

Note: STATUS AS OF July 2018

NOTE: subject to change and annual review

NOTE: the scope of this document does not include administrative or infrastructure operations

NOTE: all data analysis and reporting is completed by FLNRORD; including calculations of nutrient inputs to Arrow and Kootenay

Ref No.	CATEGORY	PRIMARY ACTION PLAN REFERENCE	Primary Action No. & Priority	DESCRIPTION	2018/19 (Current year)	2019/20	2020/21	2021/22	2022/23
ARROW LAKES RELATED PROGRAMS									
A1	NUTRIENT RESTORATION PROGRAM MONITORING - Physical Variables	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Physical variables include: Water temperature, dissolved O2, pH, specific conductance, turbidity, Secchi depth measurements	UC	UC	UC	UC	RFP/RFQ
A2	NUTRIENT RESTORATION PROGRAM MONITORING - Water Chemistry Sampling & Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Water chemistry sampling includes: Silica, alkalinity, nutrients (TP, TDP, LL SRP, NO3+NO2, NH3), Total and dissolved metals; chlorophyll a, TIC, TOC	UC	UC	UC	UC	RFP/RFQ
A3	NUTRIENT RESTORATION PROGRAM MONITORING - Phytoplankton Sampling	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Phytoplankton sampling for taxonomy by abundance and biomass in Arrow Lakes Reservoir.	UC	UC	UC	UC	RFP/RFQ
A4	NUTRIENT RESTORATION PROGRAM MONITORING - Phytoplankton Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Phytoplankton analysis includes: Phytoplankton taxonomy abundance and biomass by species within 5 algal groups	UC	UC	UC	RFP/RFQ	RFP/RFQ
A5	NUTRIENT RESTORATION PROGRAM MONITORING - Zooplankton Sampling	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Zooplankton sampling for abundance and biomass of copepods and cladocerans by species in Arrow Lakes Reservoir.	UC	UC	UC	UC	RFP/RFQ
A6	NUTRIENT RESTORATION PROGRAM MONITORING - Zooplankton Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Zooplankton analysis includes: Abundance and biomass of Copepods and cladocerans - by species.	UC	UC	UC	RFP/RFQ	RFP/RFQ
A7	NUTRIENT RESTORATION PROGRAM MONITORING - Mysid Sampling	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Mysid sampling for abundance and biomass of various lifestages of mysids in Arrow Lakes Reservoir.	UC	UC	UC	UC	RFP/RFQ
A8	NUTRIENT RESTORATION PROGRAM MONITORING - Mysid Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Mysid analysis, within Arrow Lakes Reservoir. Analysis includes abundance and biomass of various lifestages.	UC	UC	UC	UC	RFP/RFQ
A9	NUTRIENT RESTORATION PROGRAM IMPLEMENTATION - Nutrient Supply (nitrogen and phosphorus)	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	This activity includes the provision of supplying and transporting nutrients for dispensing into both Arrow Lakes Reservoir and Kootenay Lake.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
A10	NUTRIENT RESTORATION PROGRAM IMPLEMENTATION - Nutrient Dispensing (Small Scale)	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	This activity includes the provision of dispensing of fertilizer during the growing season (April to September).	UC	UC	UC	UC	UC
A11	NUTRIENT RESTORATION PROGRAM IMPLEMENTATION - Nutrient Dispensing (Large Scale)	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	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
A12	KOKANEЕ - pelagic abundance and density monitoring (Hydroacoustic)	Large Lakes Plan - Status Indicator #4 - Kokanee	Action #20; Priority #1	Hydroacoustic surveys are conducted in the fall; data analysis and report writing.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
A13	KOKANEЕ - pelagic abundance and density monitoring (Trawl Surveys)	Large Lakes Plan - Status Indicator #4 - Kokanee	Action #20; Priority #1	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	UC	UC	UC	RFP/RFQ

Ref No.	CATEGORY	PRIMARY ACTION PLAN REFERENCE	Primary Action No. & Priority	DESCRIPTION	2018/19 (Current year)	2019/20	2020/21	2021/22	2022/23
A14	KOKANEE - spawner abundance surveys - aerial counts of index streams	Large Lakes Plan - Status Indicator #4 - Kokanee	Action #20; Priority #1	Aerial spawner counts are conducted 2 times per spawning season on the following streams: Jordan, Tonkawatia, Halfway River, St. Leon Creek, Kuskanax Creek, Mosquito Creek, Burton Creek, Snow Creek, Caribou Creek, Eagle Creek.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
A15	KOKANEE - spawner abundance surveys - ground counts of index streams	Large Lakes Plan - Status Indicator #4 - Kokanee	Action #20; Priority #1	Ground spawner counts are conducted at a minimum of one to two times per spawning season on the following streams: Deer, Taite, Octopus, McKay, Cranberry, Drimmie.	FLNRORD	FLNRORD	FLNRORD	FLNRORD	FLNRORD
A16	KOKANEE - Hill Creek Spawning Channel (HCSC) - Operations & Maintenance	Large Lakes Plan - Status Indicator #4 - Kokanee	Actions 20, 21, 22; Priority #1	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	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ
A17	KOKANEE - Hill Creek Spawning Channel (HCSC) - Scarification	Large Lakes Plan - Status Indicator #4 - Kokanee	Actions 20, 21, 22; Priority #1	Annual scarification (gravel cleaning) of HCSC during the summer months.	UC	UC	UC	UC	UC
A18	BULL TROUT - Monitoring	Large Lakes Plan - Status Indicator #5 - bull trout	Action #27; Priority #2	Redd counts and spawner monitoring in index spawning streams for Arrow Lakes Reservoir (Burton, Snow, Caribou, MacDonald, Kuskanax, Halfway, Incomappleux, Illecillewaet, Jordan).	RFP/RFQ	-	-	TBD	-
A19	RAINBOW TROUT - Monitoring	Large Lakes Plan - Status Indicator #3 - Piscivorous rainbow trout	Action #11; Priority #1	Rainbow Trout redd counts in the spawning channel, currently a component of HCSC operations.	UC	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ
A20	FISHERIES MONITORING - Creel Surveys - (rainbow, bull trout, kokanee, burbot)	Large Lakes Plan - Status Indicator #8 - Socio-economic value (Priority #2)	Action #45; Priority #2	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
A21	FISHERIES MONITORING - Boat Surveys - (rainbow, bull trout, kokanee)	Large Lakes Plan - Status Indicator #8 - Socio-economic value (Priority #2)	Action #45; Priority #2	Aerial boat counts are conducted periodically in conjunction with the access site creel survey to expand site data to whole lake estimates.	-	TBD	-	-	-
KOOTENAY LAKE RELATED PROGRAMS									
K1	NUTRIENT RESTORATION PROGRAM MONITORING - Physical Variables	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity (Priority #1)	Action #1; Priority #1	Physical variables include: Water temperature, dissolved O2, pH, specific conductance, turbidity, Secchi depth measurements.	UC	UC	UC	UC	RFP/RFQ
K2	NUTRIENT RESTORATION PROGRAM MONITORING - Water Chemistry Sampling & Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity (Priority #1)	Action #1; Priority #1	Water chemistry sampling includes: Silica, alkalinity, nutrients (TP, TDP, LL SRP, NO3+NO2, NH3), Total and dissolved metals; chlorophyll a, TIC, TOC.	UC	UC	UC	UC	RFP/RFQ
K3	NUTRIENT RESTORATION PROGRAM MONITORING - Phytoplankton Sampling	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Phytoplankton sampling for taxonomy by abundance and biomass in Kootenay Lake.	UC	UC	UC	UC	RFP/RFQ
K4	NUTRIENT RESTORATION PROGRAM MONITORING - Phytoplankton Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Phytoplankton analysis includes: Phytoplankton taxonomy abundance and biomass by species within 5 algal groups.	UC	UC	UC	RFP/RFQ	RFP/RFQ
K5	NUTRIENT RESTORATION PROGRAM MONITORING - Zooplankton Sampling	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Zooplankton sampling for abundance and biomass of copepods and cladocerans by species in Kootenay Lake.	UC	UC	UC	UC	RFP/RFQ
K6	NUTRIENT RESTORATION PROGRAM MONITORING - Zooplankton Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Zooplankton analysis includes: Abundance and biomass of Copepods and cladocerans - by species.	UC	UC	UC	RFP/RFQ	RFP/RFQ

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K7	NUTRIENT RESTORATION PROGRAM MONITORING - Mysid Sampling	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Mysid sampling for abundance and biomass of various lifestages of mysids in Kootenay Lake.	UC	UC	UC	UC	RFP/RFQ
K8	NUTRIENT RESTORATION PROGRAM MONITORING - Mysid Analysis	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity	Action #1; Priority #1	Mysid analysis includes abundance and biomass of various lifestages.	UC	UC	UC	RFP/RFQ	RFP/RFQ
K9	NUTRIENT RESTORATION PROGRAM IMPLEMENTATION - Nutrient Supply (nitrogen and phosphorus)	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity (Priority #1)	Action #1; Priority #1	This activity includes the provision of supplying and transporting nutrients for dispensing into both Arrow Lakes Reservoir and Kootenay Lake.	UC	RFP/RFQ	RFP/RFQ	RFP/RFQ	RFP/RFQ
K10	NUTRIENT RESTORATION PROGRAM IMPLEMENTATION - Nutrient Dispensing (Small Scale)	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity (Priority #1)	Action #1; Priority #1	This activity includes the provision of dispensing of nutrients for four weeks in late April and mid-May for the North Arm.	UC	UC	UC	UC	UC
K11	NUTRIENT RESTORATION PROGRAM IMPLEMENTATION - Nutrient Dispensing (Large Scale)	Large Lakes Plan - Status Indicator #1 - Aquatic Productivity (Priority #1)	Action #1; Priority #1	This activity includes the provision of dispensing of nutrients during late April to early September.	UC	UC	UC	UC	UC
K12	KOKANEE - pelagic abundance and density monitoring (Hydroacoustic)	Large Lakes Plan - Status Indicator #4 - Kokanee (Priority #1)	Action #20; Priority #1	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
K13	KOKANEE - pelagic abundance and density monitoring (Trawl Surveys)	Large Lakes Plan - Status Indicator #4 - Kokanee (Priority #1)	Action #20; Priority #1	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	UC	UC	UC	RFP/RFQ
K14	KOKANEE - spawner abundance surveys - Kootenay Lake	Large Lakes Plan - Status Indicator #4 - Kokanee (Priority #1)	Action #20; Priority #1	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
K15	KOKANEE - Meadow Creek Spawning Channel (MCSC) - Operations & Maintenance	Large Lakes Plan - Status Indicator #4 - Kokanee	Actions 20, 21, 22; Priority #1	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
K16	KOKANEE - Meadow Creek Spawning Channel (MCSC) - Scarification	Large Lakes Plan - Status Indicator #4 - Kokanee	Actions 20, 21, 22; Priority #1	Annual scarification (gravel cleaning) of the spawning channel during the summer months.	UC	UC	UC	RFP/RFQ	RFP/RFQ
K17	BULL TROUT - Monitoring	Large Lakes Plan - Status Indicator #5 - Bull Trout (Priority #2)	Action #27; Priority #2	Redd counts and spawner monitoring in index spawning streams for Kootenay Lake. (index stream details to be determined)	FLNRORD/UC	-	TBD	-	TBD
K18	TROPIC INTERACTIONS for both Kootenay Lake and Arrow Lakes Reservoir	Large Lakes Plan - Status Indicator #8 - Socio Economic Value (Priority #1)	Action #42; Priority #1	Data analyses and modelling to address key knowledge gaps relating to food web interactions and factors affecting the efficiency of nutrient transfer to kokanee and piscivorous fish.	-	-	-	-	-

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