

Answers to Questions from March 12, 2014 Public Meeting
Developed by the Cowlitz Fisheries Technical Committee (FTC)

1. What is the baseline?
 - a. It is assumed that this question is referring to what data is used in the analysis for the Annual Project Review (APR) process. A five-year rolling average of the inputs used in the In-season Implementation Tool (ISIT) is used for most calculations in the models.
2. What happened to my fish run?
 - a. Fish production trends – See table at the end of the document.
 - b. Return trends – See table at end of document.
3. Where do natural origin fish spawn?
 - a. Wild winter steelhead have been observed spawning in the most of the lower Cowlitz tributaries that have suitable habitat. Wild winter steelhead have been passed upstream of the weirs on Olequa, Delameter, Ostrander and Lacamas Creeks. Some wild winter steelhead have also been observed spawning in the lower main stem Cowlitz.
 - b. Wild fall Chinook spawn in the main stem lower Cowlitz River and the Tilton River.
 - c. Wild coho spawn in most of the lower Cowlitz tributaries.
 - d. Upper Cowlitz – Historically, 80% of the salmon and steelhead spawning habitat in the Cowlitz River was estimated to have existed upstream of Mayfield Dam. Since the reintroduction began, steelhead, coho and Chinook have been observed spawning throughout the upper Cowlitz and Cispus Rivers and tributaries. Spawning in the Tilton River occurs from the mouth to upstream of Morton and into the branches.
4. Why so many studies? Don't you already know the return rate?
 - a. There are a lot of key pieces of information that are not known that are based on data from other locations or results of models. The goal of studies that are part of the monitoring and evaluation work is to collect these key pieces of information. Most of the fish in the Cowlitz basin are listed under the Endangered Species Act (ESA) and there are strict requirements on biological information that is necessary for recovery of these stocks. Studies are needed to get these answers.
5. Why manage fish in the upper basin when folks want to harvest below that?
 - a. Lower Cowlitz River hatchery production is managed, in large part, to be balanced with the lower Cowlitz River natural populations. Re-introduction of fish into the upper Cowlitz has the potential to help recover the entire lower Columbia River population unit and provide harvest opportunities to constituents in the upper Cowlitz as well.
6. Is there a magic number for sustainability?
 - a. There are goals in the recovery plan which represents the minimum adult population size necessary to maintain a self-sustaining population, however; these population sizes do not allow for directed harvest of naturally produced fish. The ultimate target for population sizes is to achieve a level that allows for direct harvest of natural origin fish while consistently providing enough natural

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origin fish to the spawning grounds to exceed the minimum population size. Most of these populations are not currently at even the minimum population size.

7. How high is Mayfield Dam and what is the turbine-passage survival for smolts?
 - a. Mayfield Dam is 200 feet above the riverbed. Effective head is about 165 feet.
 - b. Preliminary survival results from studies started in 2013 are: Steelhead – 85%, Coho – 72% and Chinook – 73%.
8. Where does the information come from to form these critical decisions that affect so many? How are you validating the data you use to make decisions?
 - a. The numbers come from a variety of sources. Fish are counted as they return to hatcheries, weirs and on the spawning grounds. Sport catch is estimated based on angler creel surveys and catch record cards. Survival rates of eggs and smolts are calculated at the hatcheries. Much of this information comes from the monitoring and evaluation plan that was discussed in the response to question number 4.
 - b. Information used to make decisions also comes from the results of models. These models use much of the information described above and provide predicted results, such as number of fish returning each year. The results of these models are compared to actual information collected to determine how good the models are working. Models are adjusted using the actual data collected each year. In some cases specific studies are conducted to collect additional information that is needed when the models are not working as good as they should.
9. Sport anglers don't agree with the catch estimates.
 - a. Catch estimates are updated with catch record cards. Within the Cowlitz Basin the catch record cards are the primary method used to estimate catch in fisheries. Catch record cards are used throughout the state of Washington to estimate catch for a variety of different salmon and steelhead fisheries. Studies have been conducted to compare catch record card catch estimates with direct contacts with anglers, including creel surveys. These comparisons are used to adjust the catch record card estimates to improve their accuracy. The comparisons will continue to occur in the future to make the catch estimates as accurate as possible.
10. How are you developing a gene bank?
 - a. The Washington Department of Fish and Wildlife (WDFW) recently announced wild steelhead gene banks for the Green/NF Toutle, EF Lewis and the Wind River. The recommendations and rationale for these can be found at the following WDFW website: <http://wdfw.wa.gov/publications/01559/>. This is not taking place within the Cowlitz River at this time.
11. Why don't you recycle steelhead? Why not return to recycling for economic benefit? Please keep the recycle program going and let's recycle more than steelhead. Data shows it will be OK.
 - a. Summer steelhead may be recycled if the data shows that they are not interacting to a large extent with the wild winter steelhead in the system.

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12. Are we planting fewer fish and catching more?
 - a. See tables at the end of the document.
13. What are WDFW requirements regarding flow regimes?
 - a) Flow changes below Mayfield Dam follow the Instream Flow Agreement developed as part of the Cowlitz Settlement Agreement and conform to the WDFW recommendations published in September 1992. They are:

Season	Daylight rates	Night rates
February 16 to June 15	No ramping allowed.	2"/hour maximum
June 16 to October 31	1"/hour maximum	1"/hour maximum
November 1 to February 15	2"/hour maximum	2"/hour maximum

14. What is the percentage of fall Chinook smolts of hatchery origin released with an adipose fin?
 - a. Since 2006, all fall Chinook have been mass-marked with an adipose fin-clip, but there is a small percentage that does not get clipped. The 2006-2012 average percent of fall Chinook with an adipose fin-clip is 99.5%.
15. Why does the two pole endorsement end at the Toledo Bridge?
 - a. WDFW just implemented the two pole endorsement recently and was testing it in a variety of areas. The intent was to use the two pole endorsement in areas that were not overly crowded. It was thought that using this endorsement in upper areas of the Cowlitz would be problematic in an area that was already crowded.
16. Is it possible to go back to early winter steelhead? They were beautiful "tail draggers".
 - a. It is not possible to restart the early winter steelhead at the Cowlitz River hatcheries, however; the return timing of the late winter steelhead has been kept artificially late to separate it from the early stock. WDFW intends to allow the run timing of the Cowlitz winter steelhead to expand and begin returning earlier. The Cowlitz winter steelhead stock produces some very large steelhead – a 23 pound male hatchery steelhead from the upper Cowlitz River basin returned to the Cowlitz Salmon Hatchery separator in December 2013.
17. Fishery decisions have had a huge negative economic impact on Lewis County – which was once the most popular fishery in the Northwest.
 - a. We understand the impact of decision made about the number of hatchery fish released in the Cowlitz Basin. We recognize that fishing in the Cowlitz River is a very important part of the economy and culture of Lewis County. The number of hatchery fish that can be produced is limited by constraints set for in the Settlement Agreement, WDFW Hatchery and Fishery Reform Policy and the Endangered Species Act. Within these constraints we are producing the greatest amount of fish possible at this time. The fisheries program attempts to maintain sport harvest while meeting requirements for recovery of listed fish under the ESA. The goal is to restore the Cowlitz fisheries.
18. What are the impacts on lower river fish from hatchery fish?

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- a. Hatchery fish are more acclimated for rearing in an artificial situation and therefore are not very successful when spawning in the natural environment. Hatchery fish will compete for spawning and rearing habitat and food with natural origin fish. While they are not very successful in using the natural environment, they take up space and do not allow the natural-origin fish the environment they are adapted for.
19. How many fish are going to the tribes?
- a. Surplus hatchery fish in the Cowlitz River are provided primarily to food banks. WDFW contracts with a company that handles the majority of the surplus fish at the Cowlitz Hatchery and other state run hatcheries in Washington. In addition, local food banks and Indian tribes can request surplus fish from the hatchery. These requests are taken in the order they are received by WDFW and surplus fish are supplied as available. From 2009-2013, the statewide food bank received 67% of the surplus fish, local food banks received 22% and various Indian tribes received 11%.
20. Why not return to recycling for economic benefit?
- a. This is under consideration. See question #11
21. Why did the state eliminate the December steelhead program?
- a. See answer to question #16
22. How many fish went up the Cowlitz River before the dams were put in?
- a. In 1948, a total spawning escapement of 82,861 fish was estimated by the Washington Department of Fisheries and the Washington Game Commission. This return was estimated to be comprised of 9,000 spring Chinook, 14,000 fall Chinook, 24,000 coho, 11,000 steelhead and 24,861 cutthroat. Including spawning escapement, commercial catch and sport catch the total production was estimated at 244,824 fish.
 - b. Combined adult and jack counts from 1961 through 1966 at the Mayfield Dam site averaged 10,921 spring Chinook, 7,535 fall Chinook, 24,579 coho, 11,081 winter steelhead and 8,158 cutthroat.
 - c. The original Settlement Agreement provided mitigation goals that were based on the number of adults returning to the Cowlitz River upstream of Mayfield Dam. These mitigation goals are:
 - 17,300 Spring Chinook
 - 25,500 Coho
 - 8,300 Fall Chinook
 - 38,600 Combined Winter Steelhead, Summer Steelhead and Sea-run Cutthroat
23. What is the smolt to adult return ratio?
- a. Information is from the Annual Coded Wire Tag Program, Washington, Missing Production Groups Annual Report 2011
 - i. The average smolt to adult return ratio for 1990 through 2005;
 - ii. Spring Chinook = 0.71%, range 0.06% - 2.93%
 - iii. Fall Chinook = 0.13%, range 0.02% - 0.45%
 - iv. Coho (1990 – 2008) = 1.57%, range 0.17% – 4.69%

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- b. Information based on catch record card (CRC) harvest data and hatchery returns.
 - i. Summer steelhead 2003 – 2012 based on smolts released 2 years prior = 3.3%, range 2.7% - 4.8%
 - ii. Late winter steelhead 2003 – 2012 based on smolts released 2 years prior = 3.3%, range 1.1% - 6.2%
- 24. The 2013 spring Chinook number seems high.
 - a. Spring Chinook harvest estimates in the Cowlitz River are based on creel surveys and angler interviews and are updated with catch record cards.
- 25. Cowlitz fish runs – what is the number by population? Steelhead, coho, Chinook.
 - a. See tables at the end of the document.
- 26. How much does Tacoma Power save in reduced hatchery production each year by reducing the hatchery smolts released? Food, etc.
 - a. There has been about a 10% reduction in goal for pounds of fish produced under the Settlement Agreement cap as opposed to prior years before the cap. While that obviously equals a reduction in cost to operate at some level, the cost to produce a pound of fish has gone up.
 - b. Tacoma Power does not realize any cost savings from reducing the number of hatchery smolts released due to other cost factors in operating the hatcheries that increase on a yearly basis.
 - c. Tacoma Power spent \$30 million rebuilding the Cowlitz Salmon Hatchery and will be making major improvements to the Cowlitz Trout Hatchery.
- 27. Re: barbless hooks. When was the mortality study done? Who did the study? Was the study published?
 - a. The Washington Fish and Wildlife Commission adopted Policy C3620 – Columbia River Basin Salmon Management, which included the implementation of barbless hooks in the Columbia River and tributaries (General Provision 7: Barbless Hooks: Implement in 2013 the use of barbless hooks in all main stem Columbia River and tributary fisheries for salmon and steelhead). The Policy was developed through an extended, transparent public process conducted from September 2012 to January 2013. In a letter to a member of the public, Director Anderson provided a list of several studies that were reviewed by WDFW on this issue. Those studies are:
 - i. Marine Waters, Pacific Salmon.
 - 1. Recreational, trolling lures. Gjernes et al. (1993) found that mortality rates were substantially lower for small (<30cm) Chinook caught with barbless hooks (38% barbed hooks; 20% barbless hooks). No difference was evident for coho salmon. See discussion in Cox-Rogers et al. (1999).
 - 2. Commercial, trolling. Butler and Loeffel (1972) found that mortality rates were 15% lower for Chinook caught with a barbless hook. See discussion in CTC (1997).
 - ii. Freshwater, Trout.

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1. Taylor and White (1992) concluded from a meta-analysis of 18 studies that trout caught on barbless hooks had a lower mortality rate after release (4.8% barbed; 2.6% barbless).
 2. Schill and Scarpella (1997) conducted a new meta-analysis and concluded a significant difference did not exist (point estimate of 4.5% for barbed hooks versus 4.2% for barbless hooks).
 3. Meka (2004) concluded from a study in Alaska that barbless hooks "may minimize injury and reduce the amount of time fish are handled during hook removal."
28. Please keep the recycle program going and let's recycle more than steelhead. Data shows it will be OK.
- a. See answer to question #11
29. How many fall Chinook have to spawn in the river before we will get to keep one or two?
- a. Fall Chinook are listed as threatened under the Endangered Species Act and therefore the number of natural origin fall Chinook returning to the Cowlitz needs to increase from current levels to allow direct harvest of these fish in the Cowlitz River. WDFW will be developing goals for the number of natural origin fish returning to natural spawning locations and will develop fishery plans once those goals are established. Development of these goals and fishery plans will be topics for public meetings that will be part of future Annual Program Reviews. Additional information regarding the population goals can be found in the answer to question number 6.
30. If you took a poll you would find an alarming consensus among sport fishermen that there is a total lack of confidence in Tacoma Power and WDFW. Living up to annual obligations – whatever.
- a. We acknowledge this comment. This is very difficult work and will take years to attain its goals. The frustration and impatience is understandable. This is why we are working with the Cowlitz Fisheries Technical Committee to have this public process for making fishery management decisions in the Cowlitz Basin. The Fisheries Technical Committee, WDFW and Tacoma Power want to provide additional information to sport fishers so they can understand why they make some of the decisions they have to make. We also want to provide the general public with the opportunity to ask questions and provide input regarding fishery management decisions that impact Cowlitz Basin fish populations and fishing opportunities.
31. If we want wild fish in the Cowlitz wouldn't it be best if we got rid of the dams?
- a. The wild fish populations in the Cowlitz River would probably be in better condition today if the Cowlitz dams had not been constructed, however; the dams have been in place for about 50 years. The decision to remove these dams would have to be made in the context of multiple issues, including legal issues, power production, sediment control, and flood control and fish benefits. Removing the Cowlitz River dams would be an expensive, complex and lengthy process. Downstream smolt passage is likely the limiting factor to natural

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salmon and steelhead production from the upper Cowlitz River. Tacoma Power, with input from National Marine Fisheries Service (NMFS), WDFW and others, has recently designed a new collector that should improve the downstream passage of smolts, facilitating rebuilding these runs.

32. Who sets the poundage limits on the Cowlitz?
- a. These limits are part of the Settlement Agreement that came into effect in 2004.
33. Where does the information come from to form these critical decisions that affect so many?
- a. The numbers come from a variety of sources. Fish are counted as they return to hatcheries, weirs and on the spawning grounds. Sport catch is estimated based on angler creel surveys and validated with catch record cards. Survival rates of eggs and smolts are calculated at the hatcheries and for the Upper Cowlitz populations. Smolts produced by the Tilton and Upper Cowlitz watersheds are counted at both Mayfield and Cowlitz Falls dams. Also, fish passage survival is estimated annually at Cowlitz Falls Dam.
34. Why do the coho returns suck the last two years on returns as compared to average years? The 2011-2012 return was around 14,000 and the 2012-2013 return is around 20,000 when an average year just few years ago we got 40,000 – 60,000 coho back?
- o Salmon and steelhead returns fluctuate from year to year based on a variety of circumstances. One of the biggest reasons for these fluctuations is the survival of these fish in the ocean.
 - o The numbers of coho being released from the salmon hatchery averaged 3.2 million during 2002 – 2008, 2.9 million during 2009 – 2011 and 2.1 million during 2012 – 2014.
 - o The return of adult coho to the Cowlitz Salmon Hatchery averaged:
 - 18,600 from 1990-1999
 - 55,300 from 2000-2009
 - 76,900 in 2010
 - 37,800 in 2011
 - 10,500 in 2012
 - 16,600 in 2013
 - o The 2014 return should be similar to 2010
35. So how many talking heads does it take to run fisheries?
- a. The issues in the Cowlitz are many and complex and there are a number of agencies that play a role in managing these fish populations.
36. What happened to the K.I.S.S. method?
- a. Nothing about fisheries is simple.
37. Are there any natural or native fish left? How can it be?
- a. There are natural origin fish present in the Cowlitz River and most of these populations are listed as threatened under the ESA. Natural origin fish were present in the upper Cowlitz prior to construction of the dams. Included in the recovery efforts is a re-introduction program in the upper Cowlitz to restore some of these natural origin populations.
38. Why are rivers with salmon hatcheries closed to salmon fishing? Lewis, Kalama

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- a. The Lewis and Kalama rivers are closed this year for spring Chinook fishing because the numbers of fish returning are projected to be less than the numbers needed to meet the hatchery egg-take goals.
- 39. Hook mortality (available?) versus gillnet mortality (available?). Are there published studies? Where can we view them?
 - a. See answer to question #27.
 - b. See the following link to reports on the WDFW website:
<http://wdfw.wa.gov/fishing/commercial/selective/pubs.html>
- 40. When the water level is moved up and down to support the power grid the fish don't hold on rising water. These fish reach the hatchery before they normally would. These fish are given away? Sold? Is there a paper trail?
 - a. All fish are documented through a paper trail with records kept at the hatchery and Olympia. See question #19.
- 41. You ask for input and then totally ignore what the fishermen inquire about. We are tired of being baffled with your BS! For years and years nothing changes. Nothing beneficial ever transpires.
 - a. We acknowledge this comment. Fishers are not being ignored. Sometimes what fishers want now is not possible due to other requirements such as those relating to the listing of fish under the ESA. Attaining the goals of the Cowlitz River fisheries plan will be welcomed by fishermen so the primary challenge is doing what we can for today's sports fishery while achieving the long-term goals as early as reasonably possible.

Table 1. Cowlitz Hatcheries Production Goals 2003 - 2013 Release Years							
Rel. Yr.	Spring Chinook	Fall Chinook	Coho	Summer Steelhead	Early Winter Steelhead	Late Winter Steelhead	Cutthroat
2003	967,000	5,000,000	3,200,000	550,000	300,000	390,000	160,000
2004	967,000	5,000,000	3,200,000	550,000	300,000	390,000	160,000
2005	967,000	5,000,000	3,200,000	550,000	300,000	390,000	160,000
2006	967,000	5,000,000	3,200,000	550,000	300,000	390,000	160,000
2007	967,000	5,000,000	3,200,000	550,000	300,000	390,000	160,000
2008	967,000	5,000,000	3,200,000	550,000	300,000	390,000	160,000
2009	959,811	5,000,000	2,861,254	550,000	300,000	390,000	160,000
2010	960,134	5,000,000	2,835,434	550,000	300,000	363,498	157,222
2011	960,226	5,000,000	2,904,746	550,000	300,000	360,022	157,596
2012	961,369	4,779,500	1,842,716	650,000	300,000	362,855	157,230
2013	1,464,849	1,500,000	2,178,000	625,000	0	647,122	100,841

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	Spring Chinook	Fall Chinook	Coho	Summer Steelhead	Late Winter Steelhead
2003	15,954	24,577	35,679	17,298	4,786
2004	16,511	15,859	47,629	30,846	5,524
2005	9,379	13,487	35,293	7,082	3,136
2006	6,963	11,120	59,564	19,549	3,217
2007	3,975	8,368	47,336	6,513	5,390
2008	2,986	9,984	90,315	18,683	6,689
2009	5,977	16,604	91,126	13,150	14,474
2010	8,830	22,114	84,934	17,789	21,225
2011	5,834	25,377	44,676	15,257	17,065
2012	12,617	12,120	12,510	19,529	24,149
2013	9,536	15,909	16,602	3,882	3,339

Note: No harvest data for 2013 coho and steelhead.

Includes harvest, natural spawn and hatchery returns for spring and fall Chinook.

	Spring Chinook	Fall Chinook	Coho	Summer Steelhead	Late Winter Steelhead
2003	2,996	3,422	4,514	17,298	4,786
2004	1,926	2,462	3,003	30,846	5,524
2005	1,327	1,838	2,585	7,082	3,136
2006	838	2,113	4,949	19,549	3,217
2007	747	1,392	9,653	6,513	5,390
2008	607	1,072	12,457	11,828	3,710
2009	1,823	3,504	14,628	8,000	6,054
2010	2,097	4,064	8,058	8,881	11,039
2011	2,532	4,712	6,885	8,215	8,548
2012	5,437	2,248	1,972	8,937	17,001
2013	4,257	2,100	No Est.	No Est.	No Est.

Note: 2010 through 2013 harvest is preliminary.