

STREAM MANAGEMENT PLAN

Water(s): Highline Creek (Pend Oreille Co.)

Location: The Highline Creek treatment area is located approximately 4 miles east of Metaline Falls.

	Distance:	Max Depth:	Discharge:
Highline Creek	0.77 miles	N/A	Up to 1.25 cfs

Water Source: Numerous springs and seeps, rainfall and snowmelt run-off.

Outflow: Tributary to Sullivan Creek (tributary to the Pend Oreille River).

Management History:

Westslope Cutthroat Trout (WCT) *Oncorhynchus clarki lewisi* are native to the Pend Oreille River watershed in Washington, but have declined in abundance and range. With the decline of WCT abundance and range, cooperative efforts between WDFW, Seattle City Light, and the Kalispel Tribe of Indians Natural Resource Department are underway in Pend Oreille County to restore native WCT to selected stream sections. Highline Creek was presumably inhabited by native WCT, but was invaded by Brook Trout *Salvelinus fontinalis* from 1930's era WDFW stockings in Sullivan Creek (WDFW unpublished data). Sampling conducted between 2015-2017 detected no WCT in Highline Creek (WDFW, unpublished data). During the same timeframe, Brook Trout were sampled throughout the Highline Creek watershed. Sculpin *Cottus* spp. were sampled in Highline Creek in fall 2016, and tissue samples were collected for genetic analysis. The WDFW Molecular Genetics Laboratory identified the species as Slimy Sculpin *Cottus cognatus*. Slimy Sculpin are native to the Sullivan Creek drainage, and are presumed to be native to Highline Creek.

Highline Creek is well-suited to WCT restoration due to the presence of a complete fish passage barrier (antiquated log-crib splash dam) to prevent reinvasion by non-native fish, excellent habitat, and a simple fish community. The portion of Highline Creek above the historic log crib dam was rehabilitated (treated with rotenone) in fall 2017. Slimy Sculpin present in the treatment area were salvaged, enumerated, and translocated to Sullivan Creek prior to treatment. It is anticipated that following non-native fish eradication in Highline Creek, WCT will be reintroduced to the project area and establish a self-sustaining population. Following successful restoration of WCT, Slimy Sculpin will be collected from Sullivan Creek and restored to Highline Creek, as well.

Highline Creek has been managed under Washington Department of Fish and Wildlife (WDFW) general stream regulations, including a 10 fish limit with no size restrictions for Brook Trout, and a 2 fish limit with 8" minimum size for all other trout (Daily bag limit = 10 fish total). Beginning July 1, 2018, WDFW regulations will change to no daily limit and no size restrictions for Brook Trout in streams statewide.

T&E Flora and Fauna: Professionals from many resource agencies have visited this site over the last 50 years. No known report exists of any threatened or endangered species habitually found in or near this stream. Occasional visits from both bald *Haliaeetus leucocephalus* and golden *Aquila chrysaetos* eagles occur, although no nests of these two species are known in the area. The Highline Creek treatment area is located within the Salmo Pack of wolves *Canis lupus* home range, but wolves are unlikely to be in/stay in the area during treatment due to increased human presence, traffic, and activity in the days surrounding treatment.

Current Management Objectives:

This project has three objectives:

1. Salvage Slimy Sculpin from the Highline Creek treatment area and translocate them to Sullivan Creek.
2. Eradicate non-native Brook Trout from Highline Creek (above the historic log crib dam) and its tributaries.
3. Re-establish self-sustaining, healthy populations of WCT and Slimy Sculpin in Highline Creek (above the historic log crib dam) and its tributaries.

Objective 1 will be achieved by removing as many native Sculpin from the project area prior to treatment as practical. This will be accomplished by a single pass electrofishing effort throughout the Highline Creek project area and translocation of captured Sculpin to Sullivan Creek. The successful achievement of Objective 2 will be apparent following the final rotenone treatment when no fish carcasses are observed by drip can operators or found in post-treatment surveys of the treated reach. Follow-up environmental DNA (eDNA) sampling will be utilized to confirm the complete eradication of Eastern Brook Trout. Reproducing populations of WCT and Slimy Sculpin, expanding both in population size and spatial distribution, would indicate successful completion of Objective 3. Successful achievement of Objective 3 may take multiple years.

1. Fishery Objectives:

None - While this fishery may experience very light angling pressure, species restoration and conservation are the main goals of this action. WCT size will be small (generally < 6 inches in length), and the fishery will not likely receive much interest from the general public.

2. Angler use objective: 0 days

3. Stocking Objectives:

Stream	Species	Number of Fish Stocked			Planting Month
		Total	/Acre	/Pound	
Highline Creek	WCT	100	N/A	N/A	Summer/Fall 2020; translocation from wild source populations.
Highline Creek	WCT	1,000 – 5,000	N/A	Fry	Summer/Fall 2020; remote site incubation (RSI) of fertilized gametes.
Highline Creek	Slimy Sculpin	TBD	N/A	N/A	Summer/Fall 2021 or 2022; translocation from wild source populations.
Highline Creek	WCT	TBD	N/A	N/A	Additional translocation or RSI production as needed from 2020-2024.

Management Strategy:

1. Ensure that non-native fish have been eradicated (or have not been illegally reintroduced).
2. Translocate 100 genetically pure wild WCT from Sullivan Creek to Highline Creek following successful eradication of Eastern Brook Trout. If necessary (depending on the number of donor fish available), produce WCT fry from fertilized gametes in Remote Site Incubators (RSI) to augment the number of translocated fish. Translocate Slimy Sculpin (number to be determined) from Sullivan Creek to Highline Creek following successful re-establishment of WCT.
3. Monitor the restored WCT and Slimy Sculpin populations through electrofishing to assess population size, spatial distribution, and genetic metrics