



COLUMBIA BASIN FISH AND WILDLIFE AUTHORITY

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Coordinating and promoting effective protection and restoration of fish, wildlife, and their habitat in the Columbia River Basin.

The Authority is comprised of the following tribes and government agencies:

Burns Paiute Tribe
Coeur d'Alene Tribe
Confederated Salish and Kootenai Tribes of the Flathead Reservation
Confederated Tribes of the Colville Reservation
Confederated Tribes of the Umatilla Indian Reservation
Confederated Tribes of the Warm Springs Reservation
Confederated Tribes and Bands of the Yakama Nation
Idaho Department of Fish and Game
Kootenai Tribe of Idaho
Montana Fish, Wildlife and Parks
National Marine Fisheries Service
Nez Perce Tribe
Oregon Department of Fish and Wildlife
Shoshone-Bannock Tribes of Fort Hall
Shoshone-Paiute Tribes of Duck Valley
U.S. Fish & Wildlife Service
Washington Department of Fish and Wildlife

Coordinating Agencies

Columbia River Inter-Tribal Fish Commission
Upper Columbia United Tribes
Compact of the Upper Snake River Tribes

DATE: April 20, 2009
TO: Members Advisory Group (MAG)
FROM: Anadromous Fish Advisory Committee (AFAC) and CBFWA Staff
SUBJECT: Estimates of Columbia River Fish Runs

At their January 21-22, 2009 meeting in Boise, the Members assigned the AFAC to work with the MAG to develop strategies to (1) identify how the 5 million fish goal was established by the Northwest Power Planning Council (Council) for the 1987 Fish and Wildlife Program, (2) summarize how current population objectives have been established, and (3) develop criteria for establishing population goals (including broad sense recovery).

Development of 5 Million Fish Goal

The original 5 million fish goal included fish bound for the Columbia that were harvested in ocean fisheries. Council Staff estimated that annual run sizes from 1977 through 1981, including ocean harvest, averaged about 2.5 million fish. They estimated losses caused by the hydrosystem to be in the range of 5-11 million fish; however, mitigation for all losses was not deemed feasible at that time; therefore, Council developed an interim goal of doubling the run size to 5 million fish.

Council Staff used estimated ratios of ocean catch to Columbia River runs (from PFMC and WDFW), by species and race, to estimate average numbers of fish from 1977 through 1981. Table 1 compares estimates made by Council Staff for 1977-81 to the AFAC summary of estimates of "minimum numbers of adult salmon and steelhead entering the Columbia River" for the same time period (from the Status Report on Columbia River Fish Runs and Fisheries by ODFW and WDFW; 2002).

The AFAC estimate of fish entering the Columbia River based on the ODFW and WDFW Status Report is much lower than the Council Staff estimate using the ratio of ocean catch to Columbia River runs. The difference is most pronounced for fall Chinook and Coho. Differences in estimates for other species are relatively minimal. Discussions with Chris Kern, ODFW harvest manager, indicate that although the numbers from the ODFW and WDFW Status Report are "minimum", most fall Chinook and Coho are accounted for; therefore, the actual run sizes are likely closer to the "minimum" estimate than to the Council staff estimate. Adding 20% to the total "minimum" estimate (considered the maximum error likely in the estimated run sizes), results in an estimated average run size from 1977-81 of just under 2.1 million fish, including ocean harvest. Therefore it appears to be appropriate for the AFAC to re-examine the basinwide goal for the Program. With improved population scale abundance estimates and comprehensive analyses on limiting factors and life stage survival, the fish and wildlife managers are in good

position to provide better and more transparent population and basinwide abundance goals for anadromous fish in the Columbia River Basin.

Table 1. Estimates of average 1977-81 Columbia River salmon and steelhead runs by Council (using ratio of ocean catch to Columbia runs) and by the AFAC (using minimum run size estimates from ODFW and WDFW). Shaded areas highlight comparisons between the two estimates for average number of fish entering the Columbia River.

Species/race	Council Analysis (1986)			AFAC Analysis (2009)	
	Ocean Catch	Fish Entering Columbia	Total Run	Fish Entering Columbia	Total Run
Chinook Spring	179,400	152,100	331,500	173,000	352,400
Chinook Summer	28,400	48,300	76,700	28,583	56,983
Chinook Fall	341,000	784,900	1,125,900	318,240	659,240
Coho	237,900	475,800	713,700	229,940	467,840
Sockeye	0	58,200	58,200	57,145	57,145
Chum	0	2,000	2,000	1,000	1,000
Steelhead Winter	0	67,500	67,500	90,180	90,180
Steelhead Summer	0	143,400	143,400	186,880	186,880
Totals	786,700	1,732,200	2,518,900	1,084,968	1,871,668

Establishment of Population Objectives

The basic source and general method for developing current objectives for natural spawners are summarized in Table 2. Similar information is available for hatchery fish objectives and for subbasins where objectives have been developed only for “total return”.

Table 2. Source and general method for establishing objectives for natural spawners.

Source	Specific Analysis	Preliminary Estimate	Minimum Abundance Criteria	Minimal Analysis
Recovery Plan	46	21	6	0
Subbasin Plan	15	0	0	9
Multi-Agency Plan	0	0	0	7
Agency/Tribal Plan	1	0	0	2
Personal Communication	0	0	0	1
Other	4	0	0	0

Criteria for Establishing Population Goals

The AFAC does not recommend any one method for establishing goals or objectives. The AFAC instead recommends that subbasin or population level objectives (1) be based on the best information and science available, (2) be fully documented, and (3) include criteria for natural production, hatchery returns, and harvest levels. The AFAC further recommends that this assignment and further development of biological objectives be temporarily suspended. Little is to be gained from further adjustments until work begins to assist the Council in updating subbasin management plans. The objectives summarized by the AFAC will be an important base for updating these plans.