

2014

A Report on the Columbia River Salmon and Steelhead Endorsement ESSB 5421

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And

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WDFW

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Introduction

The Columbia River Salmon and Steelhead Endorsement began with a grassroots effort by a handful of individuals in the Upper Columbia Regional Fisheries Enhancement Group to establish a means by which dedicated funding would be used to maintain and to the extent possible increase recreational fishing opportunity in the upper Columbia. The Endorsement Stamp proposal was subsequently expanded by the legislature to include the entire Columbia River and select tributaries. Specifically, the fee is intended to support fishery management activities, including scientific monitoring and evaluation, data collection, permitting, reporting, and enforcement. The annual endorsement was one of several license fee changes approved by the Legislature in 2009 that helped offset a portion of the \$30 million cutback in the 2009-2011 budget for the Washington Department of Fish and Wildlife (WDFW).

Without the financial support this citizen proposed endorsement has generated, WDFW would not have been able to maintain many of the fishery opportunities recreational anglers have available to them in the Columbia River Basin.

Executive Summary

The Columbia River Recreational Salmon and Steelhead Endorsement (CRSSE) program was established by the Legislature in 2009 with the fee effective April 1, 2010 for the 2010-2011 license year. The legislation requires all anglers 15 years of age and older who fish for salmon and steelhead in the Columbia River and select tributaries to purchase an endorsement (currently \$7.10 for age 15, 70+, and disabled veterans, and \$8.75 for all others). Funds generated from this fee are intended to *“facilitate continued and, to the maximum extent possible, improved recreational salmon and steelhead selective fishing opportunities on the Columbia river and its tributaries by supplementing the resources available to the department to carry out the scientific monitoring and evaluation, data collection, permitting, reporting, enforcement, and other activities necessary to provide such opportunities.”* (ESSB 5421, sec 2). The CRSSE is administered by the WDFW; however, the legislation also created the Columbia Recreational Salmon and Steelhead Recreational Anglers Board (CRSSRAB) which advises and makes recommendations to the WDFW regarding program activities and expenditures. CRSSRAB is a citizen based recreational fishing panel made up of 6-10 individuals (presently nine are serving) appointed by the director of WDFW. The CRSSRAB currently meets twice a year to review and discuss funding proposals, review expenditures, and to ensure expected revenue can meet funding requests.

As of June 2014, more than 933,843 endorsements have been sold since 2010, generating over \$7,003,825 in revenue with a conservative estimated maintained or increased angler opportunity of 1,060,344 angler days. The economic benefit to the State and local economies is estimated at \$61,500,000 (approximately \$87,000,000 if adjusted for inflation).

Purpose

Implemented as a pilot stamp program in 2009, by December 1, 2014, the WDFW and the CRSSRAB are required to prepare a report to the Legislature as stated in ESSB 5421, sec 6, providing *“a brief summary of the activities conducted under the program, and to provide this summary and a recommendation as to whether the program should be continued to the appropriate committees of the Senate and House of Representatives”*.

The CRSSE was created to fund a program by which recreational fisheries are continued and to the extent possible enhance and/or increase recreational salmon and steelhead fishing opportunities.

Funding generated by the endorsement is specifically intended to supplement resources available to the WDFW *“to carry out scientific monitoring and evaluation, data collection, permitting, reporting, enforcement, and other activities”* necessary to support continued/new opportunities.

Outcome

From April 1, 2010 through June 30, 2014, 84 projects have been approved or renewed for funding by the CRSSRAB (Figure 1). Approximately 52% of the dollars were allocated to create new fisheries or maintain existing fisheries which were losing funding necessary for support (meet permit conditions through monitoring impacts to ESA listed species). Approximately 24% went to enforcement of recreational fisheries in CRSSE waters. The balance (approximately 24%) went to other activities such as fishing access, fund administration, research (e.g. hooking mortality studies), monitoring infrastructure (e.g. PIT tag arrays designed to improve tributary based population estimates), and ESA permitting for implementation of new conservation fisheries (e.g. Wenatchee spring Chinook) or enhancement of existing conservation fisheries (e.g. development of sliding scale for upper Columbia summer steelhead). For specific details on individual projects, refer to executive summaries in the appendix. Due to the apparent success of the CRSSE, the State of Oregon has enacted an Endorsement Act modeled after the Washington program. Beginning Jan. 1, 2014 all Oregon anglers fishing for salmon, steelhead or sturgeon in the Columbia Basin were required to purchase an endorsement.

http://www.dfw.state.or.us/fish/CRP/columbia_river_basin_endorsement.asp

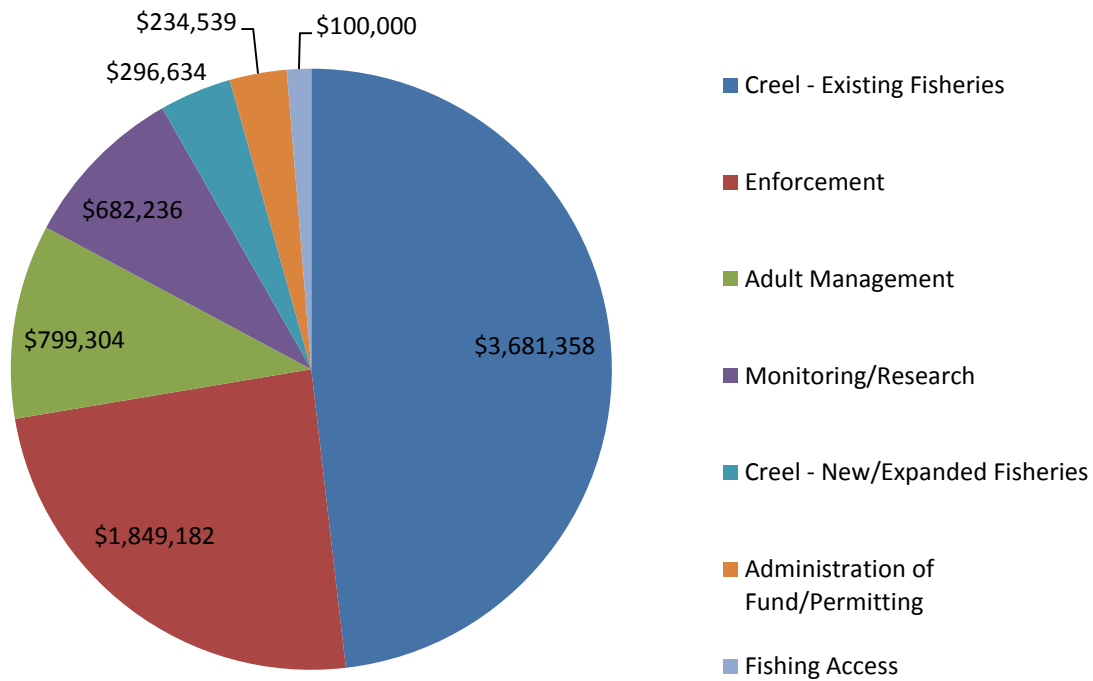


Figure 1. Amount of funding approved by category

Through June 2014, just over \$7 million dollars have been generated through Endorsement sales statewide (approximately 934,000 endorsements; Table 2), which results in an estimated annual revenue of approximately \$1.5 million. Annual revenue over the last five years has varied little (by approximately \$41 thousand per year) which has allowed the WDFW and the CRSSRAB to develop budget and revenue models that provides both certainty in determining if sufficient funding exists for projects as they are proposed and to allow for a means to prioritize funding if projects compete for limited funds.

While over \$7 million has been generated to date, one of the key metrics for program success is whether revenue is under-shadowed by the economic benefit gained by maintaining or implementing new fisheries. Presently the WDFW uses TCW Economics (2008) as the current estimator for economic value based upon an estimate of dollars spent per angler day (\$58). It has been largely recognized (and discussed by the WDFW and the CRSSAB) that this value, based upon 2006 data, likely significantly underestimates the actual economic value.

Table 2. Columbia River Salmon and Steelhead Endorsement Revenue by Customer County and Calender Year (2009-2014*)

County	CY09	CY10	CY11	CY12	CY13	CY14*	Total
ADAMS	\$0.00	\$7,911.75	\$7,735.20	\$7,746.75	\$8,066.85	\$6,595.05	\$38,055.60
ASOTIN	\$24.75	\$15,295.50	\$14,252.70	\$13,721.40	\$13,960.65	\$10,056.75	\$67,311.75
BENTON	\$313.50	\$109,263.00	\$110,274.45	\$106,601.55	\$107,325.90	\$84,197.85	\$517,976.25
CHELAN	\$231.00	\$45,564.75	\$43,888.35	\$44,038.50	\$44,193.60	\$37,743.75	\$215,659.95
CLALLAM	\$41.25	\$4,116.75	\$4,087.05	\$4,271.85	\$3,986.40	\$2,879.25	\$19,382.55
CLARK	\$330.00	\$228,747.75	\$231,782.10	\$227,526.75	\$222,626.75	\$176,804.10	\$1,087,817.45
COLUMBIA	\$33.00	\$3,465.00	\$3,743.85	\$3,369.30	\$3,133.35	\$2,661.45	\$16,405.95
COWLITZ	\$462.00	\$118,074.00	\$116,985.00	\$114,922.50	\$107,972.70	\$89,773.20	\$548,189.40
DOUGLAS	\$148.50	\$21,895.50	\$21,908.70	\$21,803.10	\$21,946.65	\$18,935.40	\$106,637.85
FERRY	\$0.00	\$1,435.50	\$1,475.10	\$1,348.05	\$1,349.70	\$1,285.35	\$6,893.70
FRANKLIN	\$66.00	\$38,874.00	\$41,568.45	\$40,454.70	\$41,561.85	\$33,453.75	\$195,978.75
GARFIELD	\$16.50	\$2,326.50	\$2,202.75	\$2,121.90	\$2,004.75	\$1,679.70	\$10,352.10
GRANT	\$24.75	\$25,187.25	\$26,322.45	\$25,236.75	\$26,949.45	\$21,165.30	\$124,885.95
GRAYS							
HARBOR	\$90.75	\$13,752.75	\$13,242.90	\$12,983.85	\$12,259.50	\$9,728.40	\$62,058.15
ISLAND	\$24.75	\$5,634.75	\$5,149.65	\$5,128.20	\$5,618.25	\$4,458.30	\$26,013.90
JEFFERSON	\$0.00	\$2,293.50	\$2,527.80	\$2,229.15	\$2,277.00	\$1,909.05	\$11,236.50
KING	\$503.25	\$162,962.25	\$161,929.35	\$159,350.40	\$161,926.05	\$126,934.50	\$773,605.80
KITSAP	\$74.25	\$21,730.50	\$21,067.20	\$20,240.55	\$19,760.40	\$16,102.35	\$98,975.25
KITTITAS	\$16.50	\$11,995.50	\$12,561.45	\$12,474.00	\$13,332.00	\$10,315.80	\$60,695.25
KLICKITAT	\$33.00	\$19,156.50	\$19,965.00	\$18,927.15	\$18,752.25	\$15,561.15	\$92,395.05
LEWIS	\$214.50	\$58,352.25	\$57,032.25	\$55,041.45	\$55,435.05	\$45,998.70	\$272,074.20
LINCOLN	\$0.00	\$3,489.75	\$3,679.50	\$3,593.70	\$3,630.00	\$3,024.45	\$17,417.40
MASON	\$33.00	\$10,221.75	\$9,904.95	\$10,292.70	\$9,106.35	\$7,461.30	\$47,020.05
OKANOGAN	\$66.00	\$25,014.00	\$24,177.45	\$22,334.40	\$21,935.10	\$17,051.10	\$110,578.05
PACIFIC	\$57.75	\$13,596.00	\$12,066.45	\$12,081.30	\$11,418.00	\$9,994.05	\$59,213.55
PEND OREILLE	\$0.00	\$1,650.00	\$1,889.25	\$1,503.15	\$1,615.35	\$1,366.20	\$8,023.95
PIERCE	\$363.00	\$130,341.75	\$133,285.35	\$128,134.05	\$127,365.15	\$99,955.35	\$619,444.65
SAN JUAN	\$0.00	\$924.00	\$722.70	\$787.05	\$831.60	\$721.05	\$3,986.40
SKAGIT	\$82.50	\$8,868.75	\$8,287.95	\$8,188.95	\$8,934.75	\$6,509.25	\$40,872.15
SKAMANIA	\$0.00	\$8,802.75	\$8,551.95	\$8,195.55	\$7,558.65	\$7,299.60	\$40,408.50
SNOHOMISH	\$132.00	\$68,607.00	\$67,542.75	\$68,103.75	\$68,024.55	\$53,134.95	\$325,545.00
SPOKANE	\$198.00	\$79,719.75	\$79,531.65	\$76,134.30	\$77,546.70	\$54,831.15	\$367,961.55
STEVENS	\$16.50	\$5,733.75	\$6,309.60	\$6,167.70	\$6,289.80	\$5,227.20	\$29,744.55
THURSTON	\$115.50	\$64,317.00	\$63,157.05	\$60,959.25	\$60,906.45	\$48,219.60	\$297,674.85
WAHIAKUM	\$57.75	\$7,433.25	\$7,594.95	\$7,136.25	\$6,736.95	\$6,002.70	\$34,961.85
WALLA WALLA	\$74.25	\$33,255.75	\$32,962.05	\$30,061.35	\$30,313.20	\$23,202.30	\$149,868.90
WHATCOM	\$41.25	\$11,904.75	\$11,924.55	\$11,906.40	\$12,549.90	\$9,340.65	\$57,667.50
WHITMAN	\$0.00	\$11,616.00	\$11,853.60	\$11,315.70	\$10,947.75	\$7,839.15	\$53,572.20
YAKIMA	\$239.25	\$99,255.75	\$99,455.40	\$94,599.45	\$95,112.60	\$78,820.50	\$467,482.95
OTHER	\$255.75	\$179,528.25	\$173,264.85	\$148,574.25	\$154,383.00	\$75,799.35	\$731,805.45
Total	\$4,380.75	\$1,682,315.25	\$1,675,863.75	\$1,609,607.10	\$1,609,644.95	\$1,234,039.05	\$7,815,850.85

* as of 5:52PM on 07/19/2014

Using the \$58 per angler day estimate for fisheries funded to date, the economic value to the state of Washington is about \$61.5 million. This is a return on dollars spent back to the State and local economies of about 9:1. If TCW's \$58 per trip estimate is adjusted based upon the Consumer Price Index (CPI) for years 2007-2014, the amount of CRSSE money spent by recreational anglers is about \$82, pushing the economic value up to about \$87 million, a return of about 12.5:1 on CRSSE dollars spent.

Recommendation to the Legislature

It is the recommendation of CRSSRAB and WDFW that the Columbia River Salmon and Steelhead Endorsement be continued. The CRSSRAB unanimously submits the following recommendations for the legislature's consideration:

- Recommend legislation for the Columbia River Salmon and Steelhead Endorsement Program be extended.
- Expand lower endorsement boundary from Rocky point/Tongue point downstream to Buoy 10, to be consistent with Oregon's new salmon, steelhead, and sturgeon endorsement.
- Leave the cost of the endorsement as is for the present. No reduction in cost for daily fishers.

While not unanimous, a majority of the CRSSRAB had the following additional recommendations:

- Recommend that the sunset provision is retained, but make the next report to the legislature due in six years (December 1, 2020).
- Add language to the Bill to allow the Endorsement fee to keep pace with inflation beginning with the next six-year review.

Funds provided through the CRSSE have allowed the continuation and expansion of recreational salmon and steelhead angling within the Columbia River and its tributaries. Continuation of the Endorsement program will allow the WDFW to continue to support current fisheries and pursue new angling opportunities as they arise. An example, and of particular interest to recreational salmon and steelhead anglers in the upper Columbia River, is a new 700,000 spring Chinook stocking program. This program is made possible through the Confederated Tribes of the Colville Indian Reservation's new hatchery constructed in the upper Columbia River and will provide an opportunity to implement a mainstem Columbia River spring Chinook fishery above Wells Dam. The acquisition of new Section 10 permits for Methow spring Chinook and summer steelhead hatchery programs will provide additional opportunity open a new spring Chinook conservation fishery in the Methow River and an enhanced steelhead conservation fishery in the upper Columbia and Methow Rivers once ESA consultations have been completed (2015). Without the endorsement program to support monitoring and enforcement of these fisheries (always a term and condition of the Section 10 permits), the WDFW will not have the financial resources to implement those fisheries. Implementation of the new anticipated fisheries is expected to contribute significantly to the State and local economies.

The CRSSRAB and the WDFW encourage the Legislature to continue the CRSSE program within WDFW's license fee structure to ensure fisheries currently funded and new anticipated fisheries can be implemented at the level required under the ESA. The majority of the

CRSSRAB and the WDFW encourage the Legislature to add language to the bill which allows the endorsement to keep pace with inflation. The inability of the fund to keep pace will eventually restrict the number of Columbia River salmon and steelhead fisheries that can be maintained, let alone fund new fisheries.

Lastly, the CRSSRAB has recognized the need for codifying the methodologies that have been developed for the administration of the CRSSE program. The CRSSRAB is currently developing a process manual similar to the Lead Entity Manual developed and used by the Yakima Basin Salmon Recovery Board, for prioritizing and selecting proposals for funding.

References

Engrossed Substitute Senate Bill 5421, ESSB. 5421, WA 61st Leg. (2009)

TCW Economics. 2008. Economic analysis of the non-treaty commercial and recreational fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With technical assistance from The Research Group, Corvallis, OR. . TCW Economics, Sacramento, CA. December 2008.

http://www.dfw.state.or.us/fish/CRP/columbia_river_basin_endorsement.asp

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Appendix

Individual CRSSE Project Reports 2010-2014

**To accompany a report on the Columbia River Salmon and Steelhead
Endorsement ESSB 5421**

CRSSE Advisory Board

EXECUTIVE SUMMARY: 2010-2013 Run Years to Snake River Steelhead and Fall Chinook Fisheries

Project Description: Steelhead and fall Chinook fisheries in the Snake River Basin are all conducted under Fishery Management and Enhancement Plans (FMEP) permits due to the presence of ESA listed species, and fishery creel surveys are required to monitor the impacts to listed species. Past monitoring of these fisheries has been funded exclusively through the Lower Snake River Compensation Plan (LSRCP) program. Beginning in 2007, a loss in available LSRCP funds and increasing costs to monitor fisheries (transportation), resulted in elimination of certain sampling areas (e.g. Tucannon River). Without replacement funding, Snake River Basin fisheries would likely be curtailed or eliminated. Since then, funding was obtained from the CRSSE to continue the necessary monitoring of these fisheries.

Results to Date: Through combined LSRCP and CRSSE funding, steelhead and fall Chinook fisheries have remained opened and were monitored throughout the mainstem Snake River, and creel surveys in the Tucannon River were re-established for monitoring the summer steelhead fishery.

Resource Management, Economic, Angling and Resource Benefit: The investment from the CRSSE program (plus LSRCP) allows steelhead and fall Chinook fisheries to remain open and allow adequate monitoring for recovery of coded-wire tags from hatchery fish in the Snake River and major tributaries in SE Washington (Table 1), and to estimate ESA impacts to listed species by documenting the number of wild origin fish captured and released during these fisheries.

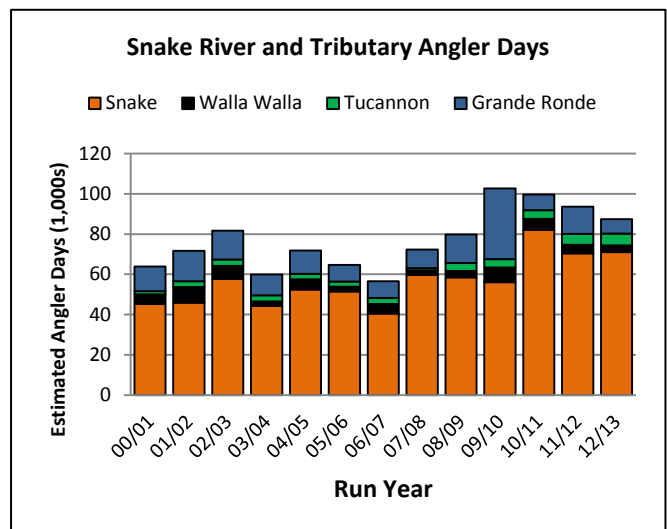
Table 1. Number and percent of CWT recoveries by Agency origin, 2010-2012 Run Years.

River Section	WA	OR	ID	USFWS	Tribal
Mainstem Snake (Steelhead)	177	271	309	20	0
Mainstem Snake (Fall Chinook)	163	45	5	0	166
Grande Ronde (Steelhead)	166	87	0	0	0
Tucannon (Steelhead)	27	0	0	0	0

These fisheries generate considerable economic revenue to local businesses, state, county and city operations (Table 2). With the combined funding, all historic fishery areas have remained open (174 miles of the Snake River and 34 miles of the Tucannon River). For the 2010, 2011, and 2012 run years, we estimated 82,000, 70,400 and 70,700 angler days, respectively, for the Snake River steelhead fishery alone (Figure 1). The additional funding allows for proper monitoring of the fisheries and assists in the overall management of steelhead and fall Chinook to the Snake River, which in turn is critical to the determining success of meeting recovery goals of those populations.

Table 2. Economic Benefit Generated in SE Washington

Run Year	LSRCP Funds	CRSSE Funds	Est. Economic Value Based on \$58 / Angler Day
2010	~\$72,000	~\$16,000	\$5.8 million
2011	~\$65,000	~\$25,500	\$5.5 million
2012	~\$67,000	~\$27,000	\$5.1 million
2013	~\$68,000	~\$54,000	Not Available Yet



EXECUTIVE SUMMARY: 2001-2012 Snake River Spring Chinook Fisheries

Project Description: Snake River spring Chinook fisheries have varied greatly in season length and areas open, since they were initiated in 2001. Lower Snake River spring/summer Chinook fisheries are set up under the umbrella of ESA allowable impacts established for the Columbia River main-stem fisheries, and fishery creel surveys are required to monitor the impacts to listed species. Spring Chinook fisheries in the Snake River have required intensive monitoring for assessment of both ESA take and adult harvest targets (that are subject to changes in-season). Initial funding to monitor these fisheries came from state general fund, but in recent years has been obtained through the CRSSE. The CRSSE has provided a stable source of funding that has enabled us to make improvements to our creel design, implementation, and analysis.

Results to Date: Through CRSSE funding, spring Chinook fisheries have remained opened and were expanded as allowed under annual harvest allocations and ESA take limits. In 2013, funding was provided for a statistical review of our sampling design, methods and fishery calculations that enables us to provide reasonable confidence limits on the fishery estimates.

Resource Management, Economic, Angling and Resource Benefit: The investment from the CRSSE program allows spring Chinook fisheries to remain open and provides for adequate monitoring to estimate ESA impacts to listed species and harvest of adult hatchery fish. These fisheries generate considerable angler interest and economic revenue to local businesses, state, county and city operations (Figures 1 and 2). With this funding we continue to assess our creel design and implementation to allow for maximum harvest of hatchery spring Chinook while limiting impacts to wild fish.

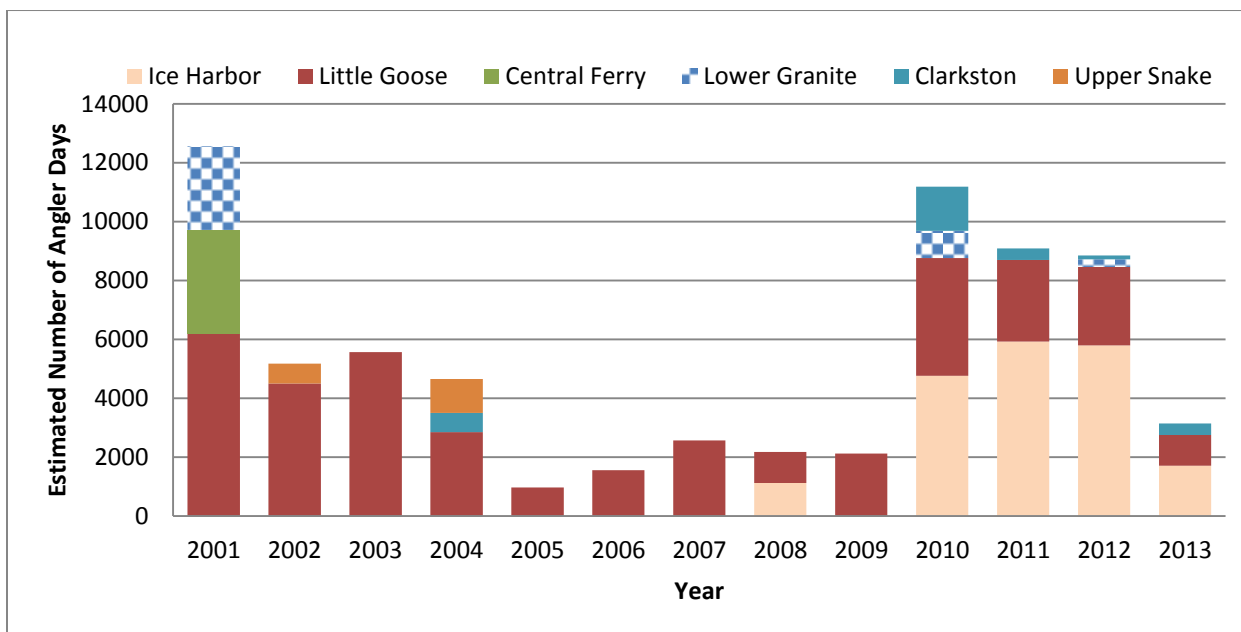


Figure 1. Snake River spring Chinook angler days, by reach and total, 2001-2013. The Upper Snake was from the Southway Bridge (between Clarkston, WA and Lewiston, ID) to Heller Bar)

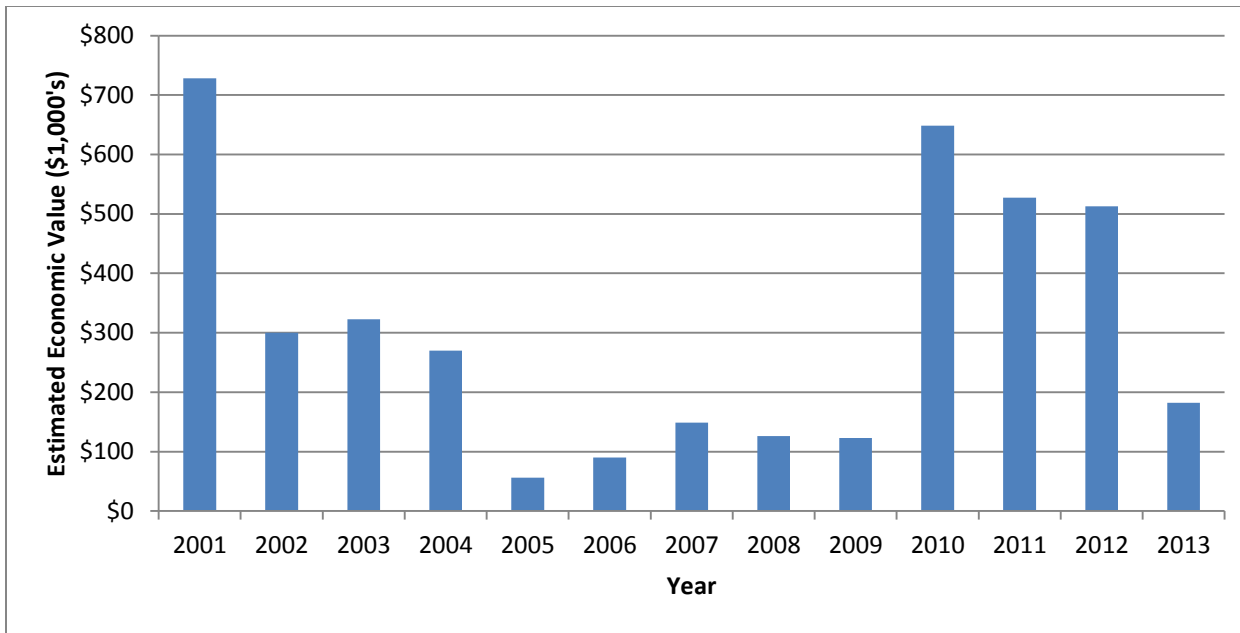


Figure 2. Estimated economic value of Snake River spring Chinook fisheries, 2001-2013, based on \$58 per angler day.

Columbia River Salmon and Steelhead Recreational Advisory Board

2011 Bridge 1, Lower Methow Public Fishing Access

Executive Summary

Project Description: This project was originally designed to facilitate the purchase of 15 acres of riverfront property on the lower Methow River, providing increased public access to fisherman and other recreation users while protecting riparian habitat.

Result: Appraisals and landowner negotiations resulted in the purchase of a smaller tract than originally envisioned. CRSSE funding was intended to be combined with PUD NNI (No Net Impact) mitigation funds to purchase 6.3 acres of riverside property; however, of the \$100,000 allocated for this project, only about \$1,500 was charged for land surveys. The remaining NNI funds was combined with funding procured through the State's Jobs Now bill was sufficient for purchase and development of the access area. Construction of a road, parking, toilet, and boat launch began in 2013 and is slated to be finished in 2014. This project also protects approximately 1,000 feet of left bank riparian shoreline habitat.

Economic, Angling and Resource Benefit: Methow River sport fisheries are very popular in the Upper Columbia Basin with considerable benefits to salmon recovery and the local economy. The removal of hatchery fish through these sport fisheries is an important component to recovery goals within the federally approved Upper Columbia Salmon Recovery Plan. The project also protects riparian habitat from development. Past fisheries have been especially encumbered by overcrowding of boats on the lower reaches of the Methow River as well as limited access. The addition of this public access helps alleviate some of these issues by providing a boat takeout before reaching the area designated as shore angling only. Some additional shoreline angling is also provided. As a whole, this project creates a more enjoyable and orderly fishery.

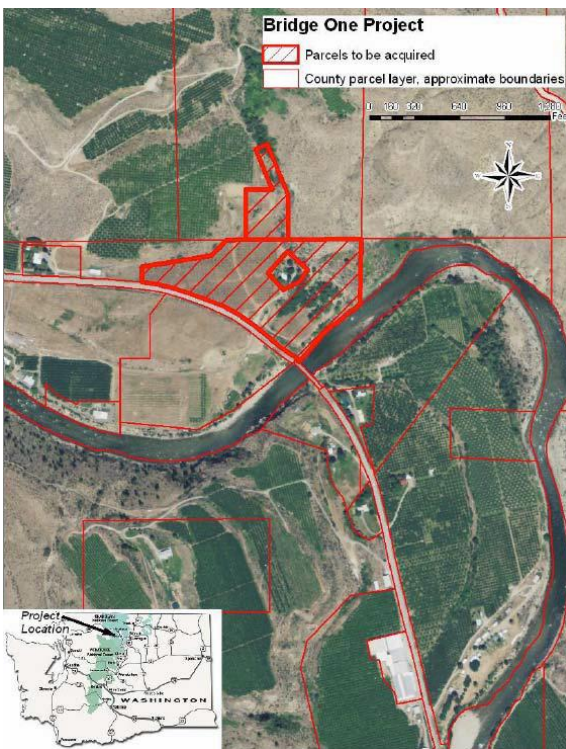


Figure 1. Shoreline of bridge 1 access site prior to construction of boat launch and parking area, spring of 2014.



Figure 2. Parking area and restroom constructed during the summer of 2014.



Columbia River Salmon and Steelhead Recreational Advisory Board

CRSSE Fund Administrative Coordinator

Executive Summary

Project Description: Tasks related to the administration of the pilot Salmon and Steelhead Endorsement fund were originally (2010) conceived to be a reasonable portion of the duties of the Upper Columbia River Salmon Recovery Coordinator position also partially funded funding (33%) by CRSSE funds to address the pressing need for coordination of several high profile activities in salmon recovery, including permitting and fisheries related to adult management of hatchery origin returns. Administrative tasks proved to be far more time consuming. In 2012, the CRSSE board approved funding to support up to 4 months of salary for a CRSSE Fund Administrative Coordinator (Fish & Wildlife Biologist 2) to improve the overall efficiency of administrative tasks.

Result: This position was filled in 2013, and administrative responsibilities such as budget monitoring, proposal review, reporting, public relations, data/records management, meeting preparation, and internal DFW coordination activities related to the CRSSE Program were transferred. A draft for the legislative report on the CRSSE program due to the legislature in December 2014 were also initiated, including initial stages of executive summary and post project reports for all past proposals.

Benefit: Reducing the workload of the Upper Columbia Salmon Recovery Coordinator has allowed appropriate time to be spent with the administration of permitting associated with fisheries impacting ESA listed salmon and steelhead on the upper Columbia River. Transferring administrative tasks to a Fish and Wildlife Biologist 2 has significantly dropped the administrative costs these duties would require from the salary of a Natural Resource Scientist or Environmental Planner while still moving the CRSSE program forward in reporting to the legislature and requesting permanent dedicated fund status.

Columbia River Salmon and Steelhead Recreational Advisory Board Upper Columbia River ESA Biologist

Executive Summary

Project Description: Partial funding (40%) of upper Columbia River ESA biologist position to fulfill permitting requirements for fisheries in the upper Columbia River and tributaries (generally between Priest Rapids to Chief Joseph dams) and technical assistance to administer the Columbia River Salmon and Steelhead Endorsement Program (CRSSE). This position develops and evaluates recreational fisheries related to hatchery programs while ensuring ESA listed species are adequately protected. It serves as the Agency's mid-Col ESA biologist, as such, develops and submits reports for all applicable Section 10 (NMFS) and 6 (USFWS) permits associated with hatchery programs, research, monitoring and evaluation programs and fisheries. In addition, this position serves as the basin-wide technical lead (tracking budget and funding recommendations, data/records management, and meeting preparation).

Result: Current permits have been maintained, and reports were delivered to NOAA delivered in a timely fashion. In addition, new permits have been received for spring Chinook programs in the Wenatchee Basin which allow for the first spring Chinook fisheries in the Wenatchee River in many decades. New permits for spring Chinook programs in the Methow Basin and steelhead permits for programs in the Wenatchee and Methow basins are well underway and new permits are expected in 2014.

Columbia River Salmon and Steelhead Endorsement Program administrative tasks such as tracking funding recommendations, data/records management, and meeting preparation have been completed in an efficient and timely manner.

Benefit: The permits addressed above are essential for maintaining and expanding current fisheries and creating new fisheries. The year around presence of either spring Chinook and/or steelhead, both listed species, in the upper Columbia River require permitting for almost all fisheries in the mainstem and tributaries. Recovery actions will be enhanced through implementation of adult management including fisheries. Public confidence and participation in recovery efforts will be enhanced through realized recreational and economic benefits derived from local fisheries.

Columbia River Salmon and Steelhead Endorsement Advisory Board

Enhanced Upper Columbia River Tributary PIT Tag Monitoring

Executive Summary

Project Description:

Mark-selective steelhead fisheries in upper Columbia River tributaries target excess returning hatchery reared fish. In order to set seasons and regulations for these fisheries, managers utilize various data sources (e.g., mainstem Columbia River dam counts, run-at-large sampling, and instream tributary PIT tag monitoring) in order to estimate the number of excess hatchery reared fish returning and the impact that a fishery would have on the returning wild fish population. Instream PIT tag monitoring sites are installed at the mouth of all four major tributaries, however, river characteristics (e.g., depth, width) limit the detection efficiency of the sites on the Wenatchee and Okanogan Rivers. This project sought to address factors limiting detection efficiency of these two instream PIT tag monitoring systems by installing new transceiver systems with increased capabilities.

Results:

Washington Department of Fish and Wildlife (WDFW) staff constructed 12 new antennas for installation at each of the monitoring sites. The Okanogan and Wenatchee River monitoring sites were installed by WDFW staff in September and October 2013, respectively. Considerable staff time was donated in-kind by Colville Confederated Tribes Fish and Wildlife to assist with installing the Okanogan River monitoring site. A Biomark IS1001M transceiver and IS1001A control nodes operate the antennas at each site. Additional probes installed at the sites gather water temperature, water depth, and air temperature data. Data logging equipment and a cellular modem installed at the sites allow WDFW staff to remotely collect data and monitor the performance of monitoring system. Automated software processes send PIT tag data to PTAGIS, the regional PIT tag database, on a daily basis. The upgraded equipment installed has provided up to double the detection range of the antennas previously installed. WDFW staff continue to monitor the detection systems, ensuring the systems operate at maximum efficiency.

Economic, Angling and Resource Benefit:

Exact angler days, size of the area open, and economic value cannot be determined specifically for this proposal. However, the potential for increases in all of these areas exist due to the increase in available information used to determine fisheries. The increased detection efficiency of the instream PIT tag monitoring systems installed will enable researchers and managers to produce abundance estimates with greater precision and accuracy than previous estimates. Additionally, the ratio of hatchery reared to wild reared fish will be known with greater certainty, and updated in near real-time as the data is uploaded daily. Informed decisions determining regulations and in-season adjustments will allow fisheries to be managed with best practices, both maximizing the extent of the current fishery while also promoting returns in subsequent years, benefitting both current and future fisheries, and supporting recovery of wild fish populations.



Figure 1. PIT tag antennas being installed in the Okanogan River by Washington Department of Fish and Wildlife and Colville Confederated Tribes Fish and Wildlife staff in September 2013.

Columbia River Salmon and Steelhead Recreational Advisory Board
MONITORING OF 2010-2014 UPPER COLUMBIA RIVER FISHERIES

Executive Summary

Project Description: Upper Columbia River steelhead, summer Chinook, and sockeye fisheries in the mainstem and tributaries (primarily Wenatchee, Entiat, Methow, and Okanogan rivers) are all conducted under Section 10 permits due to the presence of ESA listed species. A creel survey to monitor the impacts to listed species during these fisheries is a mandatory requirement of these permits. Most of monitoring of these fisheries had been funded through DJ and WLS programs in the past, amounting to over \$300,000 annually for all fisheries. Beginning in 2010, a loss in available DJ and WLS funds agency-wide, coupled with additional fisheries, consistent runs, and the increased costs to monitor these fisheries (primarily transportation costs), resulted in severe shortfalls to the funding necessary to monitor these fisheries. Without replacement funding, these fisheries would be severely curtailed. Funding was sought and obtained from the Columbia River Salmon and Steelhead Endorsement (CRSSE) dedicated fund to continue the necessary monitoring of these fisheries.

Results to Date: Through CRSSE funding, fisheries were monitored during 2010 through 2013 throughout the Upper Columbia basin, generally from July through March. Support in the form of salaries, benefits, transportation, and equipment was provided for up to eight creel technicians at any given time during these fisheries, depending on which fisheries were open. Permits require that a minimum of 20% of anglers be surveyed and generally these fisheries are creeled at about 40% of participation. Summer Chinook were creeled on the mainstem Columbia from Priest Rapids Dam to Chief Joseph Dam, and also in the Wenatchee, Entiat, Chelan, Okanogan and Similkameen rivers. Sockeye fisheries were monitored from Priest Rapids to Chief Joseph Dam and in Lake Wenatchee. Steelhead fisheries were creeled from Priest Rapids to Chief Joseph, and in the Wenatchee, Methow, Okanogan and Similkameen rivers.

Economic, Angling and Resource Benefit: Management of the number of hatchery adults on the spawning grounds is critical to the recovery of the population, and fisheries are an efficient tool towards this end. Removal of excess adult hatchery fish at dams or traps would also be necessary; however, the adult management activity as a whole without the social benefit of removal through a fishery would be unacceptable to the public. A fishery and the associated economic benefits also promotes public acceptance and willing participation in recovery efforts.

This investment from the CRSSE program not only allows salmon and steelhead fisheries to remain open, but also generates considerable economic revenue to local businesses and state, county and city operations (see below). These fisheries annually account for 35-60,000 angling trips and the harvest of 10-45,000+ salmon and steelhead. Accurate, up-to-date data on these fisheries is also necessary to the proper management of returning adult populations of salmon and steelhead, which in turn is critical to the recovery goals of the populations.

Economic Benefit Generated From CRSSE Investment

Year of Funding	CRSSE Funds Allocated	Estimate Economic Value in Salmon Fisheries	Estimated Economic Value in Steelhead Fisheries	Total Estimated Economic Value
2010 - 11	\$278,093	\$917,038	\$1,386,780	\$2,303,818
2011 - 12	\$285,282	\$1,017,494	\$899,580	\$1,917,074
2012 - 13	\$387,753	\$2,020,662	\$907,062	\$2,927,724
2013 – 14 ¹	\$423,345	\$1,739,594		
2014 - 15	\$423,345 ²			

¹ Fisheries not over/data not fully compiled

² proposed

Columbia River Salmon and Steelhead Recreational Advisory Board

“2014 Yakima River Spring Chinook Mark-Selective Fishery Monitoring”

Executive Summary

Project Description: In 2002, WDFW first implemented a mark-selective fishery for spring chinook in the Yakima River to target returning Cle Elum Hatchery fish. The sport fishery is the primary tool for managing the proportion of hatchery fish on the spawning grounds in the Yakima River. Based on Hatchery Scientific Reform Group (HSRG) guidelines, the proportion of hatchery-origin spawners (pHOS) upstream of Roza Dam should not exceed 50%. Except for three years (2004, 2005 and 2014), pHOS has exceeded 50% each year since 2001 (ave. = 54.9%). However the 14-year average “Proportionate Natural Influence” (PNI) is still 65.2% (target PNI = 67%) because only natural-origin fish collected at Roza Dam are used for broodstock at Cle Elum Hatchery (pNOB = 100%). The fishery is open annually in early May and remains open as long as hatchery fish are available in the fishery and angler effort is sufficient to justify the continuation.

On April 18, 2014 an emergency fishing rule change was implemented opening two areas of the Yakima River to fishing for spring chinook salmon. The first area located from the Highway 240 bridge in Richland (RM 2.1) to the Grant Avenue bridge in Prosser (RM 47.0) opened from May 3 through June 15. The second area from the Interstate 82 bridge at Union Gap (RM 107.1) to the BNSF railroad bridge approximately 600 feet downstream of Roza Dam (RM 127.8) was open from May 17 through June 30. Daily limit was two hatchery chinook, minimum size of twelve inches. The use of two fishing poles was permitted during the salmon fishery provided the participating angler purchased a "Two-Pole Endorsement".

Results: An estimated 7,388 anglers spent 25,171 hours fishing for spring chinook in the Yakima River fishery in 2014. WDFW staff interviewed 585 anglers during the fishery, about 8% of total angler effort. The majority of the effort, catch, and harvest were upstream of the Naches River and downstream of Roza Dam. Flows in the Yakima River below the Prosser Diversion Dam averaged 5,436 cfs during the sport fishery, range 3,310-7,750 cfs. At flows above 4,500 cfs the lower river is largely unfishable with high, turbid water and few areas with adequate shorelines available for bank fishing. Roughly 12% of the angler effort and only 2% of the catch came from the lower Yakima River sport fishery in 2014.

Anglers harvested 826 hatchery spring chinook and released 542 wild chinook during the fishery. Only one wild steelhead was reported caught and released. Based on a hooking mortality of 10%, it is anticipated 54 wild spring chinook mortalities resulted during this fishery. Although the season was three weeks shorter in the upper section in 2014 than the year prior, fishing effort and catch was comparable to the year prior, 22,174 angler hours, 1,345 salmon caught in 2014 versus 22,798 angler hours, 1,242 salmon caught in 2013.

Economic, Angling and Resource Benefit: This fishery is extremely popular and attracts both local anglers and anglers from outside the Yakima Basin, as far away as Puget Sound and Spokane. This fishery also provides tangible proof to BPA ratepayers, anglers and non-anglers, who fund the Yakima/Klickitat Fisheries Project and the Cle Elum Supplementation Research Facility hatchery that salmon recovery efforts in the Yakima Basin are worth the cost and provide tangible benefits to the angling and non-angling public (economic benefits). The lower river fishery provides “small river” spring chinook opportunity close to the Tri-cities and lower Yakima Valley anglers, particularly in the Tri-cities and Prosser where an established bank fishery for fall chinook has developed over the last 15 years. WDFW hopes that the same lower basin anglers that fish for fall chinook and coho in the fall will begin to take advantage of the opportunity to fish the Yakima River hatchery spring chinook run in May and early June.

Estimated economic value for the Yakima River spring chinook fishery in 2014 was estimated at \$428,504 (Wegge 2008). The economic value of this fishery has been holding steady over the past three years. During the past seven years this fishery has generated an economic value to the local economies in excess of \$3,500,000 (Table 1 & Figure 1).

Table 1. Angler effort, angler trips, harvest, and estimated economic value of the Yakima River spring chinook fishery, 2008-14.

Year	Effort (Angler Hours)	Angler Trips	Harvest	Fish Harvested per 1,000 Trips	Estimated Economic Value ¹
2008	18,560	5,800	586	101	\$336,400
2009	20,853	6,517	541	83	\$377,986
2010	47,108	14,721	1,154	78	\$853,818
2011	35,279	11,025	1,579	143	\$639,450
2012	26,132	8,166	735	90	\$473,628
2013	22,798	7,354	786	107	\$426,532
2014	25,171	7,388	826	112	\$428,504
Total	195,901	60,971	6,207	714	\$3,536,318

¹ Economic value of chinook/steelhead fishing in freshwaters is \$58/day (Wegge 2008)

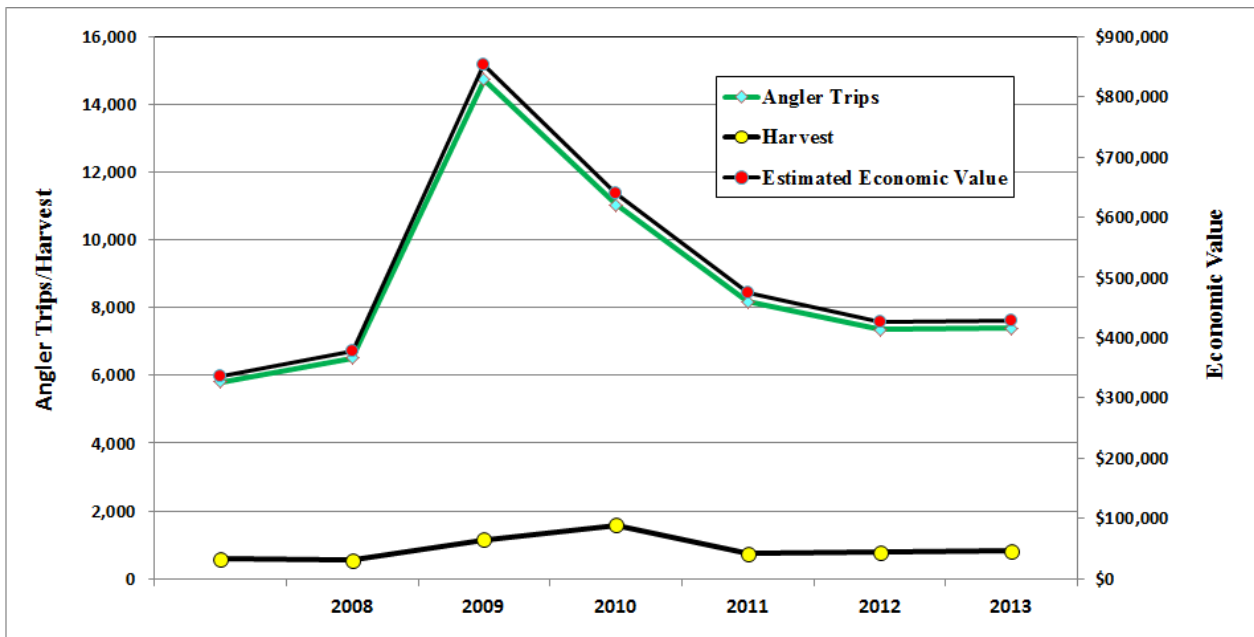


Figure 1. Angler effort, angler trips, harvest, and estimated economic value of the Yakima River spring chinook fishery, 2008-14.

Columbia River Salmon and Steelhead Recreational Advisory Board

“2012-14 Hanford Reach Steelhead Mark-Selective Fishery Monitoring”

Executive Summary

Project Description: The Hanford Reach (HR) of the Columbia River from the Highway 395 Bridge in Pasco upstream to the old Hanford townsite wooden power line towers is open for steelhead fishing annually from October 1 through April 15 by permanent regulation. Mean annual catch during the fishery is 2,679 steelhead with an annual harvest of 1,738 fish. For the first three weeks (October 1- 22), the sport fishery is also open to fall Chinook and coho salmon. Staff funded by the CRSSRAB monitor all species harvested in this area of the HR providing data on harvest, impacts to ESA-listed species, incidental catch, and angler distribution and effort for all species.

Result: Anglers spent an estimated 17,476 hours fishing for steelhead in the Hanford Reach fishery. WDFW staff sampled 23% of the estimated effort. A total of 1,170 anglers were interviewed; 854 bank anglers and 316 boat anglers. Boat anglers comprised 53% of the angling effort for the season. Approximately 29% of the angler effort occurred in October when both the steelhead and fall Chinook fisheries were open.

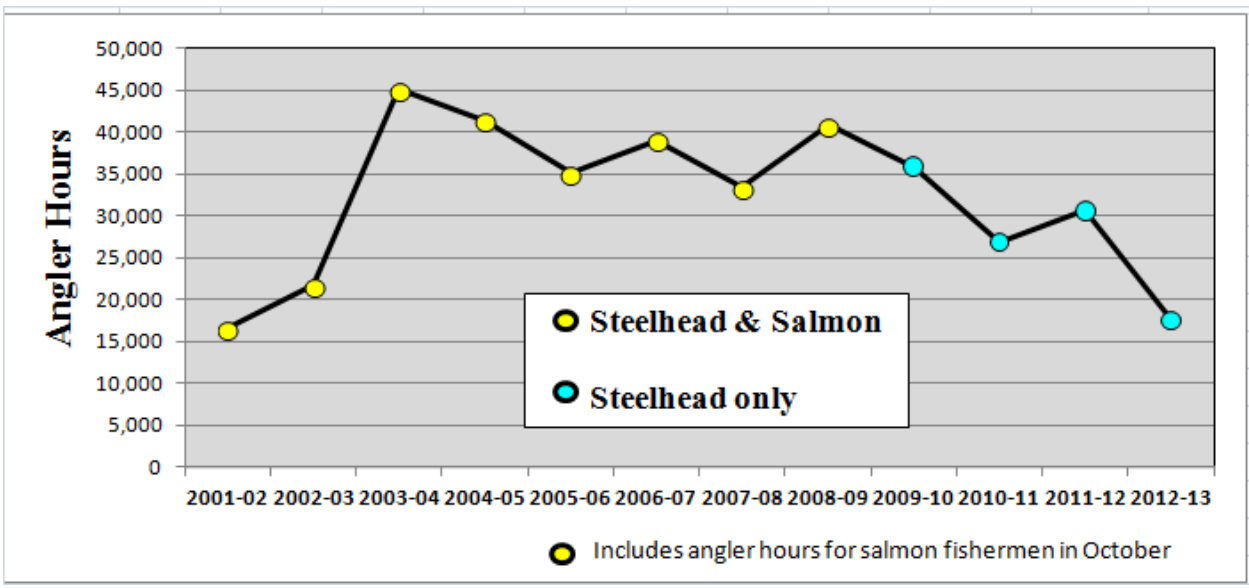
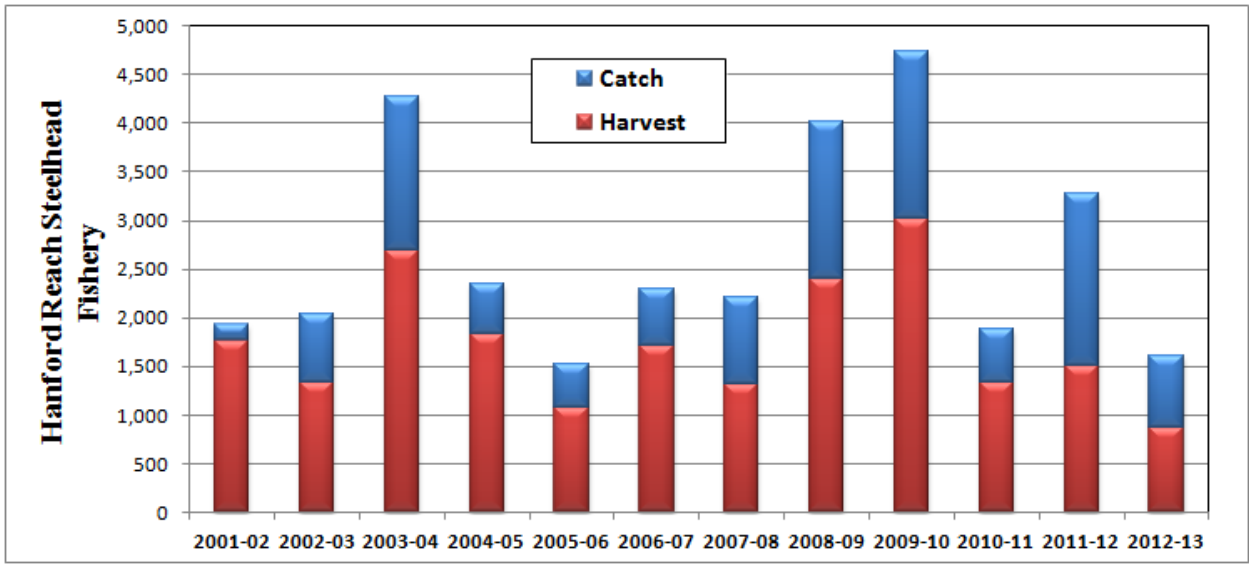
An estimated 1,607 steelhead were caught during the 2012-13 Hanford Reach steelhead sport fishery. Harvest was estimated at 874 hatchery steelhead. Only 54% of the steelhead caught were harvested. This was the result of: 1) a high number of unclipped fish (24%) in the fishery; 2) only adipose plus right ventral fin clipped steelhead (Ringold Hatchery origin) can be harvested in October; and 3) anglers fishing “catch and release” in March and April due to the poor table quality of the fish late in the fishery.

In 2012-13, 23% of the steelhead caught were unclipped. An estimated 17 wild steelhead mortalities resulted from “catch-and-release” hooking mortality and two wild steelhead were illegally harvested bringing the total to 19 upper Columbia River (UCR) wild mortalities.

Economic, Angling and Resource Benefit: The Hanford Reach spans 51 miles of free-flowing Columbia River and is located within a short driving distance from the Tri-cities metropolitan area having a population of 266,523, the fourth-largest metropolitan area in Washington State. During the peak of the fall Chinook and steelhead fishery in 2012 over 2,500 boats per week (600 per day on the weekends) were recorded fishing in this area of the Columbia River. From October 1, 2012 through April 15, 2013, 5,163 angler trips were taken for steelhead. Estimated economic value for the Hanford Reach steelhead fishery (does not include salmon anglers) is \$299,454 (Based on Wegge 2008, the dollar value of chinook/steelhead fishing in freshwater is \$58 per day).

With the “threatened” ESA listing for both hatchery and wild Wells steelhead (Upper Columbia ESU), adult steelhead returning to the Ringold Springs Rearing Facility (RSRF) are used as an “ESU-reserve stock”. This “reserve population” will be used for broodstock purposes in the event the numbers of wild fish required above Priest Rapids Dam cannot be met due to poor survival or a catastrophic loss. Smolts released from RSRF are adipose and right ventral clipped to identify them as the Ringold steelhead “ESU-reserve” population. Adult steelhead in excess of reserve population broodstock needs provide recreational fishing opportunity in the lower 23 miles of the Hanford Reach and the lower and mid Columbia River. In addition, this fishery helps to reduce

the number of hatchery-origin steelhead returning to the upper Columbia River tributaries in those years when hatchery-origin steelhead comprise too large a proportion of the return.



Columbia River Salmon and Steelhead Endorsement Advisory Board

Evaluating the Post-Release Survival of Yakima River Spring Chinook Salmon Associated with a Mark-Selective Fishery

Executive Summary

Project Description: The goal of the Yakima spring Chinook salmon hooking mortality study is to provide estimates of the post-release survival of angler caught-and-released salmon under mark-selective fishery regulations in the Yakima River. This is currently a critical knowledge gap that we are attempting to address so that future management of mark-selective salmon fisheries throughout the Columbia River Region can be improved using our results. The objective of mark-selective fisheries is to maximize the survival of unmarked (wild or natural-origin) populations while providing recreational and commercial harvest benefits on marked fish (hatchery origin). Therefore, it is important to determine the ability of spring Chinook salmon that are caught and released in mark-selective fisheries to survive and successively spawn. WDFW fishery managers currently apply a 10% pre-spawning mortality rate during spring (i.e. cold water temperature) mark-selective fisheries for the purposes of run reconstruction and estimating impacts to ESA protected populations. This broadly applied mortality rate has not been evaluated in the context of spring Chinook salmon angling in the latter stages of their spawning migration. We do not know if it adequately reflects true survival of fish released in tributary fisheries under these regulations.

During 2012 and 2013, spring Chinook salmon captured in the Yakima River at the terminus of the mark-selective fishery adjacent to Roza Dam were radio-tagged after being hooked and played by volunteer [public] anglers and WDFW staff using legal gear and methods generally used in this fishery. These hooked-and-released fish were the treatment group. During 2012 the treatment fish were marked in the fishery with an external tag to allow identification and later radio-tagged at Roza Dam. During 2013 the treatment fish were radio-tagged immediately after landing rather than at Roza Dam. A similar number of hatchery fish that were unlikely to have been hooked and released, because hatchery salmon are legal for retention, were tagged at the Roza Dam trap to serve as a control group to compare to the treatment group. Both groups of fish were tracked through the summer and fall to determine survival to spawning.

Results to Date: During the 2012 fishery, 107 adult spring Chinook were caught, externally tagged, and released in the fishery below Roza Dam. Approximately 75% of these fish were subsequently recaptured at the Roza trap and were radio-tagged. We were unable to account for the fate of the fish between the time of marking and entrance into the trap, so we could not determine what proportion of the remaining 25% of the fish were mortalities, strays, or not identified at the trap because of lost tags. From release at Roza Dam to the onset of spawning on September 1, the treatment group incurred an 11% higher mortality than the control group.

During the 2013 fishery, 70 treatment adults were caught, radio-tagged, and released in the fishery below Roza Dam. This was an adjustment to the 2012 methods so that fish could be tracked immediately after release before they entered the Roza trap, allowing us to quantify mortality that might occur immediately after release. The fish that were caught and released during the 2013 fishery incurred a 10% higher mortality to spawning than the control group.

Economic, Angling and Resource Benefit: This study has the potential to provide substantial economic benefits to local economies, regional angling opportunities, and conservation benefits for depressed salmon populations. Harvest managers for ESA-constrained spring Chinook sport fisheries will be able to use the data generated by this study to improve the accuracy of their harvest and run reconstruction models during pre-season regulation setting. Improved estimates of post-release survival of caught-and-released salmon will allow managers to adopt regulations that will maximize mark-selective fishery opportunities for anglers, while balancing the conservation of federally-protected salmon stocks. Any increase in angling opportunities will benefit local economies with an increase in spending by anglers participating in these fisheries. If the study results indicate that the pre-spawning mortality rate is actually higher than the standard 10 percent currently used, then fishery managers may be unknowingly exceeding allowable impacts on protected stocks. If this is the case, then refinement of the mortality rate will afford greater protection to listed stocks.

Figure: Photo of Roza Dam and the upper end of the fishery (train bridge) where adult spring Chinook are tagged for the study.



Columbia River Salmon and Steelhead Endorsement Advisory Board

Project Title: Monitor behavior of recycled hatchery summer steelhead in the lower Cowlitz River

Executive Summary

Project Description: Historically, adult summer steelhead returning to hatcheries on the lower Cowlitz River were sometimes transported and released in the river (recycled) to provide additional angling opportunity for the popular sport fishery in the basin. This practice has not been used in recent years because of concerns associated with interactions between hatchery and wild fish. Fishery managers were interested in resuming recycling but lacked information regarding effects of this practice on wild steelhead. This project was conducted during 2012-2013 and the purpose of this study was to (1) enumerate recycled steelhead that returned to the hatchery or were removed by anglers and (2) determine if steelhead that were not removed from the river remained in the system where they could interact with wild fish.

Results: During June–August 2012, a total of 549 summer steelhead were implanted with radio tags to track their movements and fate. The fish were captured at the Cowlitz Salmon Hatchery and released downstream at the Interstate 5 Bridge boat ramp. The results showed that 50 percent (273 fish) of the recycled steelhead returned to the hatchery and 18 percent (102 fish) of the recycled steelhead were caught by anglers. Thirty-two percent of the recycled steelhead (174 fish) were not removed from the lower Cowlitz River, based on observations from hatchery returns and angler reports, but results from the radio-tagged fish were insightful for understanding what may have happened to these fish. By comparison, it was determined that 24 percent of the radio-tagged fish were not known to have been removed from the river. Furthermore, 12 percent of these fish were actively moving in the lower Cowlitz River during October 2012–January 2013. None of the radio-tagged fish were detected in tributaries during the study period except for a single fish that spent approximately 7 days in the Toutle River during early September.

During October 2012–January 2013, 10 percent of the radio-tags from recycled steelhead were detected near popular fishing areas, and 2 percent of the radio-tagged steelhead were never detected during the study period. The authors of the study suspect that a large proportion of these fish may have been harvested and not reported, or died.

The study indicated that a large proportion (68 percent) of recycled steelhead were removed from the lower Cowlitz River by either entering the hatchery or being caught by anglers within 14 days of release. This suggests that they present minimal risk to wild fish in the system. The remaining fish (32 percent) could not be accounted for, which may complicate fisheries management decisions associated with recycling summer steelhead. Findings from the radio telemetry study suggest that unreported harvest or mortality could explain a large proportion of those fish that were not reported as having been removed from the river. Furthermore, intensive monitoring of the key spawning tributaries failed to detect a single fish during the spawning period. These findings were supported by observations from weir traps operated by the Washington Department of Fish and Wildlife. Findings from 2012-2013 indicated that additional

research was warranted to further examine the effects of recycling hatchery summer steelhead in the lower Cowlitz River. The study was repeated in 2013-2014 but results have not yet been analyzed.

Economic, Angling, and Resource Benefits: The Cowlitz River steelhead sport fishery is very important economically to Lewis and Cowlitz counties and the State of Washington. The Cowlitz River steelhead fishery is of significant benefit to local communities such as Longview, Kelso and Toledo along the Cowlitz River and also provides employment for a number of fishing guide services from throughout the state. From 2010 through 2012, on average approximately 86,000 angler trips generated a harvest of approximately 8,600 summer steelhead annually. The estimated minimum value of this fishery is \$ 4,988,000 per year (TCW 2008).

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board
Project Title: 2010-2013 Mark Selective Summer Chinook Sport Fishery Sampling
Columbia River Mouth upstream to Priest Rapids Dam

Executive Summary

Project Description: This project was designed to provide the data needed to estimate summer Chinook fishery critical management and analysis parameters and the sample sizes needed to produce these estimates with the levels of precision that can be realistically obtained.

The goal of the project was to increase sampling rates that were generally <10% or less than half the 20% minimum goal in order to provide the critical data needed. In addition to meeting the minimum sampling goal, the implementation of a mark-selective fishery requires an increase in effort to accurately estimate the number of wild fish released. Both Washington and Oregon sample this fishery.

Results: The Columbia River summer Chinook mark selective sport fishery from Priest Rapids Dam downstream occurs annually during June 16-July 31. The actual ending dates for hatchery adult Chinook retention varies from year to year, depending upon expected returns and projected catches. The results from the joint Washington/Oregon fishery during 2010-2013 are listed in the table below:

Angler Trips and Catch of Summer Chinook in the Columbia River Below Priest Rapids Dam, 2010-2013.			
Year	Angler Trips	Chinook Kept	Chinook Released
2010	70,700	3,000	1,500
2011	78,800	5,300	2,900
2012	81,900	3,000	2,600
2013	52,700	1,800	1,500

With the additional funding, the 20% mark sample goal for summer Chinook has been achieved or nearly achieved each year, and catch and effort estimates were provided with greater precision.

Economic, Angling, and Resource Benefits: A mark-selective summer Chinook sport fishery provides season stability and increased harvest opportunity for marked Chinook while reducing fishing mortality on unmarked Chinook in the area from the mouth of the Columbia upstream to Priest Rapids Dam. The mark-selective sport fishery generated 52,700-81,900 angler trips and \$3,000,000 to \$4,800,000 annually from 2010-2013 (Figures 1 and 2) (TCW 2008). This program also provides information necessary to evaluate and plan potential future Chinook mark-selective fisheries.

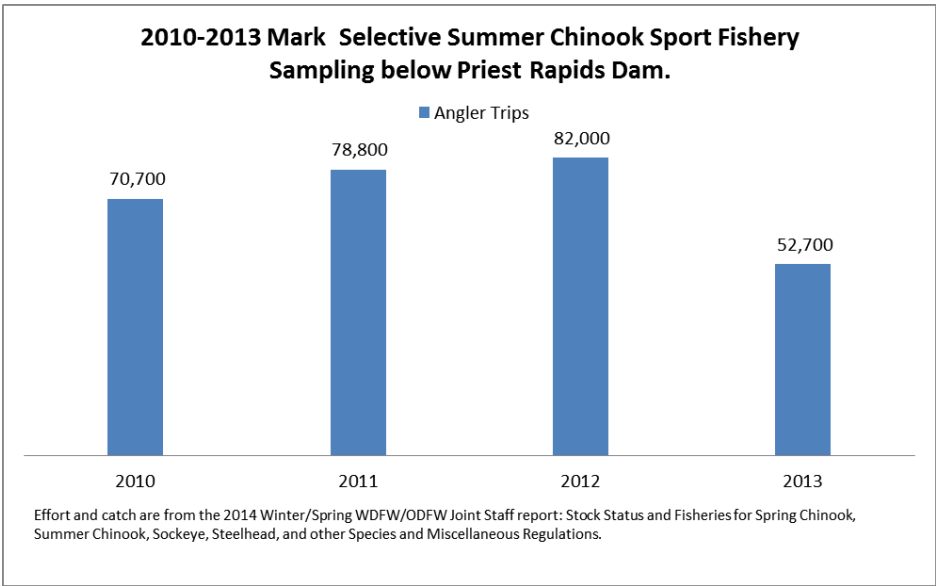


Figure 1. 2010-2013 Estimated Angler Trips.

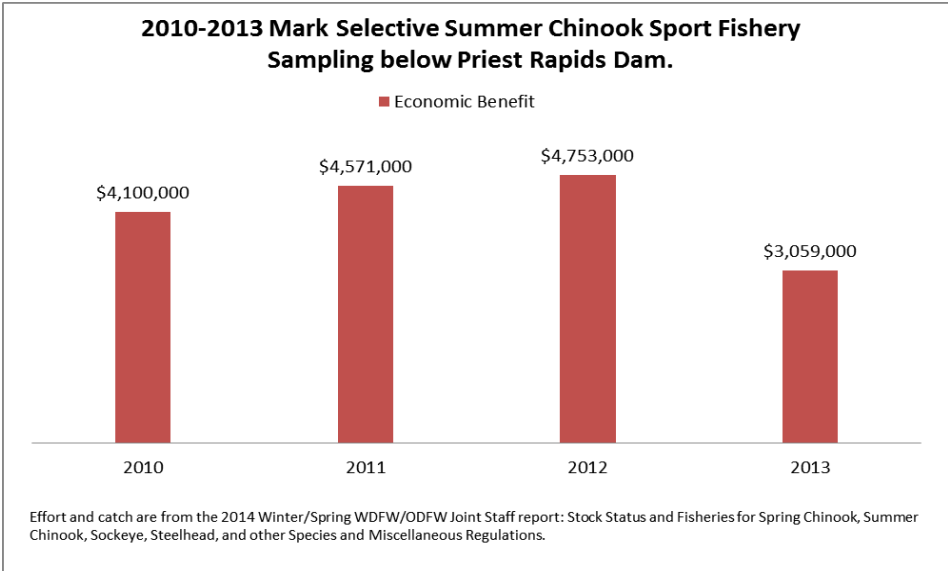


Figure 2. 2010-2013 Estimated Economic Value¹.

^{1/} Economic values includes both Washington and Oregon.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board
Project Title: 2013 Mark Selective Fall Chinook Sport Fishery Creel on the
Mainstem Columbia River Below the Mouth of the Lewis

Executive Summary

Due to impact limits to Endangered Species Act (ESA) stocks, in particular lower Columbia wild fall Chinook, the mainstem Columbia sport fishery from the Lewis River downstream was closed to retention of fall Chinook in September the past few years. In 2012, several constituents asked if a mark-selective fishery was possible during the last three weeks of September. The states met and determined a mark-selective fishery was possible, at least on a trial basis, if the fishery were adequately sampled to monitor impacts to listed stocks.

The first ever mark-selective Columbia River mainstem fall Chinook sport fishery was in 2012. In 2013, the Columbia River Salmon and Steelhead Endorsement (CRSSE) funds were used to monitor this fishery adequately. With increasing emphasis to harvest hatchery fish and efforts to reduce impacts to ESA-listed wild fish, information from the 2013 mark-selective fall Chinook mainstem sport fishery will continue to help lay the ground work and shape future fisheries.

Project Description: The primary objective of this project in 2013 was to assure the minimum 20% mark sample rate goal was attained. This would provide the necessary precision of basic data needs to conduct the fishery including 1) estimated angler trips, 2) the mark rate in the fisheries (marked and unmarked encounters), 3) the number of fish released and 4) stock composition of marked and unmarked fish.

Results: From September 6-25, 2013 an estimated 20,000 angler trips produced 3,550 adult Chinook kept and 8,000 released. Fishery mark sample rates were increased from the former 10% level to 21% which meets the minimum goal that managers strive for to estimate catch and effort in the fisheries with precision. The increased sampling rate also made it possible to recover sufficient numbers of coded-wire tags (104) to estimate stock composition and provide accurate estimates of hatchery fish kept and wild fish released. In addition, some DNA samples were collected from fish kept, for Idaho Department of Fish and Game to supplement the stock composition estimates derived from coded-wire tags. The samples were analyzed at no additional cost to this project. Additional funding to sample this and other Columbia River fisheries was provided by the Bonneville Power Administration. Both Washington and Oregon sampled this fishery in 2013.

Economic, Angling, and Resource Benefits: The 2013 mark-selective fishery generated over \$1,100,000 (TCW 2008). The economic values include both Washington and Oregon fishers.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board

Project Title: Klickitat River Creel Census

Executive Summary

Project Description: A sport creel census was conducted on the Klickitat River from June through November in 2011 and 2013. The purpose of this project was to survey sport anglers for harvest and handle of steelhead, Chinook and coho salmon. The survey area was from above Lyle Falls to the Klickitat Salmon Hatchery, approximately 40 miles. One technician was hired to collect standard creel information on boat and shore anglers fishing for salmonids. The river is planted annually with spring chinook, fall Chinook, coho and summer steelhead. The river also contains wild steelhead, which are listed under the Endangered Species Act (ESA). The river is very popular for boat and bank angling, guided and unguided fishing trips, fly fishing and fishing with bait or other gear. The last comprehensive creel census for this area was in 1979.

Results to date: In 2011, a total of 2,200 anglers were checked; 43% of the anglers were boat fishers and 57% were bank anglers. Boat anglers caught 63.8% of the fish reported and bank anglers 36.2%. Of the 300 steelhead reported caught, 233 were wild and released. October and November were the best months for steelhead catch, while September was the best month for Chinook. Interestingly, trout and whitefish made up 25% of the reported catch.

In 2013, a total of 1,900 anglers were checked with 37 hatchery steelhead kept, 82 wild steelhead released, 400 Chinook kept and 5 coho kept. There were no trout or whitefish kept, but there were 127 trout and 22 whitefish released. Nine helicopter flights were recorded from July through November to compare with ground counts of anglers.

Economic, Angling and Resource Benefit: The Klickitat River and the sport fisheries it offers are very important economically to Klickitat County and the State of Washington. Based on the average of the annual catch of salmon and steelhead reported on catch record cards from 2009-2012, the economic value of the sport fishery in the Klickitat River is over \$5.1 million dollars annually (TCW 2008). This does not include the economic value of fish released. The area surveyed is heavily fished by boat and bank angling and offers many miles of public access. The information collected from the creel will help with recovery efforts for ESA-listed fish such as steelhead in the Klickitat River.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board
Project Title: 2011-2012 South Fork Toutle River Creel Survey

Executive Summary

Project Description: The South Fork Toutle fishery is designed to provide fishing opportunity for hatchery summer steelhead at a time when many wild steelhead are not in the system. The purpose of this project was to collect information on angler effort and success, estimate wild fish handled, hooking locations by gear type and estimate hooking mortality. The survey occurred during late May 2011 through mid-March 2012.

Results: Staff conducted 473 separate interviews of a total of 981 anglers from May 21st 2011 through March 15th 2012. A total of 2,829 pole hours were fished over this time period (Figure 1). Anglers spent an average of 13.0 hours to catch a steelhead. During this time frame, an estimated 217 fish were caught, including 87 hatchery fish and 130 wild fish (Figure 2). Results were quite different between the two survey periods, with most of the hatchery fish being caught during the May through October time frame and most of the wild fish being caught during the October through March time frame. The majority of wild fish were caught towards the end of the season. This river is not planted with winter run hatchery steelhead yet a substantial fishery exists through the winter months, relying primarily on the capture and release of wild fish and hatchery strays from other areas. The majority of anglers used bobbers, with jigs, eggs and lures being the favored gear. No released fish were reported bleeding. The majority (94%) of reported fish were hooked in the jaw or tongue.

Economic, Angling and Resource Benefit: This is a very cosmopolitan fishery with anglers coming from all over Western Washington, although the majority came from the Toutle/Longview area. The South Fork Toutle fishery provides an economic benefit to the local cities and counties and to the state. Catch Record Card (CRC) data estimated 317 summer run and 18 winter run fish were caught during the period of the creel, valued at \$194,300 (TCW 2008). The actual creel data accounts for 87 hatchery and 130 wild fish. This documents a large catch and release fishery for wild fish during the winter, which is not accounted for with CRC's or in the economic analysis. It affirms that large numbers of wild fish are present and provides information about hook location and fish condition after being released.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

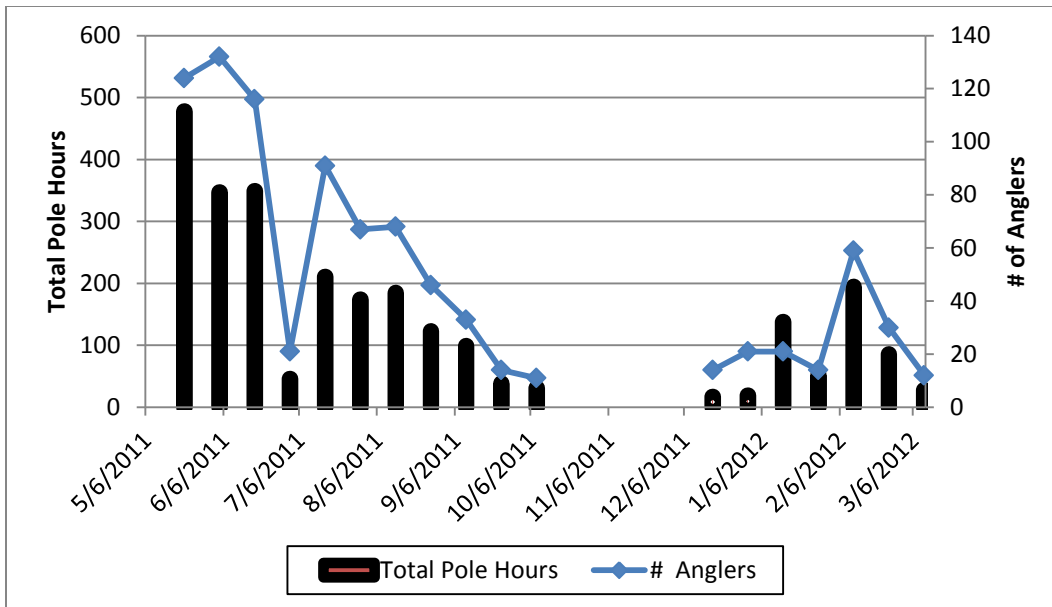


Figure 1. Biweekly South Fork Toutle River angler counts and hours fished from 5/20/2011 through 3/15/2012.

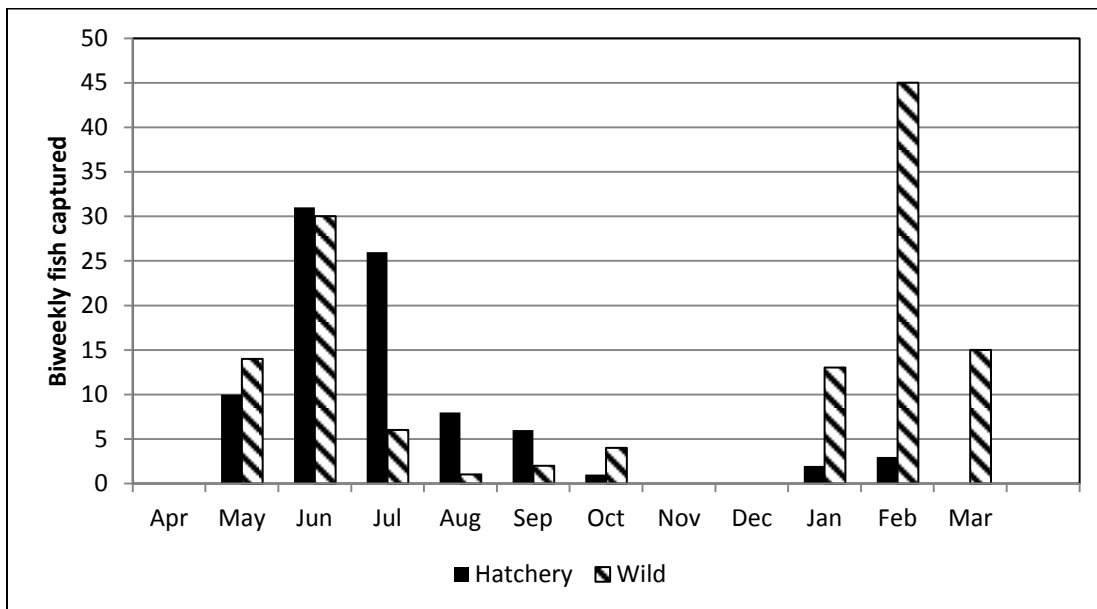


Figure 2. Origin of angled fish by month on S.F. Toutle River 5/20/2011 through 3/15/2012.

Columbia River Salmon and Steelhead Endorsement Advisory Board
Project Title: Washougal River Winter Steelhead Creel

Executive Summary

Project Description: A steelhead creel census was conducted seasonally on the Washougal River over four years, 2011-2014. The purpose of these creels was to evaluate current planting strategies, harvest of hatchery fish and handle of wild steelhead. The area surveyed was from the mouth to Salmon Falls. One technician was hired to collect standard creel information on boat and shore anglers fishing for steelhead. Historically the Washougal River has been one of the very popular summer and winter steelhead fisheries in Washington State. The river is planted annually with thousands of steelhead smolts from Skamania Hatchery, located on the North Fork of the Washougal River.

Preliminary results to date: April 15 – June 14, 2011.

A total of 736 anglers were checked with 42 hatchery steelhead kept and 1 hatchery and 50 wild steelhead released. Wild fish made up 53.8% of the catch.

November 1, 2011 – March 14, 2012.

A total of 1,331 anglers were checked with 90 hatchery steelhead kept and 68 hatchery and 132 wild steelhead released. Wild fish made up 44.5% of the catch (Figure 1).

Economic, Angling and Resource Benefit: Sport fishing in the Washougal River is very important economically to Skamania and Clark Counties, and to the State of Washington. Based on the average annual catch of steelhead on catch record cards from 2009-2012, the economic value of the steelhead sport fishery in the Washougal is \$960,000 annually (TCW 2008). The fishery highlights the large late winter focus on wild fish, which is not reflected in Catch Record Card data, and provides the information to assess impacts to wild fish.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

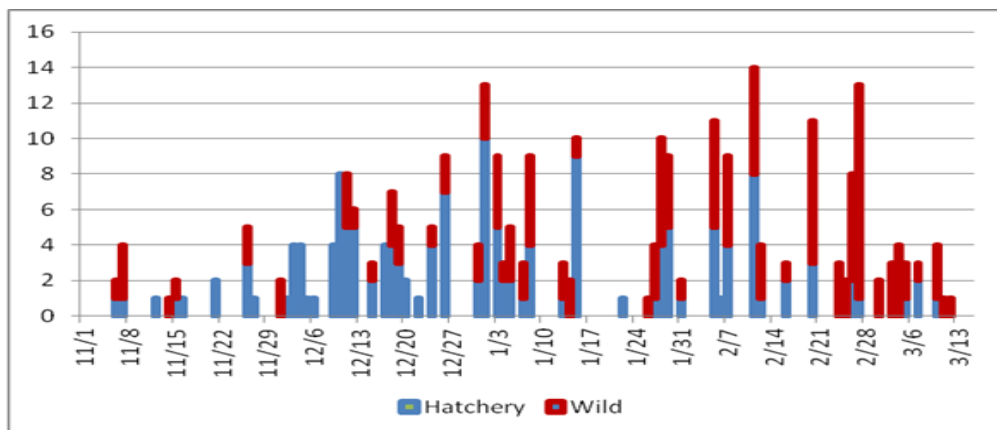


Figure 1. Angler catch and fish origin in Washougal steelhead creel, November 1, 2011 through March 14, 2012.

Columbia River Salmon and Steelhead Endorsement Advisory Board

Project Title: White Salmon Creel 2012

Executive Summary

Project Description: A sport creel census was conducted for steelhead anglers on the White Salmon River during the summer and fall of 2012. The purpose of the creel was to see how fishing success was affected with the dam breaching. Condit Dam was breached in October, 2011, which allowed salmon and steelhead passage up to potentially Big Brother Falls, opening an additional 12.7 miles of mainstem habitat for fish. Historically, the White Salmon has been one of the most popular summer steelhead fisheries in Washington State.

Result: Angler participation and harvest was very low with only 84 anglers checked during this four month period. A total of 8 hatchery steelhead were kept, 1 hatchery steelhead released, 1 jack Chinook caught, and no wild steelhead handled. Anglers checked were closely split between the area below the dam and the new water in the Husum area. Anglers spent a lot of time trying to find fishable water that had fish holding in it. The river streambed was very unstable and water conditions were often turbid below the dam site. Much of the new water above the dam runs through private property and public access is limited.

Economic, Angling and Resource Benefit: Sport fishing in the White Salmon River historically has been very important economically to Skamania and Klickitat Counties, and to the State of Washington. Based on the annual catch of salmon and steelhead reported on catch record cards from 2007-2010 (pre-dam breach), the economic value of the sport fishing in the White Salmon was over 3.2 million dollars annually, 2.8 million dollars in steelhead fishing alone (TCW 2008). This does not include the economic value of fish released. The information gained from this creel will establish a baseline measurement since dam removal, and will aid in sport fishing management and wild steelhead recovery efforts in the White Salmon River.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board
Project Title: Summer Steelhead Hooking Mortality Study - Wind River

Executive Summary

Project Description: This is an on-going study designed to estimate the non-retention (catch and release) mortality of wild steelhead associated with sport fishing in the Wind River.

WDFW manages multiple steelhead fisheries in Lower Columbia River (LCR) tributaries. Many of these fisheries occur in areas where wild steelhead populations are listed as threatened under the Endangered Species Act (ESA). The majority of these fisheries are centered on providing opportunity to harvest hatchery steelhead, but some also offer specific catch and release opportunity for wild fish. Currently, all wild steelhead caught in these fisheries must be released (mark-selective fishery). Monitoring impacts of these fisheries on wild stocks, including post-release mortality, is a critical component of fishery management and a requirement of conducting fisheries under the ESA. Results from the Wind River hooking mortality study will help inform management decisions for other similar LCR steelhead fisheries.

Results to date: Preliminary results indicate similar survival between control and treatment/impact groups, suggesting post-release mortality rates are low for wild summer steelhead caught in the Wind River. Additional data will continue to be collected for this study over the next several years as repeat steelhead spawners return to the system, improving current estimates of hooking mortality.

Economic, Angling and Resource Benefit: There are economic benefits as well as benefits to the wild fish populations from this study. Economic/Angler Benefit: Mark-selective and catch and release fisheries can be increased and maintained. Tributary steelhead fisheries throughout the LCR region are extremely popular with anglers and an important economic contributor to many local communities. As fisheries become more constrained to protect wild steelhead stocks, catch and release fisheries are likely to become more popular. Benefit to Resource: Accurate accounting of steelhead sport fishery release mortality is critical to maintaining harvest fisheries for hatchery steelhead and for managing impacts to ESA listed species.

Table 1. Preliminary estimates of recapture rates, survival of treatment fish relative to controls, hooking mortality rate (pooled across years and gear types), and the probabilities that hooked fish survived greater than 95% as well as controls, and the probability that controls survived significantly better than treatments.

Parameter	Estimate	95% Confidence Interval
Catch and Release Survival	100%	79-100%
Catch and Release Mortality	0%	0-21%
Probability Survival of is > 95%	1.00	NA

Columbia River Salmon and Steelhead Endorsement Advisory Board

Project Title: Mouth of Wind River Spring Chinook Sport Catch Monitoring of Expanded Mouth Boundary, 2012 & 2013

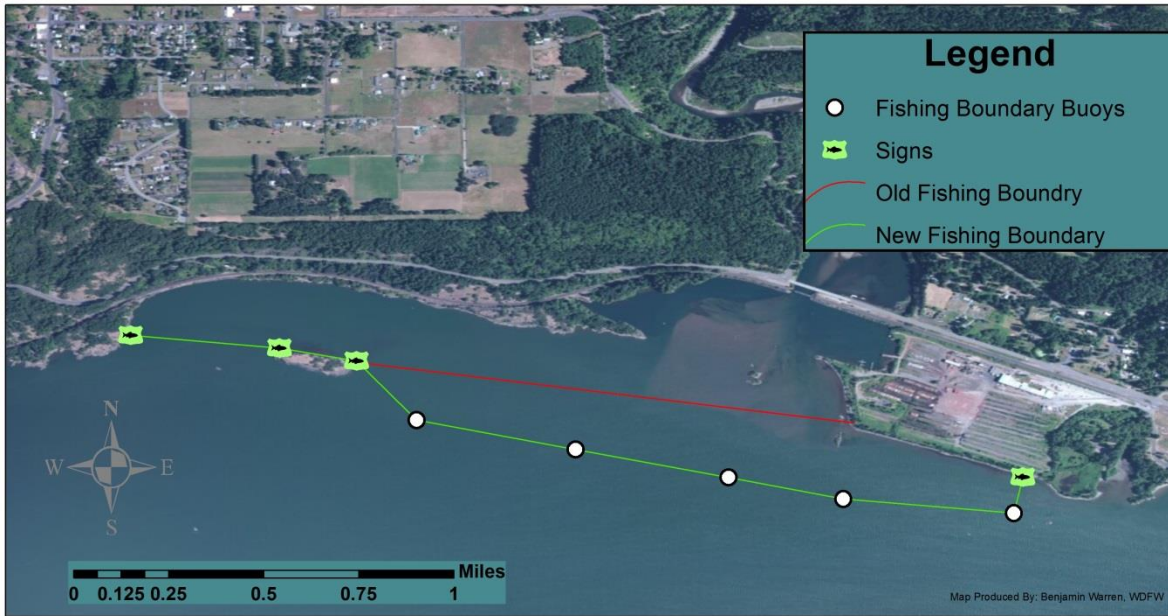
Executive Summary

Project Description: Approximately 2.5 million spring Chinook smolts are planted into the Wind River annually. The mouth of the Wind River provides a tremendously popular boat sport fishery for these returning adults each spring. Anglers have been requesting the expansion of this area for years due to crowding. In 2012 and 2013, Columbia River Endorsement funds were used to conduct a creel census of the expanded sport angling boundary at the mouth of the Wind River to measure the impact of the fishery on non-local spring Chinook stocks. The creel census included monitoring the fishery seven days per week. Biological sampling included fork length measurements, scale samples, coded-wire tag and Passive Integrated Transponder tag recoveries and genetic samples. The goal of the creel census was to monitor effort and catch and to provide stock composition of the catch.

Results: In the spring of 2012, prior to the start of the spring Chinook season the buoy line at the mouth of the Wind River was moved (Figure 1). The 2012 river mouth fishery produced an estimated 8,550 angler trips, primarily boat anglers. An estimated 2,300 adult Chinook were harvested. The stock composition showed 92% of the catch was from local-origin stocks (Carson/Little White Salmon hatcheries).

The 2013 river mouth fishery produced an estimated 3,800 angler trips, again primarily boat trips. An estimated 500 adult spring Chinook were retained. Stock composition results are not available at this time.

Economic, Angling and Resource Benefit: The Wind River spring Chinook sport fishery is very important economically to Skamania County and the State of Washington. Based on the average of the annual catch of spring Chinook reported on catch record cards from 2010-2012, the economic value of the sport fishery is over \$3.9 million dollars annually (TCW 2008). The expansion of the Wind River sport boundary has met with enthusiastic support from the public.



New Wind River Sport Fishing Boundary

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board
Project Title: Lower Cowlitz River Tributary Resistance Board Weir Operation 2011-2013

Executive Summary

Project Description: Approximately 625,000 non-native summer steelhead smolts are released into the Cowlitz River annually. The Cowlitz River provides an extremely popular summer steelhead fishery and is considered one of the largest steelhead fisheries in the state. During 2010 through 2012, an average of 8,600 summer steelhead were harvested in the Cowlitz River. To maintain the current production levels, harvest rates should remain high and stray rates of adult fish onto spawning grounds needs to be tightly controlled to keep summer steelhead from spawning with native steelhead listed under the Endangered Species Act (ESA). One method of controlling abundance of hatchery fish reaching spawning grounds is installing weirs in tributaries to capture, enumerate, and remove hatchery fish at weir sites thus minimizing interaction with wild fish. Currently weirs are installed and operated in four major tributaries: Olequa, Delameter, Lacamas, and Ostrander Creeks (Figure 1).

Results to Date

Results of Weir Sampling on the Cowlitz River, August 2011 through January 2014.							
Weir	Hatchery Origin (downstream)				Wild Origin (upstream)		
	Summer Steelhead	Winter Steelhead	Fall Chinook	Coho	Winter Steelhead	Fall Chinook	Coho
Olequa Creek	0	6	10	12	76	30	242
Delameter Creek	3	5	8	20	113	26	167
Ostrander Creek ¹	1	1	10	8	1	4	49
Salmon Creek ²	0	1	0	2	5	0	24
Lacamas Creek ³	0	0	0	2	0	0	46
Totals	4	13	28	44	195	60	528

¹ Installed August 2013

² Removed July 2013

³ Installed December 2013

Economic, Angling, and Resource Benefits: The Cowlitz River steelhead sport fishery is very important economically to Lewis and Cowlitz counties and the State of Washington. This fishery provides significant benefit to local communities such as Longview, Kelso and Toledo along the Cowlitz River and also provides employment for a number of fishing guide services throughout the state. By controlling straying of hatchery steelhead onto native steelhead spawning grounds the present high level of production of hatchery steelhead can be maintained, which in turn will help maintain one of the largest tributary summer steelhead sport fisheries in the state. Genetic studies have shown the presence of a unique stock of wild steelhead in the lower Cowlitz River. Reducing the interaction of hatchery and wild steelhead on the spawning grounds will assist the recovery of ESA-listed steelhead in the lower Cowlitz River.

From 2010 through 2012, an average of 86,000 angler trips generated a harvest of approximately 8,600 summer steelhead annually. The estimated minimum value of this fishery is \$ 4,988,000 per year (TCW 2008).

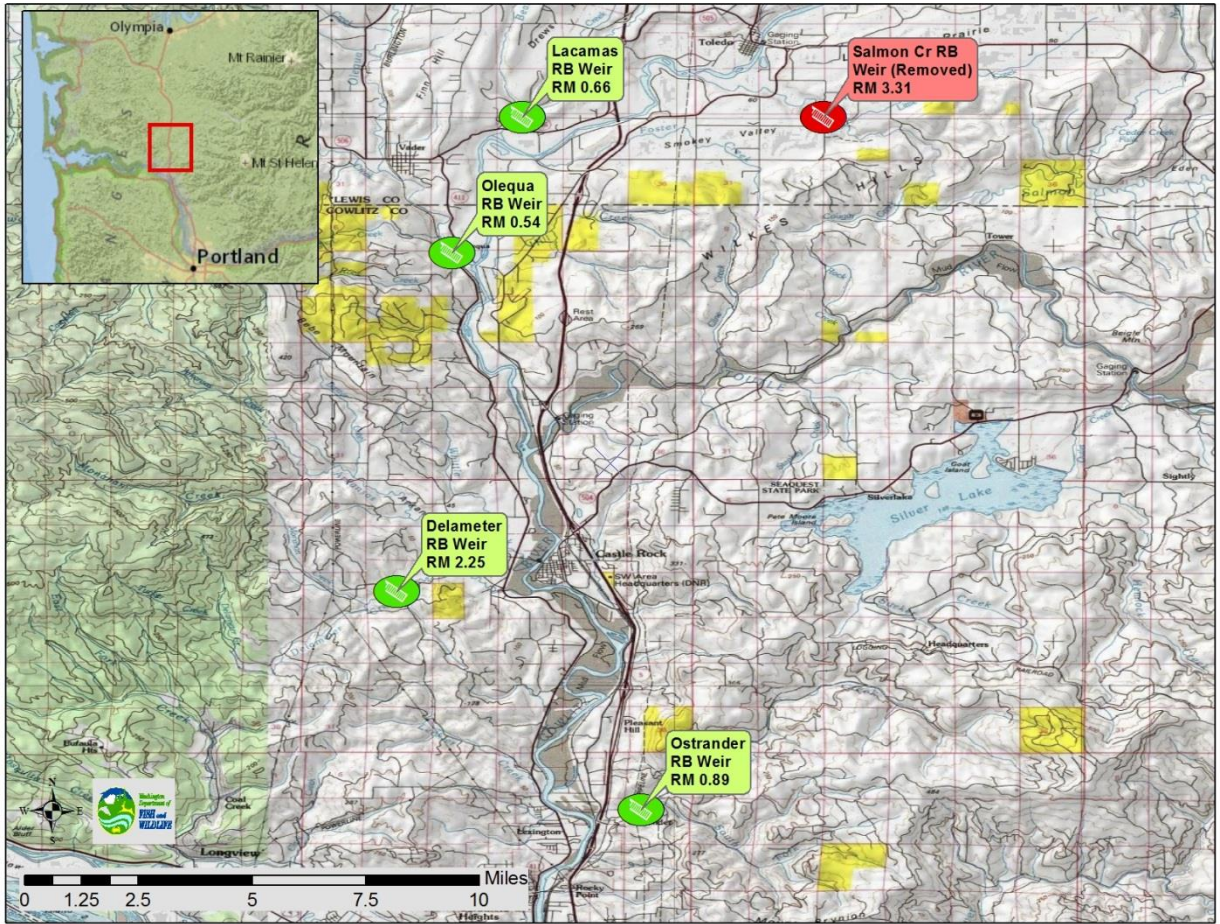


Figure 1. Location of lower Cowlitz River tributary weirs.

References

TCW Economics. 2008. Economic Analysis of the Non-Treaty Commercial and Recreational Fisheries in Washington State. Prepared for: Washington Department of Fish and Wildlife. With Technical Assistance from: The Research Group Corvallis, OR. TCW Economics, Sacramento, CA. December 2008.

Columbia River Salmon and Steelhead Endorsement Advisory Board

Project Report

Project Title: FUNDING FOR ENHANCED ENFORCEMENT OF COLUMBIA RIVER SALMON AND STEELHEAD RECREATIONAL FISHERIES AND DESIGNATED WATERWAYS

Project Description:

In fiscal years 2010 and 2011, 1.5 Fish and Wildlife Police Officer FTEs were funded through Columbia River Salmon and Steelhead Endorsement (CRSSE) funds to increase enforcement presence during existing recreational salmon and steelhead opportunities, as well as new recreational selective fishing opportunities. During the first two years, the full FTE was used to create and fund a new duty station in Klickitat County in order to add to existing patrols to the Columbia River and tributaries above the Bonneville Dam. The remaining 0.5 FTE was used to fund directed emphasis (by other officers) across all CRSSE designated waters, to include:

- Columbia River below Bonneville to Tongue Point
- Columbia River mainstem above Bonneville
- Wenatchee River
- Entiat River
- Icicle River
- Snake River
- Tucannon River
- Touchet River
- Grand Ronde River
- Walla Walla River
- Lewis River
- Washougal River
- Cowlitz River
- Kalama River
- Toutle River – all forks
- Green River
- Wind River
- Drano Lake
- White Salmon River
- Klickitat River
- Yakima River

At the beginning of fiscal year 2012, the CRSSRAB approved funding an additional 0.5 Officer FTE, resulting in an increase to 2.0 FTEs. Due to the loss of the Klickitat County Officer, these positions were strategically deployed in Clark and Skamania Counties, funding one Officer and one Sergeant.

In fiscal year 2013, the CRSSRAB approved funding one (1) additional Officer FTE (increasing the total number of FTEs to three; Table 1). This position was placed in Wenatchee where new spring Chinook and expanded steelhead conservation fisheries are being developed and are being implemented beginning in 2014 with the Wenatchee spring Chinook fishery. With the construction of the new Chief Joe Hatchery by the Colville Confederated Tribes (CCT) and a 700K spring Chinook harvest program, WDFW will be pursuing a

recreational mainstem Columbia River (CR) bubble fishery above Wells Dam on adults from this program. In addition to the conservation and mainstem CR fisheries, First Nations, Canada, will be bringing a new sockeye hatchery in Penticton on-line in 2013 and will produce an estimated 10M smolts annually. With the prospect of new potential recreational salmon and steelhead opportunities, enforcement workloads in the UCR are expected to increase to accommodate the enforcement requirements under the Endangered Species Act (ESA).

Table 1. Amount of Funding Approved by State Fiscal Year.

	State Fiscal Year					
	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15
Approved	\$248,627 ¹	\$248,627	\$310,324	\$451,411	\$419,410	\$419,410
FTE	1.5	1.5	2	3	3	3

¹ Funding provided to enforcement from the CRSSE through the fiscal note developed for the program. Funding for this FY was not approved through the CRSSRAB process however was approved through in subsequent years.

Benefit of Activity:

Benefits of additional funding include; reducing impacts to listed fish through dedicated emphasis patrols of existing and new recreational salmon and steelhead fisheries within CRSSE waters by, protection of listed species through closed season emphasis patrols, increased compliance with selective gear and retention rules (including the CRSSE requirement), and a more orderly fishery through increased contacts and exposure.

In Eastern Washington, most CRSSE fisheries implement various levels of selective fishery regulations and/or night-time closures to protect wild salmon and steelhead as a term and condition under the ESA. Consistent with WDFWs conservation initiative and concurrent with NMFS regulatory policy, seasonal closures, combined with selective gear restrictions, and intensive monitoring and enforcement are necessary to protect ESA listed fish. Currently and into the foreseeable future, all UCR fisheries require permits under Section 10 and Section 7 of the ESA.

In Region 1, the Snake, Tucannon, Grand Ronde, Touchet and Walla Walla rivers are all managed and regulated to protect wild fish, to include Chinook salmon, sockeye salmon and steelhead stocks. Because previous time and effort accounting methods did not include the level of detail currently entered into the CODY records management system, the estimate of hours contributed by officers as well as the number of contacts is not available for FY 2010 and likely conservative for FY 2011 (Table 2). Additional hours (a current estimate is presently not available) coded by Officers to other categories such as freshwater fish, may have very well contributed to the appearance of small CRSSE effort in 2011. Over the past few years the Enforcement Program has worked hard to improve data entry into CODY and to increase directed patrols focused on CRSSE waters, resulting in more accounting for a greater number of hours of enforcement presence on those waters.

In Region 2, there are currently about 13 million salmon and steelhead smolts that are released in the upper Columbia River Basin (US waters). With the newly constructed Chief Joseph Salmon & Steelhead Tribal Hatchery coming on-line, this facility will be supporting maintenance of juvenile production levels that would have otherwise been significantly reduced through the periodic recalculation of PUD mitigation obligations. In addition, with the hatchery program structure being implemented by the CCT, adult returns from 700K of the planned 900K spring Chinook program will support a mainstem CR spring Chinook fishery above Wells Dams by 2017. Sockeye reintroduction efforts undertaken by First Nations, Canada into Skaha Lake, which have been funded in large part by Chelan and Grant PUDs and use of a water budget tool to maintain in-river flows in the Okanagan, funded by Douglas PUD, have contributed to strong sockeye runs in recent years. In addition, Chelan and Grant PUDs have contributed funding to support a new sockeye hatchery in Penticton, BC which will produce up to 10M juvenile sockeye beginning in 2014.

With the re-initiation of hatchery programs under the UCR HCP's and Settlement Agreement, new and expanded conservation fisheries (e.g. Wenatchee spring Chinook fishery, 2014) are being incorporated as a key component of the programs to manage surplus hatchery fish. As a result these fisheries are highly regulated under Section 10 and Section 7 of the ESA with terms and conditions requiring enforcement in order for fisheries to be implemented.

These combined efforts/activities have resulted in increased angler participation and is expected to go up even more as new fisheries are implemented and existing fisheries expanded. This has resulted in the need for increased enforcement presence (and may likely increase further as new fisheries begin). For this reason, one CRSSE funded Officer position was located in Wenatchee.

In Region 3, the Tri Cities area is the point of diversion for salmon and steelhead runs migrating up the Columbia River. It is in this area that runs of endangered or threatened fish continue up the Columbia, or divert to the Yakima or Snake Rivers. Without adequate protection, upper-river recreational and conservation fisheries could be seriously impacted without adequate protection of listed stocks. The Hanford Reach area of the Columbia River boasts the largest natural fall Chinook population in the state with recent wild and hatchery returns in excess of 400,000 adults (2013). Beginning in 2018, hatchery fall Chinook production in the Hanford Reach and Yakima River is expected to nearly double from about 10.8M to about 20.6M with a commensurate hatchery adult return nearly double current returns. In addition the Yakama Nation and WDFW are currently working on a sockeye reintroduction program in the Yakima Basin, which if successful could create a new sockeye fishery in the Yakima Basin. As fall Chinook and sockeye fishing opportunities in Region 3 increase, the potential for incidental take of listed UCR steelhead and/or Snake River steelhead, fall Chinook, or sockeye may increase which will precipitate enhanced enforcement expectations/requirements under the Section 10 and Section 7 permits governing these fisheries.

In Region 5, enforcement presence is critical for managers to ensure that lower river fisheries do not exceed impacts on listed fish and to ensure upriver escapement objectives for wild and hatchery stocks are met. Due to close proximity to major urban areas, Commission Policy that allows 75% of the Columbia basin ESA impacts to occur below Bonneville, and much longer fishing season than elsewhere in the Columbia basin for spring chinook, lower river fisheries have a high participation level. A Sergeant and one Officer, representing two (2) FTE's are located in region 5. Equipment enhancements (vessel upgrades and patrol equipment attained from other fund sources) have been utilized to increase presence and patrol effectiveness on CRSSE waterways. These upgrades, utilizing FTE's from the CRSSE board, have contributed to increasing lower river patrol effectiveness resulting in higher contact numbers and discovery of violations.

While the three statewide positions are directly funded by the CRSSE, patrol responsibility is distributed among all officers located within the CRSSE waters, including Regions 1, 2, 3, 5 and Marine Division personnel. Based upon information in the CODY records management system, as a program, the numbers below represent the Officer time expended in direct CRSSE enforcement operations.

Table 2. Recorded CRSSE Enforcement Activities by State Fiscal Year

Activity	State Fiscal Year					Grand Total
	FY 11	FY 12	FY 13	FY 14	FY 15 ¹	
Sum of Hours Worked	66:00	6689:30	7729:48	9871:20	584:58	24941:36
Sum of Contacts	342	12,963	15,427	18,725	1,547	49,004
Count of Charges	9	598	715	1,546	98	2,966

¹ FY year to date summary. Fiscal year 15 begins July 1 2014 and runs through June 30 2015.

Since 2010, patrol efforts have steadily increased in terms of the number of hours and contacts. In FY 14, for example, 9,871 hours were expended on CRSSE directed patrols. Officers contacted 18,725 recreational anglers and issued 1,546 citations for various violations related to the manner, method and licensing required by State law and WDFW Regulations. These do not included the number of other contacts made during patrols within CRSSE waters that did not get coded to the CRSSE activity type due to the nature of the violations. Examples would be warrant arrests, other civil and criminal law violations. For better accountability of CRSSE enforcement efforts, officers work to keep coding orderly and directly associated with the activity presented. Table 3 represents the number of incidents that occurred on CRSSE waterways.

Table 3. Count of direct incidents resulting from patrols within CRSSE waters.

Count of Incident Report Forms Location1	State Fiscal Year					Grand Total
	FY 11	FY 12	FY 13	FY 14	FY 15	
BLUE CREEK		1	1	12		14
Blue Creek Access			2			2
CISPUS RIVER		4		1		5
COAL CREEK				1		1
COL R- I-5 BRIDGE TO BONNEVILLE DAM (525)		14	31	33	5	83
COL R- ROCKY REACH DAM TO WELLS DAM(543)		1	12	19	5	37
COL R- WELLS DAM TO CHIEF JOSEPH DAM(545)		2	9	17	4	32
COL R-BONNEVILLE DAM TO DALLES DAM (527)		9	8	5		22
COL R-BOUY 10 TO BOUY 44 (519)			8	13		21
COL R-BUOY 44 TO LONGVIEW BDG (521)		15	15	23	6	59
COL R-DALLES DAM TO JOHN DAY DAM (529)			3	1	1	5
COL R-HWY 395 BDG TO OLD HANFORD (535)	1	11	22	58		92
COL R-JOHN DAY DAM TO MCNARY DAM (531)	1	12	12	8		33
COL R-LONGVIEW BDG 44 TO I-5 BDG (523)		37	29	21	5	92
COL R-MCNARY DAM TO HWY395 BGD @ PASCO		5	9	11	1	26
COL R-OLD HANFORD TO VERNITA BDG (535)				6		6
COL R-PRIEST RAPID DAM TO WANAPUM DAM(53				5	1	6
COL R-ROCK ISLAND DAM TO ROCKY REACH DAM			2	2	4	8
COL R-VERNITA BDG TO PRIESTRAPIDDAM(535)			1	8		9
COL R-WANAPUM DAM TO ROCK ISLAND DAM(539				7		7
COWEEMAN RIVER			1	1		2
COWLITZ RIVER-PUD TO MUDDY		7		9		16
COWLITZ RIVER-TO MAYFIELD		55	42	168	12	277
DRANO LAKE		6	2	17		25
Dryden Access			1	1		2
ENTIAT RIVER-MOUTH			1			1
GRANDE RONE RIVER - ABOVE COUNTY RD BR		12	3	5	1	21
GREEN RIVER			1	1		2
ICICLE RIVER			3	5		8
KALAMA RIVER		11	28	54		93
KLICKITAT RIVER		1	5	22		28
LACAMAS CREEK				2		2

LEWIS RIVER			1	4		5
LEWIS RIVER - EAST FORK		7	8	11	1	27
LEWIS RIVER - NORTH FORK		19	25	65	5	114
MARINE AREA 1 - ILWACO				2		2
Mc Donald Bridge Access			1	1		2
METHOW RIVER-GOLD CREEK			1			1
METHOW RIVER-MOUTH			2	4		6
METHOW RIVER-COUNTY RD 1535			1			1
MILL CREEK		1				1
NASON CREEK			1			1
NEWAUKUM RIVER					1	1
OKANOGAN RIVER		3	2	1		6
RINGOLD SPRINGS CREEK				3		3
SALMON CREEK		5	3	1		9
SCANEWA LAKE				5		5
SIMILKAMEEN RIVER				2		2
SIMILKAMEEN RIVER			1	3		4
SNAKE RIVER-BELOW ICE HARBOR DAM		2	10	18		30
SNAKE RIVER-TO INTERSTATE BRIDGE		48	25	22		95
SNAKE RIVER-TO LITTLE GOOSE DAM		6	8	10		24
SNAKE RIVER-TO LOWER GRANITE DAM		8	6	6		20
SNAKE RIVER-TO LOWER MONUMENT DAM		26	15	18		59
SNAKE RIVER-UPSTREAM OF INTERSTATE BDG		20	2	2	1	25
Stinson Flats Access				1		1
SUNNYSIDE WILDLIFE AREA		1		1		2
TILTON RIVER		10	1	31		42
TOUCHET RIVER			4	6		10
TOUTLE RIVER				1		1
TOUTLE RIVER - NORTH FORK		1		4		5
TOUTLE RIVER - SOUTH FORK		2	4	1		7
TUCANNON RIVER			1	8		9
WALLA WALLA RIVER		4	1	8		13
WASHOUGAL RIVER			21	49		70
WASHOUGAL RIVER - WEST FORK			1			1
WENATCHEE LAKE			18	23	6	47
WENATCHEE RIVER		6	8	19	2	35
WHITE SALMON RIVER				2		2
WIND RIVER (SKAMANIA)		3	3	9		15
WIND RIVER SHIPHERD FALLS UP		2	1	2		5
Wooten Lake Access				1		1
WOOTEN WILDLIFE AREA				5		5
YAKIMA RIVER-3500' BELOW TO ROZA DAM		1	1	2		4
YAKIMA RIVER-MOUTH TO PROSSER DAM	3	9	39	24	3	78
YAKIMA RIVER-PROSSERDAM TO HWY223 BRIDGE		1	1	2		4
YAKIMA RIVER-SUNNYSIDE DAM TO BELOW ROZA		1				1

(blank)		30	13	24	3	70
Grand Total	5	419	480	937	67	1,908

As an indirect (however predicted) effect associated with the additional FTE’s funded through the Endorsement program, increased officer presence has led to increased detection of other violations. Parsing the data to determine the total number of CRSSE indirect incidents is possible but impractical due to the large amount of patrol overlap.

Additional data such as specific officer activity, charges cited, dates, times and species involved as it pertains to enforcement of recreational salmon and steelhead fisheries within CRSSE waters could also be supplied through the CODY program.

Summary:

WDFW Police enforcement of recreational salmon and steelhead fisheries within designated CRSSE waters has increased as the CRSSE program has matured. Following the recommendations of the Columbia River Salmon and Steelhead Recreational Advisory Board, enforcement has made additions and modifications within their records management system, CODY, to provide detailed accounting of their efforts to enforce recreational salmon and steelhead fisheries within CRSSE waters. Officer presence is required to protect listed fish and maintain WDFW’s compliance with Section 7 and 10 ESA permits (which authorize fisheries) as well as provide for orderly fisheries. As an added and equally valuable indirect effect, improved detection and response to other criminal and civil law infractions that are not directly related to CRSSE fisheries (but do support public safety) have been attributed to increased officer presence during CRSSE patrols.