

**Joint State Management of Columbia River
Salmon and Sturgeon
Non-Indian Harvest Allocations**

October 19, 2005

**Washington Department of Fish and Wildlife
Oregon Department of Fish and Wildlife**

STURGEON

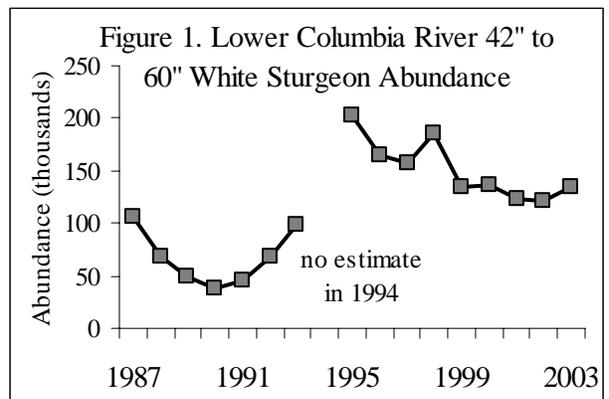
Title: Lower Columbia River Sturgeon Management Policy

Background

Sturgeon abundance in the lower Columbia River collapsed at the end of the 19th century due to over fishing. The population began to rebound following implementation of the six-foot maximum size limit in 1950. The population increased significantly by the 1970's and the current number of sturgeon two-foot or greater is estimated to exceed one million. The current population is considered healthy and harvestable.

During the 1980's, coincident with reductions in salmon harvest opportunity, sport sturgeon effort increased and total harvest of white sturgeon increased significantly compared to harvest in the 1970's and drove the harvestable (legal-sized) population down to levels of concern. Oregon and Washington responded with several modifications to size and bag limit regulations and elimination of commercial target fisheries to control harvest growth.

Joint state tagging and recovery programs were initiated in 1985 to estimate annual abundance that have been used for harvest management decisions during the past 20 years (Figure 1). Since 1989, fisheries have been managed for optimum sustainable yield (OSY), which requires harvest management plans to allow enough escapement through the legal size slot for the optimum level of sturgeon to recruit to the broodstock population on a sustained basis.



In 1996, the Oregon and Washington Commissions adopted a 1997-1999 Management Accord which specified sturgeon management objectives for the states, including total allowable harvest and allocation between sport and commercial fisheries. The goals of the agreement were to increase the population consistent with OSY, maintain a year-round sport fishery, provide a viable commercial fishery, maintain stable harvest of sturgeon outside of the Columbia River, and conservatively manage green sturgeon. A second Management Accord was reached for the 2000-2002 time period. The third such three-year agreement, which expires at the end of the year, covers the 2003-2005 time period. A copy of the 2003-2005 Management Accord is attached. These three-year management agreements have provided fishery stability within the annual management process and coincide with the ability to assess population trends in order to make recommendations for management adjustments.

Key Question: Should the Joint State Sturgeon Management Accord be renewed, possibly for a five-year timeframe?

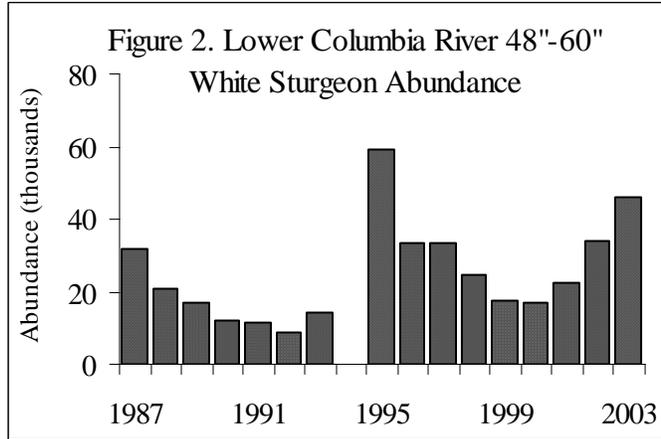
Issue 1: Total allowable white sturgeon harvest

Background:

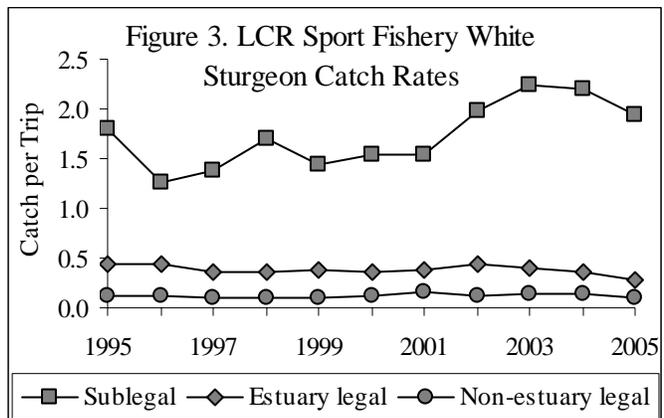
Annual allowable harvest was reduced from 67,300 white sturgeon to 50,000 white sturgeon in 1999 when population updates indicated allowable harvest was set too high to sustain population growth. The 50,000 fish annual allowable harvest limit was retained in the 2000-2002 Accord. The white sturgeon population did not immediately respond because harvest rates were initially higher than intended due to an exodus of fish from the Columbia River in 1996 and reduced

recruitment to legal size due to a drop in fish growth rates. The annual allowable harvest limit was set at 40,000 fish for 2003-2005 to compensate for this lack of population growth. Legal-size abundance increased by 13% with the 2003 estimate. Complications delayed tagging in 2004, precluding an update comparable to previous years (Figure 1).

Harvest rates in recent years were low enough to successfully recruit fish to the upper end of the legal size slot with numbers of 48-60 inch fish more than doubling since 2000 (Figure 2). Staff is less certain about trends in recruitment to legal size. Estimates of abundance of 42-45 inch fish declined during this period but sublegal catch per angler trip (Figure 3), another indicator of production and recruitment to legal-size, increased from 1996-2003, only declining the past two years.



Catch success in fisheries is another indicator of legal-size abundance. Catch rates were greater than anticipated in 2003 and 2004 with both sport and commercial harvest guidelines being met with ease. Catch rates have slowed in 2005 in both sport (Figure 3) and commercial fisheries. Harvest per angler trip dropped 19% from last year in the estuary sport fishery and 25% in the winter/spring non-estuary sport fishery. In contrast, catch rates are currently exceptionally high in the October sport fishery in the Columbia River gorge.

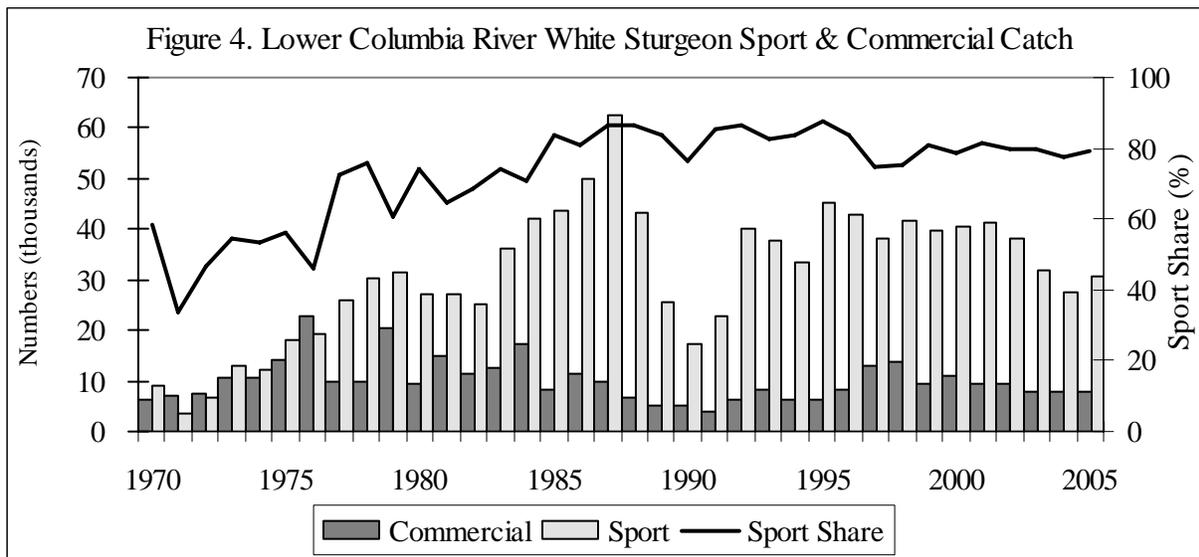


In conclusion, the mix of data indicates abundance of legal size white sturgeon in the lower Columbia River is currently relatively stable. An allowable harvest level of 40,000 white sturgeon per year is not likely to significantly jeopardize population growth and would be prudent to retain until additional abundance data is gathered during the next two years.

Issue 2: Sport/Commercial allocation

Background

Washington (WFWC) and Oregon (OFWC) Fish and Wildlife Commissions have supported a lower Columbia River white sturgeon harvest allocation of 80 percent to the sport fishery and 20 percent to the commercial fishery since 1997. Historic catch sharing is depicted in Figure 4. The fisheries have had to adapt to constraints imposed by this sharing formula but consistency has introduced stability to the sturgeon management process. The sport fishery changed from year-round retention to a combination of periods or days closed to retention beginning in 2000 to adhere to the annual sport allocation. The commercial fishery has also been regulated with no-retention fishing periods and with landing limits to maintain the commercial allocation.



Key question: Should the 80/20 sharing plan be maintained?

- If the population abundance and/or size structure changes substantially following annual updates, a different sharing plan could be considered.

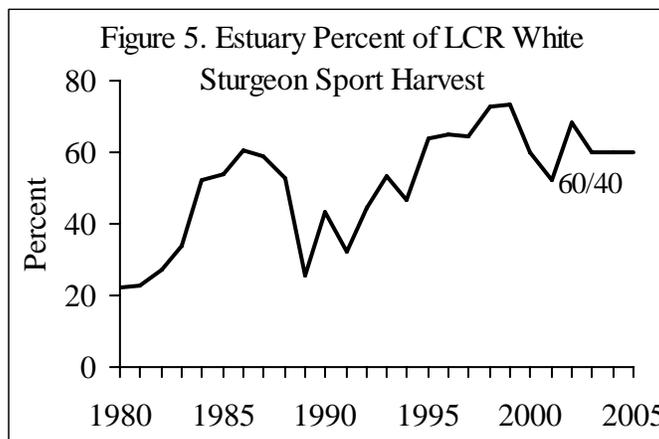
Issue 3: Sport regulations

Background

During 1986-1996, size and catch limits were changed frequently to control harvest in the rapidly growing sturgeon sport fishery. In 1985 the daily catch limit was three sturgeon between 36 and 72 inches with no annual limit. By 1996 the daily catch limit was one fish between 42 and 66 inches with a ten fish annual limit. In 1997 the maximum legal size was reduced to 60 inches to slow catch rates. In 2004 the annual limit was reduced to five fish.

Prior to 2000, the sport fishery was year-round retention (except for a fall closure in 1995). A combination of seasons and days closed to retention began in 2000 to keep harvest within annual harvest allocations. The Commissions provided guidance in balancing the sport catch between estuary and non-estuary fisheries in 2003. The historic estuary/non-estuary catch distribution is presented in Figure 5. A one-year sport package was agreed to for 2003 allocating 60% of the sport catch guideline to the estuary and 40% to the non-estuary. This allocation formula was a

compromise between the two states. The OFWC favored a sharing plan based on the distribution of sport harvest observed during the 1990s (58% estuary – 42% non-estuary) while the WFWC favored a plan based on the 1995-2000 distribution (65% estuary – 35% non-estuary) (Figure 5). The 60/40 sharing arrangement was retained for 2004 and 2005.



Staff fashioned independent management approaches for the estuary and non-estuary sport fisheries for 2003-2005. Included were specific harvest targets set low enough for each area that resulted in a reserve of fish for managers to use as a buffer to ensure that the annual sport allocation was not exceeded. Total sport harvest for 2003-2005 likely will end up very close to, but will not exceed, the three-year allowable harvest number.

Of highest priority for estuary sport fishing interests was ensuring that the retention season lasted through the July 4th holiday and staff structured seasons to accomplish this goal in each of the past three years. The 2003 estuary fishery closed on June 28th following a shift in angling effort from the non-estuary fishery to the estuary. In 2004 the minimum size limit was increased to 45 inches for the estuary fishery to slow catch rates. The season closed on July 4th when harvest was projected to reach the target catch assigned to the estuary fishery although harvestable numbers of fish ended up remaining in the management buffer. The 2005 season lasted through the first half of August.

Non-estuary angling interests had favored year-round angling opportunity with special emphasis on ensuring a retention season during the fall time frame and this was addressed in 2004 by limiting retention in the non-estuary fishery to three days a week coupled with an August-September retention closure. This approach worked and the season ran through the end of December as planned.

Oversize fisheries below Bonneville Dam – A substantial portion of the lower Columbia River broodstock population congregates just downstream of Bonneville Dam from late spring through early fall. This area includes the spawning reach that extends 4.5 miles downstream to Beacon Rock and a holding area stretching an additional five miles further downstream. Ripe broodstock, which are generally at least six feet in length, move upstream through the holding area and onto the spawning grounds in late-spring and early summer. A popular boat-angler catch and release fishery targeting over legal-size sturgeon (oversize) developed in this area during the 1990’s. In 1996 the river from Beacon Rock upstream was designated as a sanctuary where fishing for sturgeon from a boat was restricted during the spawning timeframe.

Research has shown that ripe fish are captured in the fishery and that some fish are handled multiple times. Literature surveys and professional judgment suggest that negative impacts might include, but may not be limited to, increased reproductive failure and direct and indirect mortality due to injury and stress from excessive handling by the fishery. An ongoing study of the maturation cycle of these fish may determine the extent of stress induced reproductive failure.

For 2004-2005, the Accord called for implementation of measures to reduce handling stress, improve reproductive success, and reduce mortality. However, the two states did not adopt concurrent regulations in 2004. The WFWC adopted a regulation moving the sanctuary boundary two miles further downstream from Beacon Rock. Both states extended the sanctuary closure for an additional two weeks (through July) and incorporated the bank fishery in the closure. Staff also worked with core participants in the boat catch and release fishery to develop a "Best Fishing Practices" program that is described in the 2003-2005 Accord.

Washington agreed to move the sanctuary boundary back to Beacon Rock to maintain concurrence with Oregon dependent upon success of the "Best Fishing Practices" program. The Accord included performance measures designed to evaluate the program's success at reducing handling rates, reducing gear retention (hooks and leaders), and reducing mortality. Significant progress was made towards achieving the various tenants of the "Best Fishing Practices" program and performance measures during 2004 and 2005. Highlights include:

- Satisfactory cooperation from fishery participants in meeting research project needs.
- Almost complete involvement from the core group of guides with voluntary use of logbooks and purchase of PIT tag readers in 2004 (2005 information incomplete).
- Essentially all of the gear used by anglers targeting oversize met minimum requirements for rod rating, line strength, and hook size.
- Numbers of oversize carcasses declined from a high of 40 in 2003 to 32 in 2004, then to eight in 2005. This is below the target number of 16 carcasses. Another three carcasses were found downstream of the survey area in 2005, which was an unusually high proportion (3 of 11 or 27%) compared to the pre-2005 average of 8%.
- The total number of oversize carcasses relative to the estimated number of oversize handled in fisheries was greatest in 2003 (0.010) and 2004 (0.028) and was still high in 2005 (0.005) compared to the 1994-2002 average (0.003).
- Numbers of hooks in carcasses decreased substantially in 2004 (8% compared to 40% for 2000-2003) although 24% of live oversize examined by researchers in 2004 and in 2005 contained evidence of retained hooks. Thirty-six percent of all oversize carcasses found in 2005 contained hooks or what was identified as likely fatal hook wounds.
- Numbers of oversize handled dropped by over 40% in 2004-2005 compared to the 1996-2003 average. A reduction in numbers handled would be expected from closing the bank fishery, however, the bank closure would not account for a decline of this magnitude. Boat angling effort for oversize sturgeon declined by 20% in 2003-2004 compared to the previous nine-year average, then increased to more typical levels in 2005.
- Areas that need additional attention include ensuring that all anglers targeting oversize adopt the practice of minimizing the time it takes to fight a fish in order to reduce handling stress and to work on preventing the fish from ingesting the bait so deep that the hook cannot be removed.

The status of the oversize population remains somewhat uncertain. Staff does not sample the entire lower Columbia River for data on oversize white sturgeon, instead relying on sampling the oversize fishery below Bonneville Dam for research data on maturation and tagging, and for data on catch rates. The number of oversize handled per trip, which can be effected by abundance, decrease by more than 50% for boat anglers in 2004-2005 compared to the 1996-2003 average. Estimates of the number of oversize sturgeon staging in the area below Bonneville Dam has varied from year to year since research began in 2000 and has averaged around 2,000 fish with the majority of these being at least seven feet in length. Staff does not have much information on the 5-7 foot population and has some concerns about insufficient recruitment to this size class during the past two decades.

In 2003 ODFW initiated a sampling program to track annual production of juvenile white sturgeon in the lower Columbia River. This program will need to continue for a number of years before enough data is available to detect a trend in natural production that would be related to broodstock abundance.

A new threat, predation by sea lions, is confronting the oversize population. This phenomenon has only recently been observed but appeared to reach significant levels in 2005. Staff from Washington and Oregon observed fourteen separate incidences of predation on oversize white sturgeon in 2005.

Oversize Fisheries Above Bonneville Dam – The joint staff met with representatives of the Columbia River Treaty tribes via the *U.S. v Oregon* joint management process to consider increased protection of spawning white sturgeon between Bonneville and McNary dams. These impounded white sturgeon populations exhibit poor natural production due to impacts from the hydropower system. The population residing in John Day Reservoir was identified as needing further protection resulting in a proposal by the states to restrict fishing for sturgeon in the area immediately downstream of McNary Dam during the spawning period.

Key questions:

- Should the current 60/40 sharing plan between the estuary and non-estuary sport fisheries be maintained until the harvestable number changes substantially?
- Should the current season structure approaches for each fishery, including the current size limits, be maintained?
- Should additional protection be incorporated into the existing broodstock protection measures implemented during the past ten years?
 - Below Bonneville Dam- extend sanctuary further downstream?
 - Below McNary Dam- designate spawning sanctuary?
- Should Washington and Oregon convert to a fork length measurement standard for sturgeon?
 - This change would be consistent with reducing ambiguity in length measurement, ease compliance, and reduce stress on fish by reducing time required to measure.
 - Size limits in fork length would be equivalent to the existing total length standard.
 - Washington has a proposal to this effect for consideration through the 2006-2007 sportfishing rules process contingent on concurrent rules adopted by Oregon.

Issue 4: Commercial regulations

Background

The commercial harvest of sturgeon in the lower Columbia River has been regulated since 1899. In that year, the minimum size of 48-inches was established, and the use of snagging setlines prohibited. Because of a collapse in the fishery, the sale of sturgeon was prohibited until 1909. In 1968 Zone 6 became an exclusively treaty Indian fishery. Setline fishing was phased out in the early 1980's and target sturgeon gillnet seasons were eliminated in 1989. No sturgeon target fisheries were allowed until 1997 when annual guidelines limiting harvest were introduced and targeting of white sturgeon was allowed, but not for green sturgeon. The use of a slot limit (minimum and maximum size limits) was established in 1950. For 32 years the maximum size was 72-inches (except Washington adopted a 60-inch maximum for fall fisheries in 1991). In 1993, the (year-round) maximum was reduced to 66-inches, and in 1997 the maximum was reduced to 60-inches for white sturgeon to slow harvest rates.

Protocols were adopted in 2003 for Columbia River commercial fisheries to optimize economic value and spread harvest opportunity throughout the year. The 2003-2005 Agreement allowed for vessel specific landing limits per fishing period. Introducing seasonal catch expectations further refined commercial fisheries. The average price per pound for white sturgeon has increased through these actions. Ex-vessel value was typically \$0.75 to \$0.85 per pound prior to 2003 and from \$1.50 to \$2.00 per pound since 2003.

Key Questions:

- Should the existing approach (e.g. seasonal sub-quotas and landing limits) to managing commercial sturgeon harvest be maintained?
- Should a fork length measurement standard be applied to the commercial fishery if it is determined to be appropriate for the sport fishery?

Issue 5: Green Sturgeon

Background:

Green sturgeon are a marine-oriented species that spawn in north-central California and southern Oregon river systems (Sacramento, Klamath, and Rogue rivers). Sub-adult and adult green sturgeon migrate north and during the summertime move into the coastal estuaries, principally the Columbia River, Willapa Bay, and Grays Harbor.

In 2002 NOAA Fisheries was petitioned to list green sturgeon as an ESA threatened species. The NMFS determined that North American green sturgeon are comprised of two distinct population segments (DPSs) and proposed listing the Southern DPS (Sacramento segment) as threatened in April 2005. A final determination is expected in early April 2006. Fish from the Southern DPS have been found as far north as Washington's coastal estuaries.

Recreational and commercial harvest levels for green sturgeon are far less than that for white sturgeon (in hundreds versus tens of thousands). Washington and Oregon recreational and commercial fisheries comprise the bulk of the overall harvest of green sturgeon coast wide. Regulating green sturgeon harvest has been done mostly through the implementation of sturgeon management policies and practices designed to control the harvest of white sturgeon.

Commercial harvest of green sturgeon has declined in recent years. This decline corresponds with an absence of fishing seasons during the peak period of green sturgeon presence in coastal estuaries and the introduction of weekly landing limits that favor the retention of white sturgeon over the less marketable green sturgeon.

Green sturgeon are in general smaller than white sturgeon at maturity, with females beginning to mature at a little over five-feet in length. Males begin to mature at slightly smaller sizes. The maximum size limit for commercially caught green sturgeon has been kept at 66 inches for greater economic benefit.

Key Question: Should the maximum size for green sturgeon retained in the commercial fishery match the white sturgeon regulation and provide additional broodstock protection?

Issue 6: Ocean and Coastal Fisheries

Background:

Sturgeon harvest outside the mainstem lower Columbia River is managed consistent with lower Columbia River sturgeon conservation and management needs. This policy has been incorporated into the 2000 through 2005 Willapa Framework Plans and Oregon now manages lower Willamette River and Youngs Bay with sturgeon regulations that match the adjacent Columbia River area.

Sport harvest of sturgeon outside the mainstem lower Columbia River primarily occurs within Oregon and Washington coastal estuaries. Commercial harvest comes from non-treaty fisheries in Willapa Bay and Grays Harbor and from Quinault Tribal fisheries in Grays Harbor. The Quinault Tribe, which is not a party to the Joint State Accord, implemented a change in the minimum size for commercial sturgeon fisheries in the fall of 2004. The change, which matched the commercial minimum size to the state's 42-inch sport minimum size, was retained for 2005 commercial fisheries.

White sturgeon sport and commercial harvest in Grays Harbor totaled 1,216 fish in 2004 and approximately 2,450 fish so far in 2005, predominantly from the Tribal commercial fishery. These numbers are within recent maximum levels for the Grays Harbor, although white sturgeon harvest in 2005 will be greater than what is typical for most years.

Key Question: Should sturgeon management regimes outside the Columbia River remain consistent with Lower Columbia River sturgeon conservation and management needs?

Next Steps:

- Results of the Advisor Group and public meetings.
- Will ask for Commission decision in December.
- Consider a 5-year agreement.



Joint State Accord on 2003-2005 Columbia River Sturgeon Fishery Management

The Oregon and Washington Departments of Fish and Wildlife agree on the following management measures for sturgeon fisheries in the Columbia River and in coastal streams. These fishery regulations shall be in effect in Oregon and Washington boundary waters above McNary Dam, the lower Columbia River and tributaries, marine areas, and coastal basins. Management of sturgeon fisheries between Bonneville and McNary dams will be addressed under ongoing U.S. v Oregon processes.

I. Management Policies

- A. Provide adequate recruitment and regulatory protection to safeguard the broodstock population.
- B. Manage for optimal sustainable yield (OSY), by setting a combined sport and commercial harvest rate for the legal sized population.
- C. Maintain concurrent Washington and Oregon regulations in the Columbia River.
- D. Maintain viable and diverse recreational and commercial fishing opportunities.
- E. Manage sturgeon harvests outside the mainstem lower Columbia River consistent with lower Columbia River sturgeon conservation and management needs.
- F. Limit incidental impacts of other species needing conservation protection during fisheries directed at white sturgeon.

II. White Sturgeon

A. Harvestable Number Below Bonneville Dam

The annual average harvestable number is 40,000 white sturgeon for 2003-2005 based on current stock assessments, to provide population growth towards OSY. This number shall be used absent a significant update resulting from new biological information or analytical/theoretical approach.

B. Fishery Allocation Below Bonneville Dam

Commercial fisheries shall be allocated 20% and sport fisheries should be allocated 80% of the harvestable number of white sturgeon in the Columbia River.

C. Sport Fishery Regulations

Sport fishery regulations shall be developed consistent with the following objectives:

- Minimize emergency in-season action
 - Balance catch between the estuary and nonestuary fisheries and maintain a diverse array of sturgeon fishing opportunity
 - Maintain fishery monitoring and management capabilities
 - Reduce fishing-related mortalities on “oversize” sturgeon
1. Size limit: 42 inches – 60 inches. Exceptions include fisheries above The Dalles Dam, where the size limit is 48 inches – 60 inches, and 45 inches – 60 inches below the Wauna power lines from May 15, 2004 to July 23, 2004.
 2. Catch limits: 1 per day and 5 per year, with catch and release fishing allowed after retention of the daily or annual catch limit except no fishing for sturgeon is allowed in the sturgeon spawning sanctuary below Bonneville Dam from May 1 through July 31.
 3. Hook requirement: Barbless hooks required, with a requirement allowing only one single point hook to be phased in by May 1, 2005.
 4. Areas: Recreational fisheries below Bonneville should be managed to annually provide 60% of the harvest to the area downstream of the Wauna powerlines, and 40% to the area upstream for 2003-2005.
 5. Retention Seasons: Modified as necessary so that average harvest for the 3-year period of this agreement is no greater than the prescribed sport harvestable number. In order to accomplish the catch by area objectives for above and below Wauna power lines, different season structures may be employed for the two areas.
 6. Miscellaneous regulations: Miscellaneous sturgeon fishery regulations as described in Oregon and Washington sport regulation pamphlets shall remain in effect.
 7. Oversize Catch and Release Fishery Below Bonneville Dam: This fishery has a higher impact on the broodstock population than does other segments of the fishery. Consequently, the States are committed to managing the oversize catch and release fishery consistent with the policy intent to safeguard the broodstock. For 2004-2005, the states will implement measures intended to reduce handling stress, improve reproductive success and reduce mortality. The permanently adopted regulations by the two states are not concurrent. For 2004, Washington agrees to modify its permanent regulation regarding the spawning ground sanctuary to be consistent with the Oregon permanent regulation, provided the following conditions are met in lieu of moving the spawning sanctuary boundary downstream:
 - a) The Oregon permanent regulation shall remain unchanged, except by agreement of both states.

- b) “Best Fishing Practices” Program: A core group of the guides participating in this fishery commit to working with WDFW and ODFW to endorse and implement a “Best Fishing Practices” program, including but not limited to the following measures: a handling limit of one oversize sturgeon per client per day; emphasis on reducing the amount of handling time per oversize fish; keeping the fish in the water while being photographed and released; use and maintenance of proper gear to minimize break-offs; and conduct clinics to teach best fishing practices to all participants in the fishery.
- c) Increased cooperation from the guide community in the WDFW/OSU research project, including voluntary purchase of handheld PIT tag scanners and voluntary participation in the WDFW logbook program.
- d) Implementation by both states of the fishery and population monitoring measures described below.

Success of the “Best Fishing Practices” program will be evaluated following the 2004 season based on the following Performance Measures:

- a) The number of carcasses found during the 2004 systematic carcass survey. Sixteen carcasses would represent a 25% reduction from the 1999-2003.
- b) The number of hooks found in carcasses during the 2004 systematic carcass survey relative to the 2000-2003 average.
- c) The incidence of multiple-handle of oversize sturgeon in the gorge boat fishery relative to the 2000-2003 average as measured through tag recoveries by the OSU/WDFW study.
- d) Where 90% of boat anglers contacted, who are participants in the May-July 2004 oversize fishery downstream to Skamania Island, cooperate with the OSU/WDFW oversize study by allowing state biologists to examine oversize sturgeon handled in this fishery.
- e) Where 25% of boat anglers contacted through the OSU/WDFW study appear to be aware of and implementing the “Best Fishing Practices” protocol proposed by the core guide group.

Following evaluation of the 2004 season, in comparison with the 1994-2003 base period, WDFW will implement emergency regulations for the 2005 season to provide concurrence with Oregon, if the aforementioned performance measures are satisfactorily achieved as determined by both states relative to the objectives of reducing handling stress, improving reproductive success and reducing mortality.

D. Commercial Fishery Regulations

Commercial fishery regulations shall be developed to optimize economic value and spread harvest opportunity throughout the year.

1. Size limit: 48 inches – 60 inches.
2. Landing limits: The states may implement landing limits per vessel per fishing period as necessary to spread harvest opportunity and optimize economic value.

3. Seasons: Sturgeon fishing can occur outside salmon fishing seasons as necessary to access allocation and optimize economic benefit, consistent with conservation objectives for other species.
4. Miscellaneous regulations: Miscellaneous sturgeon fishery regulations in effect since 1996 shall remain in effect.

E. Fishery and Population Monitoring Measures

1. Sport Fishery Statistical Sampling Program: Both states will continue their current sport fishery sampling efforts. Oregon will provide a copy of the statistical sampling estimation program to Washington for biometrician review.
2. Young of the year surveys: Oregon agrees to develop and provide a juvenile production sampling program beginning in 2004.
3. Carcass surveys: Washington agrees to continue a program of weekly carcass surveys and autopsies.
4. Abundance estimation: Oregon and Washington agree to continue the annual tagging program to estimate legal size white sturgeon abundance.

III. Green Sturgeon

A. Sport Fisheries

Daily and annual individual angler catch limits apply to green and white sturgeon in combination. Size limits and all other regulations are identical for both species.

B. Commercial Fisheries

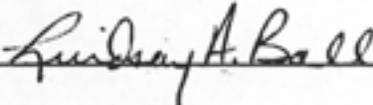
1. Size limit: 48 inches – 66 inches.
2. Seasons: Green sturgeon may be taken concurrently in seasons taking white sturgeon, to the extent that catches do not exceed the range in apparent harvest rates observed in the past. Green sturgeon target seasons shall not be allowed.

C. Stock Status

Stock status and management of green sturgeon will continue to be reviewed with regional co-managers. Fishery modifications consistent with current green sturgeon stock status will be considered based on new biological information or a new analytical/theoretical approach.

IV. Ocean and Coastal Fisheries

Manage sturgeon harvests outside the mainstem Columbia River consistent with lower Columbia River sturgeon conservation and management needs.



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04-29-04



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5/3/04

FALL CHINOOK

Title: Columbia River Fall Chinook Allocation

Issue: Allocation of fall Chinook to non-Indian sport and commercial fisheries.

Background

Fisheries in the Columbia River are managed under *U.S. v Oregon* and the Columbia River Fish Management Plan (CRFMP). The CRFMP defines the roles of harvest and production in the Columbia River basin, including the Snake River. The CRFMP has expired and the parties to *U.S. v Oregon* are in the process of renegotiating a new plan. The parties to *U.S. v Oregon* include the states of Washington, Oregon and Idaho, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service, Yakama Nation, Confederated Tribes of the Warm Springs Reservation of Oregon, Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce Tribe. In absence of a CRFMP, the parties have negotiated annual Management Agreements to govern harvest and production. The parties to *U.S. v Oregon* have re-negotiated a new interim plan covering fisheries from January 2005 through December 2007. This interim agreement titled “2005-2007 Interim Management Agreement for Upriver Chinook, Sockeye, Steelhead, Coho and White Sturgeon” provides specific fishery management constraints for fall Chinook, steelhead and coho.

Fall Chinook begin entering the Columbia River in August and fisheries occur primarily during August through October. The fall Chinook run is comprised of five major stock components, including hatchery and wild/natural and stocks above and below Bonneville Dam. The majority of Columbia River Basin salmon and steelhead stocks are listed under the Endangered Species Act (ESA). Annual Biological Assessments of impacts from fisheries on ESA-listed stocks have been submitted to the NMFS since 1992.

Fisheries during the fall season can be constrained by any one of the ESA-listed stocks present in the river. The timing and distribution of the stock groups varies throughout the river, thus each stock contributes to the overall run and fisheries in different proportions every year. In the most recent few years, the ESA listed Snake River Wild fall Chinook stock has been the most constraining stock for both sport and commercial fisheries. Due to similar timing and migration patterns, the healthy Upriver Bright (URB) fall Chinook stock is used as a surrogate in estimating impacts to the Snake River Wild fall Chinook. Lower River Wild (LRW), which return primarily to the Lewis River in Washington, have been a constraint in past years. Lower River Hatchery (LRH) fall Chinook are also ESA- listed.

Recreational Fisheries

A mainstem recreational fall Chinook fishery exists in much of the Columbia River. Primary catch areas for fall Chinook include the lower estuary (Buoy 10), the lower river between Longview and Bonneville Dam, and the Vernita-Hanford Reach area below Priest Rapids Dam. Increased fall Chinook returns and favorable river conditions since 2001 fueled significant increases in the lower Columbia River portion of the Chinook sport fishery where annual catches have increased from less than 10,000 adults prior to 2002 to 17,700-26,200 fish during 2002-2004. The Buoy 10 fishery accounts for significant Chinook harvest and the vast majority of the mainstem recreational coho harvest which fluctuates widely depending on annual coho returns. Small recreational fisheries for Chinook also occur at tributary mouths in the Zone 6 management area. Hatchery steelhead fisheries in the mainstem Columbia River occur primarily

between Tongue Point and Bonneville Dam. Significant steelhead landings can also occur during sport fisheries above Bonneville Dam, especially near tributary mouths.

Commercial Fisheries

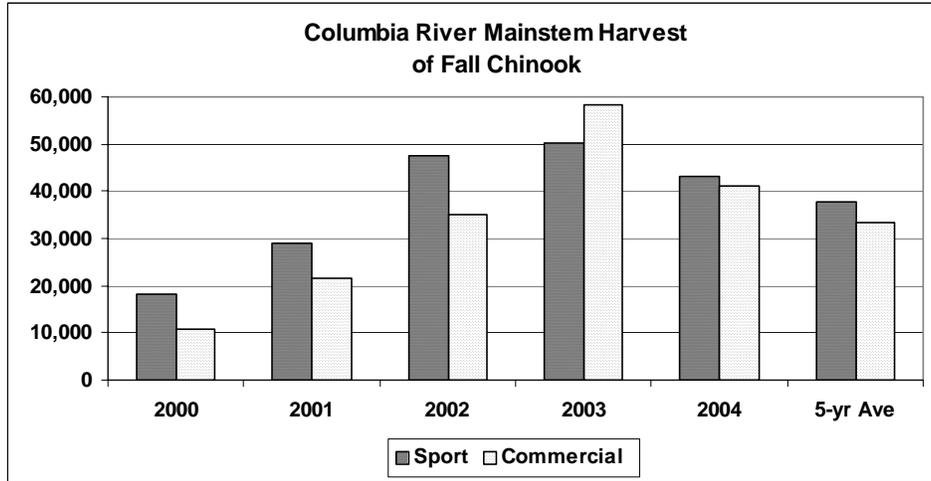
Traditional commercial fisheries below Bonneville Dam occur during "early fall" (August to mid-September) targeting on Chinook and "late fall" (mid-September to mid-November) targeting on coho. Coho typically outnumber Chinook in the late fall season catch and in some years by a wide margin; however, Chinook landings can be significant during the mid-September timeframe. Incidental landings of steelhead occurred in both early and late fall seasons until commercial sale of this species was banned in 1975.

Since 1992, commercial fisheries below Bonneville Dam during the fall fishing period were reduced in response to ESA listing decisions. Mesh size restrictions were frequently imposed on both the early fall and late fall segments of the non-Indian commercial fishery to reduce the incidental catch of non-target species. Commercial fisheries were also frequently restricted to zones or daylight-only time periods to concentrate on target stocks or avoid non-target stocks.

Early fall fisheries typically occurred during the last half of August, primarily in Zones 4-5 (upstream of the Sandy River mouth or the I-205 Bridge) near Bonneville Dam. These fisheries target on Chinook with some sturgeon and a few coho also landed. Recently, seasons have also occurred during the first half of August in Zones 1-3 (mouth to Longview Bridge). During 1997-2001, these fisheries consisted primarily of short fishing periods targeting sturgeon. Since 2002, August fisheries in the lower river have expanded in time and area and shifted to targeting fall Chinook with some coho and sturgeon also being landed. Late fall seasons typically occur from mid- to late September through the end of October. The majority of the seasons target coho in the lower river below the mouth of the Lewis River. Some target Chinook seasons have also occurred during mid- to late September in Zones 4-5 (upstream of the I-205 Bridge). During several years in the 1990's, extremely low coho abundance curtailed nearly all commercial fishing opportunities during the late fall period.

Sport/Commercial Allocation and Total Harvest

Due to the design of both sport and commercial fisheries, each fishery affects stocks differently. Time and area restrictions are developed to provide a balanced opportunity for each fleet. The following figure shows the most recent 5-year harvest of all adult fall Chinook in the sport and commercial fisheries. Sport harvest includes the area from the mouth upstream to the Highway 395 Bridge in Pasco, Washington and commercial harvest below Bonneville Dam. Recently, harvest sharing between both industries has ranged from 46%-63% for the sport industry and 37%-54% for the commercial industry. Since 2000, the sport fishery has averaged 55% of the total Chinook harvest and the commercial fishery has averaged 45% of the total Chinook harvest.



The URB component of the fall Chinook run has been the major limiting stock in recent years. The URB stock includes the listed Snake River wild (SRW) fall Chinook. The table below shows the harvest of URBs and the sharing percentages. The sport harvest has ranged from 38%-69% with a 5-year average of 52% and the commercial harvest has ranged from 31% to 62% with a 5-year average of 48%.

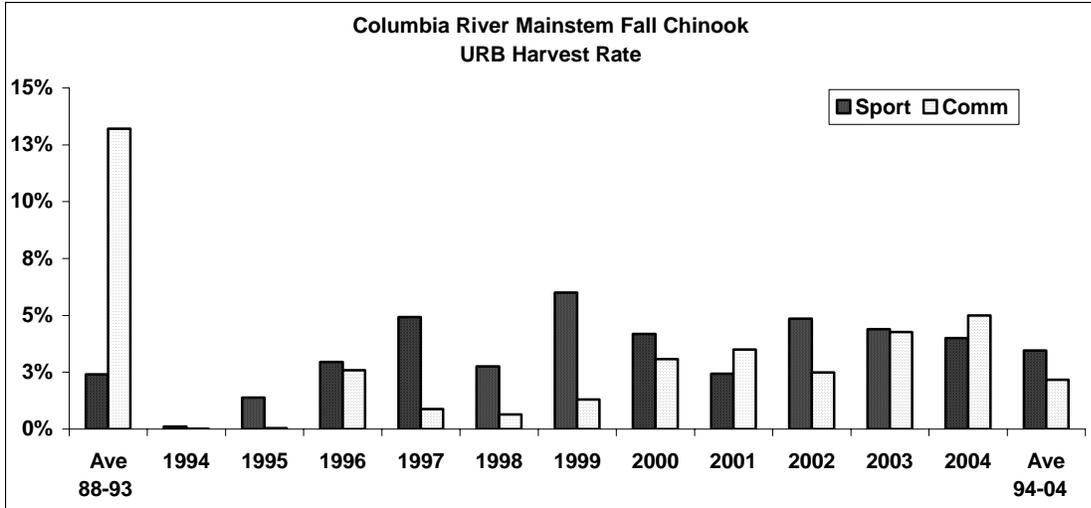
Adult Mainstem Harvest sharing of Fall URB Chinook				
Year	URB Harvest		% of Total URB Harvest	
	Sport	Commercial	Sport	Commercial
2000	6,500	4,600	59%	41%
2001	5,600	9,300	38%	62%
2002	13,500	6,100	69%	31%
2003	16,500	15,800	51%	49%
2004	13,300	18,800	41%	59%
5-yr Ave	11,080	10,920	52%	48%

a. Sport fisheries include mainstem sport from Buoy 10 up to McNary Dam.
b. Commercial fisheries include only mainstem fisheries below Bonn Dam

The ESA guidelines call for a 30% harvest rate reduction of URBs for protection of Snake River wild Chinook. The historic harvest rate base period (1988-1993) is used to measure URB harvest rate reductions across all fisheries (treaty and non-treaty). The graph below shows the historic non-Indian (base-period) harvest rates in comparison to recent year rates for URB fall Chinook. The average URB harvest rate during the base period was 3% for the sport fishery, 13% for the commercial fishery and 29% for treaty Indian fisheries. Between 1994 and 2004 sport harvest rates have ranged from 0% to 6% with an average of 3%, commercial harvest rates have ranged from 0% to 5% with an average of 2% and treaty harvest rates have ranged from 12% to 26% with an average of 19%.

URB Harvest Rates			
	LCR		
	Sport	Comm	Treaty
Ave 88-93 ¹	2%	13%	29%
Ave 94-04 ²	3%	2%	19%

1. Base Period.
2. Total harvest rate (sport, commercial and treaty combined to be reduced by 30% of base period).



Discussion

Columbia River fall fisheries are developed annually with constituent groups through the North of Falcon (NOF) process. The NOF process includes considerations for conservation, allocation, in-season management and monitoring issues. Annual allocation agreements have been produced for developing fishing plans for the Columbia River. Each industry has its own unique goals in order to consider their fishery a success. Advisory groups representing both industries and the constituents meet with Oregon and Washington fishery managers and together a plan is developed that will best fit the constituents involved.

The Buoy 10 fishery occurs at the mouth of the Columbia River and in recent years, the goal has been to allow Chinook retention in the fishery through at least Labor Day. Effort and catch drops off dramatically after that. During the most recent five years (2000-2004) the Buoy 10 fishery has primarily been restricted to a one-Chinook daily limit, and in three of the five years has been open through at least Labor Day for Chinook retention. A six-day Chinook closure was implemented in 2000, and in 2001 the fishery was closed for 12 days to Chinook retention.

The mainstem sport fishery (from Rocky Point/Tongue Point upstream to the Highway 395 Bridge in Pasco) sets a goal to have a 7-day/week fishery without any closures. A reduced bag limit on Chinook can be implemented to prolong these fisheries, and has been implemented in the mainstem sport fishery for 2004 and 2005. The mainstem sport fishery has had full 7-day/week seasons for all of the most recent five years (2000-2004).

The commercial industry prefers a steady and consistent fishing strategy in order to provide stability to plan and market the catch. It is also desirable for the industry to have fisheries occurring in all of the five commercial fishing zones, so that the fishers can fish in the areas and on the drifts that they have maintained (cleared of debris). The commercial fishery has been open an average of 28 days during the fall season, with increased fishing in the month of August beginning in 2001. Commercial fisheries in recent years have been fairly similar with some August Chinook target fishing, limited Chinook fishing in September and target coho fishing during September and October. Consistency in the structure of the fall fisheries helps to provide stability in planning and marketing.

2005 Fisheries

2005 fisheries are on going at this time, but a preliminary review can be made. The main harvest constraint for 2005 was the URB harvest. The preseason allocation that was developed during the North of Falcon process was to share the URB harvest rate 50/50 between sport and commercial fisheries. The URB run size was predicted to be 354,600 and the current in-season run update is 293,400, which is about 83% of the forecast. The sport fishery was closed to Chinook retention on September 18 in the area from the Tongue Point/Rocky Point line upstream to Bonneville Dam. On October 1, Buoy 10 and the area from Bonneville Dam upstream to Highway 395 Bridge in Pasco were closed to Chinook retention. The sport fishing closures were a result of a) the downgrade in the run size, b) the good catch rates in the fisheries, and c) the URB allocation. The current sharing of URB impacts is about 56% sport and 44% commercial compared to the preseason guideline of 50%/50%. The commercial fishery was not able to prosecute a Chinook target fishery during mid-September, which was part of the preseason fishery plans. Coho commercial fisheries were expected to be minor in 2005 due to the poor preseason forecast, primarily for late stock coho. On October 17, the Columbia River Compact set commercial fisheries to harvest some of the remaining Chinook on the commercial allocation, and reopened the sport fishery to the retention of Chinook effective October 20. The commercial fishery will not be able to access the remaining Chinook allocation this late in the season.

There were successes and failures with the 2005 fall season. The sport fishery was not able to remain open 7-days per week for Chinook retention, but the fishery was open through the major catch and effort timeframe of August 1 through September 18. The total catch in the mainstem below Bonneville Dam was 26,600 compared to the preseason expectation of 28,900. A secondary goal is to have the first half of September open for sport fishing without commercial fisheries occurring at the same time, which was accomplished in 2005. The commercial fishery was not able to have a target Chinook fishery in all five zones, which was a preseason goal. The total commercial catch of fall Chinook is 27,000 through October 18, and the preseason expectation was 34,000. The URB allocation was less than the commercial guideline. The URB run size was less than the preseason forecast, which caused some of the imbalance to occur.

Key Questions

- Due to the dynamic nature of the stock components that comprise the fall Chinook run, is developing annual fall Chinook allocation guidelines through the NOF process the most reasonable approach?
- Has this process been successful in previous years?

Next Steps

- Results of the Advisor Group and public meetings.
- Will ask for Commission decision in February.
- Consider a 5-year agreement.

SUMMER CHINOOK

Title: Columbia River Summer Chinook Allocation

Issue: Allocation of non-treaty share of harvestable summer Chinook downstream of Priest Rapids Dam.

Background

Summer Chinook enter the Columbia River in June and July on their migration to the upper Columbia River basin. The run is comprised of an earlier migrating race destined for the Snake River system and a later migrating race destined for the upper Columbia River and tributaries above Priest Rapids Dam (Figure 1). The Snake River summer Chinook, which are listed under the Endangered Species Act (ESA), cross Bonneville Dam in late May and early June.

Historically, the majority of the spawning occurred in the upper Columbia River above Grand Coulee Dam and access to that area was blocked by the construction of the dam, which was completed in 1941. Upper Columbia summer Chinook spawned in the Columbia, Wenatchee, Okanogan, and Similkameen rivers. Since completion of the Columbia River hydropower system, summer/fall Chinook redds are found in the Columbia, Wenatchee, Okanogan, Methow, Similkameen, Chelan and Entiat rivers.

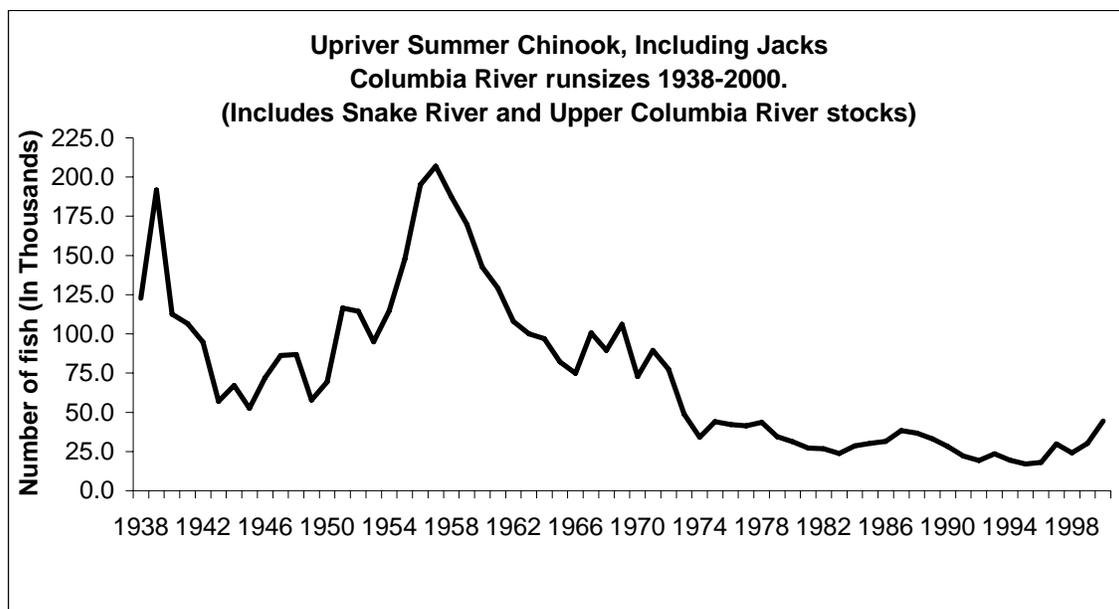


Figure 1.

Upper Columbia summer Chinook, which are destined to return to areas above Priest Rapids Dam, are not listed under the ESA and are currently healthy. Population abundance has rebounded in recent years to levels that currently provide fish for harvest (Figure 2). During 1979-2000, the upper Columbia River summer chinook adult returns were at low levels, but fairly stable, ranging between 9,800 and 23,600. The return in 2001 increased significantly to 54,900 adults and in 2002 a record high 92,800 upper Columbia summer chinook adults returned to the Columbia River. The 2003 return of 83,000 was the second largest run since 1979. The 2004 and 2005 returns averaged around 63,000 fish.

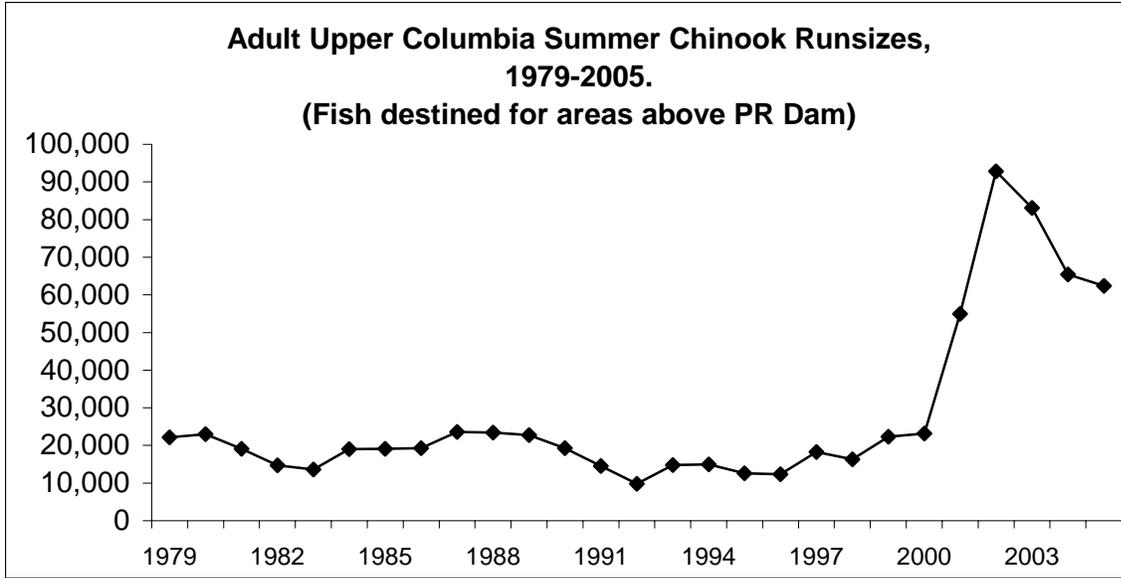


Figure 2.

Management Guidelines

A new management agreement is in place covering fisheries during 2005-2007, which was reached during negotiations with the *U.S. v Oregon* Parties. This agreement includes a new management framework for upper Columbia summer Chinook (Table 1). The new framework provided a spawning escapement goal for natural and hatchery stocks combined, and a sharing plan for the available harvest between treaty Indian and non-treaty fishers. The management intent is to treat the hatchery and natural fish as one composite group because the fish are genetically similar, and the escapement goal is a combined goal for both. The management period was established as June 16 through July 31 at Bonneville Dam. The NMFS reviewed the new framework and determined that Endangered Species Act (ESA) impacts were minimal in a Biological Opinion issued on May 9, 2005. The Federal Court approved the agreement on May 11, enabling the parties to proceed with fisheries under the new management framework.

Table 1. Allowable Harvest for Upper Columbia Summer Chinook.		
Run Size at River Mouth	Allowed Treaty Harvest	Allowed Non-Treaty Harvest
<5,000	5%	<100 Chinook
5,000-<16,000	%	<200 Chinook
16,000-<29,000	10%	5%
29,000-<32,000	10%	5-6%
32,000-<36,250 (125% of 29,000 goal)	10%	7%
36,250-50,000	50% of total harvestable ¹	50% of total harvestable ¹
>50,000	50% of 75% of margin above 50,000 plus 10,500 ²	50% of 75% of margin above 50,000 plus 10,500 ²

¹ The total number of harvestable fish is defined as the run size minus 29,000 for run sizes of 36,250 to 50,000.

² For the purposes of this Agreement, the total number of harvestable fish at run sizes greater than 50,000 is to be determined by the following formula: $(0.75 * (\text{runsize} - 50,000)) + 21,000$.

WDFW is developing a management plan for summer Chinook as well as a multi-year management agreement with the Colville Tribe. Included in the Management Plan is an

allocation schedule regarding harvest sharing between fisheries above and below Priest Rapids Dam. The effect of the proposed framework is to limit all non-treaty fishing to minimal levels when the run size is below escapement needs. At levels of low allowable harvest (about 50,000 run size), harvest opportunity should be allocated almost exclusively to upstream areas, to meet Colville and Wanapum needs as well as provide recreational fishing in the upstream areas which typically have limited salmon angling opportunities. Below Bonneville fisheries would be promulgated when run sizes are large enough that abundances will support meaningful fisheries.

Historical and Current Fisheries

Recreational Fisheries

A non-selective sport fishery in the upper Columbia River region (upstream of Priest Rapids Dam) has occurred annually since 2000. The fishery was prompted by the strong returns of summer Chinook forecasted for 2000 and has remained as a result of the strong run size into the region. The summer Chinook salmon fishery in the upper Columbia River region is the only consistent fishery allowable for anglers targeting anadromous fish. Limited opportunity in the lower river has occurred in recent years (2002-2004).

Commercial Fisheries

Historic summer commercial seasons harvested summer Chinook, sockeye, summer steelhead and shad. Commercial seasons during 1909-1942 were open May 1 through August 25, with landings of summer Chinook averaging 40,000-50,000 fish annually. Prior to 2005, no summer Chinook season had occurred below Bonneville Dam since the 2-day season allowed in 1964. In 2004, two 12-hour fishing periods occurred below Bonneville targeting sockeye but also allowed harvest of summer Chinook.

Review of 2005 Fisheries

During 2005, sport, commercial and non-treaty Indian fisheries were established without a formal allocation agreement, although goals for the fisheries below Priest Rapids Dam were developed with input from the Columbia River Advisory Groups. The goal for the sport fishery was to have continual fishing from June 16 through July 31 downstream of Priest Rapids Dam. One of the goals of the commercial fishery was to have stable, weekly fisheries throughout the six-week management time frame. The informal allocation provided about 58% of the available non-treaty harvest share to fisheries above Priest Rapids Dam (including the Wanapum tribal fishery), with the remaining 42% for sport and commercial fisheries downstream. Of the 42% downstream allocation it was further allocated about 50/50 between sport and commercial fisheries.

The sport fishery below Bonneville Dam was open from June 16 through July 31, with 40,000-50,000 angler trips and 2,300 Chinook harvested. The first two weeks of the fishery were implemented with selective fishing regulations due to uncertainty about the preseason run size forecast. The sport fishery from Bonneville Dam upstream to Priest Rapids Dam was open from June 16 through July 31. Catch and effort for this fishery is not available, but was light. Sport fisheries above Priest Rapids Dam opened on July 16 and are scheduled to continue through October 15. Colville tribal fisheries begin July 1 and continue through October 31 annually. Their fishery to date has principally been a hook and line fishery conducted in the tailrace of Chief Joseph Dam. Their catch since 1999 has averaged slightly less than 1,500 fish per year; however, innovative fishing techniques to include selective fishing with nets will likely increase their total catch. The commercial fishery occurred for six periods from June 23 through July 26

with 2,800 Chinook harvested, providing the first commercial fishery directed on summer Chinook since 1964. The basic preseason goals for both the sport and commercial fisheries were achieved. Sport fisheries were open throughout the June 16 – July 31 timeframe in all areas upstream to Priest Rapids Dam. The commercial fishery occurred for six weeks during the same time frame.

Key Questions

- How should the non-treaty allocation below Priest Rapids Dam be shared between sport and commercial fisheries?
- Should the allocation change at varying run sizes? At very large run sizes the ability of the sport fishery to harvest a large percent of the run will be limited. At smaller run sizes, meaningful Chinook directed commercial fisheries might not be feasible.

Next Steps

- Results of the Advisor Group and public meetings.
- Will ask for Commission decision in February.
- Consider a 5-year agreement.

SPRING CHINOOK

Title: Columbia River Spring Chinook Allocation and Fishery Management

Issue: Allocation of upriver spring Chinook impacts among non-Indian recreational and commercial fisheries.

Background

Historic non-Indian spring Chinook fisheries in the main-stem Columbia River occurred during February through May and harvested spring Chinook destined for every sub-basin. Commercial seasons were structured to target Willamette and other lower river stocks during February-March and upriver stocks during May. Mid-March through late April was generally closed to commercial fishing to provide escapement during the peak of the run. Recreational seasons were open the entire year but prior to World War II most recreational fisheries were focused in the tributaries.

Non-Indian fisheries targeting upriver spring Chinook in April and May largely ended in 1977. From 1978-2000, main-stem non-Indian fisheries occurred exclusively in February and March and were directed at Willamette spring Chinook. During 1986-95, fisheries operated under the Columbia River Fish Management Plan (CRFMP) that limited the treaty Indian fishery to 5-7% of the upriver run and the non-Indian fisheries to less than 5% of the upriver run. Non-Indian Columbia River fisheries continued to be directed at Willamette spring Chinook with incidental impacts to upriver stocks. From 1996-1999, an *ESA/U.S. v Oregon* Agreement was in place that limited the treaty Indian fishery to 5-7% of the upriver run and non-Indian fisheries to 1-3% of the upriver run depending on run size. In 2000, with an improved upriver run and failed attempts to reach another *U.S. v Oregon* Agreement, NMFS allocated 8.5% of the upriver run to treaty Indian fisheries and 0.5% of the upriver run to non-Indian fisheries. Non-Indian fisheries were closed by mid-March in 2000 even with the improved upriver run.

In 2001, faced with a record high forecasted upriver spring Chinook return (Tables 1 and 2), the *U.S. v Oregon* parties reached a three-year agreement on treaty Indian/non-Indian allocation of upriver spring Chinook. This provided for a sliding scale harvest rate for upriver spring Chinook based on both total upriver spring Chinook run size and ESA listed Chinook run size and is now part of the 2005-2007 *U.S. v Oregon* Interim Agreement. The non-Indian allocation of impacts on ESA listed upriver spring Chinook ranges from a low of 0.5% when the upriver run is less than 33,000 fish to a high of 2.0% when the upriver run is greater than 82,000 fish. Even with the relatively small allowable impact rate, the implementation of selective fisheries provides for greatly increased non-Indian fishing opportunity (Table 3) within the limits of the agreement.

Non-Indian Sport/Commercial Upriver Spring Chinook Allocation

Until 2002, non-Indian sport and commercial catch of upriver spring Chinook had never been formally allocated. The Columbia River Compact made allocations on a year-by-year basis with many allocations made by default when the commercial fishery achieved the Willamette allocation (or reached the March 9 CRFMP prescribed ending date) and the remaining upriver impacts were allotted to the sport fishery. During the late 1970's through late 1980's, both sport and commercial fisheries were constrained to the February-March time period (Willamette directed fisheries) with a larger proportion of the upriver impacts allocated to the commercial fishery (71%) to attain the commercial Willamette allocation. During the early 1990's, sport and commercial fisheries continued to be constrained to the February-March time period but upriver

impacts were more evenly split. With ESA listings of Snake River and upper Columbia River spring Chinook and/or poor Willamette runs from 1995 through 2000, mainstem commercial and sport fisheries were completely closed or very minimal.

During the 2001 preseason process, in light of the 2001-2003 upriver spring agreement and the implementation of selective fisheries, upriver spring Chinook impacts were allocated 0.9% commercial, 0.8% lower Columbia sport, and 0.3% upper Columbia non-treaty fisheries/management buffer. The lower Columbia sport allocation combined with live capture selective fishery regulations was designed to enable the re-establishment of a significant April sport fishery in the Columbia River below Bonneville Dam (the first since 1977).

In 2001 and again in 2004, the Oregon and Washington Departments of Fish and Wildlife completed lengthy public processes to review and formalize the allocation of impacts to wild upriver spring Chinook salmon listed under the federal Endangered Species Act. Impacts are defined as the unintended mortalities of incidentally caught and released upriver wild spring Chinook. Impacts to listed fish are calculated as the percentage of the total listed population that are mortalities as the result of fishing. As described previously, the federal government and parties to the federal lawsuit *US v. Oregon* have agreed to cap the non-Indian fishery to a 2% impact rate on wild upriver spring Chinook. The 2% impact limit has been in place since 2001 and it is shared between the lower Columbia non-Indian commercial fishery and the mainstem Columbia recreational fishery, with a small number of impacts to sport and non-treaty Indian fisheries above McNary Dam. The initial sharing arrangement used in 2002-03 fisheries management expired after the 2003 fishery and a new sharing arrangement was adopted for 2004 and 2005.

Table 1. Recent Spring Chinook Run Sizes

Year	Upriver	Willamette	Other Lower River	Total
2000	186,100	57,500	9,900	253,500
2001	437,900	80,300	12,800	531,000 ¹
2002	331,300	121,700	18,500	471,500 ²
2003	242,600	126,600	31,900	401,100
2004	221,600	143,700	45,800	411,100
2005	105,000	60,000	25,000	190,000

¹. Largest return since at least 1938.

². Second largest return.

Table 2. Forecast and Actual Upriver Run Size

Year	Forecast	Actual	Recalibrated ¹
2000	134,000	178,700	186,100
2001	364,600	416,500	437,900
2002	333,700	295,100	331,300
2003	145,400	208,900	242,600
2004	360,700	193,400	221,600
2005	254,100	105,000	105,000

¹. Run sizes calculated including the timeframe of June 1-15.

Table 3. Recent Lower Columbia Spring Chinook Seasons ¹

Year	Sport		Commercial	
	Mth to I-5 Br.	I-5 Br. To Bonn Dam	Mth to I-5 Br.	I-5 Br. To Bonn Dam
2000	Jan 1-Mar 15	Closed	7 days Large mesh Feb 13-29	Closed
2001	Jan 1-Apr 17 Apr 25-29	Mar 12-Apr 17 Apr 25-29	6 days Large mesh Feb 26-Mar 9	Closed
2002	Jan 1-Apr 28 May 5-15	Mar 16-Apr 28 May 5-15	15 days Tangle net Feb 25-Mar 27	Closed
2003	Jan 1-Apr 5 Apr 6-May 15 ² Wed-Sun weekly	Feb 15-Apr 5	3 days -Large mesh Feb 17 and 19 Tangle net March 21	Closed
2004	Jan 1-April 30	Mar 16-April 21	8 days -Large mesh March 4, 9, 11, 15, and 18. Tangle net March 23, 25, and 29.	Closed
2005	Jan 1-April 20 June 4-15	March 16-April 20 3-days per week and one fish bag limit above Rooster Rock June 4-15	9 days -Large mesh Feb 22, 24, March 1, 3, 7, 10, and 14 Tangle net March 29 and 31	Closed

¹. Fisheries since 2001 (except for the 2001 commercial fishery) have been restricted to adipose fin-clipped hatchery spring Chinook only.

². Fishery reduced in-season to 4 days/week below I-5 Bridge and closed above I-5 Bridge.

Preseason and Postseason Spring Chinook Allocations

Preseason allocation proportions provide managers with specific guidance for implementing annual fisheries. Achieving these precise allocation proportions can be difficult due to imprecision in the management process (fisheries can perform differently than expected) and due to run size updates that typically occur in late April. Moreover, in-season run size updates are also subject to imprecision associated with annual run timing variation.

Pre-season and post-season percentage shares of impacts on listed wild upriver spring Chinook are shown in Table 4. The pre-season allocation formula has been applied to the 2% non-Indian allowable impact rate and then sub-allocated to various geographic catch areas. Commission

guidance and the allocation schedule for 2002-2003 included a three-by-three matrix with impact sharing based on the combination of upriver and Willamette run sizes (Table 9). Mainstem fisheries in 2002-03 were allocated 1.7% with the remaining 0.3% reserved for Select Area commercial fisheries and non-commercial fisheries above McNary Dam. In 2004 and 2005, the 60/40 sport/commercial proportion was applied directly to the total non-Indian allocation (2%) with recreational and commercial fisheries each accounting for non main-stem impacts in their respective allocation.

Table 4. Preseason and Post-Season Upriver Spring Chinook Impact Allocation Accounting

Year	Sport				Commercial			
	Allocation	Impact Rate		% Used	Allocation	Impact Rate		% Used
		Pre	Post			Pre	Post	
2000	50	0.1%	0.1%	100%	50	0.1%	0.1%	100%
2001 ¹	47	0.8%	0.8%	105%	53	0.9%	0.8%	88%
2002 ²	60	1.0%	1.0%	94%	40	0.7%	0.7%	103%
2003 ²	65	1.1%	0.9%	78%	35	0.6%	0.6%	105%
2004	60	1.2%	1.3%	108%	40	0.8%	1.1%	140%
2005	60	1.2%	0.8%	70%	40	0.8%	0.7%	85%

^{1.} During in-season management, the commercial fishery transferred 0.1% of their impact (10% of their allocation) to the recreational fishery. Preseason plan included 0.3% set aside for above Bonneville fisheries and management buffer.

^{2.} Preseason plan included 0.3% set aside for SAFE and above Bonneville fisheries.

Table 5. Recent Lower Columbia Spring Chinook Catches¹

Year	Sport		Commercial	
	Pre-season Expectation	Actual	Pre-season Expectation	Actual
2000	200-400	300	300-600	500
2001	13-15,000	25,800	6,000	5,400
2002	21,000	21,600	19,500	14,200
2003	10-15,000	18,000	10-15,000	3,200
2004	33,600	24,500	17,700	13,200
2005	24,000	11,000	14,000	5,400

^{1.} Kept catches only. Since 2001 (except for the 2001 commercial fishery) only adipose fin-clipped hatchery spring Chinook could be retained.

Winter Steelhead Impacts

Prior to 1975, winter steelhead were an important species targeted by lower Columbia River commercial fisheries during December through March. After commercial sales were eliminated in the mid 1970s, steps were taken to minimize the incidental impact to winter steelhead during commercial fisheries for spring Chinook. Minimum mesh size restrictions of 7-1/4 inches and later 8 inches were adopted which reduced annual winter steelhead mortality to less than 2% of the return. After lower Columbia and upper Willamette steelhead were listed under the federal ESA, the 2% annual impact rate was institutionalized as part of the Biological Assessment and Biological Opinion for main-stem spring Chinook fisheries. In 2001, commercial selective fishery gear investigations began with full implementation scheduled for winter/spring 2002. In 2002, the commercial fishery exceeded the 2% cap due to use of 5-1/2 inch mesh gear for steelhead capture and extensive fishing during peak steelhead abundance. Adjustments were made beginning with the 2003 commercial fishery management and the steelhead impact has been less than the allowable cap. See the steelhead agenda item for a more complete description of management actions to reduce steelhead handle.

Table 6. Recent Impacts to Lower Columbia Wild Winter Steelhead by Mainstem Columbia Spring Chinook Fisheries ¹

<u>Year</u>	<u>Run Size²</u>	<u>Sport</u>	<u>Commercial</u>
2000		<0.1%	<1.0%
2001		<0.1%	<1.0%
2002	38,000	<0.1%	4.9-14.5%
2003	26,700	<0.1%	1.0%
2004	32,200	<0.1%	0.8%
2005	17,000 ²	<0.1%	0.4%

1. 2% cap in place since 1999 on impacts by the mainstem Columbia spring Chinook fisheries on wild winter steelhead.

2. Abundance analysis is currently under review and data should be considered preliminary and subject to change upon completion of further analysis being conducted by WDFW and ODFW. Any changes in abundance will also result in changes in impacts.

Recreational Fishery

There are three primary measures of recreational fishery success; season length, angler trips, and catch. The three are closely linked with each having an influence on the other. For example, low catch rates will result in less angler interest thus fewer angler trips and potentially longer season length. Alternatively, high catch rates will result in more angler interest thus more angler trips and potentially shorter season length. An excessively large number of anglers participating in a fishery can also reduce catch rates due to competition for prime angling locations and issues of catch-ability.

Due to the implementation of selective fisheries, the main-stem recreational fishery has been resurrected after having been closed since the 1970s. Angler trip totals beginning in 2001 are the highest since at least 1973 and represent a ten to twenty fold expansion over those observed during the late 1990s. Angler trips, catch, and spring Chinook run size for 2000-2005 are displayed in Table 7. Angler trips peaked sharply associated with the implementation of selective fisheries and record large run sizes of 2001 and 2002. The subsequent decline in angler

trips coincides with smaller run sizes. Most notable however is the difference between the Year 2000 and 2005 fisheries. In 2000, despite an upriver run size that was 80% larger than 2005, angler trips were a mere fraction of those in 2005 (about 9%). This dramatic difference is the result of changes to the *US v Oregon* agreement and displays the “leverage” that is created through selective fishery implementation.

Table 7. Main-stem Recreational Fishery

Year	Angler Trips	Catch	Upriver Run	Total Run
2000	9,900	300	178,700	253,500
2001	172,300	25,800	416,500	531,000
2002	175,100	21,600	295,100	471,500
2003	160,800	18,900	208,900	401,100
2004	156,100	24,500	193,400	411,100
2005	108,100	11,700	105,000	190,000

Commercial Fishery

There are two primary measures of success for the commercial fishery; total landings and price per pound. Like the recreational fishery, there is interaction between these two factors due to market response. Low catches can result in higher price per pound and large catches can result in lower price per pound.

Also like the recreational fishery, the commercial fishery for spring Chinook has been resurrected due to the implementation of selective fisheries. Catch totals during 2000-2005 (Table 8) have been highly variable (much more so than for the recreational fishery) but approach the relatively large catches of the late 1980s. Average spring Chinook ex-vessel price paid to lower Columbia River commercial fishers for spring Chinook is high and represents the highest per pound commercial species in the Columbia. Price per pound exceeds \$6.00 during some fishing periods, primarily early in the season when catches are relatively small.

Table 8. Main-stem Commercial Fishery

Year	Fish	Pounds	Price per pound
2000	500	9,400	\$4.97 lb.
2001	6,700	114,700	\$4.10 lb.
2002	14,400	225,800	\$4.18 lb.
2003	3,200	59,500	\$4.67 lb.
2004	13,200	166,000	\$3.88 lb.
2005	5,400	82,600	\$4.15 lb.

Discussion

There are multiple, sometimes competing objectives, associated with the sport and commercial sharing of impacts on upriver spring Chinook. Many times however these objectives are not mutually exclusive. There are fundamental differences in the way each fishery achieves “value”. “Value” to the commercial fishery is measured in number of fish landed, price per pound, and economic multipliers associated with processing, wholesaling, and retailing. “Value” to the sport fishery is multifaceted with economic value derived from angler trips and expenditures, while recreational and aesthetic values are derived from factors such as catch rate, stable fishery expectation, individual fishing flexibility (e.g. open 7 days per week), minimal interaction with commercial fishery, etc.

Both the sport and commercial fishery have basic underlying needs related to upriver impact sharing. Under most run size scenarios, the commercial fishery needs upriver impact allocation to allow access to their formal allocation of Willamette spring Chinook. Additionally, on large upriver runs, commercial allocation is warranted because using live capture selective fishing techniques results in meaningful commercial catches from relatively small wild fish impact rates. The sport fishery needs upriver allocation not to access their Willamette spring Chinook allocation (although that is an important component of the lower Columbia sport fishery) but to provide maximum fishing opportunity during the time of highest spring Chinook abundance. Spring Chinook abundance in the lower Columbia River typically peaks during late March through April.

The attached summary of guiding principles and fishery management objectives was adopted by the Oregon and Washington Fish and Wildlife commissions to address spring Chinook fisheries during 2004 and 2005. Additionally, a range of sport and commercial allocations were adopted by the individual commissions to serve as guidance for their respective agency director to negotiate the final allocation proportions in the Columbia River Compact forum. These actions and the subsequent negotiation resulted in the sharing formula of 60% sport and 40% commercial for upriver spring Chinook impacts during 2004 and 2005 main-stem fisheries.

Key Questions

- Are the guiding principles and objectives from the 2004-2005 allocation agreement still valid and sufficient?
- Have the 2004-2005 allocation proportions (60% recreational/40% commercial) been successful in achieving the objectives set forth by the Commissions?
- Does the management error associated with implementing any allocation proportion cause the plan to fail?

Next Steps

- Meet with advisor groups and public.
- Will bring as an agenda item for Commission guidance in January 2006.
- Consider a 5-year agreement.

2004-2005 Non-Indian Spring Chinook Allocation

- The following guiding principles and fishery management objectives were adopted by the Washington and Oregon Fish and Wildlife Commissions to provide the Joint Staff with guidance when shaping fisheries preseason and managing fisheries inseason during 2004 and 2005.

<i>Mainstem Columbia River Spring Chinook Allocation For Non-Indian Fisheries, 2004-2005</i>	
Guiding Principles	
<ul style="list-style-type: none"> • Meet conservation requirements for wild spring Chinook, including populations listed under the federal Endangered Species Act. • Manage non-Indian harvest of spring Chinook within the provisions of the <i>U.S. v Oregon</i> Management Agreement for upriver spring Chinook. • Manage harvest to meet hatchery escapement goals. • Focus sport and commercial fisheries' allocation on harvest of hatchery fish by implementing live capture and release of unmarked spring Chinook. 	
Fisheries Management Objectives	
<ul style="list-style-type: none"> • Specific structure of sport and commercial fisheries will be set by the Columbia River Compact on an annual basis to meet adopted allocation policies and fisheries objectives after annual run size forecasts are available. • Provide for in-season management flexibility to utilize the non-Indian upriver spring Chinook impact allocation to meet the objectives of both fisheries, i.e., upriver impact sharing adjustments in response to in-season information pertaining to catch and run size. • Adjustments to the sport fishery may occur in-season if it is estimated the fishery will not continue through April. In-season adjustments may include such options as days/week and area closures. • Reduce sport mortality rate with a new regulation requiring "any salmon to be released may not be removed from the water". • Recognize economic benefits of sport and commercial fisheries in the Columbia River. • Provide for sport fisheries throughout the Columbia River downstream of McNary Dam, sport/tribal fisheries in the Snake River and Upper Columbia River, and commercial and sport fisheries in Select Areas. 	

- The Directors of WDFW and ODFW provided staff with additional guidance for implementing OFWC and WFWC Commission policies concerning allocation of non-Indian spring Chinook impacts between sport and commercial fisheries.
- Non-Indian impacts will be allocated 60% for sport fisheries and 40% for commercial fisheries.
- Preseason planning should focus on this allocation as a hard target, but in-season flexibility may be necessary.
- If possible, commercial fishing opportunity should be focused on the February-March timeframe to avoid gear conflicts with recreational anglers in April.
- Preseason planning should include a 2% limit for wild winter steelhead with discussions between the states concerning allowable wild winter steelhead impacts to occur after completion of the NOAA Fisheries review of the steelhead Biological Assessment.
- Commercial fishers should maximize their efforts to avoid handling steelhead.

Table 9. 2002-2003 sharing of non-Indian upriver spring Chinook impacts dependent on Willamette and upriver spring Chinook annual abundances.

		Willamette Hatchery Fish Run Size		
		< 40,000	40-75,000	>75,000
Upriver Run Size (Impacts)	30-<50,000 (0.85%)	Comm - 10% (0.08) Sport - 90% (0.77)	Comm - 30% (0.25) Sport - 70% (0.60)	Comm -25% (0.21) Sport - 75% (0.64)
	50-<75,000 (1.25%)	Comm - 40% (0.50) Sport - 60% (0.75)	Comm - 35% (0.44) Sport - 65% (0.81)	Comm - 30% (0.37) Sport - 70% (0.88)
	>75,000 (1.7%)	Comm - 50% (0.85) Sport - 50% (0.85)	Comm - 40% (0.68) Sport - 60% (1.02)	Comm - 35% (0.59) Sport - 65% (1.11)

Wild Winter Steelhead

Title: Allowable Mortality of Winter Steelhead Incidentally Caught during the Spring Chinook Fishery in Mainstem Columbia River

Issue: Winter steelhead, some of which are listed under the federal Endangered Species Act (ESA), are incidentally caught in spring fisheries targeting hatchery Chinook in the mainstem Columbia River. The majority are released unharmed and survive to spawn, but some do not survive. As a result, the states of Oregon and Washington must provide NOAA Fisheries a Biological Assessment of the risks to their survival and recovery at various levels of incidental mortality. NOAA Fisheries uses the Biological Assessment to develop a Biological Opinion that sets an upper limit on incidental mortality necessary to avoid jeopardy under the ESA.

Background

Historically:

Winter steelhead in Columbia River tributaries upstream from the Cowlitz River in Washington and the Scappoose River in Oregon were listed as threatened under the ESA in 1998 and 1999. Since these listings, winter and spring fisheries in the mainstem Columbia River have been managed under a series of Biological Opinions and directives issued by NOAA Fisheries that set maximum levels of mortality on incidentally-caught listed steelhead.

In 1999 and 2000, the primary non-tribal fisheries affecting winter steelhead in the mainstem Columbia River were recreational fisheries and winter commercial fisheries that targeted sturgeon with large-mesh (≥ 9 -inch) gill nets. These fisheries were managed under a general directive from NOAA Fisheries to keep incidental mortality of winter steelhead to 2% or less. The 2% level was set based on an estimate of the likely maximum mortality rate of incidentally caught steelhead given the intended implementation plan for the fisheries.

In 2001, with the initiation of an expanded spring commercial fishery on spring Chinook, NOAA Fisheries issued a formal Biological Opinion, effective through 2004, which set the incidental-mortality rate on winter steelhead at 2%. In 2002, the spring commercial fishery further expanded with the extension of the season into March. This extension required the use of small-mesh gear (≤ 5.5 -inch) to minimize mortality of incidentally caught listed wild spring Chinook. The use of 5.5-inch gear had the unintended effect of significantly increasing the number of winter steelhead caught in the fishery. This consequently resulted in a significant increase in the incidental-mortality rate, which significantly exceeded the 2% limit (estimates currently range from 4.9% to 14.5%, and are subject to change upon completion of a joint state assessment).

To reduce the incidental mortality of steelhead to levels below the limit set by NOAA Fisheries, several regulatory changes were continued and several new changes were made to fisheries in 2003 and 2004. These included a number of practices aimed at minimizing catch and maximizing survival. They were as follows:

1. The number of days in the fishing season and duration of fishing periods within each day were reduced from that in 2002.
2. Large-mesh nets (8 or 9-inch) were required during the first part of the season when the likelihood of steelhead encounters was high, and when encounters with listed spring Chinook were low. During the period when the use of small-mesh nets was required to

reduce the incidental mortality of listed spring Chinook, the mesh size of the nets was reduced to 4.25 inches (from 5.5 inches) to better protect steelhead.

3. The use of steelhead excluder panels (12-inch mesh) was encouraged.
4. Net soak times were maintained to not exceed 45 minutes.
5. All fishery participants were again required to attend a workshop on best practices for handling and releasing fish.
6. Continued use of recovery boxes for all lethargic or bleeding fish was required.
7. Large river mouth sanctuaries to reduce encounters with steelhead were incorporated.

The results of these changes were dramatic reductions in steelhead mortality. The rate was 1.0% in 2003 and 0.8% in 2004.

2005 Fisheries

For the 2005 spring fishing season, the states of Oregon and Washington submitted a new Biological Assessment. In this assessment, the Oregon Department of Fish and Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW) reviewed the most recent data and concluded that an incidental-mortality rate of up to 6% in 2005 (to ensure access to spring Chinook) would pose no jeopardy to survival and recovery. This conclusion was partly based on an improving trend in steelhead abundance since 2000, including a predicted high abundance in 2005. Biologists also concluded that the effects of a single-year increase in the mortality rate would be mitigated by the multiple age structure of steelhead.

NOAA fisheries agreed with the conclusion of ODFW and WDFW and issued a new Biological Opinion for the 2005 spring fisheries that increased the limit on incidental mortality of winter steelhead from 2% to 6%. However, the Biological Opinion required that the states of Oregon and Washington submit a new Biological Assessment for the 2006 fishery. It also required that the new Biological Assessment include an expanded risk assessment and monitoring and evaluation plan.

Following the issuance of the 2005 Biological Opinion, the Washington Fish and Wildlife Commission (WFWC) approved an incidental-mortality rate of 0 to 4% in the 2005 spring fisheries, with an objective for WDFW to maintain the rate at <2% unless necessary to access significant numbers of hatchery spring Chinook. The Oregon Fish and Wildlife Commission (OFWC), however, did not approve a change in the limit, leaving it at 2% for 2005. The OFWC also directed ODFW staff to work with WDFW to complete an expanded risk assessment and monitoring and evaluation plan that would inform its future deliberations.

Recently

In 2005, WDFW and ODFW expanded efforts to monitor and evaluate steelhead mortality rates in the spring fisheries in the mainstem Columbia River. This included earlier in-season run updates and weekly risk evaluations. The results were a more comprehensive and timely assessment of fisheries performance relative to steelhead mortality rates. Constraints on the fisheries, imposed by incidental-mortality limits for listed spring Chinook, resulted in an actual incidental-mortality rate for winter steelhead in 2005 of approximately 0.4% (based on the very preliminary runsize of 17,000). This rate was less than that for the 2003 and 2004 spring fisheries and well below the incidental-mortality rates set by either Commission. The low rate was primarily influenced by minimal tangle-net fishing days as a result of an in-season management response to an upper Columbia spring Chinook return below forecast.

The incidental-mortality rate in 2005 was low despite the fact that most winter steelhead run sizes were below the preseason forecast (Table 1). For most populations, observed abundances in 2005 were significantly less than 2004 and, for some, the lowest since 2000.

Table 1. Winter Steelhead Abundances for 2005			
Location	Preliminary Estimate	Forecast	Percent of forecast
Willamette @ Willamette Falls	5,927	10,500	56%
Clackamas @ North Fork	936	1,500	62%
Sandy @ Marmot	626	850	74%
Hood @ Powerdale	352	350	101%
Coweeman	370	493	75%
Toutle (SFK and NFK)	686	1,450	47%
Kalama	1,751	1,957	89%
Washougal	320	806	40%

As noted earlier, NOAA Fisheries has required that the Biological Assessment for the 2006 spring fisheries in the mainstem Columbia River include an expanded risk assessment and monitoring and evaluation plan. It also directed Oregon and Washington to specifically investigate, as part of the risk assessment, whether the fisheries differentially affect individual populations of winter steelhead. In response WDFW and ODFW expanded monitoring and evaluation in 2005 to include two important components that will inform future fishery planning. A genetic stock identification assessment was begun to identify individual steelhead populations and characterize their encounters with the fisheries. Estimating the incidental mortality of individual populations of winter steelhead, particularly weak stocks in the Lower Columbia ESU, will enable better assessments of risks the fisheries pose to the sustainability of these populations. The agencies also conducted an evaluation of the use of steelhead excluder panels in nets. This will help ensure that gear used in the fishery minimizes the handling and injury of steelhead. The results of the gear evaluation and the genetic study are not yet available.

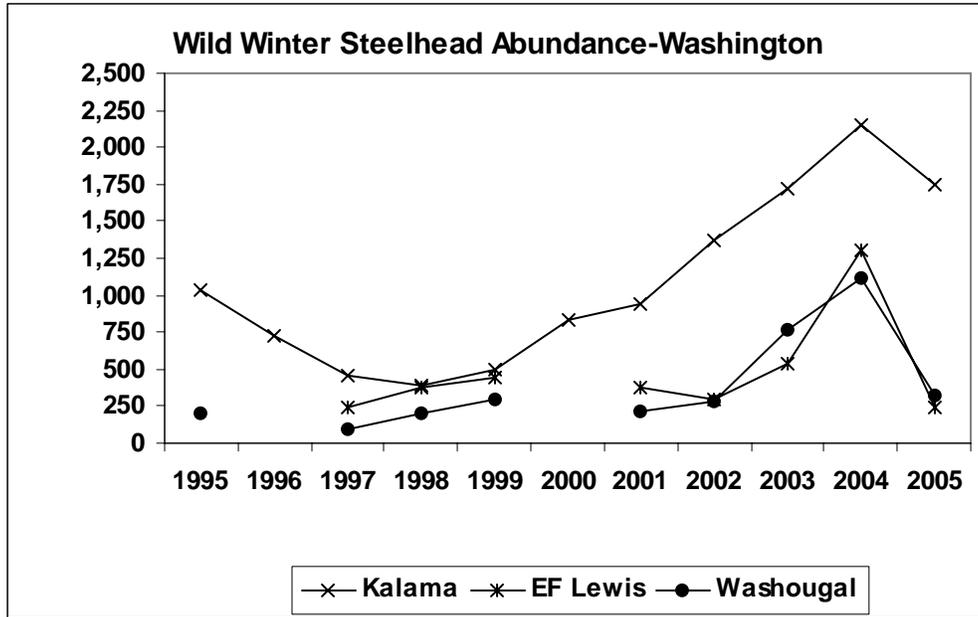


Figure 1a. Wild steelhead abundance trends for Washington tributaries, 1995 – 2005

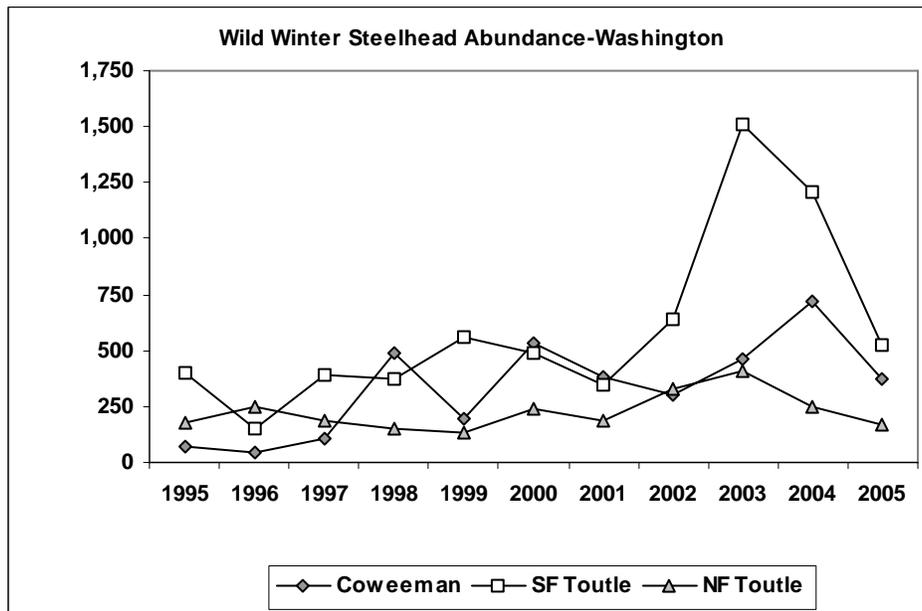


Figure 1b. Wild steelhead abundance trends for Washington tributaries, 1995 – 2005

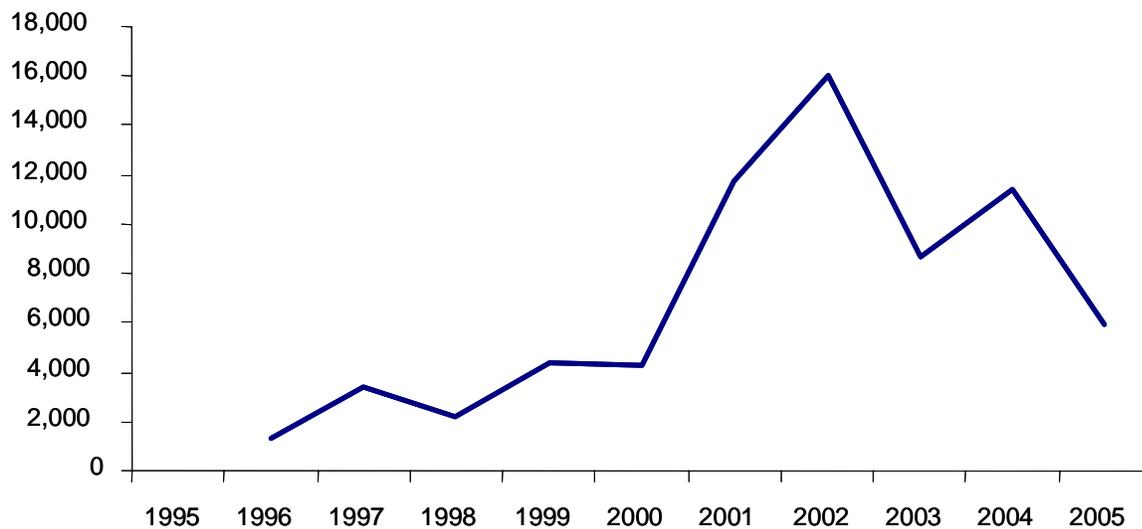


Figure 1c. Wild steelhead counts at Willamette Falls, 1996 – 2005.

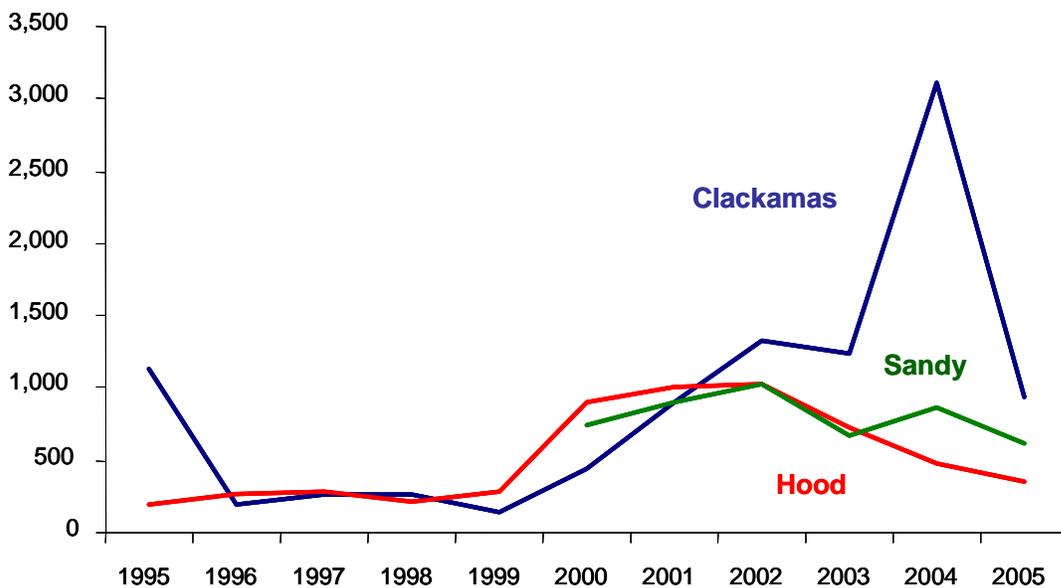


Figure 1d: Wild steelhead counts at Marmot, North Fork and Powerdale dams, 1995 – 2005.

Key Questions

1. What is the upper limit on incidental mortality necessary to avoid jeopardy and enable recovery of listed winter steelhead under the ESA?

WFWC and OFWC provided different policy directives to their state fisheries managers relative to the allowable incidental-mortality rate for winter steelhead in the 2005 spring fisheries. Neither adopted the 6% limit set by NOAA Fisheries in its Biological Opinion. Both urged staff to manage the spring fisheries to minimize the incidental mortality of steelhead.

WFWC set an incidental-mortality rate limit of up to 4% (if necessary) for 2005 in part because it was consistent with the recovery planning targets for Washington populations developed by the Lower Columbia River Salmon Recovery Board. The limit was set as part of an integrated strategy for managing mainstem commercial and tributary sport fisheries such that the total (sport and commercial) fishing mortality on Washington winter steelhead populations would not exceed 10%. Additionally, this 4% upper limit allowed for a management buffer in case of a wild winter steelhead pre-season forecast error.

OFWC set a 2% incidental-mortality rate limit for 2005. It also asked staff to conduct a detailed risk assessment, including the evaluation of management tools such as a sliding-scale limit tied to abundance, before any changes to future limits would be considered. OFWC concluded that the 2% limit for 2005 would likely not constrain the spring mainstem fisheries since incidental mortality rates in 2003 and 2004 were less than 1%. When considered with fishing mortality rate limits of 2.5% in Oregon tributaries (as set by Fisheries Management and Evaluation Plans adopted by NOAA Fisheries), total fishing mortality of Oregon populations of winter steelhead was not to exceed 4.5% in 2005.

2. Are potential differences in fishery encounter rates among individual steelhead populations significant enough to warrant special consideration when setting an upper limit on incidental mortality?

Run timing differences through the area of the mainstem fisheries exist among populations of winter steelhead in the lower Columbia ESU. However, we do not know the magnitude of run timing differences among individual populations, or whether the differences result in different fisheries encounter rates. If populations have different fisheries encounter rates, they may also have different incidental-mortality rates. These differences may result in mortality rates for some populations, particularly weak stocks, which exceed sustainable levels. However, differential mortality rates between populations may be acceptable if consistent with biological recovery objectives for the aggregated populations within an ESU.

The genetic stock identification study initiated in 2005 is intended to determine relative encounter rates in the fisheries. Samples were collected from the fisheries and from populations. However, the results of this study may not be available in time for decisions about the 2006 fisheries.

Next Steps

1. ODFW and WDFW must complete a new Biological Assessment that includes an expanded risk assessment and monitoring and evaluation plan.

ODFW and WDFW are working to develop an approach to the risk assessment required by NOAA Fisheries and supported by OFWC and WFWC. WDFW has initiated a fisheries risk assessment for steelhead populations in Washington tributaries. ODFW has proposed a complementary risk assessment approach that would include the development and use of conservation curves for all populations in the Lower Columbia and Willamette ESUs. Both assessments evaluate risk in the context of population status and the level of allowable fishing mortality on winter steelhead relative to ESU recovery.

The risk assessments are intended to explore the probability that a population, with certain specific population parameters, will become extinct. The assessments evaluate the probability over a range of population parameters that represent different environmental conditions and harvest levels. The specific effect of harvest on the probability of extinction is evaluated based on how it influences the smolt-to-adult survival parameter. The population parameters used in the assessments are:

- a. **Carrying Capacity:** The amount of freshwater habitat available, measured as the maximum number of fish the habitat can produce.
- b. **Productivity:** The number of offspring each individual spawner can produce when the abundance of spawners is low, measured as offspring/parent.
- c. **Smolt-to-adult survival:** The survival of offspring (smolts) produced under certain freshwater habitat conditions and productivity. Using smolt-to-adult survivals, capacity and productivity can be expressed as adult offspring.
- d. **Variance:** The variability and measurement error in the data used in the assessments. There are many sources of variance. Some variance results from natural biological factors, such as different marine survivals from year-to-year. Some variance results from management changes over time, such as when fisheries change from consumptive to catch-and-release. Some variance results from measurement errors, such as mistakes made when counting the number of spawners.

2. NOAA Fisheries must issue a new Biological Opinion based on the Biological Assessment.

WDFW and ODFW have involved NOAA Fisheries in the development of the Biological Assessment. This ensures that the assessment meets the requirements imposed by the 2005 Biological Opinion.

3. WFWC and OFWC will be asked to provide policy directives to their state fisheries managers relative to the allowable incidental-mortality rate for winter steelhead in time for the 2006 spring fisheries.

Commission Policy direction for the agency Directors is needed no later than the January meeting of each Commission.

Appendix

Table A1. Abundance trends of major Oregon populations.				
Year	Willamette	Clackamas	Sandy	Hood
1995		1,131		194
1996	1,324	203		270
1997	3,431	273		275
1998	2,179	265		209
1999	4,414	133		290
2000	4,315	442	742	908
2001	11,792	893	902	1,000
2002	16,039	1,328	1,031	1,034
2003	8,681	1,230	671	717
2004	11,433	3,110	870	472
2005	5,927	936	626	352

Table A2. Abundance trends of major Washington populations.						
Year	Coweeman	SF Toutle	NF Toutle	Kalama	EF Lewis	Washougal
1995	68	396	175	1,030		206
1996	44	150	251	725		NA
1997	108	388	183	456	238	92
1998	486	374	149	390	376	195
1999	198	562	133	498	442	294
2000	530	490	238	829	NA	NA
2001	384	348	185	938	377	216
2002	298	640	328	1,377	292	286
2003	460	1,510	410	1,719	532	764
2004	722	1,212	249	2,156	1,298	1,114
2005	370	520	166	1,751	246	320