

FWCP COLUMBIA REGION FIVE YEAR (2019-2024) DIRECTED FISHERIES PLAN

Version: 19 September 2019

This five year (2019-2024) plan aligns with DIRECTED priority actions 8, 9 and 10 in the FWCP Columbia Region Reservoirs & Large Lakes Action Plan.

Actions identified as DIRECTED only are not eligible for a grant. These are projects that our Regional Boards will direct through the appropriate procurement process (e.g. a request for proposal).

Please ensure that your grant application does not duplicate the activities identified in this plan.

This document is subject to revisions and annual review, and does not include administrative or infrastructure operations.

All data analysis and reporting is completed by FLNRORD; including calculations of nutrient inputs to Arrow Lakes Reservoir and Kootenay Lake.

Action #	Priority Action Short Description	Priority	Activity	Description	Contract / Activity Status				
					2019-20 (F20)	2020-21 (F21)	2021-22 (F22)	2022-23 (F23)	2023-24 (F24)
Priority Area: ARROW LAKES RESERVOIR									
8	Implementation of Kootenay Lake and Arrow Lakes Nutrient Restoration Programs	1	Nutrient Supply (nitrogen and phosphorus)	This activity includes the provision of supplying and transporting nutrients for dispensing into both Arrow Lakes Reservoir and Kootenay Lake.	UC	UC	UC	RFP/RFQ	RFP/RFQ
8	Implementation of Kootenay Lake and Arrow Lakes Nutrient Restoration Programs	1	Nutrient Dispensing (Small Scale)	This activity includes the provision of dispensing of fertilizer during the growing season (April to September).	UC	UC	UC	UC	RFP/RFQ
8	Implementation of Kootenay Lake and Arrow Lakes Nutrient Restoration Programs	1	Nutrient Dispensing (Large Scale)	This activity includes the provision of dispensing of fertilizer during the growing season (April to September).	In-kind	In-kind	In-kind	In-kind	In-kind
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Physical Variables, Water Chemistry sampling, phytoplankton sampling, zooplankton and mysid sampling	In-season monitoring of various trophic levels within Arrow Lakes Reservoir (April to November)	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Water Chemistry Analysis	Water chemistry analysis of parameters collected from Arrow Lakes Reservoir sampling stations	UC	UC	UC	UC	UC
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Phytoplankton Analysis	Phytoplankton analysis includes: Phytoplankton taxonomy abundance and biomass by species within 5 algal groups	UC	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Zooplankton and Mysid Analysis	Zooplankton and mysid analysis includes: Abundance and biomass of species of zooplankton; abundance and biomass of mysid by life cycle stage	UC	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - pelagic abundance and density monitoring (Hydroacoustic)	Hydroacoustic surveys are conducted in the fall; data analysis and report writing.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - pelagic abundance and density monitoring (Trawl Surveys)	Trawl surveys are conducted in the fall to confirm length distribution and relative abundance of age classes; surveys occur during similar times as hydroacoustic survey.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - spawner abundance surveys - aerial counts of index streams	Aerial spawner counts are conducted 2 times per spawning season on the following streams: Jordan, Tonkawatla, Halfway River, St. Leon Creek, Kuskanax Creek, Mosquito Creek, Burton Creek, Snow Creek, Caribou Creek, Eagle Creek.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - spawner abundance surveys - ground counts of index streams	Ground spawner counts are conducted at a minimum of two times per spawning season on the following streams: Deer, Taite, Octopus, McKay, Cranberry, Drimmie.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
9	Operation of Meadow Creek and Hill Creek Spawning Channels	1	Kokanee - Hill Creek Spawning Channel (HCSC) - Operations & Maintenance	The operation and maintenance of HCSC including the collection of size/age, sex ratio, fecundity information. This also includes fry production within the channel.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
9	Operation of Meadow Creek and Hill Creek Spawning	1	Kokanee - Hill Creek Spawning Channel (HCSC) - Scarification	Annual scarification (gravel cleaning) of HCSC during the summer months.	UC	UC	UC	UC	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Bull Trout Monitoring	Redd counts and spawner monitoring in index spawning streams for Arrow Lakes Reservoir (Burton, Snow, Caribou, MacDonald, Kuskanax, Halfway, Incomappleux, Illecillewaet, Jordan).	-	-	TBD	-	-
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Rainbow Trout Monitoring	Rainbow Trout redd counts in the spawning channel, currently a component of HCSC operations.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Fisheries monitoring - Creel Surveys - (rainbow, bull trout, kokanee, burbot)	Creel survey estimates of angler effort, catch, harvest, fish size and predator condition (Kn) at 3 access sites. Field collection of information under contract. Analysis conducted by FLNRORD.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Fisheries monitoring - Boat Surveys - (rainbow, bull trout, kokanee)	Aerial boat counts are conducted periodically in conjunction with the access site creel survey to expand site data to whole lake estimates.	UC	-	-	-	-

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Priority Area: KOOTENAY LAKE									
8	Implementation of Kootenay Lake and Arrow Lakes Nutrient Restoration Programs	1	Nutrient Supply (nitrogen and phosphorus)	This activity includes the provision of supplying and transporting nutrients for dispensing into both Arrow Lakes Reservoir and Kootenay Lake.	UC	UC	UC	RFP/RFQ	RFP/RFQ
8	Implementation of Kootenay Lake and Arrow Lakes Nutrient Restoration Programs	1	Nutrient Dispensing (Small Scale)	This activity includes the provision of dispensing of fertilizer during the growing season (April to September).	UC	UC	UC	UC	RFP/RFQ
8	Implementation of Kootenay Lake and Arrow Lakes Nutrient Restoration Programs	1	Nutrient Dispensing (Large Scale)	This activity includes the provision of dispensing of fertilizer during the growing season (April to September).	UC	UC	UC	UC	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Physical Variables, Water Chemistry sampling, phytoplankton sampling, zooplankton and mysid sampling	In-season monitoring of various trophic levels within Arrow Lakes Reservoir (April to November)	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Water Chemistry Analysis	Water chemistry analysis of parameters collected from Arrow Lakes Reservoir sampling stations	UC	UC	UC	UC	UC
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Phytoplankton Analysis	Phytoplankton analysis includes: Phytoplankton taxonomy abundance and biomass by species within 5 algal groups	UC	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Zooplankton and Mysid Analysis	Zooplankton and mysid analysis includes: Abundance and biomass of species of zooplankton; abundance and biomass of mysid by life cycle stage	UC	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - pelagic abundance and density monitoring (Hydroacoustic)	Hydroacoustic surveys are conducted in the spring (partnered funding through FLNRORD) and fall (FWCP funded); data analysis and report writing.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - pelagic abundance and density monitoring (Trawl Surveys)	Trawl surveys are conducted in the fall to confirm length distribution and relative abundance of age classes; surveys occur during similar times as hydroacoustic survey.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Kokanee - spawner abundance surveys - Kootenay Lake	Three aerial spawner counts are conducted on the Lardeau River annually. Counts occur on other tributaries in the North Arm (FWCP) and South Arm (partnered funding through FLNRORD).	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
9	Operation of Meadow Creek and Hill Creek Spawning Channels	1	Kokanee - Meadow Creek Spawning Channel (MCSC) - Operations & Maintenance	The operation and maintenance of MCSC including the number of spawning kokanee, collection of size/age, sex ratio, fecundity information and numbers of fry emigrating.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
9	Operation of Meadow Creek and Hill Creek Spawning	1	Kokanee - Meadow Creek Spawning Channel (MCSC) -	Annual scarification (gravel cleaning) of the spawning channel during the summer months.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
10	In-season monitoring of Kootenay Lake and Arrow Lakes Reservoir Nutrient Restoration Programs	1	Bull trout - Monitoring	Redd counts and spawner monitoring in index spawning streams for Kootenay Lake. (index stream details to be determined)	UC	TBD	TBD	-	TBD

Legend:

UC = Under Contract (Note: contract terms re: annual renewals are defined but variable across contracts)
RFP/RFQ = Request For Proposal/Request for Quote e.g. BC BID, limited bid, etc. based on standard agency procurement practices
TBD = To Be Determined i.e. based on annual technical review of outcomes
"-" = Not Planned
FLNRORD = Ministry of Forests, Lands, Natural Resource Operations and Rural Development