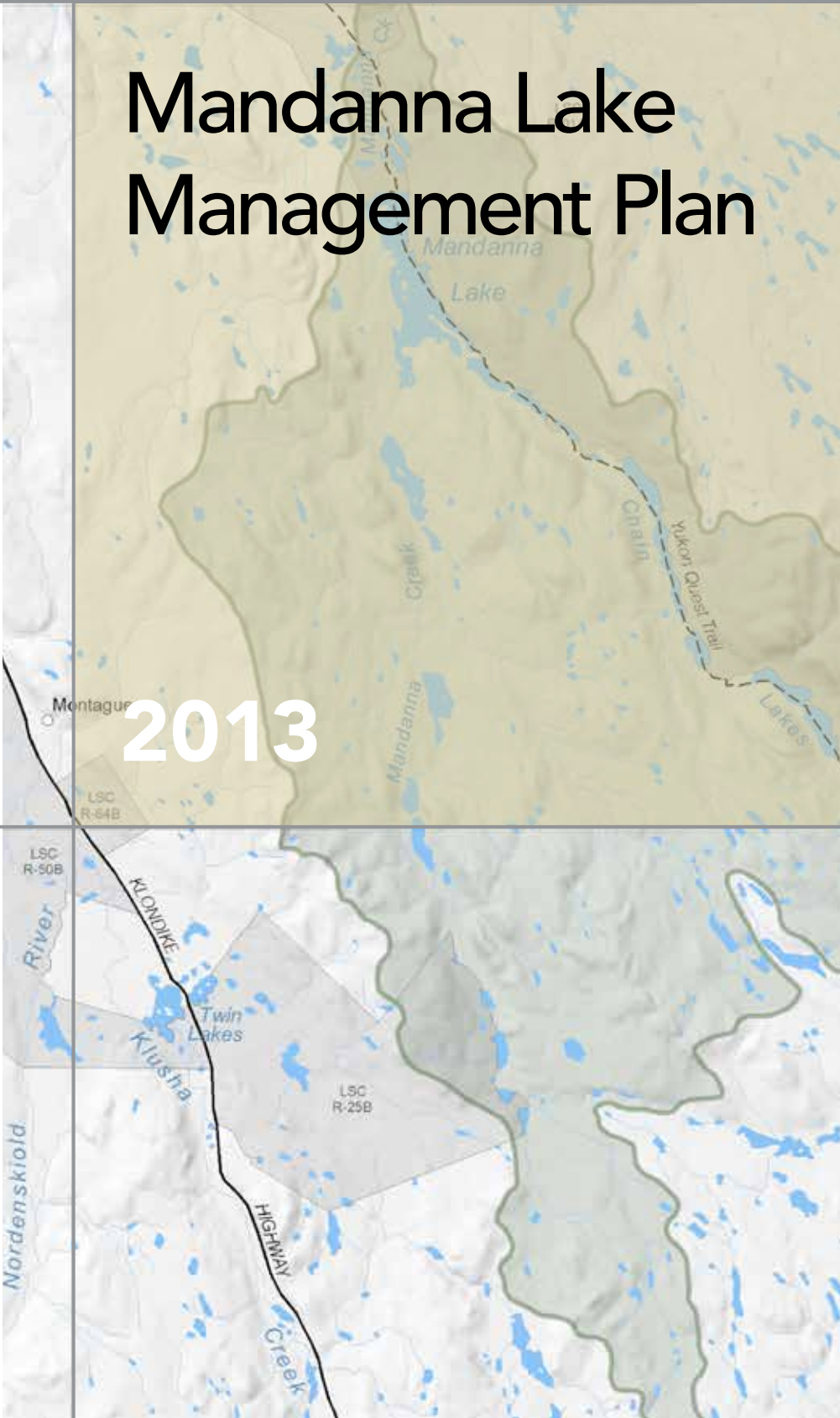
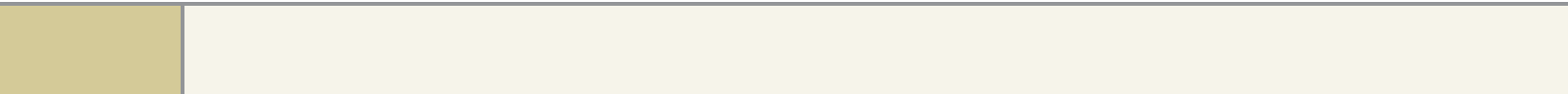
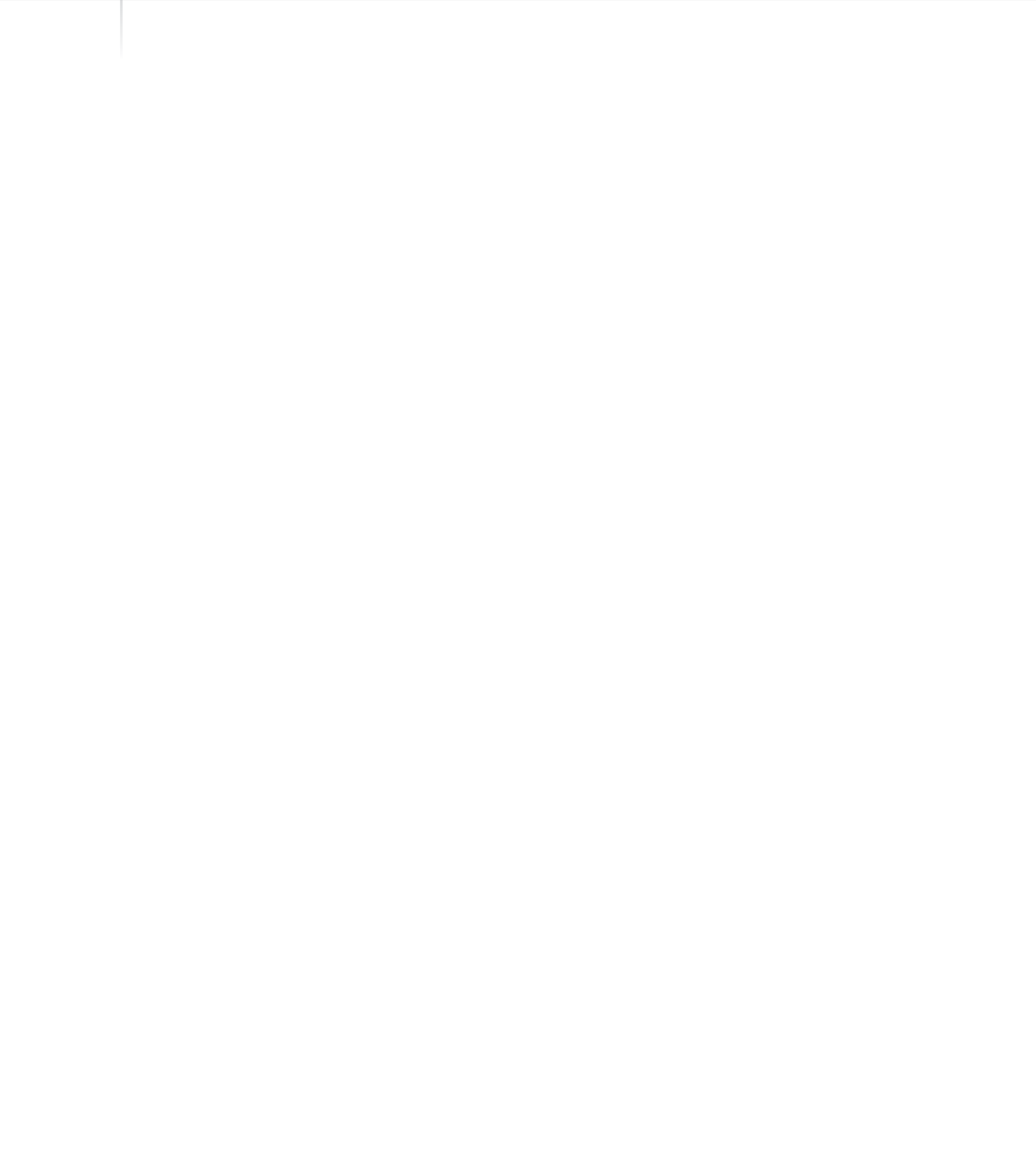


Mandanna Lake Management Plan

2013



61°45'



Mandanna Lake Management Plan

As prepared and updated by the Mandanna Lake Management Plan Steering Committee
and

As recommended by the Carmacks Renewable Resources Council
and

As approved by



Currie Dixon

Minister of Environment

Government of Yukon

Oct. 17, 2013

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Introduction

With the signing of the Little Salmon/Carmacks First Nation Final Agreement in 1997 the certainty of ownership and management of settlement lands and resources within the First Nation Traditional Territory was guaranteed by federal and territorial governments. As part of the agreement, Chapter 16 sets out the powers and responsibilities of governments and Yukon First Nations for the management of fish and wildlife. A fundamental objective is to ensure that conservation principles are included in the management of all fish and wildlife resources and their habitats, and to honour the harvesting rights and food needs of Yukon Indian Peoples.

The Little Salmon/Carmacks First Nation Final Agreement provides for special harvesting rights for Yukon Indian People, to maintain their food fish needs as priority over other uses. Included in this agreement is the designation of Mandanna Lake as a location where food fishing is priority. There is also a commercially operated camp for anglers on Mandanna Lake whose guests harvest fish from the lake.

In this context, a management plan for Mandanna Lake was prepared by the Steering Committee in 2003 following the provisions as set out in the Little Salmon/Carmacks First Nation Final Agreement. In 2010-11 the review of the fisheries management plan was updated using the original objectives. Schedule C of Chapter 16 of the Little Salmon/Carmacks First Nation Final Agreement requires the plan to be consistent with these objectives:

- The objectives of Chapter 16;
- Conservation of the Freshwater Fish in Mandanna Lake;
- Respect for the traditional and current use of Mandanna Lake by Little Salmon/Carmacks People and the importance of the lake to the Little Salmon/Carmacks First Nation; and
- The need to treat all users of Mandanna Lake fairly.

Background

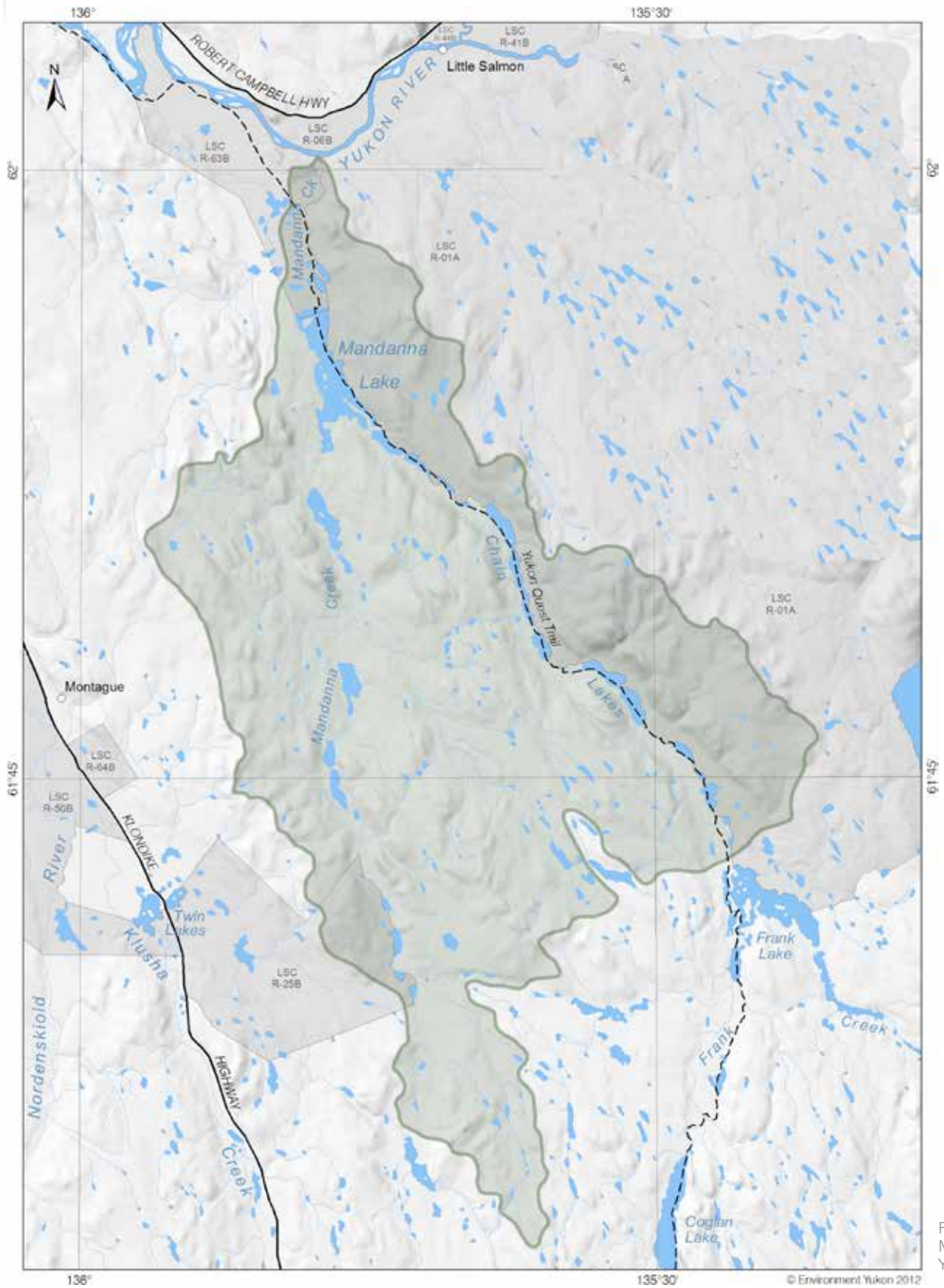


Figure 1. Mandanna Lake, Yukon.

Background

A management plan for Mandanna Lake became necessary with the signing of the Little Salmon/Carmacks First Nation Final Land Claims Agreement in July of 1997. While the management plan emphasizes the fisheries resource it also encompasses other ecosystem components associated with the freshwater ecosystem in Mandanna Lake. The lake is situated 35 kilometers southeast of Carmacks (61°55'N 135°46'), in south central Yukon.

Mandanna Lake has a surface area of approximately 850 hectares. The lake is about six kilometers in length and is 1.5 kilometers at its widest aspect. The various islands, gravel shoals and complex shoreline suggest a profusion of shallow water areas known as "littoral" habitat. There are a number of larger bays that vary in length and shape, and a central narrows whose points each have a cabin. The water is characteristically dark in colour with many steep shoreline "drop-offs" reflecting a relatively large mean depth of 21 meters for such a small lake. The surface elevation of Mandanna Lake is approximately 579 meters above sea level.

The surrounding terrain is distinguished by rolling hills with several small and often intermittent streams that flow into the lake from the surrounding hillside. Mandanna Creek forms the principle outlet with surface water from the lake eventually flowing into the Yukon River upstream of the community of Carmacks. Inflows into the lake originate from two principle drainages. The inflow from the southeast is characterized by series of connected

lakes locally referred to as "Chain Lakes". Mandanna Lake is situated in the central Yukon Plateau of the boreal cordillera ecoregion. The climate is cold and semiarid with a mean annual temperature for the area of approximately -3.5°C .

Mandanna Lake is located within the traditional territory of the Little Salmon/Carmacks people. Historically, Mandanna Lake was called Lakeview Lake, named for a wood camp on the Yukon River that was once situated at the mouth of Mandanna Creek. In the northern Tutchone language the lake was called Teliyó Män or sometimes Tazäna Män, both in reference to seeing the lake from a distance. The lake is also occasionally referred to as Taghäl Män or "wavy lake".

The lake was used traditionally by those who lived along the Yukon River at Little Salmon Village. More recent investigations have concluded that over the last century families regularly food fished at Mandanna Lake. Elders indicate that Mandanna Lake was one of several key lakes in the area that could always be counted on to obtain fish because of their abundance.

Based on limited archaeological surveys the pattern of fall and winter fishing at Mandanna Lake likely extends back in time several thousand years. It is thought that during the fall people set fish traps at both the inlet and outlet for spawning lake trout and whitefish species. In winter people returned to the lake to fish for lake trout and burbot through the ice with a gaff or fish lures. In spring, traps were set for spawning grayling along Mandanna Creek.

Background

Prior to the gold rush, aboriginal people utilized short sinew or willow nets for fishing. These were used primarily to capture spawning whitefish in the fall and grayling in the spring at specific locations where these species congregated in the lake and in associated creeks. In recent times the use of longer commercially manufactured nets allowed for a more dispersed pattern of net fishing at various locations around the lake in both fall and winter.

The fish community within the waters of Mandanna Lake is dominated by lake trout (myaat), lake whitefish (lu dek'äl)

and northern pike (táli). Situated in a remote location, Mandanna Lake is known for its good angling and recreational opportunities. The lake is particularly sought after by recreational "sport" anglers. Many anglers fly into the lake, generally during the summer, and utilize the commercial camp facility situated near the lake inlet. While Mandanna Lake is accessible by aircraft in all seasons, snowmachines and ATVs can gain access using a section of the "Yukon Quest" trail. Ground access with motorized vehicles is limited to periods when ice and snow conditions allow travel on lakes and rivers, generally during the late winter season.



Five Year Review and Update

In May 2010, a review of the original plan was completed by staff from Little Salmon/Carmacks First Nation and Yukon government. The review was conducted at an open public meeting in Carmacks, Yukon and enabled the involvement of the local individuals who had interest in Mandanna Lake. The management

plan was updated based on recorded comments and prepared minutes from the meeting. The amended plan was provided to the Carmacks Renewable Resources Council for review. The Council recommended this amended plan to the Minister of Environment.



Management Recommendations

Fisheries Resource and Use

The primary objective of this management plan is to ensure conservation in the management and use of the freshwater fish resources and their habitat within Mandanna Lake. These freshwater resources consist of eight known species of fish that include lake trout or myaat (*Salvelinus namaycush*), lake whitefish or lu dek'äl (*Coregonus clupeaformis*), longnose sucker or tats'aat (*Catostomus catostomus*), burbot or loche (*Lota lota*), northern pike or táli (*Esox lucius*), Arctic grayling or t'á (*Thymallus arcticus*), least cisco (*Coregonus sardinella*), and slimy sculpin (*Cottus cognatus*). Historically, many of these species were of some importance as a food base to the aboriginal people who first used the lake. Elders have indicated that some species were preferred over others such as whitefish, northern pike, burbot and lake trout. In particular, whitefish and lake trout were of special importance as they were easily harvested when they formed spawning aggregations during the fall. Fish were traditionally shared with people of aboriginal and non-aboriginal origin, as they are today. Aboriginal people still harvest fish from the lake, but not to the extent as in the past, when some families were dependent on the lake for subsistence. Current harvests of freshwater fish therefore are small with some harvesting activities associated with the periodic use of existing cabins at the lake. Aboriginal food harvests of freshwater fish are prioritized above all other uses within Mandanna Lake.

Recreational anglers venture into Mandanna Lake in the late winter or spring primarily by snowmachine and in the

summer by aircraft. Most of the angling effort takes place in the summer and is associated with the commercial "fly-in" fishing camp on the lake. The facility can accommodate a maximum of eight guests per day and is operated in June, July and August. From 1986 to 2002 the number of angling parties averaged eight per season with a party size of approximately five people. Anglers are required by law to have a Yukon Angling License and must follow catch and possession limits and gear restrictions. Mandanna Lake was designated as a "High Quality Water" in 1991, with reduced catch limits combined with a "slot size" regulation for Arctic grayling, lake trout and northern pike. The "slot size" regulation was adopted as a management tool by the Yukon government to protect large, reproductively important fish from being over-harvested. In 2001 a further restriction was implemented: all lake trout must be released. The use of barbless hooks is currently mandatory on Mandanna Lake to facilitate the live release component of the regulations. Some lake trout and many northern pike are caught and subsequently released each season by camp guests. Only northern pike are consumed at the lake for food by licensed anglers. Many First Nations members, particularly Elders, find the concept of live release angling disrespectful, and feel that the practice ultimately harms the fish population. At the present time there are no limits on the number of fish that can be live released under the conditions of a Yukon Angling License in this lake.

Traditional and local knowledge combined with fisheries assessment projects in the late 1990s revealed depleted lake trout

Management Recommendations

abundance in Mandanna Lake. At the time the causes of the low abundance were unknown, but were suspected to be high angling pressure and the catch and release of many fish. With the change in ownership of the commercial “fly-in” fishing camp, an emphasis on pike fishing and avoiding the capture of lake trout has been promoted. It is believed that lower occupancy rates at the camp during the summer have

also helped reduce pressure on lake trout populations in the lake. Yukon government attempted to develop an abundance index of spawning lake trout at a known spawning location near the lake’s inlet in 2001. A lake trout small mesh CPUE (catch per unit effort) abundance survey was completed during the spring of 2005. No further surveys have been conducted since then.

Issue / Concern	Recommendation	Gov	Timeline
<p>Recreational Fishing (Angling) Regulations</p> <p>There is a desire to ensure that angling regulations continue to support plan objectives.</p> <p>Yukon residents and non-residents have the opportunity to recreationally fish in Mandanna Lake in accordance with the Yukon Territory Fishery Regulations and must carry a valid Yukon Angling License.</p>	<p>Review recreational fishing (angling) regulations within five years of the plan review (by 2017). Until then, maintain present fishing regulations.</p>	<p>YG</p>	<p>By 2017, Ongoing</p>
<p>Commercial Recreational Fishing (Angling)</p> <p>The capacity of Mandanna Lake may be insufficient to support additional commercial recreational fishing on a sustainable basis.</p>	<p>No additional commercial recreational fishing/wilderness development should be established on Mandanna Lake.</p>	<p>YG</p>	<p>Ongoing</p>
<p>Recreational Fishing (Angling) Derbies</p> <p>A fishing derby is a recreational fishing competition in which more than 25 people participate. While no permits have in the past been issued for Mandanna Lake, in the event an application is received, sanction would be needed from both Little Salmon/Carmacks First Nation and Yukon government. Fishing Derbies held on Mandanna Lake would create additional pressure on fish stocks and may not be sustainable.</p>	<p>No recreational fishing derby permits for should be issued for Mandanna Lake.</p>	<p>YG</p>	<p>Ongoing</p>

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Management Recommendations

Fisheries Resource and Use

Issue / Concern	Recommendation	Gov	Timeline
<p>Food fishing by members of Little Salmon/Carmacks First Nation</p> <p>The rights of member of Little Salmon/Carmacks First Nation to harvest for subsistence are set out in Chapter 16 of the Little Salmon/Carmacks First Nation Final Agreement.</p>	<p>Yukon government shall ensure that the food Freshwater Fish needs of Yukon Indian People receive primary consideration in the allocation of Freshwater Fish resources.</p>	<p>YG</p>	<p>Ongoing</p>
<p>Food fishing by First Nation members with a Sharing Agreement</p> <p>No permit is required for those First Nation members who wish to food fish Mandanna Lake, provided their respective First Nation has negotiated a sharing agreement with the LS/C First Nation. Selkirk First Nation and the First Nation of Na-Cho Nyäk Dun are currently the only aboriginal groups that have a sharing agreement with Little Salmon/Carmacks First Nation.</p>	<p>Continue with courtesy notification to Little Salmon/Carmacks First Nation for fishing in the lake by First Nation members with sharing accords; no permits are required.</p>	<p>LS/CFN</p>	<p>Ongoing</p>
<p>Food fishing by First Nation members without a Sharing Agreement</p> <p>For those members of a First Nation without a sharing agreement who want to food fish in Mandanna Lake, notification of intentions must be given to a representative of the Little Salmon/Carmacks First Nation. A harvest report may be required depending on the nature of the fishery.</p>	<p>Require written permission from Little Salmon/Carmacks First Nation for fishing in the lake by First Nation members without sharing accords.</p>	<p>LS/CFN</p>	<p>Ongoing</p>

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Management Recommendations

Issue / Concern	Recommendation	Gov	Timeline
<p>Domestic & Commercial Fishing</p> <p>Domestic fishing is the harvesting of fish, usually by gillnet, that is used solely for personal consumption and excludes food fishing by First Nation members. Commercial fishing is the harvesting of fish, usually by gill net, then sold, traded or bartered. Commercial and domestic fishing in Mandanna Lake would create additional pressure on fish stocks and may not be sustainable.</p>	<p>No commercial or domestic fishing licenses should be issued for Mandanna Lake.</p>	<p>YG</p>	<p>Ongoing</p>
<p>Enforcement and Monitoring of Angler Activity</p> <p>To ensure that fishing rules are being adhered to, monitoring of anglers is needed during peak periods of use in Mandanna Lake.</p>	<p>Improve compliance of anglers during peak periods of use at Mandanna Lake through enforcement patrols by Conservation Officers.</p>	<p>YG</p>	<p>Ongoing</p>
	<p>In collaboration with local citizens from Carmacks, build community capacity, where feasible.</p>	<p>LS/CFN</p>	
	<p>Record information on air access to lake.</p>	<p>LS/CFN</p>	
<p>Monitoring the Lake Trout Population</p> <p>Information is required to understand changes in the state of the fish populations in Mandanna Lake, particularly lake trout.</p>	<p>Collect data on lake trout abundance.</p>	<p>YG, LS/CFN</p>	<p>By mid plan</p>
<p>Education About the Impacts of Catch and Release</p> <p>Excessive catch and release can impact lake trout populations.</p>	<p>Develop a brochure on the impacts of catch and release fishing on lake trout that includes information on the management plan.</p> <p>Ask the lodge operator to distribute the brochure to guests of the fishing camp.</p>	<p>YG, LS/CFN</p>	<p>Early in plan</p>
<p>Collect Harvest Data</p> <p>It is important to understand all harvests of fish from the lake to ensure they are sustainable.</p>	<p>Develop guidelines to monitor harvests of fish (subsistence & recreational) from the lake. Local community members should be involved with monitoring fish harvest.</p>	<p>YG, LS/CFN</p>	<p>Early in plan</p>

Management Recommendations

Fish Habitat

Fish habitat with Mandanna Lake is generally considered to be relatively pristine. While the maintenance of the aquatic habitat is a key objective to this plan, factors outside the confines of Mandanna Lake have the potential to influence aquatic habitat within the lake. Changes to either the quality or quantity of surface waters in streams that flow into the lake, whether from natural disturbances (e.g., beaver) or human activities, can have a profound effect on fish and the ecology of the lake. The establishment of management recommendations specific to habitat within Mandanna Lake without some consideration to land- or water-based

disturbances in adjacent habitat or the watershed is a significant weakness in the plan.

In the past, many diverse concerns were raised that were not specific to Mandanna Lake. Concerns such as logging in the watershed, other “fly-in” fishing camps on lakes in the area, forest fire suppression and the impact of beaver dams (Mandanna Creek) were identified as important issues. While many are potentially difficult to resolve in the current plan, there was general consensus of a need to coordinate efforts between governments to respond to potential land- and water-based disturbances within the watershed through the land use review process.

Issue / Concern	Recommendation	Gov	Timeline
<p>Land- and Water-Based Disturbances in the Watershed</p> <p>Land- and water-based disturbances within the watershed that have the potential to affect the terrestrial and aquatic ecology of Mandanna Lake need to consider the values identified in this management plan.</p>	<p>Land- and water-based disturbances within the watershed that have the potential to affect the ecology of the lake will be identified by Yukon government and Little Salmon/Carmacks First Nation during the Yukon Environmental and Socio-Economic Assessment review process. Both governments will identify and provide relevant information as input to the review process. Activities that result in significant impacts to the ecology of the lake should not be supported.</p>	<p>YG, LS /CFN</p>	<p>Ongoing</p>

Management Recommendations

Access and Land Use

Ease of access, whether by air or land, is fundamental to the management of the fishery at Mandanna Lake. Experience from other jurisdictions has shown that improving access to remote lakes results in an increase in fish harvest. As with other wildlife, improved access usually results in a response of more restrictive legislation to maintain abundance. Improved access can also encourage other resource extraction activities that can impact fish habitat. Managing access to the lake is critical to fisheries management. In light of the actions taken to foster recovery of the lake trout population in Mandanna Lake, it is particularly important to minimize any increases in access to the lake. This includes any improvements to current access, any new access, and any development at the lake that could result in increased access.

Currently, there are no quartz or placer mineral claims in the vicinity of Mandanna Lake. The area is not withdrawn from staking, however, which means that future mineral claims could potentially be staked in the area. There is an existing Coal Exploration License that encompasses the lake and includes a large area north and west of the Lake.

Activities on mineral claims are regulated by the Quartz Mining Land Use Regulation and the Placer Mining Land Use Regulation. Activities on Coal Exploration Licenses are regulated by the Coal Regulation which is part of the *Territorial Lands (Yukon) Act*. Class 1 activities on mineral claims and coal

exploration licenses must comply with specified operating conditions but do not require permits. Class 2 activities require notification. Class 3 and Class 4 activities require permits and are subject to a Yukon Environmental and Socio-Economic Assessment.

The well-marked and publicized Yukon Quest trail is the only ground access to Mandanna Lake. It provides easy access by snowmachine during late winter off the Robert Campbell Highway when adequate ice conditions exist to allow travel on the Yukon River. This trail is also used during the summer to access Mandanna Lake by foot or through the use of ATVs that are staged at the trailhead on the Yukon River. Yukon Quest participants who use campfires to cook food and melt water for consumption during the Yukon Quest race have sometimes abandoned fires that smolder in the moss and have had the potential to ignite forests along the trail. Local trappers have put out five fires in the last four years that were related to the Yukon Quest participants. The wood pickets used to mark the trail for race participants are often left abandoned after the race.

Any trail improvements would have significant implications to the management of fish populations in Mandanna Lake. Improvements could also potentially increase the disturbance to sites of archeological significance. Current access should be maintained in its present condition without improvements other than for general maintenance, for the term of the plan.

Management Recommendations

The aircraft that currently fly in to the lake are thought to be largely associated with the fly-in fishing camp at Mandanna Lake. The extent of other air traffic

activities is unknown. The level of air traffic to Mandanna Lake could be better understood if it was assessed during any enforcement and monitoring activities.

Issue / Concern	Recommendation	Gov	Timeline
<p>Ground Access</p> <p>Fisheries resources are sometimes best conserved through the management of ground access. Generally, as access improves to an area or lake, a corresponding increase in human use, fish harvest and/or habitat disturbances can become apparent. By managing the level and ease of access, human related impacts can be minimized. Improved or new access to Mandanna Lake can lead to increased fishing pressure and disturbance of archeological sites.</p> <p>Each year unextinguished campfires by participants of the Yukon Quest pose a significant threat to forests along the Yukon Quest trail. Unsightly trail markers are also abandoned each year along the Yukon Quest trail by event organizers.</p>	<p>Recommend prohibiting any improvements to the current ground access and the establishment of new roads and trails, including new winter roads and trails, that would lead to increased public access to Mandanna Lake through the participation of Yukon government and Little Salmon/ Carmacks First Nation in the Yukon Environmental and Socio-Economic Assessment process.</p>	<p>YG, LS/CFN</p>	<p>Ongoing</p>
	<p>Contact Yukon Quest organizers about post-event clean up of trail markers (pickets) and campfire control.</p>	<p>LS/CFN</p>	<p>Ongoing</p>
	<p>Identify any significant archeological sites associated with the trail and reroute if necessary.</p>	<p>YG, LS/CFN</p>	<p>Ongoing</p>

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Management Recommendations

Issue / Concern	Recommendation	Gov	Timeline
<p>Land Tenure and Dispositions</p> <p>Because of the concern over low lake trout abundance within Mandanna Lake, new leases or new land dispositions have the potential to increase harvests and affect the fishery.</p> <p>Changes in the use of land, as may occur through sale or transfer of existing private property, may have the potential to directly or indirectly affect the fishery. It is desirable that prospective buyers be apprised of fishery management interests as identified through the management plan to ensure that the new owners are informed of fishery resource status, conservation concerns and management programs.</p>	<p>New leases or land dispositions on Crown Land that have the potential to affect the fishery or ecology of Mandanna Lake will be identified by Yukon government and Little Salmon/Carmacks First Nation during the Yukon Environmental and Socio-Economic Assessment review process. Both governments will identify and provide relevant information as input to the review process. Leases or dispositions that would result in significant impacts to the fishery or ecology should not be supported.</p>	<p>YG, LS/CFN</p>	<p>Ongoing</p>
<p>Permits for activities on Mineral Claims and Coal Exploration Licenses</p> <p>Activities on mineral claims and coal exploration licenses may have the potential to affect the fishery and ecology of the lake.</p>	<p>Permit applications for activities on mineral claims and coal exploration licenses that have the potential to affect the fishery or ecology of Mandanna Lake will be identified by Yukon government and Little Salmon/Carmacks First Nation during the Yukon Environmental and Socio-Economic Assessment review process.</p> <p>Activities that would result in significant impacts to the fishery or ecology of the lake should not be supported.</p>	<p>YG, LS/CFN</p>	<p>Ongoing</p>

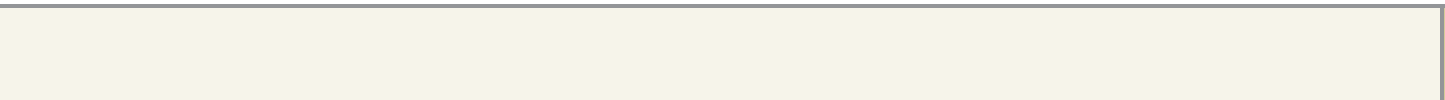
Management Recommendations

Revision of Management Plan

Schedule C of Chapter 16 of the Little Salmon / Carmacks First Nation Final Agreement sets out that the Mandanna Lake

Management Plan shall be reviewed no later than every 10 years after the initial five year review. The next plan review shall be done by 2022.

Issue / Concern	Recommendation	Gov	Timeline
Review the Management Plan Keep the Mandanna Lake Management Plan relevant and up-to-date.	Review management plan.	YG, LS/CFN	By 2022





Yukon
Environment