Colville Confederated Tribes Fish and Wildlife Department 2009 Live-Capture/Selective Harvest Summary

During the summer and fall of 2009, three different gears were used to selectively harvest hatchery-origin (HOR) summer Chinook salmon, HOR summer steelhead trout, and natural-origin (NOR) sockeye salmon. The effectiveness of each gear type was evaluated for direct release mortality of NOR summer Chinook salmon and NOR summer steelhead.

Purse Seine

A 120-fathom long, purse seine net with 3½" webbing was tested using a newly built, 28-foot, purse seine vessel, the Dream Catcher. The Dream Catcher was chartered from a downriver fishing company for a total of 26 fishing days and a total of 65 purse seine sets near the Okanogan confluence between July and September. Representing over 98% of the 2009 harvest, 16,742 salmonids were caught in a combined total of 36.2 fishing hours. Release survival rates for the purse seine included values of 100% for steelhead and 99.9% for summer/fall Chinook.

Averages for elapsed time per set and CPUE were 34 minutes and 462.5 target salmonids per hour, respectively. CPUE per day ranged between 0.0 fish and 5,203.2 fish per hour, with the highest CPUE rates occurring between July 15th and August 15th. The days having very large CPUE values correspond precisely to days in which the Okanogan River mean daily temperature at Malott, WA exceeded 22°C. Catch per unit effort values for the entire season by specie were: sockeye salmon, 393.8; Chinook salmon, 33.1; and steelhead, 2.3.

The number of fish captured in the seine net occasionally exceeded the processing capacity and distribution capabilities of the program. Captured sockeye salmon were released on several of days due to excessive numbers observed in the closed net and the desire to harvest summer Chinook. Fish were released by partially submerging the cork line for a brief period of time which allowed opportunistic sockeye salmon to escape. Several days many sockeye were wedged or gilled in the mesh openings. One day in particular over 500 sockeye salmon were manually removed from the net.

Initially, mesh size was a concern in regards to the unintentional harvest of summer steelhead. Unlike sockeye, where all fish caught were harvested, the gilling and mortality of smaller, NOR steelhead would prevent successful release. These concerns ultimately proved to be unfounded. However, to reduce the incidence of the gilling or wedging sockeye, mesh size will be reduced from 3½ inch to a stretched mesh of 3 inches for the 2010 season.

Evaluation of selective fishing techniques is ongoing, but after two years of analysis the purse seine method in the confluence of the Okanogan River shows the highest rate of CPUE and the lowest release mortality for non-target and NOR salmonids of all selected fishing gear evaluated.

Tangle Nets

Multi-strand 4¼" stretched-mesh tangle nets of varying lengths and depths were utilized in both the Columbia and Okanogan rivers during the 2009 field season. Dimensions of each net and the number of nets deployed were recorded for each set. Fishing effort was mainly concentrated in the evening and overnight hours to offset net detection and avoidance by adult salmonids.

In 53 sets comprising 54.8 combined fishing hours, 287 salmonids were caught in tangle nets on 17 different dates at various locations throughout the basin. These areas included the Okanogan River mouth, the Okanogan River above the cross-channel in Oroville, WA, and the Columbia River downriver of Chief Joseph Dam. Release rates of NOR summer steelhead were 64.7% and NOR summer/fall Chinook salmon were 87.5%. Average elapsed time per set was 76 minutes. Mean catch per unit effort for the season was 5.2 fish per hour with daily ranges between 0.3 and 11.7. Mean CPUE by specie was: sockeye, 3.1; Chinook, 0.8; and steelhead, 0.8.

The low release survival rates of salmonids recorded for this gear-type, specifically steelhead, can be attributed to the time elapsed between surveying the net, taking too much time freeing individual fish, particularly non-target fish species (carp) and not implementing the use of recovery boxes.

Though the release rate of NOR summer steelhead and CPUE might be substantially lower than purse seining, tangle nets are less expensive and are being pursued as the preferred gear type for replacing gillnets currently used by independent Tribal fishermen in their subsistence and ceremonial fishery.

Beach Seine

No salmonids were caught using the beach seine technique. Three sets were made using a 110 x 6 meter beach seine during daylight hours on September 9th and 10th near McLaughlin Falls (Rkm 75). However, large, submerged rocks prevented successful net closure. Despite the limitations imposed on this gear type at this site, beach seining should remain a gear type utilized by the selective harvest program, particularly as the preferred method for collecting hatchery broodstock at tributary locations on the Okanogan River. During the 2008 season, beach seining demonstrated that excellent NOR Chinook release success (99%), relatively high CPUE, and low by-catch could be achieved at a proper site.

Beach seining could be the method which most closely resembles traditional net fishing practices and should be considered as a replacement gear for gill nets currently used by Tribal net fishers. Implementation of this gear requires considerable labor and might promote Tribal net fishing in family or other social groups to successfully harvest fish.

Colville Tribes 2009 Selective Harvest
Harvest Results to Date (through 10/26/2009)

Sockeye:

	Total	
Tangle Net	168	
Purse Seine	14,255	
TOTAL	14,423	(all considered NOR)

Chinook:

	Total	HOR*	NOR	NOR REL	Survival
Tangle Net	66	42	24	21	0.875
Purse Seine	2,395	1,196	1,199	1,198	0.999
TOTAL	2,461	1,238	1,223	1,219	0.997

Steelhead:

	Total	HOR	NOR	NOR REL	Survival
Tangle Net	53	36	17	11	0.647
Purse Seine	92	82	10	10	1.000
TOTAL	145	118	27	21	0.778

HOR* includes NOR jacks harvested

Colville Tribes 2009 Selective Harvest
Catch Per Unit Effort (through 10/26/2009)

	Number of Sets	Average Set Duration (in hours)	CPUE (fish harvested per hour)		
			Sockeye	Chinook	Steelhead
Tangle Net	53	1.3	3.1	0.8	0.8
Purse Seine	65	0.6	393.8	33.1	2.3
Beach Seine	5	no data	0.0	0.0	0.0
TOTAL	123		158.4	13.6	1.4