Comprehensive Evaluation of the Columbia River Basin Salmon Management Policy C-3620

2013-2017

Final Draft
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Table of Contents

Summary of Report of C-3620

This section is in development.

Response to Commission Request to Evaluate Policy C-3620

Purpose

The purpose of this report is to respond to the Commission assignment for a comprehensive review of the Columbia River Basin Salmon Management Policy from 2013-2017. Under the Adaptive Management section, the Policy calls for "…annual reviews beginning at the end of 2013 and a comprehensive review at the end of the transition period (e.g., 2016) and at the end of 2018." This report is intended to satisfy the Policy intent for the comprehensive review at the end of 2018.

It is not the purpose of this report to identify new ideas for adjustments or adaptive changes to Policy C-3620, nor to evaluate any options for changes. It is solely to provide information to the Commissioners to help in their evaluation of whether the Policy has been successful in a) achieving the stated objectives, principles, and provisions; b) show where it has and has not been working well in those areas, and c) provide information that might help explain reasons why these potential outcomes may have occurred over the course of the past five years.

Background

The Columbia River Basin Salmon Management Policy C-3620 (Policy) was adopted in January 2013 and revised in January 2017. The stated purpose of the Policy was to achieve three primary objectives: to "promote orderly fisheries (particularly in waters in which the states of Washington and Oregon have concurrent jurisdiction), advance the conservation and recovery of wild salmon and steelhead, and maintain or enhance the economic well-being and stability of the fishing industry in the state."

There were several key approaches in the Policy to achieve the objectives including; a) reallocation of harvest/impact rates from commercial to sport fisheries, b) realignment of commercial fisheries to off-channel areas and away from the mainstem, c) increased hatchery production in off-channel areas and d) increased emphasis on alternative commercial fishing gears for harvest in the mainstem. The Policy included an important adaptive management provision. The Oregon Fish and Wildlife Commission also adopted similar intent in 2013, via administrative rule instead of policy statement document, and adjusted their policy intent in 2017.

The Commission received briefings on particular aspects of the Policy on January 11, 2014, January 9, 2015, November 5, 2016, December 10, 2016 and January 14, 2017. The materials for these briefings are on the Commission website https://wdfw.wa.gov/commission/minutes.html.

Task

The task assigned by the Commission on January 23, 2018 was to prepare a comprehensive evaluation of the Policy for the March 15 -17, 2018 Commission meeting that:

- Dealt with 40 evaluation emphasis questions posed within the language of the Policy (see below).
- Dealt with any additional evaluation questions posed by Commissioners.

- Conducted the analysis in collaboration with the Oregon Department of Fish and Wildlife staff and analyses conducted by them, so as to achieve analytical consensus on a joint-State staff basis.
- Includes the opportunity for the appropriate public advisory bodies to review and comment on the report provided to the Commission, in an open and transparent manner.
- Includes any analytical perspectives or elements the staff felt appropriate beyond the literal 40 evaluation emphasis questions provided on January 23, 2018.
- Provides a narrative that summarizes the analysis in a succinct and understandable approach.

Approach

The first approach of this review was to present information/answers to the 40 questions on how the Policy has performed over the past five years. The staff was not able to provide a thorough review of all 40 questions posed for the Policy at the first Commission meeting in March and have taken a progressive approach to providing the information. Staff anticipated that this review would be a living document as they finalized currently incomplete analyses, applied revisions and updated after Commission and stakeholder review, and responded to additional questions and concerns. Staff began with dividing the responses into two categories:

- A – Reasonably Complete Review. Answers to questions in this category are intended to be reasonably complete, even with short answers such as "There has been no activity on this provision".
- B – Incomplete or Lacking Information. There was insufficient time for staff to prepare reasonably complete answers to questions in this category.

Staff met with the Fish Committee and provided updates to the full Commission on a regular basis. The Commission members requested clarification and additional analysis. Fish Committee meetings are open to the public, and attending public provided input.

The original two categories transformed into seven themes: Management, Recreational, Commercial, Tribal, Allocation, Alternative Gear and Economics (see table below), and staff began to provide updates based on those themes. The theme format is included in this final draft review. Some of the information in this report was gathered from the Oregon Department of Fish and Wildlife (ODFW) website and/or in collaboration with ODFW staff; we appreciate their assistance.

The presentation in the Analysis section of this report groups the responses to the 40 questions in the aforementioned two categories. For each question,

- Question Number: The Question number (from the document "C-3620 with focus points") is listed.
- Question Paraphrase: The Question is paraphrased.
- Policy Citation: Text from the Policy is cited, with the specific emphasis language shaded in yellow highlight, showing the 40 questions asked. The page number is noted in parentheses.
- Specific Question: The question posed about this Policy language is reiterated in italicized font.
- Analysis: The answers and analyses for each question are presented following each question. Reference is made, as appropriate, to an Appendix that includes tables and graphs with

additional or more detailed information. Some of the comments/recommendations received from the Commission may have been incorporated into the analysis or supplemental staff analysis.

- Supplemental Staff Analysis/Comments: Additional information from the staff is provided to help illuminate the responses.
- Advisory Group/Public Comments: Comments from the Columbia River Recreational and Commercial Advisor Groups and the public. Some of the comments/recommendations received may have been incorporated into the analysis or supplemental staff analysis. The intent of providing the comments here are to allow the reader to gauge the range of comments/recommendations received between March-August, 2018. Advisory Group meetings were held on March 14, May 15, July 12, July 18, July 31 and September 5. Advisory Groups did not comment on every question.

Comprehensive Review of the Columbia River Basin Salmon Management Policy C-3620

Policy Review Themes

Management	
Question 1	Conservation
Question 3	Target stocks
Question 4	Mark-selective fisheries
Question 5	Predation
Question 16	Concurrency
Question 26	Outreach and monitoring
Question 28	Funding for release mortality rate
Question 29	Management tools
Question 40	Concurrent regulation
Synopsis 1	Concurrency in Management with Oregon
Synopsis 2	Description of Selective Fisheries

Recreational	
Question 9	Recreational priority
Question 23	Barbless hooks
Question 24	Barbless hook exemptions
Question 25	Logbooks

Commercial	
Question 17	MSC Certification
Question 18	Buyback
Question 22	New SAFE areas
Question 27	2017 monitoring results

Tribal	
Question 6	Colville allocation
Question 7	Wanapum subsistence

Allocation	
Question 30	Spring Chinook allocation
Question 31	Spring Chinook buffer
Question 32	Spring Chinook allocation sport
Question 33	Summer Chinook allocation
Question 34	Summer Chinook allocation- above PRD
Question 35	Summer Chinook allocation- below PRD
Question 36	Allocation sockeye, fall Chin, coho

Alt Gear	
Question 10	Gill nets phased out
Question 11	Definition of non-selective gill nets
Question 12	Alternative gear development
Question 13	Alternative gear implementation
Question 14	Alternative gear incentives
Question 19	Alternative gear progress

Economics	
Question 2	Economic enhancements
Question 8	Well-being and stability
Question 15	SAFE economically enhanced
Question 20	Opportunities- transition phase
Question 21	Opportunities- long term
Question 37	Economic expectations
Question 38	Correct course- economics
Question 39	Reconsideration of policy- expectations

Policy C-360 with Evaluation Emphasis Questions

FISH AND WILDLIFE COMMISSION
POLICY DECISION

POLICY TITLE: **Columbia River Basin Salmon Management**

POLICY NUMBER: C-3620

Cancels or Supercedes: C-3617, 2009
C-3620, 2013

Effective Date: January 14, 2017
Termination Date: December 31, 2023

Approved by:

Chair, Washington Fish and Wildlife Commission

Purpose
The objectives of this policy are to promote orderly fisheries (particularly in waters in which the states of Washington and Oregon have concurrent jurisdiction), advance the conservation and recovery of wild salmon and steelhead[1], and maintain or enhance the economic well-being and stability of the fishing industry in the state[2].

Definition and Intent
This policy is applicable to the management by the Washington Department of Fish and Wildlife (Department) of Pacific salmon (spring Chinook, summer Chinook, fall Chinook, sockeye, chum, and coho) fisheries in the mainstem of the Columbia River and the Snake River.

General Policy Statement
This policy provides the Department a cohesive set of guiding principles and a progressive series of actions to improve the management of salmon in the Columbia River basin. The actions will be evaluated and, as appropriate, progressively implemented in a transitional period occurring from 2013 through 2016. There is uncertainty in this presumptive path forward, including the development and implementation of alternative selective fishing gear, securing funding for enhanced hatchery production, and the expansion or development of off-channel fishing areas. Consequently, the Commission recognizes that management decisions in the transitional period, and subsequent years, must be informed by fishery monitoring (biological and economic) and may be modified as necessary to meet the stated purpose of this policy.

[1] Were there specific improvements in conservation benefits that were expected to occur since 2013? Since the Policy has been in effect, have conservation limits in the covered fisheries been achieved and has the trajectory of recovery of stocks involved advanced in a positive manner?

[2] Were there specific economic enhancement goals or targets that were anticipated to be achieved for sport and commercial fisheries over the course of the Policy, and if so, have they been achieved?

1

The Department will promote the conservation and recovery of wild salmon and steelhead and provide fishery-related benefits by maintaining orderly fisheries and by increasingly focusing on the harvest of abundant hatchery fish[3]. The Department will seek to implement mark-selective salmon and steelhead fisheries, or other management approaches that are at least as effective, in achieving spawner and broodstock management objectives[4].

Fishery and hatchery management measures should be implemented as part of an "all-H" strategy that integrates hatchery, harvest, hydro-system and habitat actions. Although it focuses on hatchery and harvest reform, this policy in no way diminishes the significance of habitat and hydro-system protection and restoration.

In implementing the policy guidelines, the Department will work with the tribes in a manner that is consistent with *U.S. v. Washington* and *U.S. v. Oregon* and other applicable state and federal laws and agreements.

Guiding Principles

The Department will apply the following principles in the management of salmon fisheries in the Columbia River:

1. Promote the recovery of Endangered Species Act (ESA)-listed species and the conservation of wild stocks of salmon and steelhead in the Columbia River and ensure that fisheries and hatcheries are operated in a manner consistent with the provisions of the ESA.

2. Continue leadership on fish recovery actions, including improved fish survival through the Columbia River hydropower system, improved habitat conditions in the tributaries and estuary, hatchery reform, reduced predation by fish, birds, and marine mammals[5], and harvest management that meets conservation responsibilities.

3. Continue to meet the terms of *U.S. v. Oregon* management agreements with Columbia River Treaty Tribes.

4. Meet Colville tribal subsistence and ceremonial needs consistent with agreements with the Confederated Tribes of the Colville Reservation[6].

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[3] Was there discussion during Policy development and adjustment about why it would not be prudent to also focus harvest on healthy wild stocks, such as wild Upriver Bright fall chinook or wild sockeye salmon? Has the harvest focused on abundant hatchery stocks or has it also focused on abundance wild stocks?

[4] Has there been new mark selective fisheries authorized since the Policy has been in effect, and if so, what is an evaluation of the change?

[5] What has the Department done to reduce salmon predation by these three animal groups over the course of the Policy?

[6] Has this occurred over the course of Policy 3620 being in effect?

5. Provide Wanapum Band fishing opportunity consistent with RCW 77.12.453 ("Salmon fishing by Wanapum (Sokulk) Indians")[7].

6. In a manner that is consistent with conservation and does not impair the resource, seek to enhance the overall economic well-being and stability of Columbia River fisheries[8].

7. Subject to the adaptive management provisions of this Policy, for steelhead and salmon, prioritize recreational fisheries in the mainstem and commercial fisheries in off-channel areas of the lower Columbia River[9].

8. Subject to the adaptive management provisions of this Policy, and after thorough evaluation[10], seek to phase out the use of non-selective gill nets[11] in non-tribal commercial fisheries in the mainstem Columbia River, and transition gill net use to off-channel areas.

9. In a manner consistent with the Department's licensing authorities, develop[12] and implement[13] alternative selective-fishing gear and techniques for commercial mainstem fisheries to optimize conservation and economic benefits. Provide incentives to commercial fishers to develop and implement these gear and techniques[14].

10. Enhance the economic benefits of off-channel commercial fisheries[15] in a manner consistent with conservation and wild stock recovery objectives.

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[7] Has this occurred over the course of Policy 3620 being in effect?

[8] See footnote 2 as a cross referenced question.

[9] Has this occurred over the course of Policy 3620 being in effect?

[10] Did this evaluation occur? If so, attach in the submission for the March 2018 Commission meeting; if not, what has stalled this evaluation?

[11] In the development and implementation of this Policy, what was the working definition of non-selective given the selectivity differences between large mesh gillnets used in the fall Zone 4 and 5 fisheries and the smaller mesh gillnets that have been used for coho or sockeye salmon? If non-selectivity between hatchery and wild salmon of the same size is the concept of this provision, what is the purpose of the "non-selective" adjective?

[12] What alternative gears have been developed over the course of the Policy and what are their performance characteristics compared to selective-fishing gear and techniques used prior to the Policy?

[13] What alternative gears/techniques have been implemented (into "permanent" allowable regulation) over the course of the Policy?

[14] What incentives have been provided to commercial fishing license holders over the course of the Policy?

[15] Have the economic benefits of off-channel commerical fisheries been enhanced over the course of the Policy in comparison to the period prior to the Policy?

11. Seek to maintain consistent and concurrent policies between Oregon and Washington[16] related to management of non-tribal Columbia River fisheries.

12. Develop a program that seeks to implement Marine Stewardship Council or other certification of salmon fisheries in the Columbia River as sustainably managed fisheries[17].

General Provisions
The Department will implement the following actions to promote the achievement of the purpose of this policy.

1. Gill Net License Buyback Program[18]. Aggressively pursue the development (with Oregon) of a program to buyback non-tribal gill net permits for the Columbia River and implement that program as soon as the appropriate authority and financing is secured. Efforts should be made to also develop, evaluate, and implement other tools (e.g., minimum landing requirements) to reduce the number of gillnet permits.

2. Development and Implementation of Alternative Selective Gear[19]. The Department will investigate and promote the funding, development, testing, and implementation of alternative selective gear with a target date for full implementation of 2019. The development and implementation of alternative selective gear such as traps, purse seines and beach seines should provide area-specific opportunity to target fishery harvests on abundant hatchery stocks, reduce the number of hatchery-origin fish in natural spawning areas, limit mortalities of non-target species and stocks, and provide commercial fishing opportunities. To facilitate the timely development of and transition to alternative selective gear and techniques, Washington should work with Oregon to develop incentives for those commercial fishers who agree to use these gear and techniques. The Department shall provide the Commission in December 2017 with a proposed approach for providing incentives to commercial fishers to promote the transition to alternative selective gear.

3. Development and Implementation of Alternative Selective Gear in Long Term. Subject to available legal authorities and the adaptive management provisions of this Policy, and after thorough evaluation, non-tribal mainstem commercial fisheries should be restricted to the use of alternative selective gear and fishing techniques beginning in 2017. With respect to Upriver Bright fall Chinook, the

[16] What policies and regulations are inconsistent or non-concurrent between the States of Washington and Oregon for Columbia River fisheries, as of December 31, 2017?

[17] What has been done over the course of the Policy to develop this program?

[18] What has been done over the course of the Policy with regard to this paragraph?

[19] What has been done over the course of the Policy with regard to this paragraph?

presumptive path forward regarding targeted commercial harvest upstream of the Lewis River is to access these Chinook with alternative selective gear and techniques. Because the alternative gear is not yet fully implemented, the presumptive path allows for a gill net fishery upstream from the Lewis River in 2017 and 2018 to provide access to Upriver Bright fall Chinook. Because access to Upriver Bright fall Chinook is critically important to ensuring the long-term economic health of commercial fishers, adaptive management will be used to ensure available gear types and techniques are effective and that commercial fishers continue to have profitable mainstem access to these important salmon stocks.

4. Additional Opportunities[20] for Mainstem Commercial Fisheries in the Transition Period. During the transition period, opportunities for additional mainstem commercial fishing directed at Upriver Bright fall Chinook and hatchery coho salmon using alternative selective gear, or gill nets if alternative selective gear is not available and practical, may be provided under the following conditions:
    a. If mainstem recreational fisheries are predicted to be unable to fully use their shares of ESA-impacts or harvestable surplus, or

    b. If reasonable goals[A] for mainstem recreational fisheries are predicted to be met, or

    c. If alternative selective gear programs, off channel fishing opportunities, or other commercial fishing program elements of this Policy are unable to provide the anticipated catch and economic expectations to the commercial salmon fishing industry.

5. Additional Opportunities[21] for Mainstem Commercial Fisheries in the Long Term. After the transition period, opportunities for additional mainstem commercial fishing directed at Upriver Bright fall Chinook, lower river hatchery fall Chinook, and hatchery coho salmon may be provided under the following conditions:

    a. If mainstem recreational fisheries are predicted to be unable to fully use their shares of ESA-impacts or harvestable surplus, or

    b. If reasonable goals for mainstem recreational fisheries are predicted to be met, or

[20] Were additional opportunities provided over the course of the Policy, and if not, why not?

[21] Were additional opportunities provided over the course of the Policy, and if not, why not?

[A] NOTE: The following is an original document footnote. See Appendix B of Mainstem Strategies for Columbia River recreational and Commercial Fisheries: 2013 and Beyond. Recommendation of the Columbia River Fishery Management Workgroup to the Fish and Wildlife Commissions of Oregon and Washington. November 21, 2012.

c. As needed to remove lower river hatchery tule Chinook and coho consistent with conservation objectives, or

d. If alternative selective gear programs, off channel fishing opportunities, or other commercial fishing program elements of this Policy are unable to provide the anticipated catch and economic expectations to the commercial salmon fishing industry.

6. Off-Channel Commercial Fishing Sites[22]. Seek funding (with Oregon) to evaluate the feasibility of establishing new off-channel sites. Seek funding to invest in the infra-structure and fish rearing and acclimation operations necessary to establish new off-channel sites in Washington, as identified by evaluations completed during the transition period.

7. Barbless Hooks[23]. Implement in 2013 the use of barbless hooks in all mainstem Columbia River and tributary fisheries[24] for salmon and steelhead.

8. Logbooks[25]. Evaluate the benefits of requiring licensed recreational fishing guides and charters to maintain and use logbooks. Logbook reporting could provide fishery managers with additional catch and harvest data on guided salmon, steelhead, sturgeon fishing trips on the Columbia River. In addition, evaluate the use of volunteer trip reports in private boat fisheries.

9. Enhance Fishery Management. Because implementation of this policy will change the current management of fisheries and because run-size forecasts play a vital role in shaping fisheries, two enhancements will be put in place during the transition period.

   a. Increase Management Certainty. Increase management certainty, and ensure conservation effectiveness by: implementing outreach programs to increase compliance with recreational fishing rules; seeking means to increase the effectiveness of enforcement programs; and conducting enhanced fishery monitoring that more accurately accounts for harvest and fishing-related mortality[26]. In 2017 and 2018, the Department shall estimate the encounters of sturgeon and steelhead in the gill net fishery

[22] What has been done over the course of the Policy with regard to this paragraph?

[23] What information was provided at the time of Policy 3620 adoption regarding the scientific basis of a difference in fish mortality due to the use of barbed vs. barbless hooks? What was the rationale or basis for this provision of the Policy at the time of its adoption?

[24] As of December 31, 2017, what tributary sport fisheries for salmon and steelhead operate under a regulation that does not require the use of barbless hooks but allows for their voluntary use?

[25] What has been done over the course of the Policy with regard to this paragraph?

[26] What has been accomplished with regard to these three commitments?

upstream of the Lewis River through onboard or other field methods, with particular respect to Group B steelhead[27]. In addition, the Department shall seek funding to improve estimates of salmon release mortality in recreational mark-selective fisheries during the summer and early fall months when water temperatures are high[28].

b. Improve Management Tools[29]. Explore and develop alternative approaches to improve: pre-season forecasts of run size and timing; in-season updates of run-size estimates; and in-season estimates of the harvest impacts by fishery.

Spring Chinook Salmon

The presumptive path for the management of spring Chinook salmon fisheries is summarized in Appendix Table A[30]. Subject to the adaptive management provisions of this policy, the Department will manage spring Chinook salmon fisheries consistent with the Guiding Principles and the following objectives:

1. The Department will exercise 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.

   a. Fishery Management Buffer[31]. To account for uncertainties in the information used to plan and implement fisheries, a management buffer in fishery structure will be established and applied to fisheries occurring prior to the run size update (primarily in March and April). The buffer is intended to be sufficient to cover potential run-size forecasting error and ensure compliance with ESA requirements and *U.S. v. Oregon* allocation provisions. Prior to the run size update, the Department will manage non-treaty fisheries for a run size that is 70% of the pre-season forecast (30% buffer) or other fishery management buffer as agreed through *U.S. v. Oregon*. During the transition period, the overall buffer will be achieved by applying: a fishery management buffer of 20% of the sport fishery impact to the sport fishery; and a fishery management buffer of 40% of the commercial fishery impact to the commercial fishery.

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[27] Provide the information garnered as a result of the monitoring in 2017, and how it compares to pre-season allocations and expectations.

[28] What has been done to achieve this directive?

[29] What has been done to achieve these three objectives?

[30] In comparison to the values in Appendix A, what were the actual impact sharing values beginning in 2013, and what was the actual commercial fishing gear usage in the years involved?

[31] Did the management buffer approach work over the course of the policy, or were ESA impacts exceeded since 2012?

2. Recreational-Commercial Allocation During Transition Period (2013-2016). In 2013, the Department will assign 65% of the ESA-impact for upriver spring Chinook stocks to mainstem recreational fisheries and the balance (35%) to off-channel and mainstem commercial fisheries.

   During 2014-16, the Department will assign 70% of the ESA-impact for upriver spring Chinook stocks to mainstem recreational fisheries and the balance (30%) to off-channel and mainstem commercial fisheries

3. Recreational-Commercial Allocation in Long Term (2017 and Beyond). The Department will assign 80% of the ESA-impact to mainstem recreational fisheries to meet management objectives and the balance (20%) to commercial fisheries for use in off-channel areas. The commercial fishery ESA-impact share will not be subject to the pre-run-size update buffer in the off-channel areas.

4. The Department will ensure broad geographic distribution of recreational fishing opportunity in the main-stem Columbia River including the Snake River. Seventy-five percent (75%) of the impacts allocated to the sport fisheries will be assigned to the sport fishery downstream from Bonneville Dam. Twenty-five percent (25%) will be assigned and reserved for the sport fishery upstream from Bonneville Dam. After the run-size update, the Department will place the highest sport fishery priority on providing for a sport fishery upstream from Bonneville Dam. .

5. The Department will provide to the Commission each year a briefing on the effectiveness of fishery management actions in meeting spring Chinook recreational fishery allocation objectives throughout the Columbia River basin. The Commission may consider changes to the recreational allocation in this policy in the future to balance recreational fishery objectives in the areas below Bonneville Dam, above Bonneville Dam, and in the Snake River[32].

6. Without compromising the objectives for recreational fisheries upstream of Bonneville Dam, the Department will seek in the long-term to extend recreational fishing opportunity downstream of Bonneville Dam as long into April as possible, with a high probability of an uninterrupted 45-season beginning March 1.

Summer Chinook Salmon

The presumptive path for the management of summer Chinook salmon fisheries is summarized in Appendix Table B[33]. Subject to the adaptive management provisions of this policy, the Department will manage summer Chinook salmon fisheries consistent with the Guiding Principles and the following objectives:

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[32] Was this accomplished with the agenda item presented by Bill Tweit at the September Commission meeting in Port Angeles?

[33] In comparison to the values in Appendix B, what were the actual impact sharing values beginning in 2013? Were alternative gears tested and if so, what were the results in comparison to the gill net fishery option?

1. The Department will manage the upper Columbia summer Chinook populations for sustainable natural production and for the artificial production programs that are necessary to meet mitigation requirements and provide conservation safeguards.

2. The Department will manage for population specific performance goals for Wenatchee, Methow and Okanogan natural populations, and for hatchery escapement goals.

3. Non-treaty Sharing Above and Below Priest Rapids Dam. The highest priority for state managed summer Chinook fisheries is recreational fishing opportunity above Priest Rapids Dam. In light of the changing abundance of summer Chinook, the Department will adjust the allocation of the non-treaty (including the Confederated Tribes of the Colville Reservation) harvest assigned to fisheries above Priest Rapids Dam to be consistent with the following guidelines:

River-mouth run size	Percent of non-treaty allocation assigned to fisheries above Priest Rapids Dam[34]
0 – 29,000	>90%
29,001 – 50,000	90%
50,001 – 60,000	70% - 90%
60,001 – 75,000	65% - 70%
75,001 – 100,000	60% - 65%
>100,000	60%

4. Nontreaty Sharing Below Priest Rapids Dam[35]. The harvestable surplus available for nontreaty fisheries below Priest Rapids Dam will be allocated as follows:

   a. Through 2014, assign 60% of the nontreaty harvestable surplus to mainstem recreational fisheries and the balance (40%) to mainstem commercial fisheries.

   b. Beginning in 2015 and for the remainder of the transition period (through 2016), assign 70% of the harvestable surplus to the recreational fisheries and the balance (30%) to commercial fisheries.

   c. Beginning in 2017, assign 80% of the harvestable surplus to the recreational fishery and the balance (20%) to the commercial fishery. Of the commercial share, up to 75% may be used for mainstem fisheries using non-gill net selective gear and fishing techniques (currently

[34] How do these allocation targets compare to actual values for the years in question?

[35] How do the allocation targets in this section compare to actual values for the years in question?

undetermined) that minimize impacts on sturgeon, steelhead, and sockeye. If the commercial share is unlikely to be used, transfer the allocation to the recreational fishery upstream of Bonneville Dam (if it can be utilized) or to aid spawning escapement.

5. Provide for in-season management flexibility to utilize the non-treaty summer Chinook harvest to meet the objectives of all fisheries.

Sockeye Salmon[36]

Subject to the adaptive management provisions of this policy, the Department will manage sockeye salmon fisheries consistent with the Guiding Principles and the following objectives:

1. During 2013-2016, assign 70% of the ESA-impact for Snake River sockeye to mainstem recreational fisheries and the balance (30%) to mainstem commercial fisheries for incidental harvest of sockeye in Chinook-directed fisheries.

2. Beginning in 2017, assign approximately 80% of the ESA-impact for Snake River sockeye to mainstem recreational fisheries to meet management objectives and the balance (approximately 20%) to mainstem commercial fisheries for incidental harvest of sockeye in Chinook-directed fisheries.

3. If NOAA Fisheries increases the allowable ESA-impact for Snake River sockeye, the Department will provide opportunities for increased commercial harvest using alternative selective gear if developed and practical, within the constraints of achieving escapement objectives for other sockeye populations in the Columbia River Basin.

Tule Fall Chinook Salmon

The presumptive path for the management of tule fall Chinook salmon fisheries is summarized in Appendix Table C. Subject to the adaptive management provisions of this policy, the Department will manage tule fall Chinook fisheries consistent with the Guiding Principles and the following objectives:

1. During 2013-2016, the Department will assign no more than 70% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 30%) to: off-channel commercial fisheries; mainstem commercial fisheries that target Upriver Bright fall Chinook; and, if selective gear is developed during the transition period, mainstem commercial fisheries that harvest Washington Lower River Hatchery Chinook to help reduce strays.

2. In 2017 and 2018, the Department will assign no more than 75% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational

[36] For each of the species sections remaining in the report, the retrospective analysis/evaluation should be done in a similar manner as to the questions posed in this document for spring and summer chinook.

fisheries to meet management objectives and the balance (not less than 25%) to: off-channel commercial fisheries; mainstem commercial fisheries that target Upriver Bright fall Chinook upstream of the Lewis River; and mainstem commercial fisheries that harvest Washington Lower River Hatchery Chinook with selective gear to help reduce strays.

3. Beginning in 2019, the Department will assign no more than 80% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 20%) to: off-channel commercial fisheries; mainstem commercial fisheries that target Upriver Bright fall Chinook; and mainstem commercial fisheries that harvest Washington Lower River Hatchery Chinook with selective gear to help reduce strays.

4. The Department will seek to achieve the following recreational fisheries objectives:
    a. Buoy 10 season – August 1 to Labor Day
    b. Tongue Point to Warrior Rock season – August 1 to September 7 as non-mark-selective and September 8-14 as mark-selective
    c. Warrior Rock to Bonneville Dam season – August 1-October 31.

Upriver Bright Fall Chinook Salmon

The presumptive path for the management of Upriver Bright fall Chinook salmon fisheries is summarized in Appendix Table D. Subject to the adaptive management provisions of this policy, the Department will manage Upriver Bright fall Chinook fisheries consistent with the Guiding Principles and the following objectives:

1. During 2013-2016, the Department will assign no more than 70% of the ESA-impact for Snake River Wild fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 30%) to off-channel and mainstem commercial fisheries.

2. In 2017-2018, the Department will assign no more than 75% of the ESA-impacts for Snake River Wild fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 25%) to off-channel and mainstem commercial fisheries upstream of the Lewis River.

3. Beginning in 2019, the Department will assign no more than 80% of the ESA-impact for Snake River Wild fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 20%) to off-channel and mainstem commercial fisheries.

4. a) The Department will allow mainstem commercial gill net fisheries to target Upriver Bright fall Chinook in the area upstream of the Lewis River in 2017 and 2018 where the incidental take of lower river tule Chinook is reduced;

b) Harvest of Upriver Bright fall Chinook in the area downstream from the Lewis River will occur in selective fisheries that target Washington Lower River Hatchery Chinook and coho.

5. The presumptive path forward regarding targeted commercial harvest of Upriver Bright fall Chinook upstream of the Lewis River will be to access available Chinook with alternative selective gear and techniques. Because access to Upriver Bright fall Chinook will be important to ensuring the long-term economic viability of commercial fishers, adaptive management will be used to ensure alternative selective gear and techniques are effective and that commercial fishers continue to have profitable mainstem access to these economically important salmon stocks.

Coho Salmon

The presumptive path for the management of coho salmon fisheries is summarized in Appendix Table E. Subject to the adaptive management provisions of this policy, the Department will manage coho fisheries consistent with the Guiding Principles and the following objectives:

1. During 2013-2016, the Department will assign: commercial fisheries a sufficient share of the ESA-impact for Lower Columbia Natural coho to implement off-channel coho and fall Chinook fisheries and mainstem fall Chinook fisheries; and the balance to in-river mainstem recreational fisheries (currently in-river mainstem recreational fisheries are assigned a sufficient share of the allowable incidental-take of ESA-listed coho to meet fishery objectives). If these fisheries are expected to be unable to use all of the ESA-impact for Lower Columbia Natural coho, the Department will assign the remainder to mainstem commercial coho fisheries. As selective techniques and alternative gear are developed, the Department will provide additional commercial mainstem coho fisheries with an emphasis on harvesting hatchery coho in October when wild coho are less abundant.

2. Beginning in 2017, the Department will assign: commercial fisheries a sufficient share of the ESA-impact for Lower Columbia Natural coho to implement off-channel coho and fall Chinook fisheries and mainstem fall Chinook fisheries; and the balance to in-river mainstem recreational fisheries. If these fisheries are unable to use all of the ESA-impact for Lower Columbia Natural coho, the Department will assign the remainder to mainstem commercial coho fisheries. It is expected that substantial new opportunities for selective mainstem commercial fisheries will be available for hatchery coho, particularly in October.

Chum Salmon

The Department will maintain the current practice of opening no fisheries that target chum salmon and assign commercial fisheries a sufficient share of the ESA-impact for chum to

implement off-channel and mainstem fisheries targeting other salmon species (retention in recreational fisheries is currently prohibited).

Adaptive Management

The Commission recognizes that appendix tables A-E describe a presumptive path forward for salmon fishery management in the Columbia Basin. Uncertainty exists in some aspects of the presumptive path, including the development and implementation of alternative selective fishing gear, the securing of funding for enhanced hatchery production, and the expansion or development of off-channel fishing areas. Under these conditions, adaptive management procedures will be essential to achieve the purpose of this policy. As indicated in the General Policy statement, management actions will be evaluated and, as appropriate, implemented in a progressive manner.

The Commission will track implementation and results of the fishery management actions and artificial production programs in the lower Columbia River during the transition period, with annual reviews beginning at the end of 2013 and a comprehensive review at the end of the transition period (e.g., 2016) and at the end of 2018. State-managed fisheries pursuant to this Policy will be adaptive and adjustments may be made to mainstem fisheries if policy objectives, including catch or economic expectations for commercial or recreational fisheries[37], are not achieved consistent with the principles of this plan. If these expectations are not achieved, efforts will be made to determine why and to identify actions necessary to correct course[38]. Department staff may implement actions necessary to manage adaptively to achieve the objectives of this policy and will coordinate with the Commission, as needed, in order to implement corrective actions. Reconsideration of state-managed mainstem fisheries may take place under the following circumstances[39]:

1. Lower than anticipated catch and economic expectations to the commercial salmon fishing industry, or

2. Insufficient space within off-channel sites to accommodate the commercial fleet, or

3. Biological, fiscal and/or legal circumstances that delay or preclude implementation of alternative selective gear, buyback of commercial fishing permits, and/or additional off-channel hatchery investments, or

4. Management objectives are not achieved for commercial or recreational fisheries, or

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[37] What were the catch and economic expectations for commercial and recreational fisheries by year, and were they achieved when the results are adjusted or normalized for differences in run sizes?

[38] Were there instances of this happening? If so, describe when and what efforts were made.

[39] Did any of the circumstances below occur, were fisheries reconsidered in a regulatory forum, and what changes were adopted?

5. Conflicts with terms of *U.S. v Oregon* management agreements with Columbia River Tribes, or

6. Failure to meet conservation objectives.

Planned enhancements of salmon and steelhead production upstream from Bonneville Dam may have implications to harvest management contemplated in this plan. For production enhancements that come on-line and produce adult salmon on or after 2017, Oregon and Washington staff should evaluate the implications of the increased mainstem production on these harvest strategies, including *U.S. v. Oregon* harvest agreements, and make additional recommendations to the Commission as needed, consistent with the guiding principles.

Delegation of Authority

The Commission delegates the authority to the Director, through the Columbia River Compact and North of Falcon stakeholder consultation process, to set seasons for recreational and commercial fisheries in the Columbia River, to adopt permanent and emergency regulations to implement these fisheries, and to make harvest agreements with treaty tribes and other government agencies. The Director will work with the Oregon Department of Fish and Wildlife to achieve implementation of this Commission action in a manner that results in concurrent regulations between the two states[40]. The Director will consult with the Commission Chair if it becomes necessary to deviate from the Commission's policy to achieve concurrent regulations with Oregon.

[40] What regulations or management policies are currently not concurrent between the two states? This question is a cross reference with footnote 16.

Appendix A. Tabular Summary of the Presumptive Management Framework for Non-Tribal Mainstem Columbia River Recreational and Commercial Fisheries **- Spring Chinook Salmon.**

Sharing Metric: Incidental-take of ESA-listed upriver spring Chinook

Fishing Year	Recreational Fishery		Commercial Fishery		
	Impact Share	Location	Share	Location	Gear
2013	65%	Mainstem Columbia River and Snake River	35%	Mainstem Columbia below Bonneville Dam Off-Channel Areas	Tangle Net Tangle-Net/ Gill Net
2014-2016	70%	Mainstem Columbia River and Snake River	30%	Mainstem Columbia below Bonneville Dam	Tangle Net
				Off-Channel Areas	Tangle Net/ Gill Net
2017+	80%	Mainstem Columbia River and Snake River	20%[1]	Off-channel and mainstem areas of the Columbia River	Tangle Net/ Gill Net[2] Beach Seine/ Purse Seine/Other Alternative Selective Gear

[1] Not subject to pre-update buffer.

[2] Gillnets confined to off-channel areas

Appendix B. Tabular Summary of the Presumptive Management Framework for Non-Tribal Mainstem Columbia River Recreational and Commercial Fisheries **– Summer Chinook Salmon.**

Sharing Metric: Harvestable share of summer Chinook available downstream from Priest Rapids Dam

Fishery-Specific Objective: Meet terms of agreements with the United Tribes of the Colville Reservation.

	Recreational Fishery		Commercial Fishery[1]		
Fishing Year	**Share**	**Location**	**Share**	**Location**	**Gear**
2013-2014	60%	Mainstem Columbia River below Priest Rapids Dam	40%	Mainstem Columbia River below Bonneville Dam	Gill Net
2015-2016	70%	Mainstem Columbia River below Priest Rapids Dam	30%	Mainstem Columbia River below Bonneville Dam	Gill Net
2017+	80%	Mainstem Columbia River below Priest Rapids Dam	20%	Mainstem Columbia River below Bonneville Dam	Non-gill net selective gear and fishing techniques (currently undetermined) that minimize impacts on sturgeon, steelhead, and sockeye.

[1] To offset reductions in mainstem commercial harvest of summer Chinook, Oregon will enhance the fisheries for Select Area Bright Fall Chinook.

Appendix C. Tabular Summary of the Presumptive Management Framework for Non-Tribal Mainstem Columbia River Recreational and Commercial Fisheries – **Tule Fall Chinook Salmon.**

Sharing Metric: Incidental-take of ESA-listed Lower Columbia River natural (tule) fall Chinook

	Recreational Fishery		Commercial Fishery		
Fishing Year	**Share**	**Location**	**Share**	**Location**	**Gear**
2013-2015	≤70%	Mainstem Columbia below Bonneville Dam	≥30%	Mainstem Columbia River below Bonneville Dam and off-channel areas	Gill Net/ Pilot Beach Seine/ Pilot Purse Seine
2016	≤70%	Mainstem Columbia below Bonneville Dam	≥30%	Mainstem Columbia River below Bonneville Dam	Beach Seine/ Purse Seine
				Off-channel areas	Gill Net
2017-2018	≤75%	Mainstem Columbia below Bonneville Dam	≥25%	Mainstem Columbia River below Bonneville Dam	Beach Seine/ Purse Seine/ Other Alternative Selective Gear
				Above Lewis River, off-channel areas	Gill Net
2019+	≤80%	Mainstem Columbia below Bonneville Dam	≥20%	Mainstem Columbia River below Bonneville Dam	Beach Seine/ Purse Seine/ Other Alternative Selective Gear
				Off-channel areas	Gill Net

Appendix D. Tabular Summary of the Presumptive Management Framework for Non-Tribal Mainstem Columbia River Recreational and Commercial Fisheries **– Upriver Bright Chinook Salmon.**

Sharing Metric: Incidental-take of ESA-listed Snake River wild fall Chinook

Fishery-Specific Objective: Implement mainstem commercial fisheries in Zones 4 and 5 upstream of the Lewis River to remove excess hatchery-origin bright Chinook and harvest surplus wild bright Chinook

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
2013-2016	Necessary to meet recreational objectives, but not more than 70%[1]	Mainstem Columbia below Bonneville Dam	Dependant on recreational fisheries need, but not less than 30%	Mainstem Columbia River below Bonneville Dam	Gill Net[2]/ Beach Seine[3]/ Purse Seine[3]
2017-2018	Necessary to meet recreational objectives, but not more than 75%	Mainstem Columbia below Bonneville Dam	Dependant on recreational fisheries need, but not less than 25%	Mainstem Columbia River below Bonneville Dam	Beach Seine/ Purse Seine/ Other Alternative Selective Gear
				Above Lewis River	Gill Net
2019+	Necessary to meet recreational objectives, but not more than 80%	Mainstem Columbia below Bonneville Dam	Dependant on recreational fisheries need, but not less than 20%	Mainstem Columbia River below Bonneville Dam	Beach Seine/ Purse Seine/ Other Alternative Selective Gear
				Above Lewis River	Alternative Selective Gear[4]

[1] It is expected that recreational fishery objectives (Buoy 10 season August 1-Labor Day; Tongue Point to Warrior Rock season August 1-September 7 as non-mark selective and September 8-14 as mark selective and Warrior Rock to Bonneville Dam season August 1-October 31 when the season is assumed to be essentially complete) will be met in most years at less than a 50% share of Snake River Wild fall Chinook impacts (see Appendix B, Table B.3). However, the recreational fishery share will likely need to be increased to meet objectives in years when Upriver Bright fall Chinook returns are significantly less than recent years.

[2] The mainstem gill net fishery will be restricted to the area above the Lewis River in 2016.

[3] Beach seine and purse seine fisheries will be pilots in 2013, 2014 and 2015.

[4] The presumptive (expected) path forward regarding targeted commercial harvest of Upriver Bright fall Chinook upstream of the Lewis River will be to access available Chinook with alternative selective gear and techniques. Because access to Upriver Bright fall Chinook is critically important to ensuring the long-term economic viability of commercial fishers, adaptive management will be used to ensure alternative selective gear and techniques are effective and that commercial fishers continue to have profitable mainstem access to these economically important salmon stocks.

Appendix E. Tabular Summary of the Presumptive Management Framework for Non-Tribal Mainstem Columbia River Recreational and Commercial Fisheries **– Coho Salmon.**

Sharing Metric: Incidental-take of ESA-listed coho

	Recreational Fishery		Commercial Fishery		
Fishing Year	**Share**	**Location**	**Share**	**Location**	**Gear**
2013-2016	[1]	Mainstem Columbia below Bonneville Dam	[1]	Mainstem Columbia River below Bonneville Dam and off-channel areas	Gill Net/ Tangle Net[2]/ Beach Seine[2]/ Purse Seine[2]
2017+	[3]	Mainstem Columbia below Bonneville Dam	[3]	Mainstem Columbia River below Bonneville Dam and off-channel areas	Tangle Net/ Beach Seine/ Purse Seine/ Other Alternative Selective Gear

[1] Maintain current sharing except provide sufficient additional impacts to the commercial fishery to implement the pilot alternative selective gear fisheries.

[2] Tangle net, beach seine and purse seine fisheries will be pilots in 2013, 2014 and 2015.

[3] Assign commercial fisheries a sufficient share of the ESA-impact for Lower Columbia Natural coho to implement off-channel coho fisheries, fall Chinook fisheries as described above, and alternative selective gear fisheries to reduce the number of hatchery-origin coho in natural spawning areas. Assign the balance to mainstem recreational fisheries. If these recreational fisheries are unable to use all of the ESA-impact for Lower Columbia Natural coho, assign the remainder to mainstem commercial coho fisheries.

Questions 1-40 (including tables and figures) Organized by Theme

MANAGEMENT

QUESTIONS: 1, 3, 4, 5, 16, 26, 28, 29, and 40

Question 1

Question Paraphrase**:** What conservation benefits have occurred as a result of the Policy?

Policy Citation: The objectives of this Policy are to promote orderly fisheries (particularly in waters in which the states of Washington and Oregon have concurrent jurisdiction), advance the conservation and recovery of wild salmon and steelhead … (pg. 5).

Specific Question: Were there specific improvements in conservation benefits that were expected to occur since 2013? Since the Policy has been in effect, have conservation limits in the covered fisheries been achieved and has the trajectory of recovery of stocks involved advanced in a positive manner?

Additional Questions: Can we drill down more on contributors to pHOS mitigation? Specifically, can we understand how policy allocation and gear type requirements might be contributing to or hindering pHOS mitigation?

Additional information was requested at the June 13, 2018 Fish Committee meeting, regarding conservation benefits to wild spring Chinook, summer Chinook and steelhead from potential increases in selectivity and survival rates due to allocation shifts in the policy. In addition, the Commission requested that the analysis regarding fall Chinook pHOS include the relative contributions to pHOS (proportion of natural spawning escapement that are hatchery origin fish) from weir removals, mark-selective fisheries and hatchery production. This information will be incorporated into the analysis for Question 1 in the complete package, but was separated out here in order to focus on the specific questions and requests from the June 13 meeting.

Analysis: One stated purpose of the Policy is to "advance the conservation and recovery of wild salmon and steelhead." Additional information is provided in the "Decision Support Document for Columbia River Basin Salmon Management Policy, Draft January 12, 2013" (DCS). It states "The draft Policy is projected to contribute to conservation through a reduction in the number of hatchery-origin fall Chinook and coho (with the possible exception of the Grays River) in natural spawning areas." The DCS also explained that the draft Policy was not projected to reduce fishery impacts on wild salmon, since "fisheries for all species of salmon in the lower Columbia are constrained by federal Incidental Take Permits with ESA impact limits (spring Chinook, sockeye, fall Chinook, coho and chum) or other conservation objectives (summer Chinook)" and therefore, "impacts will simply be reallocated from the commercial fishery to the recreational fishery – not reduced." This analysis reviews conservation benefits across all species.

Fall Chinook pHOS

Conservation benefits associated with the Policy were expected to reduce the expected proportion of hatchery origin fall Chinook (tules) and coho on the spawning grounds (pHOS) in the lower river. Three things contribute to pHOS reductions; hatchery releases, weir removals and fisheries. Lower River tule fall Chinook return to tributaries downstream of Bonneville Dam.

Operation of weirs in the lower Columbia River for pHOS control began in 2008 and continues today. Most recently, weirs have been operated in the Grays, Elochoman, Coweeman, Toutle, Kalama and Washougal rivers. The primary objective of these weirs is pHOS reduction for fall Chinook, but operation of these weirs also provides critical data about the population abundance and timing. The weirs also help with pHOS reduction for coho, but to a lesser degree as most of the weirs are not operational during the peak of coho migration. There are a number of challenges to operating these weirs successfully (meaning effectively reducing pHOS) including, river flows and natural origin abundance (NOR). Low flows can reduce recruitment into the traps thus reducing the collection of hatchery fish and can cause delays in passing natural origin fish upstream. High flows can result in damage to the weirs causing them to be inoperable and can result in hatchery fish passing above the weirs. Low NOR abundance can make the weir objective harder to achieve because it requires very high weir efficiency to meet pHOS goals. The weirs with the highest success rate at removing hatchery fish are those that have permanent infrastructure to hold the weir in place (Elochoman, Toutle (Green River) and Kalama. Because of these challenges, weir efficiency rates (how effective the weirs are at stopping fish from going above the weir unintentionally) can be quite variable ranging from 8%-100% during 2010-2017.

During the past five years, the proportions of hatchery-origin fall Chinook spawners in natural spawning areas (pHOS) for primary fall Chinook populations, have declined by an average of 18% (Table 1A: 2010-2017 Average pHOS for Selected Primary Fall Chinook Populations). Table 1A (below) displays pHOS values from primary populations of fall Chinook and Figure 1.1 shows average pHOS values by year for these same populations.

Table 1A: 2010-2017 Average pHOS for Selected Primary Fall Chinook Populations

Population	2010	2011	2012	2013	2014	2015	2016	2017	Average		MA BIOP pHOS Goal
									2010-2012	2013-2017	
Elochoman/ Skamokawa Avg NOR = 111	89%	94%	70%	82%	78%	76%	75%	33%	84%	69%	≤50%
Mill, Abernathy, Germany Avg NOR = 77	94%	92%	86%	81%	94%	92%	78%	83%	90%	85%	≤50%
Coweeman Avg NOR = 794	29%	12%	12%	32%	4%	2%	6%	14%	18%	12%	<10%
Toutle Avg NOR = 379	88%	87%	74%	48%	49%	37%	54%	47%	83%	47%	≤30%
Washougal Avg NOR = 798	89%	85%	74%	67%	35%	54%	60%	41%	83%	51%	≤30%
Average	75%	69%	62%	57%	46%	46%	50%	46%	69%	49%	

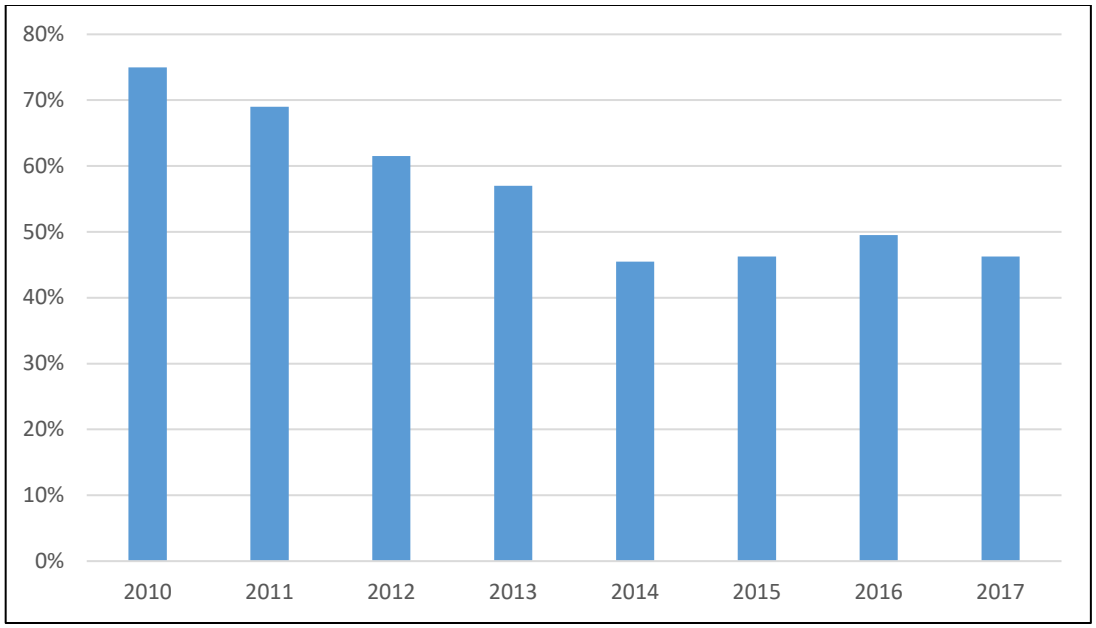

Figure 1.1. Average pHOS Values for Primary Populations of Fall Chinook

The effect on pHOS of not having weir removals is shown in Table 1B for four selected populations. Average differences in pHOS values during 2013-2016 were 45% for the Elochoman River, 9% for the Coweeman River, 39% for the Green River and 34% for the Washougal River. Removing hatchery fish at these weirs contributed to reductions in pHOS values ranging from 9%-45%.

Table 1B: Difference in Fall Chinook pHOS Values With and Without a Weir

		2013	2014	2015	2016	Average
Elochoman	With Weir	72%	23%	29%	47%	
	Without Weir*	87%	89%	90%	87%	
	Difference	14%	66%	61%	39%	45%
Coweeman	With Weir	32%	4%	2%	6%	
	Without Weir*	35%	20%	15%	11%	
	Difference	3%	16%	13%	4%	9%
Green (Toutle)	With Weir	53%	40%	27%	50%	
	Without Weir*	82%	86%	80%	76%	
	Difference	29%	46%	53%	26%	39%
Washougal	With Weir	67%	35%	54%	60%	
	Without Weir*	83%	89%	91%	88%	
	Difference	16%	54%	37%	28%	34%

**Assuming 100% transfer of hatchery fish to natural spawning areas*

Fisheries can contribute to pHOS objectives by removing hatchery fish for harvest. This can occur in mark-selective (MSF) and non-mark-selective fisheries. During MSF fisheries, hatchery fish are

harvested (marked fish) and wild fish (or unmarked fish) are released. MSF can be effective when the mark rate on hatchery fish is high and the mortality rate of released fish is low or if wild/unmarked fish are constraining to fisheries (i.e. to remain within ESA impact limits).

The Policy included two fishery related objectives to control pHOS, one week of MSF in the mainstem sport fishery and an increased use of alternative mark-selective gears in mainstem commercial fisheries. MSF sport fisheries occurred during 2012-2017 in the lower Columbia River (not including Buoy 10). The total harvest of lower river fall Chinook in this fishery ranged from zero in 2017 to 722 in 2013 and averaged 223 fish. In the Buoy 10 fishery, the majority of the time the fishery is non-MSF for fall Chinook, but there were times when MSF regulations were in place. Buoy 10 had MSF periods in 2013-2015 and 2016. The total harvest of lower river fall Chinook in this fishery ranged from zero in 2014 to 1,630 in 2013 and averaged 926 fish (Table 1C).

Seine fisheries were authorized during 2014-2016. The total harvest of lower river fall Chinook in purse seines ranged from 92 in 2014 to 477 in 2015 and averaged 247 fish. The total harvest of lower river fall Chinook in beach seines ranged from one in 2016 to 76 in 2014 and averaged 39 fish (Table 1C). Harvest of hatchery coho in tangle net and seine fisheries is in Table 4A. Beach seines averaged 202 hatchery coho harvested and purse seines averaged 552 hatchery coho harvested.

Table 1C: Lower River Tule Hatchery Fish Harvest in Mark-Selective Fisheries.

	Buoy 10	L. Col. Sport	Beach Seine	Purse Seine	Total
2013	1,630	722	-	-	2,352
2014	-	96	76	239	411
2015	1,433	287	39	477	2,236
2016	640	189	1	271	1,101

Table 4A: Mark Selective Fisheries in the Mainstem Columbia River

	Fall Chinook					Coho		
	Buoy 10	L. Col. Sport	Coho Tangle Net [1]	Beach Seine [1]	Purse Seine [1]	Coho Tangle Net [1]	Beach Seine [1]	Purse Seine [1]
2013	6,631	3,651	1,862	--	--	4,831	--	--
2014	2,694	2,242	1,988	1,337	1,457	18,234	509	561
2015	6,072	1,342	1,893	681	2,312	993	58	529
2016	1,395	651	0	2	1,113	0	39	565
2017	-	782	0	0	0	0	0	0

[1]Coho tangle net and seine fisheries first implemented in 2013 and 2014, respectively.

The effect on pHOS of not having MSF removals is shown in Table 1D for four selected populations. For this exercise, it was assumed that the harvest of hatchery fish in MSF was equally distributed across all

populations, including Oregon populations. Average differences in pHOS values during 2013-2016 were 1% for the Elochoman River, 0% for the Coweeman River, 0% for the Green River and 0% for the Washougal River. Removing hatchery fish in Columbia River MSF contributed to reductions in pHOS values ranging from 0%-2%.

Table 1D: Difference in Fall Chinook pHOS Values With and Without MSF.

		2013	2014	2015	2016	Average
Elochoman	With MSF	72%	23%	29%	47%	
	Without MSF	72%	24%	29%	49%	
	Difference	0%	0%	0%	2%	1%
Coweeman	With MSF	32%	4%	2%	6%	
	Without MSF	32%	4%	2%	6%	
	Difference	0%	0%	0%	0%	0%
Green (Toutle)	With MSF	53%	40%	27%	50%	
	Without MSF	53%	40%	28%	51%	
	Difference	0%	0%	1%	1%	0%
Washougal	With MSF	67%	35%	54%	60%	
	Without MSF	67%	35%	54%	60%	
	Difference	0%	0%	0%	0%	0%

Hatchery Production

Releases of hatchery fall Chinook have decreased over time from an average of 23.5 million during 1995-1999 to 14.5 million during 2012-2017. Figure 1.2 shows numbers of Lower River tule fall Chinook releases from Washington hatcheries during 2009-2017, the years that produced returning adults during the Policy time frame.

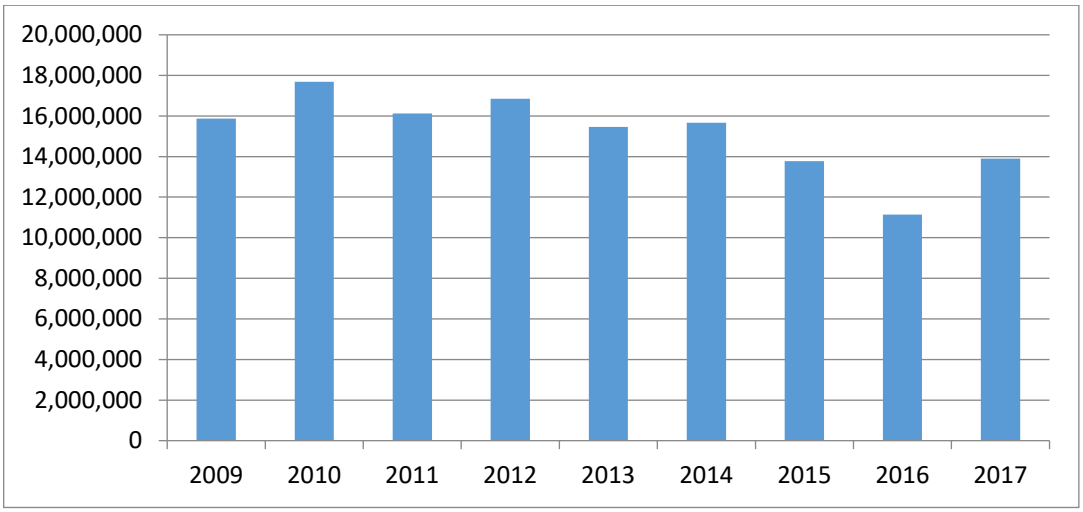

Figure 1.2: Lower River tule fall Chinook releases from Washington hatcheries during 2009-2017

Hatchery fish that are not caught in fisheries or removed at weirs/hatcheries will return to tributary spawning grounds. These levels of hatchery production are generally regarded as the largest contributor to pHOS on the spawning grounds.

It should be noted that Oregon hatchery programs are significant contributors to pHOS in many of the Washington populations in the coastal strata (downstream of the Cowlitz River). Another important point to understand when reviewing pHOS rates is the number of natural origin fish in these populations. Some have fewer than 100 natural origin fish so it does not require a large number of hatchery fish in the population to have a high pHOS value.

Coho tangle net fisheries occurred during 2013-2015 and are planned for 2018. Tangle nets are a mark-selective gear as they allow for hatchery fish (fin-clipped) to be kept and unclipped fish (including natural origin) to be released with a low release mortality rate (24%/30%). Results from 2013-2015 fisheries are shown below and shaded.

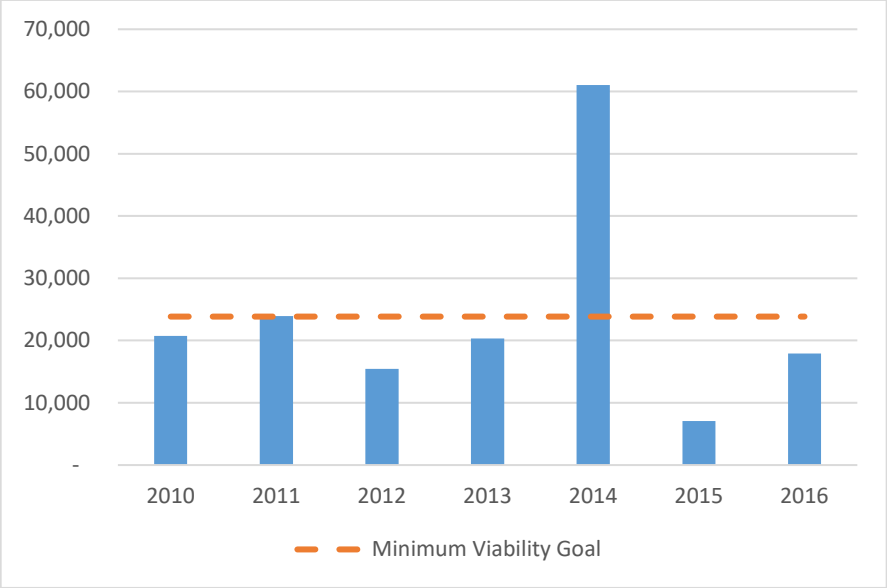

Figure 1.3: 2010-2016 Lower Columbia Natural Origin Coho Spawning Abundance.

Appendix Figure 1.3 (above) shows the 2010-2016 Lower Columbia natural origin coho abundance compared to the minimum viability goal from the Recovery Plan; showing no significant changes in the escapement trend during the first four years of policy implementation. The abundance of coho is closer to the viability goals, but there are still issues with pHOS values in many populations. Staff did not provide any information for spring Chinook, summer Chinook or sockeye population status because the conservation goals of the Policy focus on fall Chinook and coho populations.

Spring Chinook

There were expectations from the Workgroup (Columbia River Fishery Management Workgroup) in their report to the Commission in 2012, for conservation benefits for Upriver Spring Chinook from shifting of ESA impact rates. Some of the benefit is from allocation differences and some is because the

catch balance provisions are more constraining than ESA limits. The amount of unused spring Chinook impacts on wild fish could increase due to the interplay between catch balancing requirements and the recreational/commercial allocation, thus providing more wild fish escapement to ESA-listed areas. It is also possible that the number of hatchery fish caught per wild impact used could increase when allocations are shifted, as increased hatchery fish removal could benefit pHOS objectives, assuming it does not impact hatchery escapement requirements. Both potential benefits are analyzed below.

Beginning in 2010, modifications to spring Chinook fishery management were implemented, which required non-treaty fisheries to meet the catch balance provisions in the *U.S. v Oregon* Management Agreement for Upriver spring Chinook. Under these provisions, non-treaty fisheries are managed to remain within ESA impacts and to not exceed the total allowable catch available for treaty fisheries in the mainstem Columbia River. This is referred to as "catch balance." Because of this provision, it is possible that non-treaty fisheries could not fully take their ESA impact allocations as the catch balance provision will affect fisheries first.

The Policy changed the allocation of Upriver spring Chinook from 60/40 sport/commercial to 63/35, 70/30 and 80/20 over the course of the past five years. The non-treaty fisheries have an allowable total ESA limit on Upriver spring Chinook. If catch balancing did not apply or that limit is actually achieved, then the total number of wild mortalities allowed could be used regardless of the sport/commercial allocation. In this scenario, no conservation benefit to wild spawning escapement would occur since all ESA impacts are used; however, some pHOS changes would be possible depending on selective fishing differences caused by allocation changes.

Prior to implementation of the Policy (2010-2012), the sport fishery had an average of 19% of the ESA allocation that was not used (Table 1E.) When the Policy was implemented (2013-2017), a greater proportion of the non-treaty allocation was shifted from the commercial fishery to the sport fishery, from 60% in 2012 to 80% in 2017. The unused impacts in the sport fishery during 2013-2017 increased from 19% to 28% of the total sport allocation, primarily due to the allocation shift itself but also due to the higher ratio of hatchery fish retained to wild impact in the sport fishery. This higher ratio results in a non-treaty catch total that reaches the catch balance limit sooner while using fewer wild fish impacts than a commercial tangle net fishery would.

Table 1E: ESA Impacts for Upriver Spring Chinook in Non-Treaty Sport Fisheries.

	Sport Impacts Unused	% of Total Sport Impacts
2010	0.02%	2%
2011	0.38%	32%
2012	0.27%	24%
2013	0.26%	25%
2014	0.36%	26%
2015	0.68%	44%
2016	0.39%	29%
2017	0.20%	17%
Average 2010-2012	0.22%	19%
Average 2013-2017	0.38%	28%

The conservation benefit associated with the unused ESA impacts could be associated with both catch balance and allocation shifts or both. It is not possible to identify how much is associated with each one, however; an example of a potential analysis was completed.

For this exercise, it was assumed that the savings related to the Policy allocation shift was the difference between the average percent of the impacts unused by sport fisheries prior to the policy (19%) versus the average percent of the impacts unused during the policy (28%). This is a difference of 9% of the ESA impacts. Applying 9% of the 2013-2017 average impacts unused in 2013-2017 (0.38%) equates to a savings of 0.03% ESA impacts (Table 1E). Applying this impact rate (0.03%) to the ESA-listed populations results in a savings of 2-14 Snake River Wild spring Chinook and a savings of 1-2 Upper Columbia River Wild spring Chinook. Thus, if all the reduction in take of ESA impacts in the sport fishery during 2013-2017 were assumed to be attributed to the Policy change in sport/commercial allocation, the conservation benefit to potential wild ESA-listed spawners would be an average of 3-16 fish per year, assuming they were not used by the commercial fishery.

Table 1F shows the unused ESA impacts from the commercial fishery from 2010-2017. Prior to implementation of the Policy (2010-2012), the commercial fishery had an average of 11% of the ESA allocation that was unused (Table 1F). The unused impacts in the commercial fishery during 2013-2017 decreased from 11% to -26% of the total commercial allocation. During 2015-2016, unused ESA impacts from the sport fishery were shifted to the commercial fishery, using the adaptive management provision of the Policy. This means during 2013-2017, the commercial fishery was more constrained by ESA impacts than what was allocated preseason.

Table 1F: ESA Impacts for Upriver Spring Chinook for Non-Treaty Commercial Fisheries.

	Comm Impacts Unused	% of Total Comm Impacts
2010	0.11%	11%
2011	0.00%	0%
2012	0.14%	21%
2013	-0.04%	-7%
2014	-0.02%	-3%
2015	-0.36%	-55%
2016	-0.19%	-33%
2017	-0.10%	-33%
Average 2010-2012	0.08%	11%
Average 2013-2017	-0.14%	-26%

Table 1G shows the combined non-treaty ESA impact allocations for upriver spring Chinook. The average percent of the allocation used was 81% prior to the Policy (2010-2012) and 86% during the Policy (2013-2017). The non-treaty ESA impact allocations did not exceed the overall non-treaty allocation during 2010-2017 (Table 1H). Based on these average allocations, there was not an additional conservation benefit with the implementation of the Policy. This is partly explained by the ESA allocation shift during 2015 and 2016 from sport to commercial, and in 2011 and 2013 the Commission required that a small proportion of the ESA impacts not be used and were set aside preseason.

From 2013-2017, non-treaty fisheries averaged 86% of their allowable ESA impact for Snake River Wild and Upper Columbia Wild spring Chinook, compared to the 2010-2012 average of 81% prior to the Policy (Table 1G).

Table 1G. Total Non-Treaty ESA Allocation for Upriver Spring Chinook.

	Total Impacts Used	Total ESA Impacts Allowed	% of Total Impacts Used
2010	1.96%	2.20%	89%
2011	1.52%	2.00%	76%
2012	1.40%	1.80%	78%
2013	1.40%	1.70%	82%
2014	1.66%	2.00%	83%
2015	1.91%	2.20%	87%
2016	1.70%	1.90%	89%
2017	1.40%	1.50%	93%
Average 2010-2012	1.62%	2.00%	81%
Average 2013-2017	1.61%	1.86%	86%

Table 1H shows catch balance shares for non-treaty fisheries during 2010-2017. The percent of the catch balance shares used during 2010-2012 averaged 90% and averaged 88% during 2013-2017. The total non-treaty catch balance allocation used was slightly greater prior to the Policy than during the Policy.

Table 1H: Upriver spring Chinook Catch Balance Allocations

	Total Catch Balance Used	Total Catch Balance Allowed	% Total Catch Balance Used
2010	37,936	34,020	112%
2011	17,658	22,170	80%
2012	18,296	23,056	79%
2013	8,087	10,217	79%
2014	20,970	24,258	86%
2015	25,909	31,212	83%
2016	16,328	17,091	96%
2017	7,779	8,107	96%
2010-2012 Average			90%
2013-2017 Average			88%

The other potential benefit is created by the higher ratio of hatchery fish caught to wild fish impacts in the sport fishery, which results in the removal of a few more hatchery fish for an equivalent number of wild fish impacts. This is particularly a benefit if managers are having difficulty meeting pHOS objectives.

Staff are not aware of any areas where achieving pHOS objectives is currently problematic, with the exception of the upper Columbia where the issue is caused by hatchery release location and cannot be fixed by a slight increase in hatchery fish harvest. Staff did not however, do an exhaustive survey of WA, ID, OR and tribal agencies to determine if pHOS issues were occurring in their areas.

Steelhead

Wild winter steelhead mortalities in spring Chinook commercial fisheries averaged 37 fish during 2013-2016. There was no fishery in 2017. If a fishery would have occurred in 2017, the estimated number of wild winter steelhead mortalities is 19 fish based on the wild winter steelhead wild run size was 9,400 compared to the 2013-2016 average of 18,300 fish. Thus, a conservation benefit of 19 wild winter steelhead can be attributed to implementation of the Policy during 2017.

Summer Chinook and Sockeye

Summer Chinook fisheries occurred during 2013-2016 with gillnets, and averaged 3,300 fish harvested. The Policy provides an allocation for summer Chinook, but precludes the use of gillnets beginning in 2017. There is currently no viable net gear alternative to large mesh gillnets during the summer Chinook fishery. Because of this provision, beginning in 2017, there was not a commercial fishery for summer Chinook. Wild summer Chinook would be expected to comprise about 46% of the run size based on the July mark rates at Bonneville Dam in 2017. Based on the 2017 run size, mark rate and Policy allocation, the estimated number of wild summer Chinook that would have been harvested in 2017 by the commercial fishery was 949 total fish including 437 wild fish. The conservation benefit in 2017 would be 437 wild fish to escapement in the absence of a replacement alternative gear. Depending on the type of alternative gear that was used, the conservation benefit for wild summer Chinook would be reduced, and potential additional impacts would have accrued to sockeye and/or wild steelhead. Summer Chinook are not ESA-listed.

Snake River wild sockeye harvest is estimated to have been one fish or less in 2017, based on the average harvest during 2010-2016 of less than one fish. Snake River sockeye are listed as endangered under the ESA.

<u>Supplemental Staff Analysis/ Comments</u>:

Mark-selective fisheries occurred in ocean sport fisheries during 2013-2015 (Table 1I). These fisheries were not considered in the Policy, but would contribute to reductions in pHOS for Columbia River fall Chinook stocks. Coho sport fisheries in the ocean are mark-selective almost always. Lower Columbia River tributary sport fisheries (below Bonneville Dam) are mostly mark-selective for Chinook and coho which also contributes to pHOS reductions.

Table 1I: Summary of Mark-Selective Chinook Fisheries in North of Falcon Ocean Areas 1-4.

Year	Mark Selective Chinook Fishery	Season (actual seasons same as planned)
2013	Coastwide Quota of 8,000 marked Chinook	Area 3/4: May 10-11, 17-18, June 22-28
		Area 2: June 8-22
		Area 1: June 8-21
2014	Coastwide Quota of 9,000 marked Chinook	Area 3/4: May 16-17, 23-24, 31-June 13
		Area 2: May 31-June 13
		Area 1: May 31-June 13
2015	Coastwide Quota of 10,000 marked Chinook	Area 3/4: May 15-16, 22-23, 30-June 12
		Area 2: May 30-June 12
		Area 1: May 30-June 12
2016	None	
2017	None	

Recreational Advisory Group/Public Comments**:**
Consider the role that the recreational anglers can play in mopping up hatchery fish. We recommend WDFW pursue a joint-state grant to train recreational and commercial fisherman to release tules. Suggest that we show natural origin fish numbers – high pHOS can be masked by the low numbers of natural origin fish.

There are significant conservation benefits by eliminating bycatch from the gillnets in the mainstem. The mortality of steelhead as bycatch is unacceptable. Of major concern is the stress placed on adult female sturgeon which raises their cortisol level and can result in egg absorption. Gillnets are non-selective for hatchery and wild salmon.

Commercial Advisory Group/Public Comments:
Goals of Policy were not justified by the science. No evidence that conservation has been improved. Removing gillnets during the spring and summer seasons was not a conservation issue, so why was this done?

Questions 1 Conclusion:
As can be seen from the analysis above, weirs can be highly effective at reducing pHOS, but as was discussed earlier regarding this question, there are a number of challenges to operating weirs effectively and it is rare when there is a year with no complications.

MSF can also be effective at reducing pHOS, but as shown above, the level of MSF that have operated in the Columbia River during 2013-2016 were not significant enough to have a large contribution to reducing pHOS. The Columbia River Policy was predicated on additional amounts of MSF, through widespread deployment of alternative commercial fishing gears.

Hatchery production can obviously reduce pHOS levels, if hatchery fish releases are reduced or eliminated there will be fewer or none in the tributaries. Reducing hatchery production also reduces or eliminates fisheries. Further reductions in hatchery production will erode the fisheries that are primarily dependent on Columbia River stocks, in particular the Buoy 10 and Washington ocean fisheries.

The continuing problems with meeting pHOS objectives in several lower Columbia fall Chinook spawning areas highlights the importance of continuing to develop tools for removal of hatchery origin fish, as the alternative of further reductions in hatchery production is problematic.

Summer Chinook conservation objectives are aided by transfer of harvest from non-MSF to MSF gears, although the gains are not large as the amount of harvest in non-MSF (primarily non-treaty commercial fisheries) was already comparatively small. Any spring Chinook gains in conservation are essentially imperceptible, as the numbers that are calculated in this review are well within the boundaries of management imprecision.

One stated purpose of the Policy is to "advance the conservation and recovery of wild salmon and steelhead." The Policy addresses this in the "Guiding Principles" that include; operating within ESA limits, continuing to support recovery actions in an "All H" approach and meeting the terms of the *U.S. v. Oregon* agreement (which includes escapement goals and harvest rate limits).

This review finds that the only significant conservation measure was to reduce the pHOS values for fall Chinook and coho by increasing mark-selective fisheries, and that there is a smaller, but still measurable, conservation measure for summer Chinook. For the other species, the Policy changed the allocations of ESA impacts from commercial fisheries to sport fisheries, but the overall ESA impact limits did not change. The assumption in the 2012 workgroup report of potential conservation benefits for spring Chinook does not appear to have been borne out. Stringent conservation measures were already in place for these fisheries in the Columbia River and are included in the ESA consultation documents adopted by the National Marine Fisheries Service.

Question 3

Question Paraphrase**:** Have fisheries focused on abundant wild stocks as well as hatchery stocks?

Policy Citation: The Department will... increasingly focusing on the harvest of abundant hatchery fish (pg. 6).

Specific Question: Was there discussion during Policy development and adjustment about why it would not be prudent to also focus harvest on healthy wild stocks, such as wild Upriver Bright fall Chinook or wild sockeye salmon? Has the harvest focused on abundant hatchery stocks or has it also focused on abundant wild stocks?

Analysis: The Commission and staff repeatedly discussed the fishery importance of naturally-produced Upriver Bright fall Chinook salmon (URB) during the bi-state workgroup and Commission processes. Based on these discussions and sections of the Policy associated with URB, staff do not interpret the Policy to preclude fisheries directed at this stock. Currently, during the fall season, the focus of sport and commercial fisheries are on the healthy hatchery and wild upriver stocks such as Upriver Bright fall Chinook. The lower river fall Chinook stocks have been a constraint to both Columbia River and ocean fisheries over the past five years. As a result, fall season Chinook fisheries have focused in the area above the Lewis River as most of the lower river Chinook stocks are destined for tributaries downstream of this area.

Recreational Advisory Group/Public Comments:
Commission should know that Upriver Brights are not all naturally produced.

Question 4

Question Paraphrase**:** What mark-selective fisheries have occurred?

Policy Citation: The Department… will seek to implement mark-selective salmon and steelhead fisheries, or other management approaches that are at least as effective, in achieving spawner and broodstock management objectives (pg. 6)

Specific Question: Has there been new mark selective fisheries authorized since the Policy has been in effect, and if so, what is an evaluation of the change?

Analysis: New mark-selective fisheries have been authorized since the Policy has been in effect (Table 4A), although none have been consistently utilized (see question 1). The Policy included a goal of one week of MSF during September downstream of the Lewis River. MSF sport fisheries in this section occurred during 2013-2017. However, there was no MSF in the Buoy 10 fishery during 2017 as sufficient impacts remained during in-season management for a non-selective fishery as the fishery was able to stay open through Labor Day.

Coho tangle net fisheries occurred during 2013-2015, but were not implemented in 2016 or 2017 (2017 was due to steelhead conservation concerns). Beach seine and purse seine fisheries were authorized in 2014-2016, under the emerging commercial fisheries rules (see question 19). Floating traps and pound nets have been tested since the Policy has been in effect, but no public fisheries for these gears have been authorized to date.

Table 4A: Mark Selective Fisheries in the Mainstem Columbia River

	Fall Chinook					Coho		
	Buoy 10	L. Col. Sport	Coho Tangle Net [1]	Beach Seine [1]	Purse Seine [1]	Coho Tangle Net [1]	Beach Seine [1]	Purse Seine [1]
2013	6,631	3,651	1,862	--	--	4,831	--	--
2014	2,694	2,242	1,988	1,337	1,457	18,234	509	561
2015	6,072	1,342	1,893	681	2,312	993	58	529
2016	1,395	651	0	2	1,113	0	39	565
2017	-	782	0	0	0	0	0	0

[1]Coho tangle net and seine fisheries first implemented in 2013 and 2014, respectively.

Commercial Advisory Group/Public Comment:
In 2017, there was no coho tangle net fishery due to steelhead concerns. It should be noted that in 2016 there was no coho tangle net fishery because URB impacts were unavailable.

Question 5

Question Paraphrase**:** What has the Department done to reduce salmon predation?

Policy Citation: …reduced predation by fish, birds, and marine mammals. (pg. 6)

Specific Question: What has the Department done to reduce salmon predation by these three animal groups over the course of the Policy?
Analysis:

- Fish – Considerable effort, with significant positive results.
    - WDFW is the lead agency for the Columbia River Predator Control Program (Northern Pikeminnow sport-reward and dam angling components) that is funded by Bonneville Power Administration and has been implemented system wide since 1991. Recent evaluations indicate that the Northern Pikeminnow Program has consistently achieved the program exploitation goal of annually harvesting 10-20% of predator sized (>250mm FL) Northern Pikeminnow from within the program area. Analysis of our most recent recapture data indicates that 2017 exploitation was 17.4%. Based on this level of exploitation, it is estimated that 2018 predation levels on juvenile salmonids will be 24% (range: 17-41%) lower than pre-program levels.
    - WDFW Implemented new warmwater recreational fishery regulations that should increase harvest and decrease predation. There has not been an evaluation of their efficacy.
- Birds – Agency involvement in regional efforts, with mixed results.
    - Sand Island Caspian Tern colony predation rate has greatly diminished due to relocation and Bald Eagle predation. In 2016, predation on steelhead smolts was 6% compared to the long-term average of 22%. New colonies are forming upstream in the Columbia Basin.

    - WDFW supported US Army Corps program for lethal removal of part of the population of Double-crested Cormorants nesting on Sand Island, however some portion of the colony has simply relocated to the Megler Astoria Bridge, creating new problems.
- Marine Mammals – Considerable effort, but ongoing negative trend.
    - Regional efforts are still underway to gain additional authority under the Marine Mammal Protection Act to reduce predation by California and Steller Sea Lions, and Harbor Seals. Marine mammal predation effects continue to be significant, with recent papers in scientific journals estimating more Columbia River origin adult salmonids taken by marine mammals than taken in sport and commercial fisheries combined (Chasco, B.E., et al. 2017).
    - In 2017, at Bonneville Dam, Washington Department of Fish and Wildlife and Oregon Department of Fish and Wildlife removed 24 California Sea Lions. Still, steelhead impact was considerable. The Army Corp of Engineers estimated that Sea Lions consumed 9% of the very poor 2017 return of steelhead in the Bonneville Dam area. No estimate of downstream impacts on steelhead are available. (Tidwell et al. 2017)
    - 2016 and 2017 the National Marine Fisheries Service's studies of spring Chinook predation in the lower Columbia provided estimates of losses of 19k and 24k respectively, or 7% and 11% of the total run, respectively.
    - Idaho, Oregon and Washington Governors have submitted letters of support to congressional delegation to provide additional flexibility for state management to reduce predation on salmon, steelhead, sturgeon and lamprey. H.R. 2083, the Endangered Salmon and Fisheries Protection Act, is sponsored by Oregon and Washington and has cleared the Natural Resource Committee (Senate companion bill S. S 1702). If this legislation passes, it would allow local agencies quicker and more efficient intervention of pinnipeds in the Columbia and Willamette rivers, but still limit lethal removal.

<u>Recreational Advisory Group/Public Comments:</u>
Predation by marine mammals is river wide and we do not have a good handle on what it is. We not only have predation at Bonneville, but in the lower river and in the tributaries. There are no good estimates for these sections. Wants Commission to know that staff is doing an amazing job on marine mammals. Avian predation has created some displacement of birds and may have moved the problem to other areas.

<u>Commercial Advisory Group/Public Comments</u>:
Increased predation in SAFE areas is high and reduces number of smolts released. The Northern Pikeminnow program is more of a publicity stunt than a verifiably effective program that actually improves smolt survival and adult returns.

<u>Question 16</u>

<u>Question Paraphrase</u>: Are Washington and Oregon policies and regulations the same?

Policy Citation: Seek to maintain consistent and concurrent policies between Oregon and Washington. (pg. 8)

Specific Question: *What policies and regulations are inconsistent or non-concurrent between the States of Washington and Oregon for Columbia River fisheries, as of December 31, 2017?*

Analysis: Table 16A shows differences between the two state's policies prior to 2017. In March 2017, the Oregon Commission modified their Policy and fewer differences remain. The remaining differences between the two states are:

- Spring Chinook
  - Washington Policy does not allow for any mainstem fishing beginning in 2017. Oregon Policy says mainstem tangle net fisheries can occur if impacts are not needed in Select Areas.
- Summer Chinook
  - Washington applies the unused commercial share to sport fisheries above Bonneville Dam or to spawning escapement. Oregon applies the unused share to escapement.
- Fall Chinook allocation
  - Washington, 2017-2018: Subject to the adaptive management provisions of the policy, the Department will manage Chinook salmon fisheries consistent with the Guiding Principles. The Department will assign no more than 75% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 25%) to: off-channel commercial fisheries; mainstem commercial fisheries that target Upriver Bright fall Chinook upstream of the Lewis River; and mainstem commercial fisheries that harvest Washington Lower River Hatchery Chinook with selective gear to help reduce strays.
  - Washington, beginning in 2019: Subject to the adaptive management provisions of the policy, the Department will manage Chinook salmon fisheries consistent with the Guiding Principles. The Department will assign no more than 80% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational fisheries to meet management objectives and the balance (not less than 20%) to: off-channel commercial fisheries; mainstem commercial fisheries that target Upriver Bright fall Chinook; and mainstem commercial fisheries that harvest Washington Lower River Hatchery Chinook with selective gear to help reduce strays.
  - Oregon rule allocates 70% or most constraining stock to the sport fishery and 30% to the commercial fishery. Allocation for the most constraining stock and has a 2% limit for impacts for alternative gear, which comes out of the commercial allocation.
  - Zone 4-5 gillnet fishery – Washington Policy allows for only alternate gear beginning in 2019. Oregon Policy allows for gillnets. For 2017-2018, subject to the adaptive management provisions of the policy, the presumptive path provides for mainstem gillnet fisheries to target URB fall Chinook in the area upstream of the Lewis River where the incidental take of lower river tule Chinook is reduced.

Table 16A: Summary of recent Commission decisions regarding Harvest Reform compared to the 2010-12 base period. Updated 2017.06.27

Topic	Stock/Issue	2010-12 (Pre-Harvest Reform)	WA Policy (Policy C-3620)	OR Policy (Enhanced Commercial Rebalance)
Allocations/ Fisheries	Upriver Spring Chinook	60/40 S/C; pre/post update; Tnet/large mesh; shared S/C run buffer	80/20 S/C; no mainstem fishery; no run size buffer on commercial impacts	80/20 S/C; post-update only; Tnet or other selective gears if developed; SAFE priority for Comm impacts; no run buffer on SAFE commercial impacts; unused sport impacts shall be re-allocated to commercial; unused commercial impacts will not be re-allocated to sport
	Summer Chinook	50/50 S/C; large mesh	80/20 S/C; ≤75% for MS comm; no gillnet; gear TBD; if commercial share unused, re-allocate to sport fisheries or escapement upstream of Bonneville Dam	80/20 S/C; SAFE priority; MS Comm opportunity restricted to Alt gears TBD; if commercial share unused, re-allocate to escapement upstream of Bonneville Dam
	Fall Chinook	Ave 59/41 S/C for LRH;	≤75/≥25 S/C for LRH/URB; Z4-5 large mesh in 2017-18; ≤80%/≥20% S/C with selective gear >2018	≤70/≥30 S/C of most constraining CHF stock; large mesh in Z4-5 allowed; ≤2% of commercial allocation for Alt gears.
	Sockeye	No Policy; majority to sport	80%/20% S/C; commercial for incidental	≈80/20 S/C; commercial for incidental
	Coho	No Policy; majority of impacts to commercial	No formal split; SAFE and MS Z4-5 1st priority for impacts; sport fisheries 2nd; mainstem coho 3rd	No formal split; SAFE and MS Z4-5/hatchery coho 1st priority for impacts; sport fisheries 2nd; mainstem coho 3rd
	Chum	Sport closed; commercial incidental to coho	No target fisheries; sport retention prohibited; commercial incidental mortality ok	Retention prohibited; commercial incidental mortality ok
Gears	Coho Tnet	NA	Allowed	Allowed
	Coho 6" Gillnet	Allowed	Prohibited	Prohibited
	Conservation set-aside (CSA) fall seine fishery	NA	No CSA; moderate seine fishery expected	Small alternative gear fishery expected using ≤2% of commercial allocation
Select Area Production	SAFE CHS	1.55M	Not addressed	3.34M
	SAFE SAB	1.45M	Not addressed	1.0M (capped by MA)
	SAFE CHF (non-SAB)	6.42M	Not addressed; 3.875M (capped by MA)	3.875M (capped by MA)
	SAFE COH	4.29M	Not addressed; 5.255M (capped by MA)	5.255M (capped by MA)
Other	Zone 4-5 monitoring	Occasional	Dedicated during 2017-18	Dedicated during 2017-18
	Buyback	NA	Aggressively pursue	NA
	SAFE barbless	Barbed	Barbless	Barbed effective 2/1/17
	LWR Barbless	Barbed	NA	Barbed effective 2/1/17
	YBCZ	NA	NA	Maintained

Recreational Advisory Group/Public Comments:
We would like to see the Commission hold to the original agreement. There is a lot of history that got us to this point.

Commercial Advisory Group/Public Comments:
There are many who are concerned by the discrepancies between Washington and Oregon regulations. We need to have one policy for both states.

Question 26

Question Paraphrase: Has the Department made any progress on implementing outreach and enhanced monitoring of fisheries?

Policy Citation: …implementing outreach programs to increase compliance with recreational fishing rules; seeking means to increase the effectiveness of enforcement programs; and conducting enhanced fishery monitoring that more accurately accounts for harvest and fishing-related mortality. (pg. 10)

Specific Question: What has been accomplished with regard to these three commitments?

Analysis: Increased monitoring of the commercial fishery occurred during 2017 (see Question 27). Regarding the Enforcement program, there has been no change within the program to increase the effectiveness of enforcement directly due to the implementation of Columbia River Policy. Changes that have been made over the last two years directly support the Columbia River Policy. What has been implemented is the prioritizing of officer patrol time and efficiency during times of high user presence on the water through several means including:

1. Filling officer vacancies in key locations along the Columbia River (one new officer in Woodland, Carson and Goldendale, and one new Sergeant along the Columbia River).
2. Priority patrol planning and execution as part of the NOAA Joint Enforcement Agreement (JEA) with specific patrol commitments on the Columbia River concurrent waters in Regions 3, 5 and 6
3. Increased communication with Fish Program staff regarding implementation and enforceability of seasons and rules, when appropriate
4. Increased communication with Oregon State Patrol to include joint patrol planning for operations on Columbia River concurrent waters
5. A project is underway to explore changes to the enforcement code and how the effectiveness of Officers is enhanced when encountering violations in the field
6. As part of the JEA, enforcement has conducted outreach with schools (Longview, Vancouver, Yakima to name a few) where Officers visit elementary school students to talk about fisheries and enforcement)
7. Officers have been asked to meet with fishing groups to increase communication
8. Increased monitoring of the Zone 4-5 commercial fishery occurred in 2017. See Question #27

Question 28

Question Paraphrase: Did the Department seek funding to estimate release mortalities in recreational fisheries?

Policy Citation: …seek funding to improve estimates of salmon release mortality in recreational mark-selective fisheries during the summer and early fall months when water temperatures are high. (pg. 11)

Specific Question: What has been done to achieve this directive?

Analysis: Nothing was done on this component of the Policy during 2013-2017.

Commercial Advisory Group/Public Comments:
We have concerns about who is running the Cowlitz Study. We would like full disclosure of who is involved, including all the members of Mt Hood Environmental, and where the funding is coming from. There has never been a study in the Columbia River mainstem to determine hook and release mortality rates for salmon from sport fishing gear.

Question 29

Question Paraphrase: What has the Department done to improve fishery management tools?

Policy Citation: Improve Management Tools. Explore and develop alternative approaches to improve pre-season forecasts of run size and timing; in-season updates of run-size estimates; and in-season estimates of the harvest impacts by fishery. (pg. 11)

Specific Question: *What has been done to achieve these three objectives?*

Analysis: WDFW staff, in partnership with co-managers, are continuously trying to advance methods to improve estimates of run forecasts, run timing and harvest impacts in fisheries. This is an on-going, continuous process that occurs as part of the regular activities of the fishery managers. Improvements in the management tools as described in the Policy, relies on reliable data input, such as accurate accounting of run sizes and harvest.

WDFW has have been working on a variety of tasks to improve our management tools that would ultimately lead to improved estimates of run forecasts, timing and harvest impacts. One example is shown below:

- Forecasting models are ranked according to a simple forecast performance metric. For each model considered, hypothetical forecasts for past years are generated and the absolute prediction error (APE) as a percent of the actual return is calculated:
    - APE= (|predicted – actual|/actual)*100

The model with the smallest median APE can be used when considering which model is selected for the forecast, and provides a more objective criterion for selecting competing forecast models. Environmental variables will continue to be explored and incorporated to improve predictability in the forecasts.

Question 40

Question Paraphrase: What regulations or policies are not concurrent with Oregon?

Policy Citation: Concurrent regulations between the two states (pg. 18)

Specific Question: *What regulations or management policies are currently not concurrent between the two states?* This question is a cross reference with question/footnote 16.

Analysis: See answer to Question #16

Synopsis 1- Synopsis of Columbia River Fisheries Management in the Context of the Columbia River Compact and Concurrent Jurisdiction with the State of Oregon

Prepared by Cindy LeFleur, Federal Policy Program Coordinator, Fish Program and Jeff Wickersham, Captain, Region 5 Enforcement Program

June 7, 2018

Disclaimer

This report was developed by the Fish Program and Enforcement staff. A review should be requested from the Attorney General's Office if a legal opinion is desired.

Background – Columbia River Compact

Excerpts from "The Columbia River Compact" by Fronda Woods, former Assistant Attorney General dated March 2007. Author's note: "The opinions expressed herein are solely those of the author, and are not necessarily shared by the Washington Attorney General's Office, the Oregon Department of Justice, the Washington or Oregon Departments of Fish and Wildlife, or any other person or entity"[1].

- The Columbia River Compact is a Congressionally-ratified interstate agreement between Oregon and Washington. In the Columbia River Compact, the two states promised each other in 1915 to adopt or amend laws for the conservation of fish in the Columbia River where it forms their common boundary only with both states' mutual consent. The procedures for implementing the Columbia River Compact have evolved over time, and today they reflect a mix of statute, court order, policy, and custom. The Columbia River Compact has proven to be a durable agreement that continues to work well today as a framework for fisheries management in the Columbia River.

- The legislatures of Oregon and Washington began enacting fishing season and gear regulations in the 1870s. Their regulations were not always consistent, however. After a federal court ruled in 1895 that someone fishing legally under Washington law on the Washington side could not be prosecuted for violating an Oregon closure, it became clear that conservation was possible only if the two states had similar laws that could be enforced on both sides of the river.

- Because the United States Constitution forbids states from entering into compacts without the consent of Congress,[2] Oregon and Washington asked Congress to approve the Columbia River Compact, which it did in 1918.

[1] Woods, F. 2007. The Columbia River Compact. Assistant Attorney General, Washington Attorney General's Office, Olympia, WA. March 2007.

[2] The Compacts Clause of the United States Constitution provides: "No state shall, without the consent of congress, . . . enter into any agreement or compact with another state . . . ." U.S. Const. art. I, § 10, ¶ 3.

- By legislation, Oregon and Washington have specified that the waters subject to the two states' concurrent jurisdiction are those that coincide with the states' boundaries, effectively the Columbia River mainstem from its mouth to the Wallula Gap.

- By custom, Oregon and Washington have applied the Columbia River Compact only to commercial fisheries. In my opinion, the Compact contains no such limitation.[3] The legislative history of the Columbia River Compact does suggest that the Compact applies only to "food fish," however. Thus, in my opinion, the proper distinction is between "food fish" and "game fish," not "commercial" and other fisheries.

- As a practical matter, Oregon and Washington today do work together in adopting regulations for non-commercial fisheries. So, whether the Columbia River Compact applies to them or not, the two states behave as if it does.

- The Columbia River Compact does not specify any particular procedure for adopting laws for protecting fish, so long as they are adopted "with the mutual consent and approbation of both States." Over the past century, the customs and laws that govern the states' interactions have evolved. Today, one person from each state's fish and wildlife administrative agency (the "Compact agencies") represents that state in most negotiations under the Columbia River Compact. Sometimes, people call those two persons the "Columbia River Compact." Legally, however, there is no rule-making entity, administrative body, or process called the "Columbia River Compact."

- In 1937, the Washington Legislature conferred on the Director of Fisheries the authority to work with Oregon to change fishing seasons under the Columbia River Compact.

- Today, that authority is exercised through the Washington Fish and Wildlife Commission, which has generally delegated it to the Director of Fish and Wildlife.

- The Oregon Director of Fish and Wildlife has emergency authority to adopt temporary rules, subject to the Commission's approval.

- According to Oregon law, Compacts must be held in Oregon or Washington within 25 miles of the Columbia River where commercial fishing is permitted.

- No law requires that a record be kept of the hearings.

[3] My opinion is contrary to an official opinion of the Oregon Attorney General's Office. 45 OR. ATT'Y GEN. OP. 137, 138, 157-59 (No. 8182) (Nov. 13, 1986).

Revised Code of Washington
RCW 77.75.010
Columbia River Compact—Provisions.
There exists between the states of Washington and Oregon a definite compact and agreement as follows:
All laws and regulations now existing or which may be necessary for regulating, protecting or preserving fish in the waters of the Columbia river, or its tributaries, over which the states of Washington and Oregon have concurrent jurisdiction, or which would be affected by said concurrent jurisdiction, shall be made, changed, altered and amended in whole or in part, only with the mutual consent and approbation of both states.

Result of Non-Concurrent Rules in Columbia River
As can be seen from the commentary above, the two states strive for concurrency in regulations. Currently, there are still many areas where the two states do not have the same regulations, but in most cases – and in most of the important areas – the two states have been the same. One example of non-concurrency is the regulation regarding the daily limit for jack salmon; Washington rules say up to six in most cases and Oregon rules say five fish. Additionally, Oregon does not require recording of jacks on a catch record card (tag) whereas Washington does. Most of the non-concurrent rules in place prior to the Policy have not compromised the ability to manage or enforce fisheries.

One interpretation of the language from RCW 77.75.010 that says "shall be made, changed, altered and amended in whole or in part, only with the mutual consent and approbation of both states" is that unless both states agree, regulations cannot be changed. The legislature determined "the waters subject to the two states' concurrent jurisdiction are those that coincide with the states' boundaries, effectively the Columbia River mainstem from its mouth to the Wallula Gap." A legal interpretation would be needed to determine if one state could set fisheries that the other state does not agree with.

Another interpretation if fishery regulations are not concurrent in the Columbia River would be that the state boundary line becomes the line of enforcement for the respective jurisdiction. The definition of the state boundary on the Columbia River is contained in RCW 43.58.050, created by the Washington-Oregon Boundary Commission, and is a list of points defined by specific latitude and longitude. For reference purposes, in the lower river most of the waters are in Oregon (Figure 1) but in the upper river (just below Bonneville Dam) more of the waters are in Washington (Figure 2).

Figure 1. Map of Lower Columbia showing state boundary line.

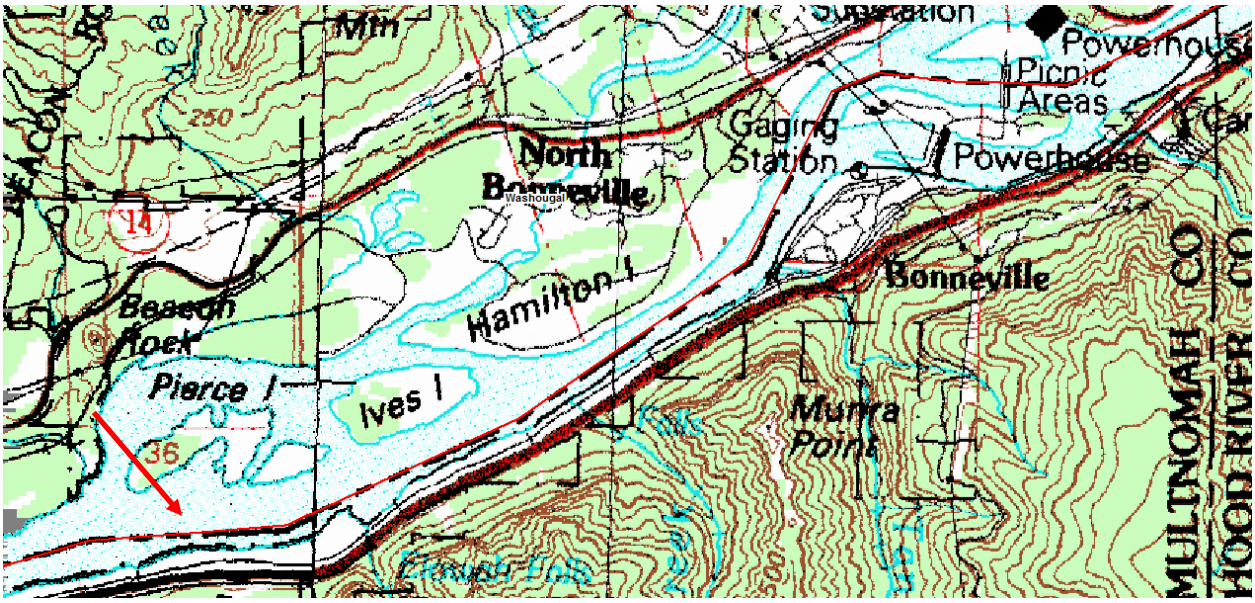

Figure 2. Map of Columbia River downstream of Bonneville Dam showing state boundary line.

If fisheries regulations were different between the states, fishers would need to understand the regulations for the state they are fishing in and adhere to their requirements. Enforcement would also lack proper jurisdiction to enforce another States' non-concurrent rule. A real world example follows:

> Oregon does not allow night fishing for salmon or steelhead, Washington does. If Washington Officers contact a Washington or Oregon fisher fishing at night within the territorial boundaries of Oregon, they lack the jurisdiction to address the violation except to refer information to the Oregon State Police. The same applies for Oregon Officers attempting to enforce a non-concurrent rule in Washington waters. This makes little sense.

The above example is akin to the circumstances in a Federal Court Opinion, Nielsen v. Oregon, in which "… the Court observed that when two states have concurrent jurisdiction, the one first acquiring jurisdiction over a crime may prosecute and punish for an act punishable by the laws of both states. The Court noted however that the rule is inapplicable when the act is prohibited in only one of the States, and went on to hold that a State cannot prosecute for a violation of its laws when the act not only occurs within the territory of another State but is also permitted by that State."[4]

State v. Svenson [5], a court case from Pacific County in 1980 where two Washington licensed gillnetters were charged for violating Washington State law while fishing within the territorial boundaries of Oregon, the Washington Supreme Court ruled:

> We affirm the trial court's dismissal of the cases against Svenson and Nelson. The Compact permits the States to enact legislation which limits fishing activity but it does not permit enforcement by one state of its own laws in the physical territory of the other absent similar legislation by the other state. When the State of Washington is enforcing its law in Oregon territory, it is the State's burden to prove how its jurisdiction extends from the (Washington) boundary line … to the high tide on the Oregon side.

This is a large burden for Officers and prosecutors to overcome, to understand and know the intricacies of another States regulations and laws when non-concurrency exists. Loopholes created by such a regulatory landscape make enforcement near the border between the states near impossible. The public also suffers harm in that they have to navigate an unfamiliar regulation landscape and take a risk to participate in a recreational or commercial fishery. Concurrent fishing rules and regulations on the concurrent waters of the Columbia River are paramount to effective multi-agency operations and an informed, law abiding fishing public.

American Jurisprudence, a law encyclopedia which has a section focusing on Fish and Game[6], had this to say about the Columbia River Compact:

> The Compact, as written and interpreted, restricts the right of either state to expand fishing beyond that permitted in 1918, but does not restrict the right of either state to limit fishing. The purpose of the Compact is to assist in preserving the fish in the Columbia and gives both states the authority to act accordingly. The reference to concurrent jurisdiction does require

[4] Nielsen v. Oregon, 212 U.S. 315, 53 L. Ed. 528, 29 S. Ct. 383 (1909)

[5] State v. Svenson, 104 Wn.2d 533 (1985), 707 P.2d 120

[6] 35 Am.Jur.2d Fish and Game § 33 (1967); 81A C.J.S. States § 12 (1977)

concurrence by the other state, however, when there is to be enforcement by both states on the entire river. In any event, each state may enforce its own laws with respect to its own citizens on its own side of the river absent concurrence in the law by the other state. However, for a person to be convicted of a Washington crime on the Oregon side of the river, Oregon must have similar legislation.

As outlined above, differences in commercial and recreational fishing laws and regulations between states that result in non-concurrence ensure non-effective regulatory presence and limited enforcement jurisdiction.

Non-Concurrent Allocations

Allocation differences can result in non-treaty impacts/shares not being fully utilized or fishing that occurs only in one state's waters. In the past, there have been instances of non-concurrent allocation guidance between the two states. The fishery managers have tried to meet both of the guidelines, with the result that some of the overall non-treaty share of fish has gone unharvested. This has happened with spring Chinook in the past.

Example – Summer Chinook Allocation

- Washington applies the unused commercial share to sport fisheries above Bonneville Dam or to spawning escapement. Oregon applies the unused share to escapement.
- Result – unused commercial share goes to escapement. Since Oregon's rule is more restrictive we would follow this rule. We could not allow unused commercial share to go the sport fisheries because that would violate the Oregon rules.

Example – 2019 Fall Chinook Commercial Fishery in Zones 4-5

- Washington Policy states that commercial fisheries would not be able to use gillnets in the fall fishery beginning in 2019, while Oregon rules allow for the use of gillnets in this fishery.
- Washington Policy allocates up to 80% to sport fisheries and Oregon rules allocates 70% to sport fisheries.
- Commercial fishers with an Oregon or Washington license would be able to fish in this fishery on the Oregon side of the river with gill nets. Fishing would be closed to gillnets in Washington waters.
- The allocation would be 70% to sport fisheries as this does not violate either policy. The commercial fishery would occur with 30% of the allocation.

Summary

The Columbia River Compact provides a necessary venue for ensuring that the needs of both states and conservation of the fishery resources are considered. In 1914, "the two states promised each other…" to manage fisheries jointly in the Columbia River. Maintaining this relationship is good for the fisheries and the fishing public.

Synopsis 2- Description of Selective Fisheries

Prepared for Washington Fish and Wildlife Commission
August 2018

What is selective fishing?

- Selective fishing is the ability of a fishing operation to avoid non-target species or stocks, OR when encountered, to release those animals alive and unharmed.
    - No fishery can operate with 100% live release
    - Goal is to use best fishing practices with low release mortality rates
- The two components of selective fishing, avoidance, and live release, are managed very differently.

Goals of Selective Fisheries

- Minimize take/mortality of wild or ESA-listed fish
- Minimize by-catch
- Maximize harvest of hatchery/target stocks

Avoidance Selective Fisheries

- Time, Area, Gear selective (TAG)
- Fisheries using time, area, and/or gear regulations to minimize by-catch while targeting a specific species/stock

Examples of Time Selective Fisheries

- Spring Chinook sport and commercial fisheries prior to 2001
    - Closed March 31 to avoid upriver Chinook
- Fall commercial coho fisheries
    - Focused on peak of coho run in October
    - Most of Chinook and steelhead past fishing area
    - Closes prior to major chum migration time frame
- Sturgeon sport fishing sanctuaries

Examples of Area Selective Fisheries

- Spring Chinook sport and commercial fisheries prior to 2001
    - Closed below I-5 Bridge to avoid upriver Chinook
- Commercial shad fishery
    - Focused on small area downstream of Bonneville where shad are abundant and easily harvested
- SAFE fisheries – sport and commercial
    - Terminal areas with mostly hatchery fish present
- Mainstem fall fishery – commercial
    - Focused above Lewis River to avoid lower river tules

Examples of Gear Selective Fisheries

- Various mainstem sport fisheries
  - Gear use associated with target species
- Winter season commercial fishery – early 2000's
  - Large mesh gillnets in February
  - Target lower river hatchery spring Chinook
  - Avoid winter steelhead
- Commercial coho fishery
  - 6 inch mesh targets coho and avoids Chinook
- Commercial summer/fall Chinook fisheries
  - Large mesh nets avoid steelhead and sockeye
- Sport and commercial sturgeon fisheries
  - Specific gear to target sturgeon (bait on bottom and 9 inch gillnets)
- Mesh size is a common tool for selective fishing
  - 4 1/2 inch mesh targets sockeye
  - 6 inch mesh targets coho
  - 8 inch mesh targets Chinook
  - 9 inch mesh targets Chinook and sturgeon

Success Story Commercial shad fishery

- Gear restrictions were changed in 1996 based on information from monitoring
- Regulations currently are:
- Mesh size – 5.75 – 6.25 inches
  - 10 lb. breaking strength
  - 40 meshes in depth
  - 150 fathoms in length
- The shallow and shorter nets substantially reduces the handle of salmonids compared to gear used prior to 1996

Time, Area, and Gear Selectivity

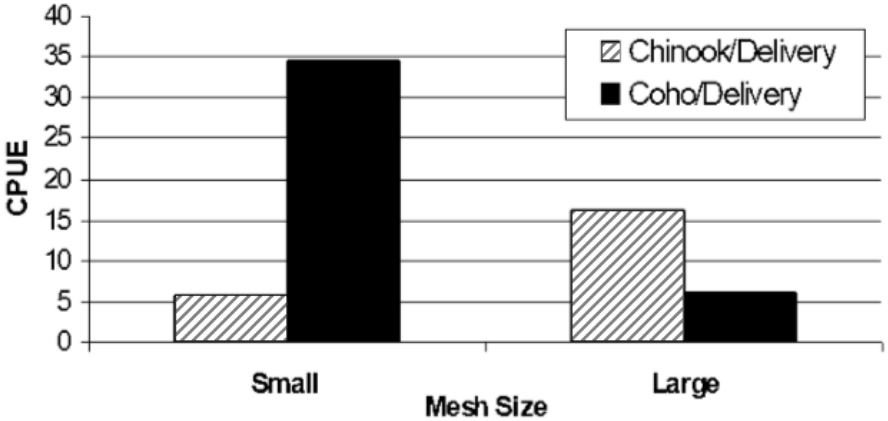

Figure 3: Average catch per deliver by mesh size during mainstem late fall commercial fishing periods, 2006-2007

Live Release or Mark-Selective Fisheries (MSF)

- Live release fisheries release non-target fish alive or with low mortality rate
- MSF target fin-marked hatchery fish and release non-marked fish
- MSF are most effective when the mark rate is high and the release mortality rate is low
- The number of mortalities associated with a MSF is a product of the number of fish handled and the release mortality rate
- The same number of mortalities can result from two different gear types
- Example:
    - Purse seine handles 1,000 steelhead at 2% mortality rate = 20 mortalities
    - Large mesh gillnet handles 52 steelhead at 38.3% mortality rate = 20 mortalities

Examples of Mark-Selective/Live Release Fisheries

- Mainstem spring/summer Chinook sport fisheries
- Tributary spring Chinook sport fisheries
- Mainstem and tributary coho sport fisheries
- Mainstem and tributary steelhead sport fisheries
- Commercial spring Chinook tangle net fishery
- Commercial coho tangle net fishery
- Experimental seine fisheries

Historical Selective Fishery Management

- Time, area and gear management has been used in the Columbia River for decades in the commercial fishery
- 1878 – Oregon Fish Commission established its first gear regulation
- 1917 – Purse seines prohibited in the Columbia River
- 1923-1949 – whip seines, fish wheels, haul seines, traps, set nets prohibited
- 1938 – area closures around Bonneville Dam

Conclusions

- Many types of selectivity exist
- Regardless of selectivity, all mixed stock fisheries impact ESA-listed stocks to some degree
- The cumulative affect (total ESA impact) is more important than the incremental (release mortality rate) affect when determining total impact of a gear/fishery on listed stocks
- Need to consider harvest/value of fish per impact and efficiency of gear
    - Fishery needs to be economically feasible
- Gear can be selective for one species but not another
    - Large mesh gillnets avoid steelhead but target Chinook, so the gear is selective for avoiding steelhead but is non-selective for releasing wild Chinook
- Refining time, area, gear selectivity is a trial and error process

Staff Summary of Management Section

The management section includes a variety of topics that are analyzed above. The focus of this summary will be on conservation and concurrent regulations. There were few aspects of the Policy that focused on conservation; however, the Policy operated within the conservation guidelines already in place through *U.S. v Oregon*. The Policy intent was to enhance the conservation benefits for tule fall Chinook and coho, by implementing additional mark-selective fisheries, primarily with the transition to alternative gear commercial fisheries. Alternative gears were not implemented to the degree anticipated for a variety of reasons that are summarized in the Alternative Gear Section. The level of mark-selective fisheries that were in place during 2013-2017 were not substantial enough to contribute to reducing hatchery fall Chinook or coho numbers on the spawning grounds.

Concurrent regulations and/or policies between Oregon and Washington are critical to effectively manage the fisheries in the Columbia River; however, there are several instances where this is not the case with the current Washington Policy and Oregon rule/policies. These instances can result in unharvested fish or not meeting the objectives of both states. Non-concurrent rules can be very challenging for fishery managers and enforcement officers. These issues are described in detail in Synopsis 1.

Very few additional mark-selective fisheries were implemented during the Policy. Selective fisheries include two types: avoidance and live release, and are managed differently. Most of the sport and commercial fisheries in the Columbia River are managed using avoidance as the primary means of selectivity. Predation on salmon by birds, fish and particularly marine mammals is an on-going issue that continues to be addressed in a variety of forums; with no certain solutions anticipated in the foreseeable future. Managers routinely assess the accuracy and certainty of management strategies, in order to utilize the best scientific methods for estimating impacts from fisheries on salmon and steelhead populations.

RECREATIONAL

Questions: 9, 23, 24, and 25

Question 9

Question Paraphrase: Has the recreational fishery been prioritized in the mainstem and has the commercial fishery been prioritized in off-channel areas?

Policy Citation: …prioritize recreational fisheries in the mainstem and commercial fisheries in off-channel areas of the lower Columbia River. (pg. 7)

Specific Question: Has this occurred over the course of Policy 3620 being in effect?

Analysis: Yes, recreational fisheries have been prioritized in the mainstem and commercial fisheries have been prioritized in the Select Areas. The allocations in the policy automatically prioritizes recreational fisheries providing about 70%-80% of the allocation of fish or ESA impacts.

Supplemental Staff Analysis/ Comments:
For spring fisheries, 80% is allocated for the recreational fishery in the mainstem and 20% allocated for commercial fisheries within the Select Areas. The preseason commercial fishery planning process prioritizes the amount of incidental harvest of upriver stocks in spring SAFE fisheries, which typically consumes a high percentage of the commercial allocation of upriver impacts and leaves little or no impacts for scheduling any mainstem fisheries. This essentially establishes exclusive recreational access to the mainstem fisheries.

Fall fishery planning is more complicated, but still incorporates a recreational priority. Tules are readily harvested in recreational fisheries in the estuary while URBs are not as vulnerable to recreational gear in that area. Since mainstem commercial Chinook fisheries have been largely eliminated below the Lewis River mouth and commercial coho fisheries have recently been very limited, this has created a default recreational exclusive zone downstream of the Lewis River during August and September.

Recreational Advisory Group/Public Comments:
How do we define prioritized? Take into account what happens in season versus what was planned. Staff was asked to provide actual catches by species for each sector. This summary will be provided in the economic section.

Commercial Advisory Group/Public Comments:
There was already a recreational priority in the Columbia prior to the Policy. The spring Chinook sharing matrix and the Willamette Plan already had recreational priority included. The first priority for summer Chinook has been for fisheries above Priest Rapids Dam. In the fall, we always horse-traded with the sport fishery to share the impacts with one of the goals to get Buoy 10 through Labor Day. The early coho run has become a sport priority primarily at Buoy 10 and fisheries upstream do not catch many

coho. The recreational fishery wants opportunity – you cannot guarantee harvest to the least efficient gear.

Question 23

Question Paraphrase: What science was used by the Department for the barbless hook regulation?

Policy Citation: Barbless Hooks (pg. 10)

Specific Question: What information was provided at the time of Policy 3620 adoption regarding the scientific basis of a difference in fish mortality due to the use of barbed vs. barbless hooks? What was the rationale or basis for this provision of the Policy at the time of its adoption?

Analysis: Building on the previous Commission action (see below), discussions were reinitiated with Oregon in 2012 during the bi-state Columbia River Fishery Management Workgroup process. The workgroup recommended implementing barbless hooks in 2013 for salmon and steelhead. The Commission approved that recommendation and included the following general Provision: "Implement in 2013 the use of barbless hooks in all mainstem Columbia River and tributary fisheries for salmon and steelhead." We are not aware that any information on the scientific basis of a significant difference in mortality due to the use of barbed vs. barbless hooks was presented during consideration of the policy.

Supplemental Staff Analysis/ Comments:
A barbless hook rule for the mouth of the Columbia River to McNary Dam was considered and approved by the Commission in February 2010 after substantial public comment and discussion. The Commission directed that implementation be contingent upon the adoption of a similar rule by the Oregon Fish and Wildlife Commission, however; the Oregon Fish and Wildlife Commission subsequently declined to support the barbless hook rule, and Washington did not implement the rule.

The rationale for the adoption of the barbless hook rule was to maximize survival rates for released wild fish and contribute to the recovery of wild salmon and steelhead runs in the Columbia River. In discussions with stakeholders and Commissioners, staff acknowledged there was not statistical evidence available to support the reduction of mortality rate of fish that are released in the Columbia River, however; we were aware that several studies had found lower mortality rates for barbless hooks in marine fisheries for salmon, and in freshwater fisheries for trout. A release mortality study using barbless hooks concluded in 2014 and confirmed a 10-12% release mortality rate on spring Chinook in the Yakima River.

An on-going joint study with Mount Hood Environmental, Tacoma Power and Washington Department of Fish and Wildlife in the Cowlitz River is expected to provide additional information with regards survival rates within recreational salmon and steelhead fisheries. The Cowlitz River study is comparing gear types (including barbed hooks versus barbless hooks), hooking location and water temperatures across all species (summer/winter steelhead, coho, and spring/fall chinook); 2018 is the second year of a 3-year study. The objectives of the study are to determine whether use of barbless hooks increases

survival, quantify the capture efficiency of barbed and barbless hooks while angling, use data collected in this study in conjunction with creel and catch record card data to model the impacts of barbless regulations on rates of wild fish mortality and hatchery fish harvest in two fisheries—a hatchery fish intensive fishery and a naturally supported catch-and-release fishery.

Recreational Advisory Group/Public Comments:
Oregon Commission handled this differently. Oregon staff have recommended removal of barbless. Mortality is affected by where the hook was in the fish, not whether the hook is barbed/treble/etc.

The recreational fishery has an on-going release mortality rate study that should have merit for future use. Additionally, anglers have made anecdotal claims of experiencing lower landing rates/efficiency with the use of barbless hooks that could potentially lead to a higher pHOS or hatchery surplus.

Question 24

Question Paraphrase: What tributaries in Washington are exempt from the barbless hook regulation?

Policy Citation: Barbless Hooks…and tributary fisheries for salmon and steelhead (pg. 10)

Specific Question: As of December 31, 2017, what tributary sport fisheries for salmon and steelhead operate under a regulation that does not require the use of barbless hooks but allows for their voluntary use?

Analysis: When the Policy was adopted, the barbless hook requirement was put into place in the mainstem Columbia River and the Columbia River tributaries. After additional consideration, a number of tributaries were included in an exception to the barbless hook requirement to provide the option to use barbed hooks on hatchery-focused fisheries. The rationale was primarily the absence of or negligible numbers of ESA-listed species. The original list was updated during the recent rule simplification process (2018) and are shown below and in Table 24A with the rationale. Oregon requires barbless hooks in the Columbia River but not in their tributaries, including the Willamette.

Table 24A: Columbia River tributaries that allow that allow the use of barbed hooks

Tributary	Boundary and Season	Rationale
Cowlitz River	From boundary markers at the mouth to barrier dam – June 1-July 31	Hatchery summer run steelhead
Deep River	Year round	Salmon net pen program
Drano Lake	March 16-June 30	Hatchery spring Chinook
Drano Lake	October 1-December 31	Hatchery fall Chinook and coho
Elochoman River	Saturday before Memorial Day-July 31	Hatchery summer run steelhead
Green River	From mouth to Miner's Creek – Saturday before Memorial Day-July 31	Hatchery summer run steelhead
Klickitat River	From mouth to Fisher Hill Bridge – August 1-January 31	Hatchery fall Chinook and coho
Mayfield Lake	Year round	Hatchery rainbows, winter steelhead, fall Chinook, and coho
South Fork Toutle River	Saturday before Memorial Day-July 31	Hatchery summer run steelhead
Wind River	From mouth to 400' below Shipherd Falls – March 16-June 30	Hatchery spring Chinook
Wind River	From 100' above Shipherd Falls to 800 yds. downstream of Carson National Fish Hatchery – May 1-June 30	Hatchery spring Chinook

Question 25

Question Paraphrase: Has the Department made any progress on the use of logbooks in the recreational fisheries?

Policy Citation: Logbooks: Evaluate the benefits of requiring licensed recreational fishing guides and charters to maintain and use logbooks. …evaluate the use of volunteer trip reports in private boat fisheries. (pg. 10)

Specific Question: What has been done over the course of the Policy with regard to this paragraph?

Analysis: Nothing was done to on this component of the Policy during 2013-2017.

Supplemental Staff Analysis/ Comments:
Sampling programs are not without their limitations; 1) sampling programs are costly, 2) data is needed is time sensitive, 3) data gaps, 4) bias of handle/release information and 5) better understanding of the different fishing sectors.

The Legislature has authorized Washington Department of Fish and Wildlife the ability to require logbooks. Additionally the state legislature and has directed Washington Department of Fish and Wildlife to hold meetings with the salmon and steelhead guide license industry to explore guide license structures in order to improve fishing experience, meet conservation objectives and provide economic well-being. These meetings are continuing through the summer of 2018 and will include conversations around ways to improve trip information for the Department, such as creating a mobile application and/or building off of the Volunteer (Salmon) Trip Report Program.

Recreational Advisory Group/Public Comments:
Doesn't understand what the purpose would be. Please take into account that there is already a large creel sampling program. This seems to imply that the current sampling program isn't good enough. Current sampling programs continue to be capable of providing necessary harvest and effort data for managers. There are concerns that the logbooks single out fishing guide community. If you're only gathering guide data without sport data, how will the data be used?

Commercial Advisory Group/Public Comments:
Commercial Advisory encouraged use of log books for guides. OR and WA have never put anything for limited entry guide boats. There isn't enough room for the amount of people going fishing. Feels log books would help fill data gaps.

Staff Summary of Recreational Section:
The recreational fisheries were prioritized in all fisheries during the preseason process and based on the results in the allocation section, the fisheries were able to utilize a high percentage of their overall allocation, whether it was catch allocation (summer Chinook) or ESA allocation (spring and fall Chinook). Barbless hooks were implemented in most areas required by the Policy; the few exceptions are areas where there was an absence of or negligible numbers of ESA-listed species. We are not aware of any information presented during the consideration of the Policy, on the scientific basis of a difference in mortality due to the use of barbed versus barbless hooks. The use of logbooks in the recreational fishery was not pursued during the course of the Policy.

COMMERCIAL

QUESTIONS: 17, 18, 22, and 27

Question 17

Question Paraphrase: Has the Department made progress in implementing the Marine Stewardship council certification program?

Policy Citation: Develop a program that seeks to implement Marine Stewardship Council or other certification of salmon fisheries in the Columbia River as sustainably managed fisheries. (pg. 8)

Specific Question: What has been done over the course of the Policy to develop this program?

Analysis: Nothing was done on this component of the Policy during 2013-2017.

Supplemental Staff Analysis/ Comments:
This program was reviewed by the two states around 2008-2009 with the commercial fishers to determine if some of the fisheries in place at that time could be certified under the MSC program. The conclusion at that time was that there were fisheries that would likely meet the criteria but there was no effort to work on this, primarily because of the cost of certification.

In recent years, alternatives to the MSC process have been developed. Alaska has developed a Responsible Fishery Management (RFM) program for many of their fisheries, which has been certified by the UN Food and Agriculture Organization's Global Sustainable Seafood Initiative (GSSI). It is a much less costly alternative than MSC, and has similar benefits. At present, it is exclusively for Alaskan fisheries, but within the next year, it may broaden to include other fisheries. Even though it may be a less costly alternative to MSC, it may still be most beneficial if it is done on a regional basis as it likely will never be cost effective for small fisheries such as the lower Columbia commercial fishery without including other fisheries in the program. Other avenues to achieve a sustainability label on Columbia River fisheries includes the Monterey Bay Aquarium Seafood Watch program, local community supported seafood/fishery programs and a newly developed University of Washington's Sustainable Seafood reporting website.

Commercial Advisory Group/Public Comments:
Improve information availability about commercial fisheries. Feels there is a lack of availability for local businesses to sell Columbia River salmon. Acknowledge lack of information on commercial fishery online. We need to inform people that there is a commercial fishery. If you can advertise to sell the sport fishery why not commercial? The answer shouldn't be that you have to catch your own fish to eat.
Issue with 'Eat Wild' flyer. WDFW Marketing did the flyer with intention to sell licenses. Frustrating to keep trying to get information to consumers. Monterey Bay Aquarium is where seafood information comes from – sustainability seafood. Downgraded Columbia River coho from yellow to red.

Lack of availability for local CR salmon. Restaurateur spoke at Commission meeting in Astoria. Cannot feed them Columbia River salmon. There's a lack of information about commercial fisheries and local restaurants are not able to serve Columbia River salmon.

Question 18

Question Paraphrase**:** Has the Department made progress in implementing a buyback program?

Policy Citation: Gill Net License Buyback Program: Aggressively pursue a program to buyback non-tribal gill net permits… (and)…other tools to reduce the number of gillnet permits.
(pg. 8)

Specific Question: What has been done over the course of the Policy with regard to this paragraph?

Analysis: In December 2016, the department collaborated with Responsive Management, a firm specializing in attitudes toward natural resources. The firm was hired to help evaluate a potential program to buy back state-issued Columbia River gill net licenses, and asked for input from selected commercial fishers to help develop a survey. The survey was subsequently abandoned, and the Department has begun a new process starting with involvement from commercial stakeholders. Washington Department of Fish and Wildlife staff met with commercial stakeholders beginning in 2017. The most recent meeting occurred in February 2018 and staff are now working on a schedule of regular meetings and are in the process of working with the stakeholders to develop a plan moving forward including goals, objectives and options for a program. This project is also seeking ways to explore options to find funding and the appropriate process to allow a buyback program to succeed. Oregon Department of Fish and Wildlife staff have agreed to be involved in the discussions.

Recreational Advisory Group/Public Comments:
Literature search: Look at other buyback programs to see what has worked and not. It feels like progress is being stonewalled and no progress is being made – this needs to be in the record.

Commercial Advisory Group/Public Comments:
We have concerns about how the value of the licenses will be measured. We would like to encourage staff to look at what they were worth when the policy was put in place, which is not the same as the value now. Nothing really has been done, but most of the recent work done on the subject is driven concerns of some Commissioners and from complaints from some Grays/Willapa Bay fishers who were also losing their fisheries via Commission policies.

Question 22

Question Paraphrase**:** Has the Department made progress on developing new off-channel sites in Washington?

Policy Citation: Off-Channel Commercial Fishing Sites. Seek…new off-channel sites in Washington... (pg. 10)

Specific Question: What has been done over the course of the Policy with regard to this paragraph?

Analysis: WDFW started releasing spring Chinook from Cathlamet Channel Net Pens (CCNP) beginning in 2014 (See Question #15) with the intent of creating a new off-channel fishery in Washington, but based on test fishing results and poor smolt survival, a new fishery never materialized. ODFW investigated a number of new off-channel fishing areas, including one in Washington (Table 22A.)

Table 22A: Overall assessment by ODFW of potential new Select Area sites following adult test fishing and juvenile acclimation evaluations.

Evaluation Site	Adult Assessment	Juvenile Assessment
Clifton Channel	Excessive catch of upriver spring Chinook	Lacking acclimation infrastructure Questionable homing source/ potential for straying
Westport Slough	Spring: OK for development Fall: natural origin coho present	Lacking acclimation infrastructure; access permission contingent on Kerry West expansion Potential straying to Clatskanie
Bradbury Slough	Upriver spring Chinook catch could lead to ineffectual use of SA allocation	Insufficient homing source; potential for straying
Coal Creek Slough	OK for spring	Lacking acclimation infrastructure No access permission at existing dock Potential water quality issues (temperature D.O.)

Recreational Advisory Group/Public Comments:
No, we have not found new areas, but that we have increased production in SAFE areas. Progress can be defined in different ways – more fish being caught in SAFE areas than before.
Washington does not pay its share for production of SAFE fish.

Commercial Advisory Group/Public Comments:
The data that is being measured may not be an actual reflection of what is happening in the Select Areas. Since the data is from sales we are not counting the number of participants who don't catch anything. We'd also like to note, expansion of Select Areas can also mean additional impacts needed to prosecute. Balance economics with production cost. Not going to pencil out. No new Select Area sites are close to development and the two that showed some promise would only be suitable for spring and have no infrastructure in place and are at least four years away from production.

Question 27

Question Paraphrase: What were the results from monitoring the 2017 commercial fishery and how do they compare with expectations?

Policy Citation: In 2017 and 2018, the Department shall estimate the encounters of sturgeon and steelhead in the gill net fishery upstream of the Lewis River through onboard or other field methods, with particular respect to Group B steelhead. (pg. 11)

Specific Question: Provide the information garnered as a result of the monitoring in 2017, and how it compares to pre-season allocations and expectations.

Analysis: WDFW and ODFW staff monitored the commercial fishery upstream of the Lewis River in 2017 in August and September (Table 27A). Monitoring occurred during each weekly fishing period. Preseason expectations were only made for the month of August and were not made for sturgeon. Compared to preseason expectation during August, steelhead handle was 51% of expectations, Chinook harvest was 32% of expectations and the immediate mortality rate for steelhead was 49% of expectations. Monitoring results for August are shown in Table 27B and compares preseason expectations and actual estimates.

Table 27A: 2017 Fall Zone 4-5 Gillnet Fishery Observation Summary

Date	Boats	Drifts	Chinook	Coho	A-Index Steelhead	B-Index Steelhead	Observed Steelhead Mortality Rate	White Sturgeon	Comment
8/22-23	19	106	581	5	28	0	25%	130	No B Sthd
8/24-25	20	97	473	5	18	2	20%	103	All steelhead mortalities were A-Index
8/27-28	20	93	1,110	30	22	1	30%	121	All steelhead mortalities were A-Index
8/29-30	19	82	315	8	5	0	0%	60	No B Sthd
8/31-9/1	20	92	296	5	5	0	40%	50	No B Sthd
9/ 17-18	14	68	460	47	6	4	56%	125	One steelhead unknown condition
9/19-20	16	103	503	101	25	8	13%	102	All steelhead mortalities were A-Index
Totals	128	641	3,738	201	109	15	24%	691	

Table 27B: Results From Monitoring August Zone 4-5 Commercial Fishery, 2017

	Chinook Catch (Aug 22-Sep 1)	Steelhead Handle	Steelhead Immediate Mortality rate	Steelhead per fishing day	Steelhead/ Chinook Ratio	Group B Index Steelhead %	Group B Steelhead Handle
2017 Preseason	43,964	746	48.9%	149	0.017	4%	26
2017 Actual	13,959	407	23.8%	81	0.029	4%	15

Recreational Advisory Group/Public Comments:
Want to see expanded estimates for the whole fishery, not just August. Would also like to see expanded estimates for sturgeon, including number of oversize sturgeon handled. Pointed out that the steelhead/Chinook ratio was higher than expected. The group was disappointed to hear there would not be a mandatory observer program this year.

Commercial Advisory Group/Public Comments:
There was concern about the liability of having observers on board. Continue to hear that we still need more data. Make the step for the Commission to describe what the information means. Be more aggressive in your own science. Be clear and precise – these aren't kill nets. Used appropriately it's can be good for harvest. The observations confirmed the results from previous studies that the immediate mortality rates of steelhead in 9-inch nets was only about half of the level that staff had been using from old data.

Staff Summary of Commercial Section
Marine Stewardship Council (MSC) certification was not attempted during the Policy, but was considered during 2008-2009 by Oregon and Washington in cooperation with the commercial fishers. Several fisheries were being considered for certification under this process, but after review of the program with staff from MSC and discussion with the commercial fishing community, the cost of certification was prohibitive. At that time, there was no funding from the state or federal level to support the certification process and the fishing constituents were not interested in funding this process.

Discussions of license buyback began in 2016 but did not continue. WDFW staff have re-initiated the buyback discussion and have had several meetings with commercial fishers. The next meeting is planned for late 2018 or early 2019.

Exploration of new SAFE areas occurred by ODFW and one potential new site for Washington was identified in their analysis. At this time, no additional work has been done to consider this site. WDFW attempted to create a new SAFE area at Cathlamet Channel for spring Chinook, but the fish did not survive to provide a fishery. The plans for the Cathlamet spring Chinook program are to move the fish to Deep River and try some different release strategies. Deep River is currently the only SAFE area in Washington.

The commercial fishery in the upper river (Zones 4-5) was monitored in 2017 by ODFW and WDFW staff. Results showed handle of steelhead was low and similar to preseason expectations, but Chinook catch was much less than modeled.

TRIBAL

QUESTIONS: 6, and 7

Question 6

Question Paraphrase: Has the Department met the needs of the Colville Tribe and terms of the agreements?

Policy Citation: Meet Colville tribal subsistence and ceremonial needs consistent with agreements with the Confederated Tribes of the Colville Reservation (pg. 6)

Specific Question: *Has this occurred over the course of Policy 3620 being in effect?*

Analysis: During 2013-2017, based on the post-season run size, the Colville Tribe got at least their allocation during three of the five years. Their fisheries were not constrained in the other two years. Their average allocation during these years was 53% and their actual harvest averaged 50% (Table 6A, shown below).

Table 6A: Colville Tribal Summer Chinook Allocation

	Colville Planned Allocation	Colville Actual Allocation
2013	50%	54%
2014	55%	55%
2015	>55%	68%
2016	55%	46%
2017	50%	27%
Average	53%	50%

**Allocation as a percent of sport/tribal allocation above Priest Rapids Dam*

Commercial Advisory Group/Public Comments:
The Colville Tribe never catches their allocation – is it that they don't need that much or they cannot access the fish?

Question 7

Question Paraphrase: Has the Department met the needs of the Wanapum Tribe?

Policy Citation: Provide Wanapum Band fishing opportunity consistent with RCW 77.12.453 ("Salmon fishing by Wanapum (Sokulk) Indians"). (pg. 7)

Specific Question: *Has this occurred over the course of Policy 3620 being in effect?*

Analysis: Yes, this has occurred. During 2013-2017, the Wanapum Band harvested an average of 28 spring Chinook, 210 summer Chinook, 470 sockeye and 251 fall Chinook (Table 7A).

Table 7A: Harvest by Wanapum Band

	Spring Chinook	Summer Chinook	Sockeye	Fall Chinook
2013	8	240	92	475
2014	37	152	814	238
2015	58	284	522	221
2016	35	218	659	242
2017	2	158	263	78
Average	28	210	470	251

Staff Summary of Tribal Section

The provisions of the Policy concerning tribal fisheries were met for the Wanapum and Colville tribes. They were provided with fish and opportunity and were not precluded by other fisheries.

ALLOCATION

QUESTIONS: 30, 31, 32, 33, 34, 35, and 36

Supplemental Staff Comments:
Harvest alone may not be the best measure of achieving allocation objectives, as sufficient fish may have been present and other factors such as water condition or lack of effort may have resulted in less harvest than anticiapted. During the preseason process, the Policy allocation is used to plan all of the fisheries. During in-season management, staff attempt to adjust fisheries to adhere to those objectives at the same time that run sizes, run timing, catch rates, water conditions and stock compositions are all changing from preseason assumptions.

Question 30

Question Paraphrase: What was the actual allocation sharing of spring Chinook between sport and commercial fisheries and how did it compare to the Policy?

Policy Citation: The presumptive path for the management of spring Chinook salmon fisheries is summarized in Appendix Table A (pg. 11)

Specific Question: *In comparison to the values in Appendix A, what were the actual impact sharing values beginning in 2013, and what was the actual commercial fishing gear usage in the years involved?*

Analysis: The ESA allocations from the Policy and actual post-season impacts during 2010-2017, are shown in Table 30A. During 2013-2017, the sport allocation increased from 60% in 2013 to 80% in 2017 and actual allocation used increased from 54% in 2013 to 71% in 2017.

Table 30A: Upriver Spring Chinook ESA Sharing

	% Sport Share Allocated	% Comm Share Allocated	Sport ESA Impacts	Comm ESA Impacts	% Sport Share Actual	% Comm Share Actual
2010	50%	45%	1.02%	0.87%	54%	46%
2011	60%	35%	0.80%	0.67%	55%	45%
2012	50%	45%	0.84%	0.52%	62%	38%
2013	60%	40%	0.76%	0.64%	54%	46%
2014	70%	30%	1.04%	0.62%	63%	37%
2015	70%	30%	0.86%	1.02%	46%	54%
2016	70%	30%	0.94%	0.76%	55%	45%
2017	80%	20%	1.00%	0.40%	71%	29%
Average 2010-2012					57%	43%
Average 2013-2017					57%	43%

Table 30B shows the percentage of the ESA impacts that were actually utilized by each fishery. This table shows that on average during 2013-2017, the sport fishery utilized 66% of their allotted impacts and the commercial fishery utilized 121% of their allotted impacts. Prior to the Policy (2010-2012), the sport fishery utilized 75% of their allotted impacts and the commercial fishery utilized 76% of their allotted impacts. With spring Chinook management, the Catch Balance provision in the *U.S. v Oregon* Management Agreement is usually more constraining than ESA impacts and this results in ESA impacts not being achieved, or ESA impacts being reallocated to another fishery. The Policy states "the Department will exercise 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." For example, in 2015 and 2016, ESA impacts were reallocated in-season from sport to commercial as part of the adaptive management provision.

Table 30B: Percent of Upriver Spring Chinook ESA Impact Utilized

	Sport			Commercial		
	Allowed Impacts	Actual Impacts	% of Allowed	Allowed Impacts	Actual Impacts	% of Allowed
2010	1.30%	1.02%	78%	1.17%	0.87%	74%
2011	1.14%	0.80%	70%	0.67%	0.67%	100%
2012	1.10%	0.84%	76%	0.99%	0.52%	53%
2013	1.02%	0.76%	75%	0.60%	0.64%	107%
2014	1.40%	1.04%	74%	0.60%	0.62%	103%
2015	1.54%	0.86%	56%	0.66%	1.02%	155%
2016	1.33%	0.94%	71%	0.57%	0.76%	133%
2017	1.20%	1.00%	83%	0.30%	0.40%	133%
Average 2010-2012			75%			76%
Average 2013-2017			66%			121%

Table 30C shows the actual catch balance allocations for each of the fisheries from 2010-2017. During 2010-2012 (pre-Policy), the commercial fishery averaged 75% of their catch balance allocation and the sport fishery averaged 100% of their catch balance allocation. During 2013-2017 (Policy), the commercial fishery averaged 95% of their catch balance allocation and the sport fishery averaged 88% of their catch balance allocation. Both fisheries were able to utilize a high percentage of their catch balance allocation given the challenges of in-season fishery management.

Table 30C: Upriver Spring Chinook Catch Balance Shares

	Commercial			Sport		
	Catch Balance Used	Catch Balance Allowed	% Catch Balance Used	Catch Balance Used	Catch Balance Allowed	% Catch Balance Used
2010	9,077	12,530	72%	28,859	21,490	134%
2011	3,816	6,825	56%	13,842	15,345	90%
2012	4,605	4,759	97%	13,691	18,297	75%
2013	1,757	2,624	67%	6,330	7,593	83%
2014	3,621	4,911	74%	17,349	19,347	90%
2015	6,528	6,376	102%	19,381	24,836	78%
2016	3,285	3,335	99%	13,043	13,756	95%
2017	463	347	133%	7,316	7,760	94%
2010-2012 Average			75%			100%
2013-2017 Average			95%			88%

Commercial Advisory Group/Public Comments:
20% allocation for spring Chinook is not enough to run a mainstem and Select Area fishery.

Question 31

Question Paraphrase: Did the spring Chinook management buffer keep the non-treaty fisheries from exceeding the ESA guidelines?

Policy Citation: Fishery Management Buffer (spring Chinook) (pg. 11)

Specific Question: *Did the management buffer approach work over the course of the Policy, or were ESA impacts exceeded since 2012?*

Analysis: Yes, the management buffer was effective in maintaining non-Indian ESA impacts within the overall non-Indian guidelines. Non-Indian ESA impact rates were not exceeded during 2013-2017 and averaged 87% of the total during that period (Table 31A).

Table 31A: Comparison of Upriver Spring Chinook Impacts Used Versus Allowed

	Total Impacts Used	Total ESA Impacts Allowed	% of Total Impacts Used
2013	1.40%	1.70%	82%
2014	1.66%	2.00%	83%
2015	1.91%	2.20%	87%
2016	1.70%	1.90%	89%
2017	1.40%	1.50%	93%
Average	1.61%	1.86%	87%

Commercial Advisory Group/Public Comments:
It isn't fair to compare 2013-2016 with 2017 because the buffer was changed in 2017 to include only the catch balance buffer, whereas in 2013-2016, the buffer included additional buffers for each fishery.

Question 32

Question Paraphrase: What was the actual allocation sharing of spring Chinook within the sport fishery and how did it compare to the Policy?

Policy Citation: The Department will provide to the Commission each year a briefing on the effectiveness of fishery management actions in meeting spring Chinook sport fishery allocation objectives throughout the Columbia River basin. The Commission may consider changes to the sport allocation in this Policy in the future to balance sport fishery objectives in the areas below Bonneville Dam, above Bonneville Dam, and in the Snake River. (pg. 12)

Specific Question: *Was this accomplished with the agenda item presented by Bill Tweit at the September Commission meeting in Port Angeles?*

Analysis: The ESA allocations from the Policy and actual impacts are shown in Table 32A. During 2013-2017, the sport fishery below Bonneville Dam actual ESA allocation averaged 74% compared to 75% prescribed in the Policy and fisheries above Bonneville Dam averaged 26% compared to 25%. The results during 2010-2012 are similar.

Table 32A: Upriver Spring Chinook Sport ESA Sharing

	Allocation		Actual Impacts		Actual Share	
	Below Bonneville	Above Bonneville	Below Bonneville	Above Bonneville	Below Bonneville	Above Bonneville
2010	75%	25%	0.84%	0.18%	82%	18%
2011	75%	25%	0.54%	0.26%	67%	33%
2012	75%	25%	0.63%	0.20%	76%	24%
2013	75%	25%	0.61%	0.17%	79%	21%
2014	75%	25%	0.79%	0.30%	73%	27%
2015	75%	25%	0.69%	0.24%	74%	26%
2016	75%	25%	0.71%	0.23%	75%	25%
2017	75%	25%	0.68%	0.27%	72%	28%
2010-2012 Average					75%	25%
2013-2017 Average					74%	26%

Table 32B shows the catch balance allocations and actual harvest for each of the three geographic sport fisheries. From 2013-2017, the sport fisheries below Bonneville averaged 92% of their catch balance allocation, Bonneville to the WA/OR border averaged 100% of their catch balance allocation and Wanapum/Snake River fisheries averaged 68% of their catch balance allocation. Although the averages for the fishery from Bonneville to the WA/OR border shows an average of 100%, the range was 2% in 2017 to 201% in 2014. Similarly, the averages for the Wanapum/Snake River fisheries shows an average of 68%, but the range was 17% in 2017 and 100% in 2014.

Table 32B: Percent of Upriver Spring Chinook Catch Balance Shares Utilized Between Sport Geographic Areas

Below Bonneville			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	6,168	5,343	87%
2014	15,682	13,572	87%
2015	19,316	15,689	81%
2016	10,767	10,167	94%
2017	6,334	7,198	114%
Average			92%

Bonneville to WA/OR Border			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	822	1,093	133%
2014	2,091	4,208	201%
2015	2,615	1,647	63%
2016	1,436	1,480	103%
2017	845	18	2%
Average			100%

Wanapum/Snake			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	603	374	62%
2014	1,574	1,575	100%
2015	2,904	1,996	69%
2016	1,561	1,397	89%
2017	582	101	17%
Average			68%

In 2017, an in-season reduction in the run size resulted in little real fishing opportunity upstream of Bonneville Dam, even though the final run size was close to the forecast. This was an unusual circumstance; other factors have had more influence on harvest management decisions in other years under the Policy.

<u>Recreational Advisory Group/Public Comments:</u>
Recommended to remove 2017 in the average as it could be considered an outlier year as it took an unusual set of circumstances.

<u>Eastside Recreational Advisory Group/ Public Comments:</u>
Recommended to keep 2017 included in the average as it did occur and unusual circumstances occur every year in one way or another.

Commercial Advisory Group/Public Comments:
There is more likelihood of an imbalance between lower river and upriver opportunity if the run comes in substantially below forecast like in 2017, because of the change in the buffer in 2017.

Question 33

Question Paraphrase: What was the actual allocation sharing of summer Chinook between sport and commercial fisheries and how did it compare to the Policy? What were the results of testing alternative gears?

Policy Citation: The presumptive path for the management of summer Chinook salmon fisheries is summarized in Appendix Table B (pg. 12)

Specific Question: *In comparison to the values in Appendix B, what were the actual impact sharing values beginning in 2013? Were alternative gears tested and if so, what were the results in comparison to the gill net fishery option?*

Analysis: The catch allocations from the Policy and actual catches are shown in Table 33A. The sport allocation increased from 60% in 2013 to 80% in 2017 and actual allocation used increased from 55% in 2013 to 99% in 2017. Commercial harvest includes small numbers of summer Chinook in SAFE fisheries. There was not a commercial summer Chinook fishery in 2017.

Table 33A: Summer Chinook Harvest Sharing

	% Sport Share Allocated	% Comm Share Allocated	Sport Harvest Below PRD	Commercial Harvest	% Sport Share Actual	% Comm Share Actual
2013	60%	40%	2,382	1,987	55%	45%
2014	60%	40%	2,839	2,788	50%	50%
2015	70%	30%	6,938	4,043	63%	37%
2016	70%	30%	4,272	3,050	58%	42%
2017	80%	20%	4,115	47	99%	1%

Table 33B shows the percentage of the harvest that was actually utilized by each fishery. This table shows that on average, the sport fishery utilized 84% of their allotted harvest and the commercial fishery utilized 85% of their allotted harvest. Table 33B illustrates that on average both the sport fisheries and the commercial fishery used the majority of the harvest the was allocated to them. Fisheries were not constrained by over-harvest in the other sector.

Table 33B: Percent of Summer Chinook Catch Utilized

Commercial			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	2,145	1,987	93%
2014	2,601	2,788	107%
2015	4,068	4,043	99%
2016	2,513	3,050	121%
2017	949	47	5%
Average			85%

Sport Below Priest Rapids Sport			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	2,621	2,382	91%
2014	3,901	2,839	73%
2015	9,492	6,938	73%
2016	5,864	4,272	73%
2017	3,797	4,115	108%
Average			84%

See Questions 12 and 13 for information on alternative gears. No alternative gear fisheries were implemented for summer Chinook.

Commercial Advisory Group/Public Comments:
It is unfair to include 2017, because the commercial fishery was allowed no directed fishery. The actual harvests is not a complete picture of the sharing because each user group may be unable in a given year to access its allocation. What's more germane to this issue is the allotted allocation since that reflects the opportunity for each user group.

Question 34

Question Paraphrase: What was the actual allocation sharing of summer Chinook above and below Priest Rapids Dam and how did it compare to the Policy?

Policy Citation: Percent of non-treaty allocation assigned to fisheries above Priest Rapids Dam (summer Chinook) (pg. 13)

Specific Question: *How do these allocation targets compare to actual values for the years in question?*

Analysis: The harvest allocations from the Policy and actual harvests are shown in Table 34A. A larger percentage of harvest occurred below Priest Rapids Dam compared to the expectation of their harvest share. The total harvest was greater above Priest Rapids Dam as prescribed by the Policy allocation. Fisheries below Priest Rapids Dam include sport fisheries from the mouth upstream to Priest Rapids Dam, mainstem commercial fisheries and Select Area commercial fisheries. Fisheries above Priest Rapids include Wanapum tribal, Colville tribal and mainstem sport fisheries.

Table 34A: Summer Chinook Harvest Sharing Above and Below Priest Rapids Dam

	Below Priest Rapids Dam Share Allocation	Above Priest Rapids Dam Share Allocation	Harvest Below Priest Rapids Dam	Above Priest Rapids Dam Harvest	Below Priest Rapids Share Actual	Above Priest Rapids Dam Share Actual
2013	32.5%	67.5%	4,369	6,591	40%	60%
2014	35.7%	64.3%	5,627	6,599	46%	54%
2015	40.0%	60.0%	10,981	15,517	41%	59%
2016	38.2%	61.8%	7,322	7,973	48%	52%
2017	32.7%	67.3%	4,162	6,122	40%	60%

Table 34B shows the percentage of the harvest that was actually utilized by each fishery. This table shows that on average, the fisheries below Priest Rapids Dam utilized 87% of their allotted harvest and the fisheries above Priest Rapids Dam utilized 69% of their allotted harvest.

Table 34B: Percent of Summer Chinook Catch Sharing Above and Below Priest Rapids Dam Utilized

Below Priest Rapids Dam			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	4,766	4,369	92%
2014	6,502	5,627	87%
2015	13,560	10,981	81%
2016	8,377	7,322	87%
2017	4,746	4,162	88%
Average			87%

Above Priest Rapids Dam			
	Postseason Allowed	Actual Harvest	% of Allowed
2013	7,889	6,591	84%
2014	10,692	6,599	62%
2015	20,979	15,517	74%
2016	13,611	7,973	59%
2017	8,981	6,122	68%
Average			69%

Commercial Advisory Group/Public Comments:
The ocean catch that is included is not allocated; however, it is what actually occurs in ocean sport and commercial fisheries and has been growing recently. The primary harvest opportunity goes to recreational fisheries above Priest Rapids Dam and those fisheries often do not fully utilize their shares.

Question 35

Question Paraphrase: What was the actual allocation sharing below Priest Rapids Dam and how did it compare to the Policy?

Policy Citation: Nontreaty Sharing Below Priest Rapids Dam (summer Chinook) (pg. 13)

Specific Question: *How do the allocation targets in this section compare to actual values for the years in question?*
Analysis: See response to Question #33 above.

Commercial Advisory Group/Public Comments:
The actual harvest is a reflection of each user group's ability to use its share.

Question 36

Question Paraphrase: What was the actual allocation sharing of sockeye, fall Chinook and coho between sport and commercial fisheries and how did it compare to the Policy?

Policy Citation: Sockeye, Fall Chinook and Coho Salmon (pg. 14)

Specific Question: *For each of the species sections remaining in the report, the retrospective analysis/evaluation should be done in a similar manner as to the questions posed in this document for spring and summer Chinook. In comparison to the values on page 10, what were the actual impact sharing values beginning in 2013 (**for sockeye salmon**)?*

Analysis: The ESA Snake River sockeye impact allocations from the Policy and actual impacts are shown in Table 36A. The sport allocation increased from 70% in 2013 to 80% in 2017 and actual allocation increased from 79% in 2013 to 95% in 2017. Sockeye sport fisheries in the lower Columbia (below Priest Rapids Dam) occur at a lower level than in the upper Columbia and are mostly caught incidentally to Chinook or steelhead fisheries.

Table 36A: Sockeye Impact Sharing

	Sport Share Allocation	Comm Share Allocation	Sport Actual Impacts	Comm Actual Impacts	Sport Share Actual	Comm Share Actual
2013	70%	30%	0.31%	0.08%	79%	21%
2014	70%	30%	0.18%	0.05%	79%	21%
2015	70%	30%	0.22%	0.09%	72%	28%
2016	70%	30%	0.27%	0.10%	73%	27%
2017	80%	20%	0.32%	0.02%	95%	5%

*In comparison to the values in Appendix C, what were the actual impact sharing values beginning in 2013 (**for tule fall Chinook salmon**)?*

The ESA tule fall Chinook impact allocations from the Policy and actual impacts are shown in Table 36B. The sport allocation increased from 70% in 2013 to 75% in 2017 and actual allocation used increased from 70% in 2013 to 91% in 2017.

Table 36B: Tule Fall Chinook ESA Impact Sharing

	Sport Share Allocation	Comm Share Allocation	Sport Tule Actual Impacts	Comm Tule Actual Impacts	Sport Share Actual	Comm Share Actual
2013	70%	30%	6.47%	2.81%	70%	30%
2014	70%	30%	5.80%	1.55%	79%	21%
2015	70%	30%	4.50%	2.90%	61%	39%
2016	70%	30%	5.14%	5.29%	49%	51%
2017	75%	25%	6.33%	0.66%	91%	9%

Table 36C shows the percentage of the tule fall Chinook ESA allocation that was actually utilized by each fishery. This table shows that on average, the commercial fishery utilized 947% of their allotted ESA impacts and the sport fishery utilized 92% of their allotted impacts. Table 36C illustrates that on average both the sport fisheries and the commercial fishery used the majority of the ESA tule impacts that were allocated to them. During 2013-2017, tule fall Chinook were the major constraining stock to fall Chinook fisheries. In 2017, steelhead limited access to salmon for all sport and commercial fisheries.

Table 36C: Percent of Tule Fall Chinook Impacts Utilized

	Comm Tules Used	Comm Tules Allowed	% Comm Tules Used	Sport Tules Used	Sport Tules Allowed	% Sport Tules Used
2013	2.81%	2.48%	113%	6.47%	5.50%	118%
2014	1.55%	2.39%	65%	5.80%	5.57%	104%
2015	2.90%	2.61%	111%	4.50%	6.09%	74%
2016	5.29%	3.39%	156%	5.14%	7.85%	65%
2017	0.66%	2.86%	23%	6.33%	6.27%	101%
Average			94%			92%

*In comparison to the values in Appendix D, what were the actual impact sharing values beginning in 2013 (**for Upriver Bright fall Chinook salmon**)?*

The ESA Upriver Bright fall Chinook impact allocations from the Policy and actual impacts are shown in Table 36D. The sport allocation increased from 70% in 2013 to 75% in 2017 and actual allocation used increased from 45% in 2013 to 64% in 2017.

ODFW rules prioritizes the allocation to the sport fishery for the most constraining stock (tule or Upriver Brights), whereas WDFW Policy prioritizes the allocation to the sport fishery of both stocks (tule and Upriver Brights) equally. There are very few scenarios where allocations of both stocks can be achieved, and in some cases can be competing objectives. The majority of the years of the Policy were more constrained by tule fall Chinook impacts versus Upriver Bright fall Chinook, thus limiting full access to Upriver Bright fall Chinook impacts. See response to Question #16 regarding non-concurrent regulations.

Table 36D: Upriver Bright Fall Chinook ESA Impact Sharing

	Sport Share Allocation	Comm Share Allocation	Sport URB Actual Impacts	Comm URB Actual Impacts	Sport Share Actual	Comm Share Actual
2013	70%	30%	4.95%	6.07%	45%	55%
2014	70%	30%	4.44%	7.79%	36%	64%
2015	70%	30%	6.50%	4.70%	58%	42%
2016	70%	30%	6.48%	8.14%	44%	56%
2017	75%	25%	7.73%	4.27%	64%	36%

Table 36E shows the percentage of the ESA allocation of Upriver Brights that was actually utilized by each fishery. This table shows that on average, the commercial fishery utilized 94% of their allotted ESA impacts and the sport fishery utilized 91% of their allotted impacts. Table 36E illustrates that on average both the sport fisheries and the commercial fishery used the majority of the ESA tule impacts that were allocated to them. In 2017, steelhead limited access to salmon for all sport and commercial fisheries.

Table 36E: Percent of Upriver Bright Fall Chinook Impacts Utilized

	Comm Tules Used	Comm Tules Allowed	% Comm Tules Used	Sport Tules Used	Sport Tules Allowed	% Sport Tules Used
2013	6.07%	8.39%	72%	4.95%	6.61%	75%
2014	7.79%	7.39%	105%	4.44%	4.62%	96%
2015	4.70%	5.62%	84%	6.50%	6.83%	95%
2016	8.14%	7.32%	111%	6.48%	7.31%	89%
2017	4.27%	4.32%	99%	7.73%	7.69%	101%
Average			94%			91%

*In comparison to the values in Appendix E, what were the actual impact sharing values beginning in 2013 (**for coho salmon**)?*

The Policy assigns commercial fisheries a sufficient share of the ESA-impact for Lower Columbia Natural coho to implement Select Area coho and fall Chinook fisheries and mainstem fall Chinook fisheries. The balance is provided to in-river mainstem sport fisheries to meet fishery objectives. If these fisheries are expected to be unable to use all of the ESA-impacts, the remainder will be assigned to mainstem commercial coho fisheries.

Only from 2013-2015 did additional coho impacts remain for mainstem coho gillnets and coho tangle net fisheries to occur that translated with a range of harvest (3,210 to 62,101). Alternative gear pilot program began in 2013 and from 2013-2015 did additional coho impacts remain. There were no mainstem commercial fisheries or alternative gear fisheries targeting coho in 2017 due to a low forecasted run size, Table 36F.

Table 36F: Coho harvest and Sharing

	Commercial			Sport			Percent	
Year	Mainstem	Select Area	Total	Buoy 10	Mainstem	Total	Comm %	Sport %
2013	9,800	38,600	48,400	7,600	1,000	8,600	85%	15%
2014	70,400	166,900	237,300	57,700	5,800	63,500	79%	21%
2015	4,500	26,600	31,100	36,900	1,000	37,900	45%	55%
2016	1,100	30,300	31,400	9,200	1,300	10,500	75%	25%
2017	1,000	36,900	37,900	18,200	3,100	21,300	64%	36%
Average							70%	30%

Recreational Advisory Group/Public Comments:
We are producing 160 million fewer smolts then we did in 1992 for Chinook and coho. It is pretty easy to see why no one's fishing. It is time we stop letting groups steal from other groups and get to the real problem, production. The more people we have at the table to increase salmon production the faster we can get out of this mess. If we don't, in 10 years we will be dividing up zero.

The allocations that were planned through the Policy were not realized for the recreational fishery. The goal of the Policy was to maximize the number of fish harvested.

Commercial Advisory Group/Public Comments:
During the Workgroup modeling, there was an expectation that the sport fisheries would not utilize all of their URB impacts and that the commercial fisheries would utilize those unused impacts. This has not occurred over the course of the Policy.

The Policy allocates opportunity for sport fisheries to catch fish, the opportunity is provided but sometimes the resulting harvest does not occur. The commercial fishery is able to fish in variable river/weather conditions and are able to catch their fish while as the sport fishery can be impacted by these same river/weather conditions.

Staff Summary of Allocation Section
Determining how the allocation sharing actually occurred can be problematic because of the dynamics of in-season management. All of the fisheries are planned pre-season using the Policy allocations. As fisheries occur, changes to run sizes and actual harvests result in alterations to the pre-season plan.

In many years, the Upriver spring Chinook run cannot be updated until mid to late May. Fisheries are managed conservatively prior to a run update. Once the run has been updated and staff have more confidence in the final outcome, fisheries are adjusted accordingly. For the sport fishery below Bonneville Dam, it is difficult to attain the total allocation after mid-May when the run is typically updated. This is due to the nature of the fishery – once the run is past peak, the harvest rates in the sport fishery decline. The effort often shifts from the mainstem

to the tributaries during this time as well, with the result that the sport fishery is less effective at harvesting their allocation after the peak of the run. The catch balance provision is more constraining than ESA impacts, especially for the sport fisheries, so the result is that ESA impacts are left unused or reallocated to the commercial fishery. Thus looking at the ESA impact sharing does not completely tell the story of how the Policy performed. Both the recreational and commercial fisheries were able to utilize a high percent of their catch balance allocation.

Both sport and commercial fisheries were able to utilize a high percentage of their catch allocation for summer Chinook and fall Chinook the objectives of the allocation sharing are being met.

ALTERNATIVE GEAR

QUESTIONS: 10, 11, 12, 13, 14, and 19

Question 10

Question Paraphrase**:** Have gill nets been phased out of the mainstem? Did a thorough evaluation occur?

Policy Citation: Subject to the adaptive management provisions of this Policy, and after thorough evaluation, seek to phase out the use of non-selective gill nets (pg. 7)

Specific Question: Did this evaluation occur? If so, attach in the submission for the March 2018 Commission meeting; if not, what has stalled this evaluation?

Analysis: Yes an evaluation occurred in the sense that, the phase out of gillnet gear for fall Chinook fisheries directed at healthy and harvestable URBs has been constrained by the lack of suitable gear alternatives. This issue was the subject of substantial analysis and Commission review in 2016/2017, and resulted in a Commission decision to modify the Policy to support an additional two years (2017-2018) of large mesh gillnet mainstem fisheries directed at URB fall Chinook. See also Question 11.

Supplemental Staff Analysis/ Comments:
Purse seines and other small mesh gears have high encounter rates for steelhead, so even though the long-term mortality rate for steelhead released from these gears is low, the high encounter rates result in allowable steelhead mortalities being exceeded while substantial numbers of harvestable URBs remain. In contrast, the very low encounter rate of wild steelhead in large mesh gillnets, even though it is coupled with a higher long-term mortality rate, supports considerably more URB commercial harvest opportunity. In the last three years, the only alternative to scheduling large mesh gillnet fisheries above the Lewis River for harvest of URBs is to forego a large part of the nontreaty share of URBs. Recreational harvesters would not be able to make up for enough of the foregone harvest, thereby compromising the objective of maintaining and enhancing the economic well-being and stability of the commercial fishing industry.

The Commission only supported use of large mesh gillnets in the mainstem for URB harvest through 2018. Despite ongoing efforts there still are not any viable alternatives to large mesh gillnet that will be ready by 2019. The Commission will likely need to revisit this aspect of the Policy prior to 2019 pre-season planning.

Commercial Advisory Group/Public Comments:
What was the evaluation that was intended to occur? Some evaluation may have occurred from monitoring regarding steelhead impacts but believe that there was not a thorough evaluation that was done.

Tangle nets in the spring are a proven alternative gear but they were ignored by the Commission. Tangle nets for coho have been used but do not always have enough ESA impacts to prosecute this fishery. Coho tangle nets are less efficient than 6-inch gill nets and haven't proven they can harvest the allocated fish. Seines were tried in the spring and summer time frames but were found to be unsuitable because of the excess bycatch of steelhead and sockeye.

Question 11

Question Paraphrase**:** What is the definition of non-selective gill nets?

Policy Citation: Seek to phase out the use of non-selective gill nets. (pg. 7)

Specific Question: In the development and implementation of this Policy, what was the working definition of non-selective given the selectivity differences between large mesh gillnets used in the fall Zone 4 and 5 fisheries and the smaller mesh gillnets that have been used for coho or sockeye salmon? If non-selectivity between hatchery and wild salmon of the same size is the concept of this provision, what is the purpose of the "non-selective" adjective?

Analysis: Non-selective gill nets were not specifically defined in the Policy. Guiding Principle 8 of the Policy states: "subject to the adaptive management provisions of this Policy, and after thorough evaluation, **seek to phase out the use of non-selective gill nets** in non-tribal fisheries in the mainstem Columbia River, and transition gillnet use to off-channel areas." This guiding principle was developed through the bi-state Columbia River Fishery Management Workshop.

Supplemental Staff Analysis/ Comments:
The Policy elaborates on this guiding principle in subsequent sections and staff have generally relied upon the greater specificity of these latter sections in the application of the Policy. This resulted in an interpretation of "non-selective gill nets" as gill nets that target salmon of the size appropriate for gilling salmon. Generally, salmon gill nets are 8-inch minimum mesh for Chinook and 6-inch mesh for coho. The current fall commercial fishery occurring in Zones 4-5 uses a 9-inch minimum mesh net and, by this interpretation, is a non-selective fishery for hatchery and wild Chinook salmon and a selective fishery providing protection for steelhead because most of the steelhead pass through the large mesh and are not caught. This fishery is also considered a selective fishery for specific stocks of fall Chinook in that most of the lower river stocks have turned into the tributaries before reaching the Zone 4-5 fishing area. This is the reason that both commercial and sport fisheries have recently been focused in this area of the Columbia River, to protect ESA-listed lower river fall Chinook stocks.

Staff have provided a supplemental document titled "Description of Selective Fisheries" that presents descriptions of selective fisheries and explains differences in gear and types of selectivity in fisheries.

Commercial Advisory Group/ Public Comments
The best way to be selective is with avoidance and not a low mortality rate. Seines and traps may have a lower release mortality rate than gillnets but they are totally non-selective methods (they catch anything bigger than their mesh size). Saying that 8" gillnets are non-selective because they gill all Chinook of a certain size ignores the fact that in most seasons all of those Chinook are legal to harvest. What we are trying to not kill are steelhead, which observations have shown are successfully avoided in 8" nets almost as well as they are with 9" nets. The reason gillnets are more selective than seines in the summer timeframe is because most steelhead and sockeye will pass through an 8" or 9" gillnet, but they won't pass through a seine. We have not used non-selective gillnets in the Columbia for years and every season we are using gillnets to select for Chinook or coho and to avoid ESA-listed species.

Selectivity is different from catch and release. Calling the Zone 4-5 fishery non-selective for Chinook is misleading as we are targeting Chinook. Fishing with gillnets can be selective. Fishing in early March is a selective time for gillnets. Avoidance is the number one thing for selectivity. The Workgroup process was not collaborative – the decisions were not collaborative.

Sport hooking mortality rates have not been verified. We don't have accurate data for seines or sport fishing hook and release mortality rates. Time, area and gear works for the commercial fishery. There are no viable options for alternative gears (e.g. seines).

Question 12

Question Paraphrase: What alternative gears have been developed and what were the performance characteristics?

Policy Citation: In a manner consistent with the Department's licensing authorities, develop… alternative selective-fishing gear and techniques for commercial mainstem fisheries. (pg. 7)

Specific Question: What alternative gears have been developed over the course of the Policy and what are their performance characteristics compared to selective-fishing gear and techniques used prior to the Policy?

Additional Commissioner Question: In Table 12A, related to the development of alternative gear types, the final column is titled "Chance of Success." Can you footnote the factors that you considered in coming to the ranking? In particular, I was surprised by the "high" ranking of the fall fishery beach seine. Isn't it possible that steelhead encounters would be unacceptably high for this gear?

Analysis: Numerous alternative gears have been tested to measure and evaluate the feasibility of providing sufficient catch and the ability to release non-targeted fish unharmed. Table 12A shows types of gears tested with initial assessment of potential success based upon perceived catch rates, gear cost and mortality rates. Table 12A compares the fishery type with an

assessment of each major metric. The high success rate shown in the table for beach seines in the fall were likely based on the high catch rates, good fish condition and moderate cost. Most of the testing and evaluations have focused on seines and tangle nets. The analysis of gear success was conducted several years ago. Currently, the beach and purse seines have a low chance of success as a complete replacement gear in the commercial fishery because of the high bycatch of steelhead, the high release mortality rate for Chinook and the low mark rates (adipose fin-clip rates) for Chinook.

Table 12A: Comparison of fishery type with an assessment of each major metric

Gear	Pre/Post 2013 Policy	Catch Rates	Bycatch	Released Fish Condition	Gear Investment Cost	Chance of Success
Merwin Trap	Pre	Low	Low	Moderate	High	Low
Tangle Net – Spring	Pre	Fair	Low	Good*	Low	High
Tangle Net – Coho	Post	Fair	Low	Moderate	Low	High
Purse Seine – Summer	Post	Moderate	High	Good	High	Low
Beach Seine – Summer	Post	Low	High	Good	Moderate	Low
Purse Seine – Fall	Both	High	Moderate	Good	High	High
Beach Seine – Fall	Both	High	High	Good	Moderate	High
Purse Seine – Shad	Post	High	Moderate	Good	High	High
Pound Net – Fall	Post	Moderate	High	Good	High	Moderate

*Changed from Fair to Good

Tangle nets for spring Chinook were tested in the early 2000's and have been used in the commercial fishery since then. Several mortality studies were conducted and the U.S. v Oregon Technical Advisory Committee (TAC) adopted mortality rates for Chinook and steelhead released from these nets (Table 12B).

ODFW conducted a post-release mortality study for coho tangle nets during 2013-2015. Coho tangle nets had lower catch rates of hatchery fish, but had favorable ratings for mark rates, handle of non-target species and economic factors. Low gear investment cost was a particularly important consideration in the favorable determination. The coho tangle net was implemented in the late fall commercial fisheries during 2013-2015. Release mortality rates are shown in Table 12B.

Table 12B: Release mortality rates for tangle net fisheries

	Release Mortality Rate		
Season	Spring Chinook	Coho	Steelhead
Spring Season	14.7%		18.5%
Fall Season		23.6%	23.6%

Beginning in 2016, the Wild Fish Conservancy (WFC) has worked with a Columbia River commercial fisher to install and test a pound net at a traditional pound net site in the lower

Columbia, under a Scientific Collectors Permit issued by WDFW. The initial results, reported to the Commission in fall 2017, appear promising in terms of Chinook and coho catch rates, as well as short-term mortality of steelhead and unmarked Chinook and coho, however; the long-term mortality rates for this gear has yet to be established. The WFC staff are continuing to analyze their data, and will submit them to a peer review process.

For 2018, WDFW and the WFC are in the planning process to transition the pound net operation to a test-fishing mode, to provide additional information on the commercial viability of this tool for fall fisheries. If that is not successful, WFC will operate the pound net under the terms of a Scientific Collectors Permit. The pound net concept is still in feasibility testing, and is several years away from implementation assuming that the feasibility tests are successful.

Commercial Advisory Group/ Public Comments:
Gear conflicts can occur between seine and sport gear. Seines need a large abundance of fish to be successful. Seines can catch smaller fish that are less valuable. In a mark-selective fishery, the tules have a higher clip rate than brights and are a less desirable and valuable fish. Would like staff to provide economic comparison between seines and tangle nets. Spring Chinook released from tangle nets are released in good condition, not "fair" as listed in Table 12A. Alternative gear such as seines are more expensive to operate than gill nets and we need the ability to recoup those costs with large abundance of fish.

Question 13

Question Paraphrase**:** What alternative gears have been implemented into permanent rules?

Policy Citation: In a manner consistent with the Department's licensing authorities …Implement alternative selective-fishing gear and techniques for commercial mainstem fisheries. (pg. 7)

Specific Question**:** What alternative gears/techniques have been implemented (into "permanent" allowable regulation) over the course of the Policy?

Analysis: Tangle nets are not specifically defined in permanent rule but are written into the Washington Administrative Code (WAC) language for emergency rules. The rules associated with tangle nets are clearly defined and are written the same each year.

Seine fisheries have operated under the "emerging commercial fishery rule" in the Columbia River as described in RCW 77.70.180. Purse seines are a legal gear in Washington and are codified in WAC 220.350.120. Drag seines (beach seines) are under WAC 220.350.040. Seines would have to be authorized for use in the Columbia River through a change to RCW 77.50.030.

See response to Question 19 for a more comprehensive evaluation of the development of alternative gear fisheries.

Supplemental Staff Analysis/ Comments:
Coho tangle nets have been used more recently, have a low release mortality rate and are a good alternative gear for the commercial fishery.

Commercial Advisory Group/ Public Comments:
Considerable work has been done to develop the tangle nets and estimate release mortality rates. Tangle nets for spring Chinook have been used since 2002 and have proven to be a successful tool for mark-selective commercial fisheries. During spring, there are not enough impacts to use tangle nets. We developed tangle nets as an alternative gear for spring Chinook, was used very successfully, and we were still shut out of any spring Chinook fishery in the mainstem long-term because of the policy. If spring tangle nets are considered an alternative gear why did the Commission refuse to allow their use in the spring?

Question 14

Question Paraphrase: What incentives have been provided to commercial fishers to implement alternative gears?

Policy Citation: Provide incentives to commercial fishers to develop and implement these gear and techniques. (pg. 7)

Specific Question: What incentives have been provided to commercial fishing license holders over the course of the Policy?

Analysis: To date, the Department has invested over $8 million in the development of alternative selective fishing gear, including substantial grants and contracts with commercial fishers to develop, deploy and test gear, some of which has supported individual acquisition of alternative gears. In addition, on occasion fishing periods and locations for seines have been open and not open to the gillnet fishery.

Commercial Advisory Group/ Public Comments:
Monies spent on research is not an incentive. Why would we invest into new gear if there are not sufficient fish/impacts/allocation to have the fishery? Commercial fishermen will only switch to alternative gears if they are economically viable and adequate fish are allocated to them in the future. It would also help if it was shown that they are actually an improvement over gillnets.

Question 19

Question Paraphrase: What has occurred regarding alternative gear funding, development, testing and implementation?

Policy Citation: Development and Implementation of Alternative Selective Gear: The Department will investigate and promote the funding, development, testing, and

implementation of alternative selective gear. Work with Oregon to develop incentives for those commercial fishers who agree to use these gear and techniques. (pg. 8)

Specific Question: What has been done over the course of the Policy with regard to this paragraph?

Analysis:

Funding

- NMFS provided $1.9 million during the initial phase of testing alternative gear in 2009 to WDFW.

Development

- Thirteen combinations of alternative commercial fishing gears and seasons were evaluated during 2009- 2016 to determine feasibility for implementation in live-capture mark-selective fisheries (MSF) in the mainstem Columbia River between WDFW and ODFW.
- Alternative gears evaluated on:
    - Catch rate and mark rate of target species.
    - Handle of non-target species and condition at release.
    - Economic and social/regulatory considerations for fishery implementation
- Gears with high catch rates for target species (e.g. fall purse and beach seines; late spring purse and beach seines targeting American Shad) were considered to have a better chance for implementation, even though ratings in other categories such as non-target fish handle and economic issues were not as favorable. Fall purse and beach seines were implemented in limited entry fisheries during 2014-2016. ODFW also issued an experimental gear permit for a purse seiner to harvest shad in 2016.

Testing

- Post-release mortality studies were conducted for the three alternative gear types with the most promising prospects for fisheries implementation: fall purse seine, fall beach seine, and coho tangle net.
- WDFW conducted a post-release mortality study for fall Chinook, coho, and steelhead caught in Zone 5 by purse and beach seines during 2011-2013.
- ODFW conducted a post-release mortality study for coho salmon captured in tangle nets during 2013- 2015.
- ODFW conducted a stock composition study during 2015 using DNA samples and CWTs obtained from Chinook caught by purse seines, beach seines, and gill nets in Zone 5.
- In autumn 2017, WDFW implemented a control-treatment holding study to estimate short-term survival of Chinook and coho salmon captured by purse seines.

WDFW conducted a post-release mortality study for fall Chinook, coho, and steelhead caught in commercial fishing Zone 5 by purse and beach seines during 2011-2013.

- Steelhead survival estimates derived from a Ricker-Two-Release (RTR) study design were high (range 95-99%), and presumed to be valid.
- Intermediate-term survival estimates for fall Chinook were also high (range 95-100%), and also presumed to be valid, however; short-term survival estimates for Chinook and coho using the RTR method may have been confounded by differential migratory behavior of treatment and control fish. Therefore, a radio-telemetry study was conducted for these species in 2013 to determine migratory behavior of treatment fish, and produce an alternative short-term survival estimate.
- Radio-telemetry results suggested that cumulative survival (short-term + intermediate) was high for fall Chinook (range 92-95%), however; a key assumption in this finding: that a relatively high proportion of surviving Chinook originated from areas downstream of Zone 5, conflicted with long-term coded wire tag (CWT) data collected from commercial gillnet fisheries in Zone 5.
- Violation of study assumptions (in both RTR and radio-telemetry methods) precluded valid post-release mortality estimates for coho salmon.
- TAC modified the Chinook and coho mortality rates to take into account historical CWT data. Chinook mortality rates currently used for seine fisheries are 33% for beach seines and 21% for purse seines. Coho mortality rates are 38% for beach seines and 29% for purse seines.

To determine whether the key assumption in the radio-telemetry based seine survival estimate for fall Chinook was valid, ODFW conducted a stock composition study during 2015 using DNA samples and CWTs obtained from Chinook caught by purse seines, beach seines, and gill nets in Zone 5.

- Stock composition results for Chinook caught in Zone 5 showed that both DNA and CWT analyses indicated very few ($\leq$ 3%) of the seine-caught Chinook had origins below Zone 5.
- There was not a significant difference in stock composition between Chinook caught in purse seines, beach seines, and gill nets ($p > 0.05$).
- Results from the 2015 stock composition study were consistent with long-term CWT data from Zone 5 commercial gillnet fisheries, but did not support assumptions from the 2013 seine mortality study.

In autumn 2017, WDFW implemented a control-treatment holding study to estimate short-term survival of Chinook and coho salmon captured by purse seines.

- The follow-up study utilized holding tanks to monitor short-term mortality rates over 48 hours during 2017 (Figure 19.1).
- The purse seine fishery and Bonneville Dam provided the treatment and control groups, respectively, to assess short-term mortality over 48 hours and measure recapture probability at dams.
- Short-term mortality rates appear to be lower for Chinook than Holowatz (2014), but similar for steelhead when compared with Rawding et al. 2016.

- Survival rates are likely higher than what would occur in actual fisheries due to low catches. The study occurred after the peak of the run when the river begins to cool and study was conducted further upstream (Zone 5) of seine fisheries (Zone 1-3).

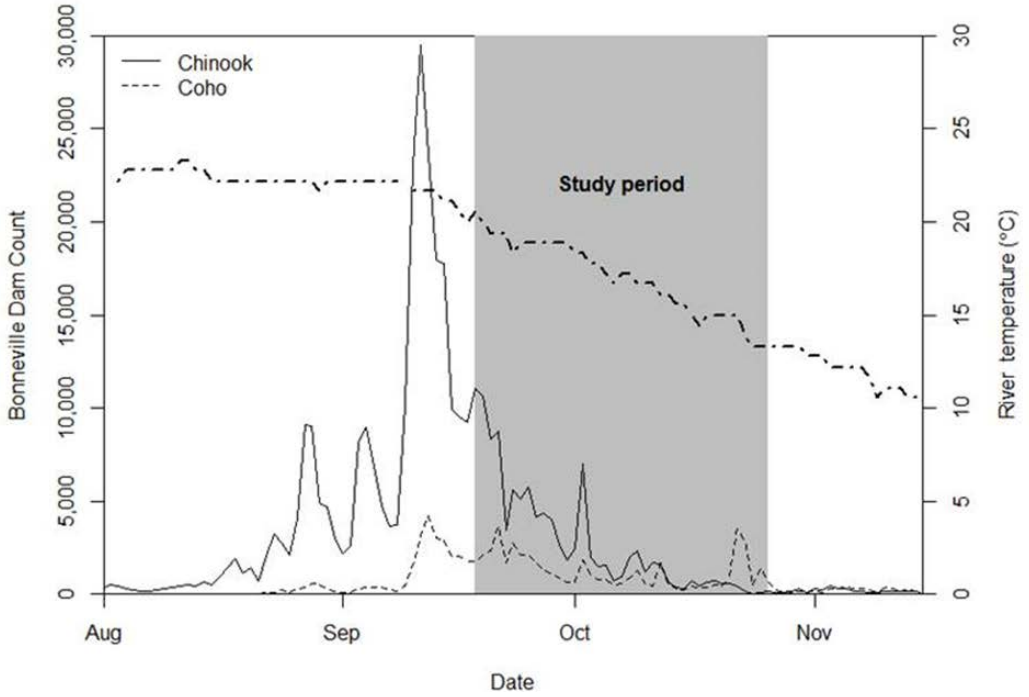

Figure 19.1: Purse seine study (2017) timeline to assess short-term mortality rates

ODFW conducted a post-release mortality study for coho salmon captured in tangle nets during 2013- 15.

- The 2013-2014 study used the Ricker-Two-Release (RTR) method, similar to the seine mortality study. The same issues were encountered with mortality estimates likely confounded by differential migratory behavior of treatment and control fish.
- In 2015, the study design was changed to net-pen holding, with all coho treatment groups held for at least two days (short-term holding), and a subset of treatment groups held for an additional six days (long-term holding).
- Short and long-term holding tests resulted in mortality rate estimates of 7.5% and 4.9%, respectively.
- The cumulative mortality estimate for coho tangle nets was 22.3% (including an immediate mortality rate of 11.6% from the 2013-2015 coho tangle net fisheries).
- ODFW repeated the net-pen holding study in 2016.

Implementation

- Utilized "emerging commercial fishery rule" in the Columbia River as described in RCW 77.70.180 and scientific collection permits to test and implement fisheries.
- Fall commercial seine fisheries were conducted in the lower Columbia River in 2014 through 2016. The seine fishery was mark-selective for fin-clipped hatchery Chinook

and coho salmon, and was conducted on a limited entry basis, with individual fisher quotas (IFQ) assigned to each permit holder (Table 19A, Table 19B). The ex-vessel values were calculated by applying the number of pounds landed to the price per pound.

- Full implementation of alternative gear has not occurred.
- Tangle nets for spring Chinook have been in place under current rules since 2003.
- Tangle net coho fisheries occurred during 2013-2015 (Table 19C).
- The *U.S. v Oregon* Technical Advisory Committee (TAC) has agreed on a set of release mortality rates to use in for seines and coho tangle nets for use in fishery management (Table 19D.)

Table 19A: Seine fishery ex-vessel value for fall Chinook

Year	Gear	Days Fished	Permits Fished	Deliveries	Chinook Landed	Mark Rate	Avg. Wt(lb)	Avg. $/lb	Avg. Value/Fish	Ex- Vessel Value
2014	Beach	12	6	20	1,337	44%	13.1	$1.52	$19.93	$26,647
	Purse	15	4	19	1,457	33%	13.5	$1.47	$19.74	$28,760
	Total	27	10	39	2,794	38%	13.3	$1.49	$19.83	$55,407
2015	Beach	6	3	6	681	64%	10.9	$1.39	$15.21	$10,360
	Purse	14	4	19	2,312	38%	10.4	$1.71	$17.77	$41,075
	Total	20	7	25	2,993	41%	10.5	$1.63	$17.18	$51,434
2016	Beach	4	2	4	2	50%	8.0	$2.81	$22.50	$45
	Purse	20	2	24	1,113	29%	10.6	$2.28	$24.12	$26,849
	Total	24	4	28	1,115	29%	10.6	$2.28	$46.62	$26,894
Average		24	7	31	2,301	36%	11.5	$1.80	$20.11	$44,578

Table 19B: Seine fishery ex-vessel value for coho

Year	Gear	Days Fished	Permits Fished	Deliveries	Coho Landed[1]	Mark Rate	Avg. Wt(lb)	Avg. $/lb	Avg. Value/Fish	Total Ex-Vessel Value
2014	Beach	12	6	20	509	35%	7.8	$1.22	$9.56	$4,864
	Purse	15	4	19	561	29%	7.7	$1.09	$8.43	$4,729
	Total	27	10	39	1,070	32%	7.8	$1.15	$8.96	$9,593
2015	Beach	6	3	6	58	32%	6.8	$1.50	$10.19	$591
	Purse	14	4	19	529	46%	5.7	$1.52	$8.74	$4,624
	Total	20	7	25	587	44%	5.8	$1.52	$8.88	$5,215
Average		24	9	32	829	38%	6.8	$1.34	$8.92	$7,404

[1] Includes adults and jacks.

The above table was Table 9 from Oregon Department of Fish and Wildlife's Exhibit Agenda Item Summary Updated 1-12-17

Table 19C: Coho tangle net fishery ex-vessel value

Year	Days Fished	Deliveries	Coho Landed [1]	Mark Rate	Avg. Wt (lb)	Avg. $/lb	Avg. Value/Fish	Total Ex-Vessel Value
2013	8	174	4,831	77%	6.1	$1.87	$11.44	$55,251
2014	9	242	18,234	83%	6.3	$1.20	$7.54	$137,556
2015	3	102	993	67%	5.7	$1.65	$9.36	$9,299
Average	7	173	8,019	76%	6	$1.57	$9.45	$67,369

The above table was Table 14 from Oregon Department of Fish and Wildlife's Exhibit Agenda Item Summary Updated 1-12-17.

Table 19D: Updated seine mortality rates* for Chinook, coho, and steelhead

Gear	Chinook	Coho	Steelhead
Beach Seine	33%	38%	5%
Purse Seine	21%	29%	2%
Coho Tangle Net	NA	23.6%	23.6%

**Based on revised analyses by the U.S. v. Oregon Technical Advisory Committee of post-release mortality studies during fall 2011-2013.*

Incentives – see answer to Question 14.

Recreational Advisory Group/ Public Comments:
Alternative gear did not have the opportunity. It was fished in Zones 1-3 for hatchery tules and the release mortality rates are high. Concern if these rates are realistic.

Commercial Advisory Group/ Public Comments:
Limited effort on the seine fishery (Tables 19A and 19B). Some Zones were not effective for beach seining and/or purse seining. In 2014, some of the seine permit holders stopped fishing locally and moved to Youngs Bay and/or Willapa Bay to take advantage of the large coho returns. There are not enough ESA allocations for us to use alternative gears. Alternative gears are more expensive to operate and have to be able to recoup the costs. In order to be economically viable seines would have to fish on the first half of September (re: Figure 19.1.) All the money and time spent over the past several years, and you still have not found a gear nearly as compatible as with the Columbia River salmon gillnet fishery (salmon harvest goals and economics).

Staff Summary of Alternative Gear
A variety of alternative gears have been researched and tested within the past 15-20 years. Tangle nets for spring Chinook were implemented in 2003 and have been used successfully since then. Most recently the beach and purse seines have been the focus of the investigations, as well as tangle nets for coho.

Release mortality studies have been conducted with varying results. Currently the *U.S. v Oregon* Technical Advisory Committee (TAC) has agreed on a set of release mortality rates to use in for seines and coho tangle nets for use in fishery management.

The mortality rates for Chinook and coho make it challenging to implement seine gear in the commercial fishery. For mark-selective fisheries to be successful, the mark rate (adipose fin-clip rate) must be greater than the mortality rate; the greater the difference between the mark rate and the mortality rate, the greater the benefit. The mark rates for fall Chinook in the Columbia River are not very high due to the large proportion of natural production in the Upriver Bright component. Encounters of non-target fish can also hamper efforts at implementation, for example, the seines can catch large numbers of steelhead and during the summer season, sockeye and shad encounters can be significant. In order for the seines to be economically viable, a large volume of fish must be available and harvestable. These issues largely explain why alternative gears have not been implemented in the Columbia River, with the exception of tangle nets for spring Chinook and coho.

ECONOMICS

QUESTIONS: 2, 8, 15, 20, 21, 37, 38, and 39

Question 2

Question Paraphrase: What economic enhancements were expected to occur for the recreational and commercial fisheries and did they occur?

Policy Citation: The objectives of this Policy are to …, and…enhance the economic well-being and stability of the fishing industry in the state (pg. 5)

Specific Question: Were there specific economic enhancement goals or targets that were anticipated to be achieved for sport and commercial fisheries over the course of the Policy, and if so, have they been achieved?

Analysis:

Background – Expectations

Measuring the economic impacts for both recreational and commercial fishing sectors can be reviewed in the TCW 2008 report, "Economic Analysis of the Non-treaty Commercial and Recreational Fisheries in Washington State." Recreational economic value formula is angling trips multiplied by the net economic value ($58 per angler day adjusted for inflation). Due to applying a constant dollar value, although adjusted for inflation each year, recreational trips were primarily compared by angling trips within the economic analysis. Commercial fisheries were measured by pounds of fish sold multiplied by price/pound. Multipliers were not applied to any analysis within this report.

There were several expectations in the "Decision Support Document for Columbia River Basin Salmon Management Policy, Draft January 12, 2013" (Decision Document) regarding this question. Basically, the Policy was expected to increase recreational angler trips and increase economic impacts to the commercial fishery through increased production in off-channel areas and implementation of alternative gears.

Shown below are several excerpts from the Decision document:

"Recreational angler trips in the transition period (2013-2016) are projected to increase by about 13% and in the long term by about 22% across the spring Chinook, summer Chinook, and fall Chinook fisheries."

"Key assumptions include:
1) Alternative selective commercial fishing gear is implemented and catches are consistent with CWG (Workgroup) expectations. For example, the CWG analysis expects a catch of 27,441 fall Chinook by alternative selective commercial fishing gear in 2017.
2) Off-channel artificial production programs are implemented as recommended by the CWG."

"Ex-vessel Value of Commercial Fishery (revised from CWG report16). The ex-vessel value of the commercial fishery in the transition period is projected to increase by ~$18,805 (0.5%) in 2013 to ~ $761,009 (~20%) in 2016. For the period 2017 through 2021, the annual ex-vessel value of commercial fisheries is projected to increase by ~$231,755 (6%) in 2017 to ~$519,022 (14%) in 2021.
2) Recreational Angling Trips (from CWG report). The total number of angler trips in the transition period (2013-2016) is projected to increase by about 13% and in the long term by about 22%."

"Synopsis. The draft Policy supports the development and implementation of fisheries using alternative selective-fishing gear and techniques to provide commercial fishing opportunities to catch hatchery salmon in the mainstem of the Columbia River while limiting impacts to wild stocks of conservation concern. Implementation of alternative selective gears is essential to achieve the economic expectations for commercial fishers and is expected to provide conservation benefits."

"It is important to recognize that the analyses are not intended to be absolute predictions of the catch and ex-vessel value, but rather the potential magnitude of changes in harvest and ex-vessel values relative to the modeled baseline." "As with the commercial fishery analysis, the analyses are not intended to be absolute predictions of the recreational angler trips, but rather the potential magnitude of changes in angler trips relative to the modeled baseline" (Decision document).

Actual Results and Compared to Expectations – Recreational Fisheries
This question is similar to Question 37 and much of the information can be applied to both questions. The answers to this question are focused on recreational angler trips and commercial ex-vessel values. Table 2A show recreational angler trips and catch during 2010-2017, and Figure 2.1 shows angler trips during the same time. Angler trips are averaged for 2010-2012 to show results prior to the Policy and 2013-2017 during the Policy. Average angler trips were higher prior to the Policy for spring and summer Chinook and were higher during the Policy for fall Chinook.

Table 2A: Mainstem Recreational angler trips in the Columbia River below Bonneville Dam and total economic value

Year	Spring	Summer	Fall-Mainstem	Fall-Buoy 10	Total trips	Economic Impact
2010	186,132	70,661	114,285	52,300	423,378	$24,869,224
2011	154,895	75,818	147,343	49,409	427,465	$25,904,379
2012	127,919	80,733	128,831	65,070	402,553	$24,897,903
2013	109,655	52,037	141,481	65,767	368,940	$23,154,674
2014	145,642	53,661	143,946	107,522	450,771	$28,745,667
2015	151,173	50,555	131,374	108,213	441,315	$28,177,963
2016	126,826	58,067	133,300	94,950	413,143	$26,709,695
2017	63,303	41,595	114,721	93,547	313,166	$20,678,351
Average 2010-2012	156,315	75,737	130,153	55,593	417,799	$25,223,835
Average 2013-2017	119,320	51,183	132,964	94,000	397,467	$25,493,270

NOTE: Angler trips are not adjusted for differences in run sizes each year. Dollar values (2008 $58 per angling day value) adjusted annually for inflation.

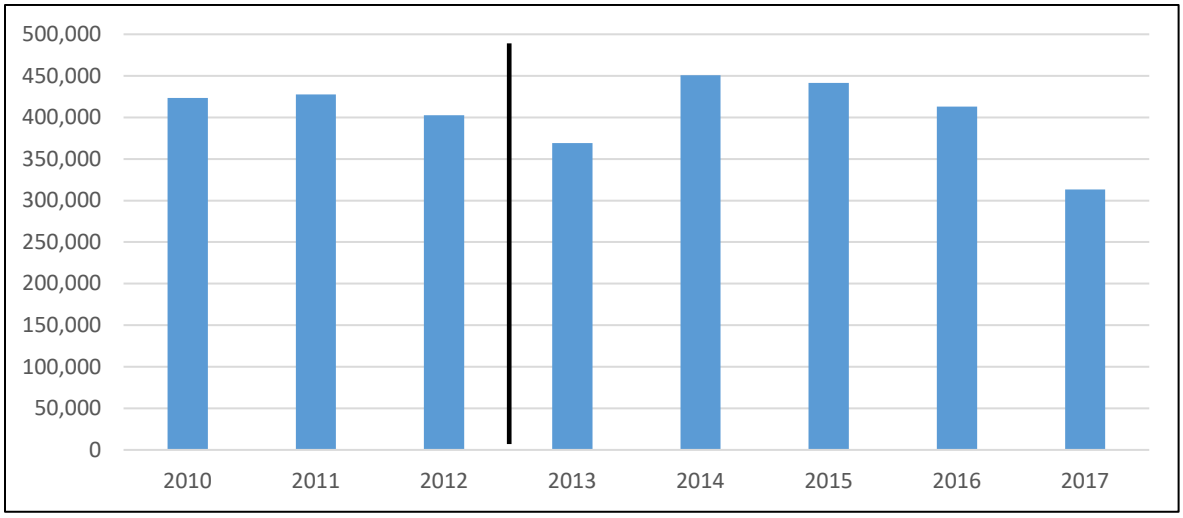

Figure 2.1. Total Recreational Angler Trips below Bonneville Dam.

Table 2B shows the modeled angler trips provided by the Workgroup compared to the actual results during 2013-2017. The expectations and actual values can be found in Appendix A, Table 2B. Based on the modeling assumptions, spring Chinook angler trips were expected to increase by 9.1% in the transition and about 13.7% in the long term. The actual results show an average loss in angler trips during 2013-2016 of 24% and a loss in 2017 of 62%.

Table 2B: Actual vs. Modeled Recreational Angler Trips below Bonneville from Workgroup Report Tables C1-C3.

	Angler Trips	Actual versus Modeled				
"Current"	(<Bonn)	2013	2014	2015	2016	2017
165,362	Spring	(65,721)	(29,734)	(24,203)	(48,550)	(112,073)
25,000	Summer	18,291	19,915	5,508	13,020	(28,405)
160,000	Fall	32,248	76,468	64,587	53,238	33,268
350,362	Total	(15,182)	66,649	45,892	17,708	(107,210)
% Difference Expected		10%	10%	13%	13%	21%
% Difference Actual		-4%	19%	13%	5%	-31%

Note: Values are not adjusted for differences in run sizes each year.

Summer Chinook angler trips were expected to increase by 35% during 2013-2014, 80% during 2015-2016 and 180% during 2017. The gain in angler trips during 2013-2014 averaged 57%, during 2015-2016 averaged 21% and in 2017 was a loss of 41%.

Fall Chinook angler trips were expected to increase by 9.4% during the transition and long term. The gain in angler trips during 2013-2017 averaged 30%.

The modeling that was performed during the Workgroup process was meant to outline expected changes to fisheries based on the assumptions in the model and the changes to the Policy. Most of the assumptions that were used to calculate angler trips and harvest were not similar in value to the modeled/expected values during 2013-2017, such as run sizes. If everything else is equal, smaller run sizes would produce fewer angler trips and vice versa. As such, the actual angler trips and harvest would not be expected to match the Workgroup expectations. The expectations are best viewed as percent changes.

Table 2C shows results from an ODFW model that estimated how the fishery would have performed pre-Policy compared to actual results. This model incorporates actual information that was used to manage fisheries during 2013-2017, such as actual run size, mark rates, in-season management decisions and ESA impact rates. The variables used in this analysis were the same for both pre-Policy and actual fisheries, so the differences are assumed to reflect the effects of the Policy implementation. The expectations and actual values can be found in Appendix A, Table 2C.

Based on the modeling assumptions, spring Chinook angler trips were expected to increase by 9.1% in the transition (2013-2016) and about 13.7% in the long term (2017). Based on this analysis, the gain in angler trips for spring Chinook due to the Policy, averaged 5% during 2013-2016, and was 0% in 2017.

Summer Chinook angler trips were expected to increase by 35% during 2013-2014, 80% during 2015-2016 and 180% during 2017. Based on this analysis there was no gain in summer Chinook

angler trips during 2013-2016 and in 2017 was a gain of 16%. Fall Chinook angler trips were expected to increase by 9.4% during the transition and long term. The gain in angler trips during 2013-2016 averaged 2%, and was 0% during 2017.

This analysis shows there were gains in angler trips for spring and fall Chinook from the Policy, but they were not the magnitude expected under the Workgroup assumptions.

Table 2C: Actual vs. Expected (Pre-Policy) Recreational Angler Trips from ODFW analysis

Angler Trips	**Actual versus Expected Pre-Policy**					
(<Bonn)	2013	2014	2015	2016	2017	Average 2013-2017
Spring	0	10,788	10,321	6,497	0	18,182
Summer	0	0	0	0	5,594	8,319
Fall	7,030	3,280	11,309	0	0	45,977
Angler Trips	**% Gain in Angler Trips**					
(<Bonn)	2013	2014	2015	2016	2017	Average 2013-2017
Spring	0%	8%	7%	5%	0%	4%
Summer	0%	0%	0%	0%	16%	3%
Fall	4%	1%	5%	0%	0%	2%

Figure 2.2 shows the results from Table 2C graphically from 2013-2016. There were slight gains in angler trips for spring Chinook and fall Chinook but not for summer Chinook.

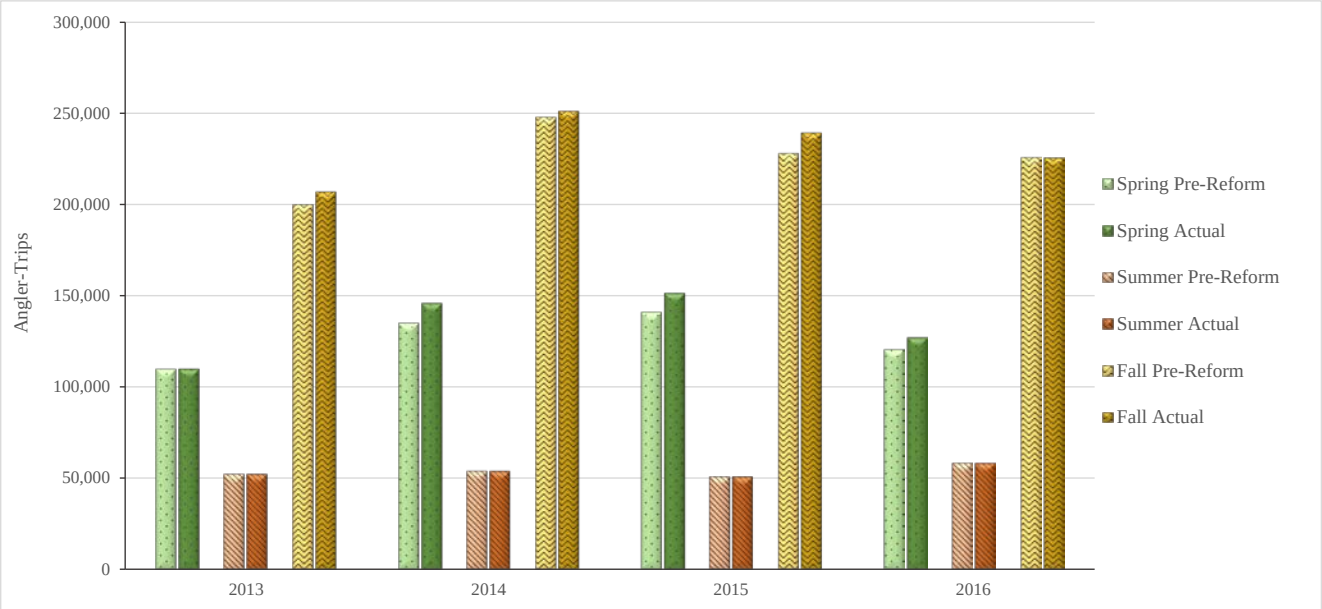

Figure 2.2: Changes in seasonal angler effort due to Harvest Reform-related allocation increases for the 2013-16 lower Columbia recreational fisheries. *This was Figure 6 from Oregon Department of Fish and Wildlife's Exhibit Agenda Item Summary Updated 1-12-17.*

Figure 2.3 shows the relationship between upriver spring Chinook run size and angler trips. There is a strong correlation that shows as the upriver spring Chinook run size increases, angler trips also increase (see Appendix A, Figure 2.4).

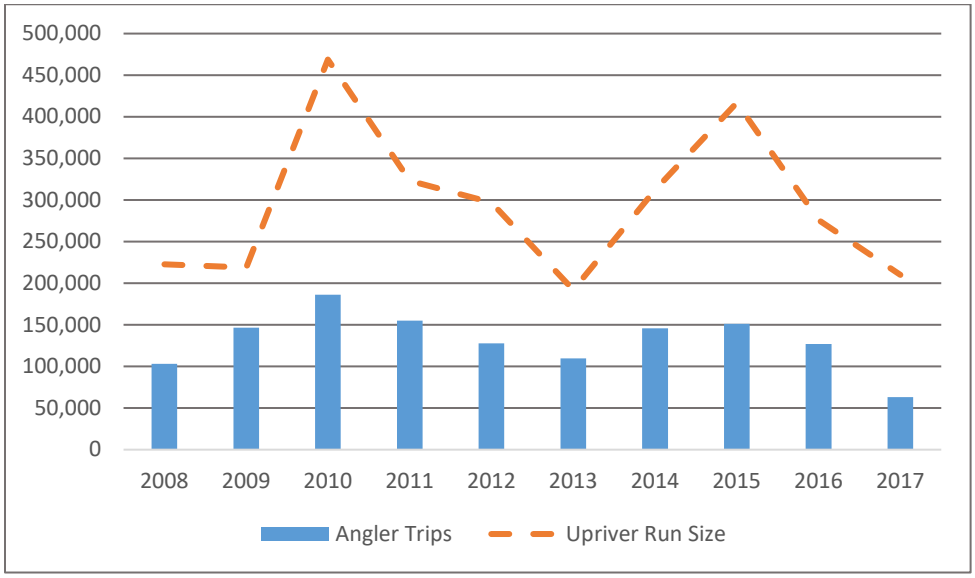

Figure 2.3: Mainstem Spring Chinook Angler Trips versus Upriver Run Size

Table 2D shows the relationship to recreational catch and effort compared to the run size. This table is meant to normalize the effect of run size on how catch and effort responded to the Policy and the changes in allocation. This table shows that angler trips/run decreased during the Policy for all stocks on average, instead of increasing as expected. Catch rate did not change for spring or summer Chinook fisheries, but did increase slightly for fall Chinook fisheries. Catch and/or effort did not increase/decrease proportionate to the run size.

Table 2D. Relationship of Recreational Catch Rate (catch/angler trips), Catch (harvest) and Effort (Angler Trips) to run size (per 1,000) below Bonneville Dam.

	Spring Chinook			Summer Chinook			Fall Chinook		
Year	Catch Rate	Catch/ Run Size	Effort/ Run Size	Catch Rate	Catch/ Run Size	Effort/ Run Size	Catch Rate	Catch/ Run Size	Effort/ Run Size
2010	0.16	62	397	0.04	35	977	0.14	37	254
2011	0.08	36	479	0.07	64	941	0.20	63	317
2012	0.10	45	431	0.04	50	1,385	0.21	78	369
2013	0.06	36	571	0.04	27	770	0.26	43	163
2014	0.11	50	467	0.04	25	686	0.21	46	217
2015	0.13	47	363	0.12	47	398	0.33	60	184
2016	0.10	46	460	0.05	34	638	0.19	67	355
2017	0.14	43	301	0.08	52	610	0.26	114	437
2010-2012 Average	0.11	48	436	0.05	50	1,101	0.19	59	313
2013-2017 Average	0.10	45	432	0.06	37	620	0.24	66	271

In addition to increases in angler trips, there were also expectations from the Workgroup report for increase in fishing days. Table 2E shows the number of fishing days and angler trips gained during 2013-2017 as a result of the Policy, based on the ODFW analysis. The number of days gained range from one to 25 for all seasons combined.

Table 2E: Summary of gains in fishing days and angler-trips due to allocation changes for lower Columbia River recreational Chinook fisheries, by year and season, 2013-2017

			2013	2014	2015	2016	2017
Spring		Fishing Days Gained	0	5	2	1	0
		Angler-Trips Gained	0	10,788	10,321	6,497	0
Summer		Fishing Days Gained	0	0	0	0	25
		Angler-Trips Gained	0	0	0	0	5,594
Fall	Buoy 10	Non-MSF Days Gained	5	6	2	0	0
		Angler-Trips Gained	4,560	1,015	907	0	0
	Below Lewis River	Non-MSF Days Gained	3	6	5	0	0
		Angler-Trips Gained	2,470	2,265	10,402	0	0
	Fall Total	Non-MSF Days Gained	8	12	7	0	0
		Angler-Trips Gained	7,030	3,280	11,309	0	0
All Seasons Total		Fishing Days Gained	8	17	9	1	25
		Angler-Trips Gained	7,030	14,068	21,630	6,497	5,594
		% Gain in Angler Trips	2.1%	3.4%	5.5%	1.7%	2.0%

The above table was Table 22 from Oregon Department of Fish and Wildlife's Exhibit Agenda Item Summary Updated 1-12-17.

Table 2F shows the expected number of days open compared to expectations. In most cases, the expectations for increased days were realized but the number of days was supposed to be consecutive, which did not necessarily happen.

Table 2F: Expected vs. Actual Recreational Season

	Expected [1]					
Chinook Season	2013	2014	2015	2016	2017	Average
Spring (Pre-Update) [2]	44	44	44	44	45	44
Spring (Post-Update) [3]	37	37	37	37	37	37
Summer [4]	18	18	26	26	46	27
Buoy 10 [5]	34	34	34	34	34	34
Fall Mainstem (<Lewis) [6]	45	45	45	45	45	45
Fall Mainstem (>Lewis) [7]	92	92	92	92	92	92

	Actual [1]						% of Expected Average
Chinook Season	2013	2014	2015	2016	2017	Average	
Spring (Pre-Update) [2]	40	45	43	39	50	43	98%
Spring (Post-Update) [3]	22	32	31	23	0	22	58%
Summer [4]	15	40	46	46	40	37	140%
Buoy 10 [5]	51	32	28	61	35	41	122%
Fall Mainstem (<Lewis) [6]	45	45	45	45	45	45	100%
Fall Mainstem (>Lewis) [7]	92	92	92	82	92	90	98%

[1]Open fishing days were expected to be consecutive; however, actual open days were not always consecutive due to the need for in-season management.
[2] March 1-May 9; assumes run update occurs on May 10.
[3]May 10-June 15
[4]June 16-July 31
[5]Expected open days based on August 1-September 3 (average date for Labor Day). Actual open days include any days open for Chinook retention August 1-September 30. In 2014, the fishery still met the Labor Day objective as Labor Day fell on September 1 that year. For Buoy 10, the Policy does not distinguish between open days that are Chinook MSF or non-MSF.
[6]August 1-September 14, including one week of Chinook MSF September 8-14.
[7]August 1-October 31

Actual Results and Compared to Expectations – Commercial Fisheries

Table 2G and Figure 2.5 shows ex-vessel values for 2010-2017 for all mainstem and Select Area commercial fisheries. During 2010-2012, total ex-vessel values averaged $4.4 million and during 2013-2017 averaged $5.0 million.

Table 2G. Ex-vessel Values from All Mainstem and Select Area Fisheries.

Year	Ex-Vessel Values
2010	$5,056,140
2011	$4,791,465
2012	$3,308,064
2013	$5,381,820
2014	$6,232,446
2015	$5,088,127
2016	$5,179,976
2017	$3,291,036
Average 2010-2012	$4,385,223
Average 2013-2017	$5,034,681

Note: Values are not adjusted for differences in run sizes each year.

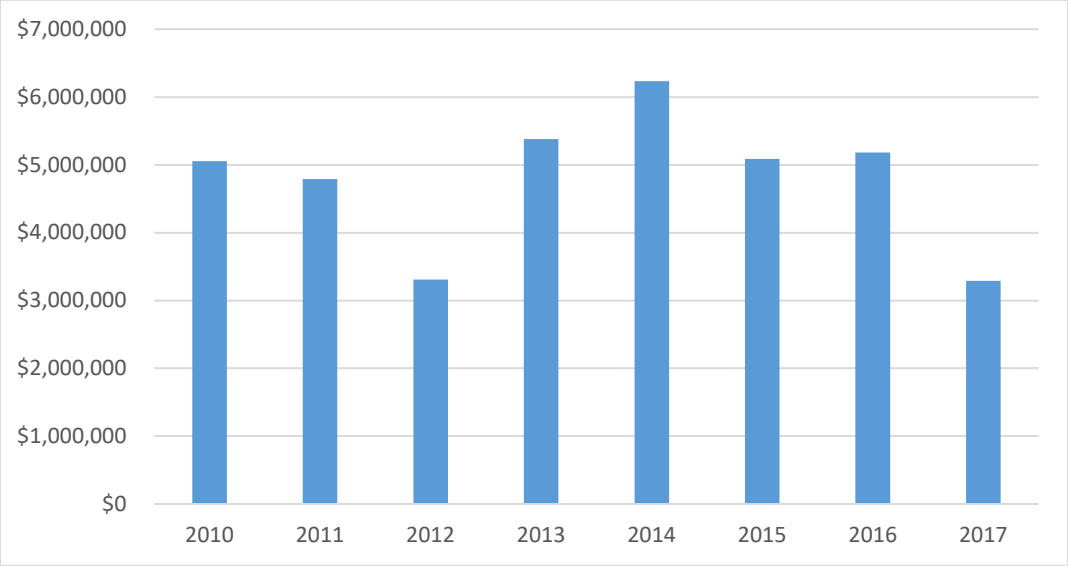

Figure 2.5. Ex-Vessel Value of Columbia River Mainstem and Select Area Fisheries.

Table 2H shows the actual versus modeled commercial fishery ex-vessel values from Workgroup Table C5. The dollar values shown in red are where the actual ex-vessel values are less than the expectations from the Workgroup. The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The results in this table include other catch that occurred during the

fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences. As pointed out earlier, these expectations are not intended to be absolute predictions of the catch and ex-vessel value but should be viewed as the differences in potential magnitude over time relative to values pre-Policy. This table does illustrate where fisheries were expected to contribute more significantly and did not, for example the seine fisheries, the coho tangle net fisheries and the "new" fisheries. The expectations and actual values can be found in Appendix A, Table 2H.

Table 2H: Actual versus Modeled Fishery Ex-Vessel Values from Workgroup Table C5.

Fishery	Stock	Status	Ex-Vessel Value (Actual vs Modeled)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	$395,911	($2,867)	$117,403	$375,388	$210,369	$0
Mainstem Gillnet	Summer Chinook	Existing	$151,719	$23,630	$50,934	$115,308	$184,109	$0
Mainstem Gillnet (All Fisheries)	Fall Chinook	Existing	$1,272,247	$2,005,410	$1,783,142	$1,787,756	$2,016,540	$908,770
Mainstem Gillnet (2S)	Fall Chinook	New	$0	($353,526)	($353,525)	($353,524)	($353,523)	$0
Mainstem Gillnet	Coho	Existing	$316,682	($196,556)	$209,085	($237,372)	($251,454)	$13,535
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$352,788	($41,624)	$421,804	$320,911	$832,024
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$342,142	$60,419	($78,395)	($180,498)	($160,886)
Select Area Gillnet	Coho	Expanded	$743,337	($195,582)	$710,728	($615,004)	($483,606)	($330,545)
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	$0	$0	$0	$0	$0	($772,926)
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	$0	$0	$0	$0	$0	($353,526)
Mainstem Seine	Lower River Hatchery Chinook	New	$0	($190,851)	($135,444)	($139,417)	($440,974)	($467,868)
Mainstem Seine	Coho	New	$0	($73,562)	($63,969)	($68,347)	($169,509)	($175,901)
Mainstem Tangle net	Coho	New	$0	($160,628)	($83,981)	($197,089)	($246,713)	($246,713)
Totals			$3,813,317	$1,550,398	$2,253,167	$1,011,106	$605,653	($754,032)
% Difference from Current	Expected			0.5%	4.0%	7.0%	20.0%	6.0%
% Difference from Current	Actual			41%	145%	45%	60%	-125%

Note: Values are not adjusted for differences in run sizes each year.

Table 2I is a comparison of expected (pre-Policy) ex-vessel values compared to actual 2013-2017 ex-vessel values based on the ODFW analysis. This analysis estimated how the fishery would have performed pre-Policy compared to actual results. This model uses information that was used to manage fisheries during 2013-2017, such as actual run size, mark rates, in-season management decisions, price per pound and ESA impact rates. The model also includes the effect of increased production in the SAFE areas. The expectations and actual values can be found in Appendix A, Table 2I.

This analysis shows losses in all mainstem gillnet fisheries during the Policy and gains in Select Area and mainstem seine fisheries. Losses in mainstem fisheries was expected because allocation was transferred to the recreational fishery. Gains in Select Areas can be attributed to increased returns because of increases in releases. The gains in seine fisheries is due to the fact that seines were not in use prior to the Policy. The totals by year show losses in all years except 2016.

Table 2I: Comparison of expected (pre-Policy) and actual (post-Policy) ex-vessel value for the non-treaty commercial fishery during the Policy based on ODFW analysis.

Fishery	Stock	Status	Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	($60,268)	($228,145)	($196,375)	($152,146)	($302,776)
Mainstem Gillnet	Summer Chinook	Existing	($47,261)	($31,903)	($82,727)	($109,997)	($238,012)
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	($663,180)	($293,020)	($1,032,775)	$0	$0
Mainstem Gillnet	Coho	Existing	$10,744	($73,926)	($24,197)	$0	$0
Select Area Gillnet	Spring Chinook	Expanded	$16,767	$17,404	$187,377	$173,556	$241,224
Select Area Gillnet	Fall Chinook	Expanded	$0	$0	$19,746	$60,867	$40,061
Select Area Gillnet	Coho	Expanded	$0	$166,058	$45,003	$57,225	$149,024
Mainstem Seine	Lower River Hatchery Chinook	New	$0	$0	$51,434	$26,894	$0
Mainstem Seine	Coho	New	$0	$0	$5,215	$6,392	$0
Mainstem Tangle net	Coho	New	$86,085	$162,732	$49,624	$0	$0
Totals			($657,113)	($280,801)	($977,676)	$62,790	($110,478)

Note: Values are not adjusted for differences in run sizes each year.

Figure 2.6 shows the percent difference in actual ex-vessel values during the transition period based on the ODFW analysis results form Table 2I.

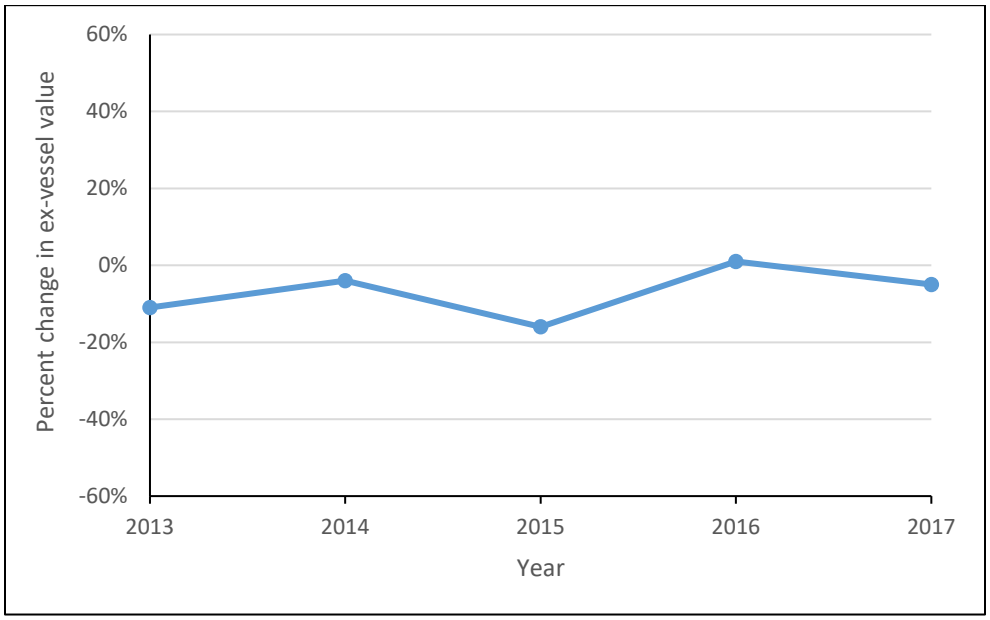

Figure 2.6: Comparison of percent difference in actual ex-vessel values during the transition period (2013-16)

Table 2J shows the modeled and actual price per pound for commercial fisheries during 2013-2017. The actual values were higher than modeled for all years except 2014. Fisheries where the values were less than modeled are shown in red in the table below.

Table 2J: Modeled and Actual Price per Pound for Commercial Fisheries.

Fishery	Stock	Price Per Pound					
		Modeled	Actual				
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	$5.42	$7.30	$6.99	$6.52	$8.72	--
Mainstem Gillnet	Summer Chinook	$3.08	$4.57	$3.52	$3.41	$5.35	--
Mainstem Gillnet (Zone 4-5)[1]	Fall Chinook	$1.81	$2.06	$1.54	$2.01	$2.83	$2.76
Mainstem Gillnet	Coho	$1.32	$1.79	$1.25	$1.70	--	--
Select Area Gillnet	Spring Chinook	$5.23	$6.62	$5.39	$6.04	$7.17	$7.48
Select Area Gillnet[2]	Fall Chinook	$2.28	$2.93	$2.15	$2.53	$3.25	$3.10
Select Area Gillnet	Coho	$1.38	$1.84	$1.13	$1.53	$1.85	$2.04
Mainstem Tangle net	Coho	$1.32	$1.87	$1.20	$1.65	--	--

[1] *Combined for tules and brights*

[2] *Brights only (SAB)*

Recreational Advisory Group/ Public Comments:
Concern was expressed with low run sizes and preferred to compare angling trips and catch that is adjusted to the run size. It was also suggested to show angler trips per fish, instead of just per run size. In regards to the commercial tables, it was recommended that it would be useful to know what expected and actual values were when not already included. It seems apparent that both recreational and commercial indicate a declining number compared to what was projected. There are a number of factors that can effect catch and effort each season (i.e., weather, catch rates, tackle, run timing, temperature, flow, boat ramp capacity). It was requested to add narrative on the value of angler trips.

Commercial Advisory Group/ Public Comments:
Analysis for the recreational fisheries focus in on the salmon season, so when salmon retention is closed, there are additional recreational angling day opportunities and economic benefits to the region when steelhead seasons are open.

Very few days were added to the recreational fishery as a result of the Policy. Neither increased angler trips or increased license sales for the recreational fishery has been achieved (these were goals). There was a modest increase in trips primarily due to the large fall Chinook runs. The seine fishery income should not be included in some of the summary tables because it was only limited to few individuals. This discussion ignores the benefits to the public as it pertains to accessing salmon (primarily Chinook) for the general public. The Columbia River commercial fishery can provide fresh, local fish from February through October in most years. The results of this Policy mean that the commercial fishermen and the communities are being left out, in addition to the public who owns and pays for the resource.

Loss of economic sustenance is impacting the local communities – local businesses not having supplies for the community, closing down. It should be noted that the operational costs to fish in a particular fishery are different between commercial mainstem and Select Area fisheries. The location of a fishery affects the economics of an individual fisherman if additional operating/travel costs are involved. Looking strictly at harvest numbers/ex-vessel value does not always provide a complete economic picture.

Table 2F should show results from 2010-2012 because the fisheries were achieving those numbers of days open prior to the Policy. It should be noted that the economic modeling assumed that all of the allocated fish would be utilized. Table 2F – should look at the average number of days pre-Policy – do not believe the sport fishery gained very many days of additional fishing because of the Policy.

Would like to see data that includes 2009 – this year was discussed during the development of the Policy – gives a different perspective on averages and comparisons

The summer Chinook fishery became mark-selective originally because the sport fleet requested it to lengthen the season. Sport angler trips decreased even though there was an increase in allocation.

Regarding Table 2D, the run size does not seem to affect the actual angler trips
Important thing about seine fisheries is the number of fish that are allowed to be kept. Seines need a large volume of fish to make it economically feasible. The cost to operate a seine is much higher than a gillnet.

Commercial fishermen have a portfolio of fisheries – last year was less than a month of buying compared to what used to be 10 months. Fishermen fish in mainstem, SAFE, crab and Alaska to build their portfolio of fisheries. The commercial fishery in the mainstem used to be a stepping stone fishery where a young guy could get into with a reasonable cost. No interest from young fishermen anymore. Cannot afford to fix boats.

Even with large runs we came short of predictions for harvest. Hatchery cuts are occurring because people cannot catch fish.

Question 8

Question Paraphrase: What progress has been made on achieving overall economic well-being and stability of both commercial and recreational fisheries?

Policy Citation: …seek to enhance the overall economic well-being and stability of Columbia River fisheries. (pg. 7)

Specific Question: See question/footnote 2 as a cross-referenced question.

Analysis: See Question #2 and Question #37

Question 15

Question Paraphrase: Have the off-channel areas been economically enhanced compared to before the Policy was implemented?

Policy Citation: Enhance the economic benefits of off-channel commercial fisheries. (pg. 7)

Specific Question: Have the economic benefits of off-channel commercial fisheries been enhanced over the course of the Policy in comparison to the period prior to the Policy?

Analysis: No in Washington and yes in Oregon, but not to the extent that was expected. The Policy called for development of new SAFE areas in Washington, but there were also expectations for an increase of 250,000 spring Chinook and 200,000 coho in Washington. In Oregon, there was an expectation for expanded SAFE areas, new SAFE areas and increased production.

Table 15A shows the release goals and actual releases for all SAFE areas combined. During 2013-2017, spring Chinook releases averaged 87% of the goal, coho averaged 95% of the goal and Select Area Brights (SAB) fall Chinook averaged 77% of the goal. Long-term goals (2018 and beyond) will be affected by the Mitchell Act Biological Opinion (BIOP) and includes reductions to the goals for SAB fall Chinook and coho in Select Areas. It should be noted that although WDFW released a portion of the spring Chinook that were expected from the Policy, there was virtually no adult returns from these releases. The release goals may have been achieved for the most part, but the expectation for increased adult returns from those releases has to be considered as well.

Table 15A: Summary of Select Area production goals and actual releases

Species/Stock	Period	Release Year	Total Release Goals	Total Actual Releases	% of Goal	First Adult Return Year
Spring Chinook	Pre-Transition	2010[a]	1,550,000	1,535,200	99%	2012
		2011[a]	1,550,000	1,290,700	83%	2013
		2012[a]	1,550,000	1,529,300	99%	2014
	Transition	2013	2,050,000	1,829,200	89%	2015
		2014[b]	1,950,000	1,646,600	84%	2016
		2015[b]	1,950,000	1,606,300	82%	2017
		2016[b]	1,950,000	1,850,800	95%	2018
	Long Term	2017[b]	2,200,000	1,805,700	82%	2019
Coho	Pre-Transition	2010[a]	4,290,000	4,009,700	93%	2011
		2011[a]	4,290,000	3,811,000	89%	2012
		2012[a]	4,290,000	3,995,800	93%	2013
	Transition	2013	5,090,000	4,536,700	89%	2014
		2014	5,090,000	4,814,400	95%	2015
		2015[c]	5,090,000	4,709,300	93%	2016
		2016	5,090,000	5,589,500	110%	2017
	Long Term	2017	5,255,100	4,787,500	91%	2018
SAB Fall Chinook	Pre-Transition	2010	1,450,000	914,200	63%	2012
		2011	1,450,000	1,356,900	94%	2013
		2012	1,450,000	1,358,000	94%	2014
	Transition	2013	1,950,000	1,850,300	95%	2015
		2014	1,950,000	2,227,400	114%	2016
		2015	1,950,000	1,670,700	86%	2017
		2016	1,950,000	621,900	32%	2018
	Long Term	2017	1,000,000	599,500	60%	2019

[a] Includes additional 250,000 spring Chinook and 120,000 coho production specified as part of 2008 OFWC Allocation Policies.

[b] 350,000 spring Chinook production from WDFW (Deep River) was discontinued in 2014.

[c] 200,000 coho production from WDFW scheduled for release beginning in 2015 was discontinued due to budget cuts.

WDFW began the Cathlamet Channel Net Pen (CCNP) program with the intent of providing an additional off-channel area for spring Chinook fisheries. From 2014-2017, an average of 142,200 spring Chinook were released from the net pens, compared to a goal of 250,000 fish (Table 15B). All of the fish released had a coded-wire tag implanted, but the recoveries of these fish over all of the years was only 12 fish in the Columbia River, and 4 in ocean fisheries. No recoveries have occurred in Cathlamet Channel. This is why the answer to the question is no for Washington; the intent was there to produce fish and develop a new SAFE area, but the fish did not survive to contribute to a fishery in Cathlamet Channel.

Table 15B: Releases of Spring Chinook in Cathlamet Channel Net Pens

Number of Spring Chinook Planted					
2014	2015	2016	2017	2018	Goal
200,000	140,864	107,856	119,944	260,000	250,000

Currently, the only Select Area (off-channel) fishery in Washington waters is in Deep River. Spring Chinook were released until 2013 and then discontinued. Tule fall Chinook releases averaged 1.1 million smolts from 2010-2017, but the program was discontinued due to implementation of the BIOP. WDFW is in the process of moving the Cathlamet Channel spring Chinook program back to Deep River with the 2018 releases. A number of program changes will be implemented with the goal of improving survival of these fish.

Coho releases in Deep River averaged 750,000 smolts from 2010-2017 (Figure 15.1). Coho releases in Deep River were expected to increase to 950,000 beginning in 2015. Actual releases were 654,000 in 2015, 920,000 in 2016 and 855,000 in 2017. Beginning in 2018, coho releases in Deep River are limited to 700,000 smolts as a condition of the BIOP.

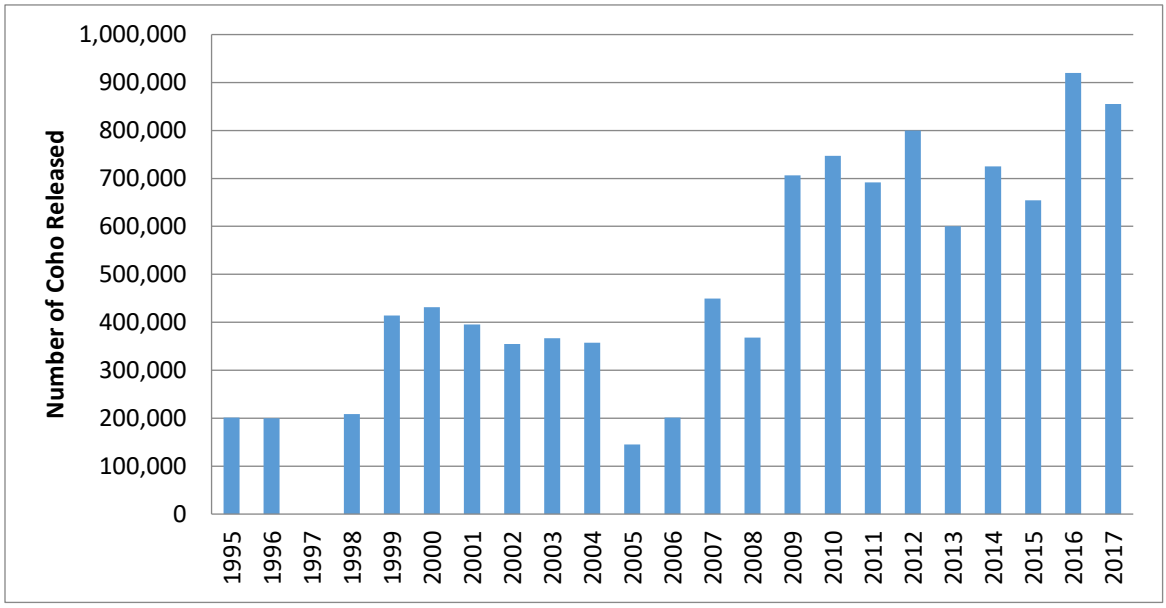

Figure 15.1: Coho Releases in Deep River

Table 15C shows Select Area harvest by species for all areas combined. Appendix A Tables 15D-15F show Select Area harvest during the winter, spring, summer management timeframe, and fall Chinook and coho harvest by area. During 2013-2017, the average spring Chinook and fall Chinook harvest decreased from the 2010-2012 average and coho harvest increased during the same timeframe. Some of the increases in harvest are related to the increased production called for in the Policy. Summer Chinook is shown in the table, but there are no summer Chinook produced in Select Areas, these fish are stray Upper Columbia summer Chinook.

Table 15C: Harvest by Species for all Select Areas

	Spring Chinook	Summer Chinook	Fall Chinook	Coho	Total
2010	24,447	20	21,091	58,759	104,317
2011	10,004	35	23,991	49,513	83,543
2012	9,610	1	24,166	15,354	49,131
2013	6,658	11	25,537	42,303	74,509
2014	3,226	47	25,487	168,497	197,257
2015	13,458	147	18,149	27,401	59,155
2016	10,136	94	12,697	34,723	57,650
2017	17,525	47	12,058	37,979	67,609
2010-2012 Average	14,687	19	23,083	41,209	78,997
2013-2017 Average	10,201	69	18,786	62,181	91,236

Note: Values are not adjusted for differences in run sizes each year.

Table 15G shows the modeled ex-vessel values for Select Areas provided by the Workgroup compared to the actual results. Based on the modeling assumptions, total ex-vessel value in all Select Area fisheries was expected to increase from the current levels by 7% in 2013 increasing to 36% in 2017. The actual results show variability across the years. The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The results in this table include other catch that occurred during the fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences. The modeling that was performed during the Workgroup process was meant to outline expected changes to fisheries based on the assumptions in the model and the changes to the Policy. The expectations are best viewed as percent changes. The expectations and actual values by year can be found in Appendix A, Table 15G.

Table 15G: Actual versus Modeled (from Workgroup Table C5) Fishery Ex-Vessel Values.

Fishery	Stock	Status	Ex-Vessel Value (Actual vs Modeled)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$352,788	($41,624)	$421,804	$320,911	$832,024
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$342,142	$60,419	($78,395)	($180,498)	($160,886)
Select Area Gillnet	Coho	Expanded	$743,337	($195,582)	$710,728	($615,004)	($483,606)	($330,545)
Totals			$1,496,695	$499,348	$729,523	($271,595)	($343,193)	$340,593
% Difference from Current	Expected			7%	17%	25%	34%	36%
% Difference from Current	Actual			33%	49%	-18%	-23%	23%

Note: Values are not adjusted for differences in run sizes each year.

Table 15H is a comparison of expected (pre-Policy) ex-vessel values in Select Areas compared to actual 2013-2017 ex-vessel values based on the ODFW analysis. This analysis estimated how the fishery would have performed pre-Policy compared to actual results. This model uses information that was used to manage fisheries during 2013-2017, such as actual run size, mark rates, in-season management decisions, price per pound and ESA impact rates. The model also includes the effect of increased production in the Select Areas, but everything else remains equal, including survival rates. The expectations and actual values can be found in Appendix A, Table 15H. This analysis shows that the ex-vessel values during 2013-2017 increased from 1% to 20%, compared to the expectation of the increase of 7% to 36%.

Table 15H: Comparison of expected (pre-Policy) and actual (post-Policy) ex-vessel value for the non-treaty commercial Select Area fisheries during the Policy based on ODFW analysis.

Fishery	Stock	Status					
			Transition				Long-Term
			2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$16,767	$17,404	$187,377	$173,556	$225,515
	Fall Chinook	Expanded	$0	$0	$19,746	$60,867	$40,061
	Coho	Expanded	$0	$166,058	$45,003	$57,225	$122,094
Totals			$16,767	$183,461	$252,126	$291,648	$387,670
Expected Increase			7%	17%	25%	34%	36%
Actual Increase			1%	8%	19%	21%	20%

Table 15I shows the number of participants in the Oregon and Washington Select Areas and the percentage that are Washington license holders. This table illustrates how much effort occurs in Oregon's Select Areas and the extent that Washington license holders participate. Overall, Washington license holders make up 17% of the total effort in Oregon Select Areas during 2010-2012 and 16% during 2013-2017. The average number of participants in the Oregon Select Areas during 2013-2017 was 138, which included 115 from Oregon and 23 from Washington. In the Washington Select Area (Deep River), nearly all of the effort is from Washington license holders.

Table 15I: Approximate Total Number of Participants and Percent WA License Holders

	Oregon SAFE		Washington SAFE Deep River	
	Total effort	% WA effort	Total effort	% WA effort
2010	181	17%	17	94%
2011	162	17%	23	96%
2012	143	15%	14	93%
2013	141	16%	20	95%
2014	141	18%	24	96%
2015	138	18%	26	96%
2016	134	17%	17	94%
2017	135	12%	27	93%
2010-2012 Average	162	17%	18	94%
2013-2017 Average	138	16%	23	95%

Recreational Advisory Group/ Public Comments:
Advisory groups also would like to see a table, by year, of the commercial and sport catch totals in Select Areas and main stem (mouth to McNary) in order to provide a simple comparison of catch. Additionally there was a request to consider laying out a table that shows all Select Areas, numbers of fish released by species, associated harvest and program purpose. It was noted by a member of the public that on SAFE areas Bonneville Power spends $2.8 million compared to $2.3 million return and questioned the soundness of the public investment.

Commercial Advisory Group/ Public Comments:
Problems with retailers stocking enough gear based on Select Areas – gear is specific to an area – may not always be available. Gear availability is not what is used to be. Tremendous loss of gear (damage) in Select Areas.

Numbers should be shown for 10 years prior to the Policy. Show how long it takes to catch one fish. Select Areas do not work for the whole fleet – most popular spots are usually "reserved." Space within Select Areas is limited and already overcrowded. See Table 15I.

Table 15C averages during 2013-2017 are inflated by one year of high coho harvest. It is important to remember that production of fish does not necessarily translate into harvest. This is another place where 2009 data is important. The catch in 2014 dominates the average.

Mitchell Act BIOP will require that Select Area Bright production decreases and these are the most valuable fish in the fall fishery. Select Area production was reduced prior to the 'pre-Policy' (2010-2012) timeframe and increases are actually only bringing production levels back to where they historically were. The economics of a fishery increases when harvest of a stock/fish occurs over a multitude of different fisheries. For example, Upriver Brights are harvested from Alaska/Canada throughout the lower Columbia River and into the Hanford Reach, as compared to Select Area Brights that are harvested in some ocean fisheries but the majority of the harvest occurs in Youngs Bay, OR. Fall Chinook, which are the largest release component are mostly tules and the lowest value salmon.

Table 15I shows that Washington license holders do not participate in Oregon Select Areas – the Oregon solution is not working for Washington fishermen. Could we apply the percentages in Table 15I to the ex-vessel values to determine what the economic contribution is to Washington license holders?

Select Areas are not good for Washington buyers – cannot buy in Oregon waters.

Question 20

Question Paraphrase: Were additional opportunities for the commercial fishery provided during the transition phase?

Policy Citation: Additional opportunities for mainstem commercial fisheries in the transition period. (pg. 9)

Specific Question: Were additional opportunities provided over the course of the Policy, and if not, why not?

Analysis: No. The expectation for additional opportunity was described in the Workgroup report as occurring when the recreational fisheries were unable to use their share of ESA impacts for fall Chinook or if the objectives for the recreational fisheries were expected to be met. Additional opportunity was to occur upstream of the Sandy River (Area 2S or Zone 5) where the Lower River Hatchery stock (LRH) was not present. Use of gillnets or alternative gear was expected during the transition (through 2016). This additional opportunity did not occur during 2013-2016 because either the recreational fisheries did not have unused ESA impacts or the commercial fishery was able to utilize the harvestable surplus in the Zone 4-5 gillnet fishery. Additional opportunity occurred for spring Chinook during 2015 and 2016 and for summer Chinook in 2016 using the adaptive management provision in the Policy. Staff interpreted this question as related to fall Chinook as outlined in the Workgroup tables.

Commercial Advisory Group/ Public Comments:
The Policy lacks the flexibility for the commercial fishery to more downstream in mid-September to harvest non-tule salmon and there is infrastructure lacking in Zones 4-5.

Question 21

Question Paraphrase: Were additional opportunities for the commercial fishery provided during in the long term?

Policy Citation: Additional opportunities for mainstem commercial fisheries in the long term. (pg. 9)

Specific Question: Were additional opportunities provided over the course of the Policy, and if not, why not?

Analysis: No. The answer for the long-term (2017) is the same as Question 20, with the exception that the gear used in the Area 2S/Zone 5 fishery was required to be alternative gear.

Commercial Advisory Group/ Public Comments
Having less than 50% of the tule impacts limits what we can accomplish prior to late September and where we can fish. Having less than 50% of the URB impacts limits our ability to harvest coho. Policy does not allow us to use 6-inch gear for coho which is the most efficient way to harvest them. Coho have a high mark rate so even when we keep wild fish, this is still the best way to harvest late hatchery run coho. WDFW is reducing production of late coho which is a loss for our fishery and the public.

What is ignored in this discussion is that the recreational fishery has gained very little opportunity, angler days and harvest while the commercial fishery has lost a lot. The ability for the Buoy 10 fishery to make it to Labor Day is largely a function of run size, not impact sharing. In the MSF sport fishery in September the number of dead fish is similar to the number of fish harvested.

Question 37

Question Paraphrase: What were the catches and economic expectations of the sport and commercial fisheries and were they achieved when compared to different run sizes?

Policy Citation: (Adaptive Management). State-managed fisheries pursuant to this Policy will be adaptive and adjustments may be made to mainstem fisheries if policy objectives, including catch or economic expectations for commercial or recreational fisheries, are not achieved consistent with the principles of this plan. (pg. 17).

Specific Question: What were the catch and economic expectations for commercial and recreational fisheries by year, and were they achieved when the results are adjusted or normalized for differences in run sizes?

Analysis: This question is similar to Question 2 and much of the information can be applied to both questions. The answers to this question are focused on recreational and commercial catch data.

Actual Results and Compared to Expectations – Recreational Fisheries

Table 37A displays recreational catch of Chinook and coho during 2010-2017. Catches during the Policy (2013-2017) decreased for spring and summer Chinook compared to 2010-2012 and increased for fall Chinook and coho. Recreational catch by season for all species including steelhead can be found in the Appendix A, Table 37B. Total mainstem commercial harvest and Select Area commercial harvest can be found in Appendix A, Table 37D and Table 15C.

Table 37A: Recreational Catch of Chinook and Coho in the Mainstem Columbia River below Bonneville Dam.

Year	Spring Chinook	Summer Chinook	Fall Chinook	Coho
2010	29,247	2,539	24,133	9,564
2011	11,694	5,160	39,088	9,281
2012	13,332	2,897	40,988	8,269
2013	6,950	1,832	54,473	8,571
2014	15,728	1,980	53,124	63,505
2015	19,586	5,928	77,947	37,854
2016	12,666	3,080	42,913	10,498
2017	9,047	3,516	54,536	21,948
Average 2010-2012	18,091	3,532	34,736	9,038
Average 2013-2017	12,795	3,267	56,599	28,475

Note: Values are not adjusted for differences in run sizes each year.

Table 37C shows the modeled recreational catch provided by the Workgroup compared to the actual results during 2013-2017. The expectations and actual values can be found in Appendix A, Table 37C. The results show spring and summer Chinook catches were less than expected in all years except 2015, and fall Chinook catches were higher in all years.

Table 37C: Modeled Recreational Catch Compared to Actual Results (provided by Workgroup table C1-C3)

Stock	Numbers of Fish (Actual versus Modeled)					
	Current	Transition				Long-Term
		2013	2014	2015	2016	2017
Spring Chinook	16,250	(10,751)	(1,973)	1,885	(5,035)	(9,396)
Summer Chinook	2,239	(973)	(825)	2,543	(305)	(547)
Fall Chinook	30,200	20,673	19,324	44,147	9,113	20,736

Note: Values are not adjusted for differences in run sizes each year.

Actual Results and Compared to Expectations – Commercial Fisheries

Table 37D shows mainstem commercial harvest by species during 2010-2017. Harvest of spring and summer Chinook decreased during the Policy (2013-2017) and fall Chinook and coho increased during the Policy.

Table 37D: Mainstem Commercial Harvest

Year	Spring Chinook	Summer Chinook	Fall Chinook	Coho
2010	9,041	4,684	31,141	18,920
2011	4,539	5,010	51,419	13,482
2012	6,118	1,692	36,871	2,615
2013	2,213	1,868	84,906	9,766
2014	4,074	2,743	101,762	70,531
2015	7,231	3,944	84,238	4,479
2016	3,613	2,990	59,055	1,269
2017	-	-	19,398	931
Average 2010-2012	6,566	3,795	39,810	11,672
Average 2013-2017	3,426	2,309	69,872	17,395

Note: Values are not adjusted for differences in run sizes each year.

Table 37E shows mainstem commercial harvest by gear type during 2010-2017. Mark-selective fisheries during the fall using seines, and tangle nets for coho were implemented beginning in 2013.

Table 37E: Mainstem Commercial Harvest by Gear Type (2010-2017)

	Spring Chinook		Summer Chinook	Fall Chinook					
	Gillnet	Tangle Net	Gillnet	Zone 1-5 Gillnet	Zone 4-5 Gillnet	Coho 6" Gillnet	Coho Tangle Net [1]	Beach Seine [1]	Purse Seine [1]
2010	75	8,966	4,684	10,949	19,538	654	--	--	--
2011	2,518	2,021	5,010	15,019	35,748	652	--	--	--
2012	7	6,111	1,692	6,220	30,505	146	--	--	--
2013	937	1,276	1,868	3,926	78,549	569	1,862	--	--
2014	1,624	2,450	2,743	0	94,962	2,018	1,988	1,337	1,457
2015	2,881	4,350	3,944	2,465	74,603	2,255	1,893	681	2,312
2016	1,316	2,297	2,990	0	57,940	0	0	2	1,113
2017	0	0	0	0	19,398	0	0	0	0

Table 37E continued: Mainstem Commercial Harvest by Gear Type (2010-2017)

	Coho					
	Zone 1-5 Gillnet	Zone 4-5 Gillnet	Coho 6" Gillnet	Coho Tangle Net [1]	Beach Seine [1]	Purse Seine [1]
2010	6,374	1,339	11,207	--	--	--
2011	5,316	5,517	2,649	--	--	--
2012	838	889	888	--	--	--
2013	598	2,385	1,952	4,831	--	--
2014	0	7,360	43,867	18,234	509	561
2015	61	597	2,217	993	58	529
2016	0	665	0	0	39	565
2017	0	931	0	0	0	0

[1]Coho tangle net and seine fisheries first implemented in 2013 and 2014, respectively.

Table 37F shows the actual versus modeled commercial fishery harvest numbers from Workgroup Table C4. The numbers shown in red are where the actual harvest numbers are less than the expectations from the Workgroup. The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The results in this table include other catch that occurred during the fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences. As pointed out earlier, these expectations are not intended to be absolute predictions of the catch and ex-vessel value but should be viewed as the differences in potential magnitude over time relative to values pre-Policy. The major economic indicator from the work group assumptions was an expectation of increased angler trips. The effect of runsize on harvest is described in Table 2D, Table 37I and Figure 37.1. The expectations and actual values can be found in Appendix A, Table 37F.

Table 37F: Summary of modeled current mainstem commercial fishery harvest (numbers of fish) compared to actual harvest for potential alternative fisheries by year and fishery, 2013-2021 from Workgroup Table C4.

Fishery	Stock	Status	Numbers of Fish (Actual vs Modeled Values)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	5,051	(501)	1,360	4,517	899	0
Mainstem Gillnet	Summer Chinook	Existing	2,831	(396)	479	2,246	1,292	0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	37,990	59,395	71,882	53,989	34,860	19,398
Mainstem Gillnet (2S)	Fall Chinook	New	-	(13,570)	(13,570)	(13,570)	(13,570)	0
Mainstem Gillnet	Coho	Existing	25,881	(20,147)	21,768	(19,857)	(21,375)	0
Select Area Gillnet	Spring Chinook	Expanded	5,000	(1,192)	(4,086)	2,250	(1,346)	5,210
Select Area Gillnet	Fall Chinook	Expanded	18,528	5,614	5,589	(1,086)	(7,522)	(7,994)
Select Area Gillnet	Coho	Expanded	56,700	(18,036)	91,116	(43,448)	(42,839)	(39,733)
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	0	0	0	0	0	(23,080)
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	0	0	0	0	0	(13,570)
Mainstem Seine	Lower River Hatchery Chinook	New	0	(11,194)	(8,755)	(8,431)	(26,713)	(27,441)
Mainstem Seine	Coho	New	0	(6,010)	(4,979)	(5,446)	(13,892)	(14,374)
Mainstem Tangle net	Coho	New	0	(15,329)	(1,926)	(19,167)	(20,160)	(20,160)
Totals	All Species			(21,366)	158,878	(48,003)	(110,366)	(121,744)

Note: Values are not adjusted for differences in run sizes each year.

Table 37G is a comparison of expected (pre-Policy) harvest numbers compared to actual 2013-2017 harvest numbers based on the ODFW analysis. This analysis estimated how the fishery would have performed pre-Policy compared to actual results. This model uses information that was used to manage fisheries during 2013-2017, such as actual run size, mark rates, in-season management decisions, price per pound and ESA impact rates. The model also includes the effect of increased production in the SAFE areas. Based on this analysis, the commercial catch in all years was less than expected, except in 2016. The expectations and actual values can be found in Appendix A, Table37G.

Table 37G: Actual versus Modeled Number of Fish Landed Based on ODFW Analysis.

Fishery	Stock	Status	Actual vs. Modeled Values (ODFW Model)				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	(659)	(2,880)	(2,445)	(1,323)	(1,962)
Mainstem Gillnet	Summer Chinook	Existing	(609)	(508)	(1,582)	(1,195)	(2,373)
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	(19,446)	(10,806)	(31,646)	0	0
Mainstem Gillnet	Coho	Existing	531	(7,043)	(690)	0	0
Select Area Gillnet	Spring Chinook	Expanded	113	106	2,239	1,614	1,418
Select Area Gillnet	Fall Chinook	Expanded	0	0	943	2,511	1,541
Select Area Gillnet	Coho	Expanded	0	16,442	3,957	4,422	8,484
Mainstem Seine	Lower River Hatchery Chinook	New	0	0	2,763	728	0
Mainstem Seine	Coho	New	0	0	564	482	0
Mainstem Tangle net	Coho	New	4,831	18,234	993	0	0
Totals			(19,886)	(15,974)	(28,838)	752	(2,469)

Run Size as a Factor Effecting Harvest

Table 37H shows run sizes of Chinook and coho during 2010-2017. Spring Chinook run sizes during the Policy (2013-2017) were 78% of the 2010-2012 average; summer Chinook run sizes averaged 123% during the Policy compared to pre-Policy (2010-2012); fall Chinook run sizes averaged 162% during the Policy compared to pre-Policy and coho run sizes averaged 113% during the Policy.

Table 37H: Run Size of Salmon Returning to the Columbia River

Year	Spring Chinook	Summer Chinook	Fall Chinook	Coho
2010	465,410	72,346	655,900	466,530
2011	318,744	80,574	620,700	378,050
2012	294,762	58,300	525,100	152,376
2013	187,814	67,603	1,268,600	252,764
2014	308,724	78,254	1,159,200	1,020,520
2015	418,485	126,882	1,305,600	169,580
2016	275,689	91,048	642,500	204,947
2017	210,191	68,204	476,500	235,656
Average 2010-2012	359,639	70,407	600,567	332,319
Average 2013-2017	280,181	86,398	970,480	376,693

Run sizes are one of the major indicators of fishery performance, and helps explain some of the results in the tables shown above. Table 37I shows the average percent of the run size and catches during 2013-2017 compared to 2010-2012. For spring Chinook, the run size during 2013-2017 was 78% of the 2010-2012 average. Mainstem commercial catch averaged 52% and mainstem sport catch averaged 71% of the 2010-2012 average. Results for fall Chinook are similar; the run size during 2013-2017 averaged 162% of the 2010-2012 average, mainstem commercial catch was 176% of the 2010-2012 average and mainstem sport catch averaged 163% of the 2010-2012 average.

Table 37I. Average Percent of Run Size and Catch during 2013-2017 compared to 2010-2012.

	Spring Chinook	Summer Chinook	Fall Chinook	Coho
Run Sizes	78%	123%	162%	113%
Mainstem Commercial Catch	52%	61%	176%	149%
Mainstem Sport Catch	71%	93%	163%	315%

Figure 37.1 shows the relationship between the commercial catch of salmon and the total adult salmon returns during 2010-2017. As can be seen from the figure below, catch is highly correlated to the abundance.

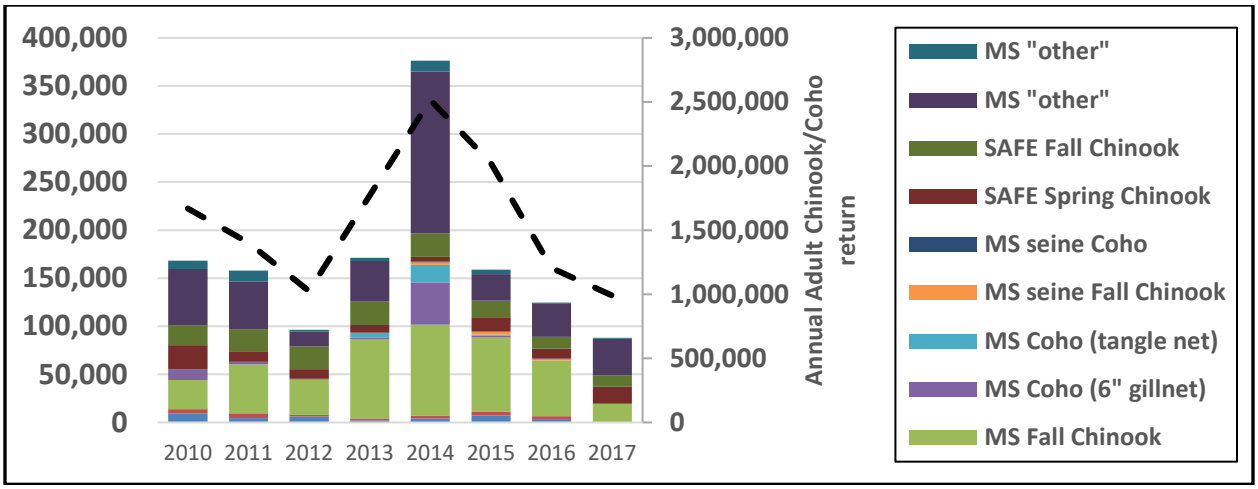

Figure 37.1: Number of salmon landed in non-treaty commercial mainstem (MS) and Select Area (SAFE) fisheries in the lower Columbia River, and annual adult salmon returns, 2010-2017

Recreational Advisory Group/ Public Comments:
Preference to include the trend by percentage change and row totals when possible. There was a request to combine the mainstem commercial and Select Area fisheries with mainstem sport in one table.

Commercial Advisory Group/ Public Comments:
Recommends to not combine mainstem commercial and Select Area fisheries with mainstem sport in one table unless you include tributary sport catch.

Sport fishery requires a large return of fish to pass through their geographical reach to provide a meaningful fishery. As a result, there can be substantial surplus fish that can go to waste.

The commercial fishery had a lower economic performance because of the Policy and the gains predicted by the Policy were not achieved. The Policy is far more detrimental to our fishery than was predicted and the Select Areas cannot replace the mainstem earnings or the value of having harvest in all seasons. The reference years for the Work Group were 2009-2011. Despite some record run and the Policy, effort has declined in both the spring and fall recreational fisheries, and there has been no gain in angler success.

Question 38

Question Paraphrase: If the catches and economic expectations were not achieved what was done to determine why and were corrections made?

Policy Citation: If these (catch and economic) expectations are not achieved, efforts will be made to determine why and to identify actions necessary to correct course. (pg. 17)

Specific Question: Were there instances of this happening? If so, describe when and what efforts were made.

Analysis: This question is in the Adaptive Management section of the Policy and is closely related to Question 39. See answer to Question 39.

Question 39

Question Paraphrase: Did any of the expectations regarding catch, economics, off-channel limitations, legal/financial issue, conservation objectives or other circumstances occur that would require the Department to reconsider the fishery management strategy of the Policy and if so what changes occurred?

Policy Citation: Reconsideration of state-managed mainstem fisheries may take place under the following circumstances: (pg. 17)

1. Lower than anticipated catch and economic expectations to the commercial salmon fishing industry, or
2. Insufficient space within off-channel sites to accommodate the commercial fleet, or
3. Biological, fiscal and/or legal circumstances that delay or preclude implementation of alternative selective gear, buyback of commercial fishing permits, and/or additional off-channel hatchery investments, or
4. Management objectives are not achieved for commercial or recreational fisheries, or
5. Conflicts with terms of U.S. v Oregon management agreements with Columbia River Tribes, or
6. Failure to meet conservation objectives.

Specific Question: Did any of the circumstances above occur, were fisheries reconsidered in a regulatory forum, and what changes were adopted?

Analysis: Yes. Some of the circumstances noted above occurred over the course of the Policy, and in 2016-2017, the Department requested modifications to the original Policy under the adaptive management provision. During November and December of 2016 and January of 2017, the staff provided updates to the Commission on performance of the Policy. In January 2017, staff requested that the Commission adopt updates to the Policy that included implementation actions for 2017 and beyond. Staff provided three options for consideration by the Commission for modifications to the Policy. Staff noted that the long-term goals (2017 and beyond) for increased Bright fall Chinook and coho production increases for Select Areas was unlikely to occur because of the Mitchell Act BIOP that was being developed. The economic analyses presented in 2017 included potential changes to program sizes that were known at the time, as a result of the BIOP.

The Policy was revised in January 2017. Changes included:

1. Provision to aggressively pursue a buyback program instead of initiate the development of a program
2. Added funding and testing of alternative gear instead of just development and implementation
3. Added target date of full implementation of alternative gear in 2019
4. Added language requiring the Department to provide to the Commission an approach for providing incentives to commercial fishers to promote the transition to alternative selective gear
5. Allowed the continued use of gillnets above the Lewis River during 2017 and 2018 because alternative gear was not fully implemented
6. Added the requirement for the Department to monitor the commercial fishery upstream of the Lewis River in 2017 and 2018 to estimate encounters of sturgeon and steelhead
7. Added requirement for the Department to seek funding to improve estimate of MSF recreational fisheries during summer and fall months
8. Added allocation of summer Chinook and requirements for commercial gear type in the mainstem fishery
9. Modified allocations for fall Chinook for 2017-2018
10. Added the requirement for a comprehensive review at the end of 2018

Adaptive management provisions were used in most of the years under review primarily in reference to mainstem commercial fisheries in the spring season. Appendix A in the Policy for spring Chinook shows tangle nets may be used in the mainstem during 2014-2016. However, under the adaptive management provision, gill nets were allowed for the May fisheries when the catch of shad in tangle nets becomes an obstacle to using those nets.

<u>Recreational Advisory Group/ Public Comments:</u>

Add narrative on the value of angler trips to the economy. Need to consider the effect that run size has on the analysis. Suggest showing angler trips/fish. Analysis seems to show a decline in numbers/values for both recreational and commercial fisheries. Requested a table with mainstem recreational and commercial catch, as well as Select Area catch in one table. Requested additional information about Select Areas including maps. Should add information about how recreational fisheries are affected by a number of factors such as, weather, water temperatures, run timing and river flow to name a few. Suggested trying to simplify the analysis before providing to the Commission.

Should compare projected versus actual run sizes to better understand where aspects of the Policy worked or did not.

<u>Commercial Advisory Group/ Public Comments:</u>

Taking from the commercial fishery does not add to the recreational fishery. The Commission should understand that the Workgroup expectations for economic values were not hard targets but supposed to be measurements of change over time. If you include total commercial catch

in mainstem and Select Areas, you need to show tributary sport catch in the same table. The information showing the total spring Chinook run size should only include the upriver run size as this is the one that is most relevant to the spring Chinook fisheries. The commercial fishery has very little impact on the sport fishery and the Policy has not shown any significant gains in the sport fishery as a result. Hatchery surplus is still a problem. The Oregon SAFE program does not work for Washington commercial fishers. We used to fish 1-2 days for summer Chinook in the mainstem, but it would cost me 15 days to catch the same number of fish in the SAFE areas in Oregon. The Policy did not do what it was supposed to do.

There was no effort to improve the economics of the commercial fishery during the transition years or to evaluate recreational performance and adjust the sharing guidelines if warranted. The commercial fishery made it very clear in 2012 that there was not enough space in Select Areas.

In the spring Chinook fisheries in all four transition years, adaptive management was cited as the rationale for allowing gillnets to fish after mid-May to reduce handle of shad. In 2015, adaptive management was cited for changing the recreational fishery from MSF to non-MSF for summer Chinook because of warm water temperatures and public testimony. Adaptive management was used to manage the coho commercial fishery in several years and allowed the use of gillnets when it became clear that tangle nets would not be able to harvest the surplus hatchery coho. Adaptive management was always an in-season change not a change between seasons.

I think that in reviewing where the Policy has led us after 5+ years it helps to look back at former Governor Kitzhaber's letter to his Commissioners in 2012. He didn't say that "the biologists tell me we need to remove gillnets from the Columbia". He didn't say "my managers tell me we can't achieve recovery of salmon stocks with a gillnet fishery", nor did he say "my managers tell me they can't successfully manage harvest with a gillnet fishery in the mainstem Columbia". He merely said "I believe the use of gillnets in non-tribal mainstem fisheries is inconsistent with recovery". He provided no data, simply his opinion. If he had bothered to check, he would have found that recovery was occurring before 2012. It hasn't improved with Policy C-3620, and some would say it has actually digressed. Hatchery release cuts mandated by NMFS last year could be one indication of that. Regardless, the Policy wasn't about good science, it wasn't about good management, it was simply about reallocation between user groups. And that's why I believe it has failed. Natural resource management in this day and age needs to be based on science. The public that owns the resource expects that to be the approach, and the legislature has mandated that it be so. The Policy ignored science. It's time to use Adaptive Management, along with a science-based conversation between staff and all user groups, to create a Policy that works for the salmon resource and for the public that pays for, and owns, that resource.

Adaptive management was supposed to be a big part of the Policy. This report could be used as a tool for adaptive management in the future. We should think about how this report can be used to inform future actions.

Staff Summary of Economic Section

Estimating economic impacts for this assessment is challenging for a number of reasons. There was a multitude of assumptions (see below) in the Workgroup process during the development of their report and many of those assumptions were included in this Policy. The expectations from the Workgroup were meant to provide a trend or change over time of fishery angler trips and ex-vessel values. It is difficult to estimate the effects of the Policy because of the moving parts of in-season fishery management and the effect that run sizes have on the fisheries.

Staff concluded that the analysis that ODFW staff provided was the most appropriate measure of how the Policy performed. This analysis was conducted by using actual run sizes, fishery data and in-season management decisions to estimate how the fisheries would have performed during 2013-2017 if the Policy had not been in place. By comparing the actual results to the results that were modeled, it shows the effects of implementing the Policy, independent of run size and many other factors.

The Policy was expected to increase recreational angler trips by reallocating more impacts or fish to the recreational fisheries, and increase ex-vessel value to the commercial fishery through increased production in off-channel areas and implementation of alternative gears.

Actual angler trips in the recreational fishery increased slightly during the Policy, and ex-vessel values in the commercial fishery declined. The benefit to increased production in SAFE areas was beneficial to Oregon fishers primarily. The increased harvest and ex-vessel values in the commercial fishery for fall Chinook and coho were due to some very large runs that occurred during 2013-2017, and not as a result of the implementation of the Policy. The recreational fishery gained fishing days based on the Policy, primarily during the fall season.

The Policy has fallen short of most of its economic objectives. For the commercial fishery, the combination Select Area enhancements and implementation of alternative gears did not offset the losses in the mainstem fisheries. For the recreational fishery, there were marginal benefits in some fisheries from increases in angler trips and fishing days.

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APPENDIX A- Additional Tables and Graphs

Question 2

The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The actual results in this table include other catch that occurred during the fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences.

Table 2B (extended): Actual vs. Modeled Recreational Angler Trips below Bonneville from Workgroup Report Tables C1-C3.

	Angler Trips	**Modeled Results**				
"Current"	(<Bonn)	2013	2014	2015	2016	2017
165,362	Spring	175,376	175,376	175,376	175,376	180,453
25,000	Summer	33,746	33,746	45,047	45,047	70,000
160,000	Fall	175,000	175,000	175,000	175,000	175,000
350,362	Total	384,122	384,122	395,423	395,423	425,453
	Angler Trips	**Actual Results**				
"Current"	(<Bonn)	2013	2014	2015	2016	2017
165,362	Spring	109,655	145,642	151,173	126,826	63,303
25,000	Summer	52,037	53,661	50,555	58,067	41,595
160,000	Fall	207,248	251,468	239,587	228,238	208,268
350,362	Total	368,940	450,771	441,315	413,131	313,166
	Angler Trips	**Actual versus Modeled**				
"Current"	(<Bonn)	2013	2014	2015	2016	2017
165,362	Spring	(65,721)	(29,734)	(24,203)	(48,550)	(112,073)
25,000	Summer	18,291	19,915	5,508	13,020	(28,405)
160,000	Fall	32,248	76,468	64,587	53,238	33,268
350,362	Total	(15,182)	66,649	45,892	17,708	(107,210)
% Difference Expected		10%	10%	13%	13%	21%
% Difference Actual		-4%	19%	13%	5%	-31%

Note: Values do not reflect differences in run sizes in each year.

Table 2C (extended): Actual vs. Expected (Pre-Policy) Recreational Angler Trips from ODFW analysis

Angler Trips	**Expected Pre-Policy**					
(<Bonn)	2013	2014	2015	2016	2017	Average
Spring	109,655	134,854	140,852	120,329	63,303	113,799
Summer	52,037	53,661	50,555	58,067	36,001	50,064
Fall	200,218	248,188	228,278	228,250	208,268	222,640
Angler Trips	**Actual Results**					
(<Bonn)	2013	2014	2015	2016	2017	Average
Spring	109,655	145,642	151,173	126,826	63,303	119,320
Summer	52,037	53,661	50,555	58,067	41,595	51,183
Fall	207,248	251,468	239,587	228,250	208,268	226,964
Angler Trips	**Actual versus Expected Pre-Policy**					
(<Bonn)	2013	2014	2015	2016	2017	Average 2013-2017
Spring	0	10,788	10,321	6,497	0	5,521
Summer	0	0	0	0	5,594	1,119
Fall	7,030	3,280	11,309	0	0	4,324
Angler Trips	**% Gain in Angler Trips**					
(<Bonn)	2013	2014	2015	2016	2017	Average 2013-2017
Spring	0%	8%	7%	5%	0%	4%
Summer	0%	0%	0%	0%	16%	3%
Fall	4%	1%	5%	0%	0%	2%

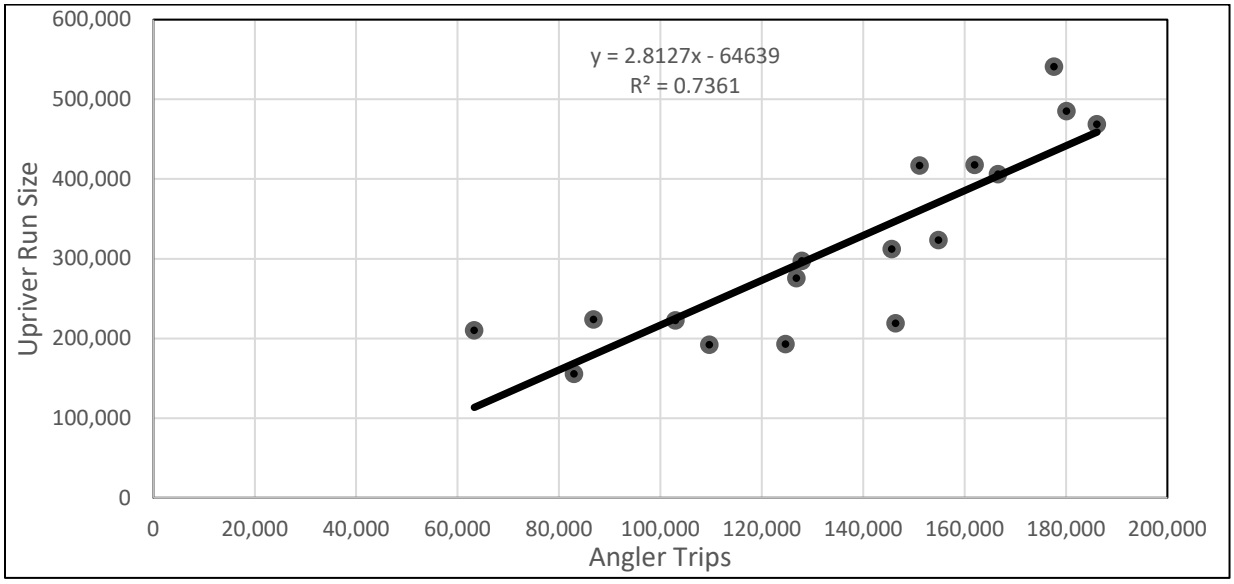

Figure 2.4: Relationship between Spring Chinook angler trips and Up River Spring Chinook run size

Table 2H (extended): Actual versus Modeled Fishery Ex-Vessel Values from Workgroup Table C5.

Fishery	Stock	Status	Ex-Vessel Value (Modeled)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	$395,911	$205,272	$205,272	$205,272	$205,272	$0
Mainstem Gillnet	Summer Chinook	Existing	$151,719	$121,332	$121,332	$90,999	$90,999	$0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	$1,272,247	$772,926	$772,926	$772,926	$772,926	$0
Mainstem Gillnet (2S)	Fall Chinook	New	$0	$353,526	$353,526	$353,526	$353,526	$0
Mainstem Gillnet	Coho	Existing	$316,682	$270,442	$270,442	$270,442	$261,582	$0
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$394,493	$395,519	$503,300	$605,566	$631,805
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$436,943	$436,943	$457,237	$481,779	$484,139
Select Area Gillnet	Coho	Expanded	$743,337	$765,362	$912,194	$912,194	$912,194	$912,194
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	$0	$0	$0	$0	$0	$772,926
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	$0	$0	$0	$0	$0	$353,526
Mainstem Seine	Lower River Hatchery Chinook	New	$0	$190,851	$190,851	$190,851	$467,868	$467,868
Mainstem Seine	Coho	New	$0	$73,562	$73,562	$73,562	$175,901	$175,901
Mainstem Tangle-net	Coho	New	$0	$246,713	$246,713	$246,713	$246,713	$246,713
Totals			$3,813,317	$3,831,422	$3,979,280	$4,077,023	$4,574,326	$4,045,072
Difference from Current			$0	$18,105	$165,963	$263,706	$761,009	$231,755
% Difference from Current			0%	0.5%	4%	7%	20%	6%

Note: Values do not reflect differences in run sizes in each year.

Table 2H (continued)

Fishery	Stock	Status	Ex-Vessel Value (Actual)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	$395,911	$202,405	$322,675	$580,660	$415,641	$0
Mainstem Gillnet	Summer Chinook	Existing	$151,719	$144,962	$172,266	$206,307	$275,108	$0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	$1,272,247	$2,778,336	$2,556,068	$2,560,682	$2,789,466	$908,770
Mainstem Gillnet (2S)	Fall Chinook	New	$0	$0	$0	$0	$0	$0
Mainstem Gillnet	Coho	Existing	$316,682	$73,886	$479,527	$33,070	$10,128	$13,535
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$747,281	$353,896	$925,104	$926,477	$1,463,829
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$779,085	$497,362	$378,842	$301,281	$323,253
Select Area Gillnet	Coho	Expanded	$743,337	$569,780	$1,622,922	$297,190	$428,588	$581,649
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	$0	$0	$0	$0	$0	$0
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	$0	$0	$0	$0	$0	$0
Mainstem Seine	Lower River Hatchery Chinook	New	$0	$0	$55,407	$51,434	$26,894	$0
Mainstem Seine	Coho	New	$0	$0	$9,593	$5,215	$6,392	$0
Mainstem Tangle-net	Coho	New	$0	$86,085	$162,732	$49,624	$0	$0
Totals			$3,813,317	$5,381,820	$6,004,715	$5,088,127	$5,179,976	$3,234,861

Note: Values do not reflect differences in run sizes in each year.

The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The actual results in this table include other catch that occurred during the fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences.

Table 2H (continued)

Fishery	Stock	Status	Ex-Vessel Value (Actual vs Modeled)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	$395,911	($2,867)	$117,403	$375,388	$210,369	$0
Mainstem Gillnet	Summer Chinook	Existing	$151,719	$23,630	$50,934	$115,308	$184,109	$0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	$1,272,247	$2,005,410	$1,783,142	$1,787,756	$2,016,540	$908,770
Mainstem Gillnet (2S)	Fall Chinook	New	$0	($353,526)	($353,526)	($353,526)	($353,526)	$0
Mainstem Gillnet	Coho	Existing	$316,682	($196,556)	$209,085	($237,372)	($251,454)	$13,535
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$352,788	($41,624)	$421,804	$320,911	$832,024
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$342,142	$60,419	($78,395)	($180,498)	($160,886)
Select Area Gillnet	Coho	Expanded	$743,337	($195,582)	$710,728	($615,004)	($483,606)	($330,545)
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	$0	$0	$0	$0	$0	($772,926)
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	$0	$0	$0	$0	$0	($353,526)
Mainstem Seine	Lower River Hatchery Chinook	New	$0	($190,851)	($135,444)	($139,417)	($440,974)	($467,868)
Mainstem Seine	Coho	New	$0	($73,562)	($63,969)	($68,347)	($169,509)	($175,901)
Mainstem Tangle-net	Coho	New	$0	($160,628)	($83,981)	($197,089)	($246,713)	($246,713)
Totals			$3,813,317	$1,550,398	$2,253,166	$1,011,104	$605,650	($754,036)
% Difference from Current	Expected			0.5%	4.0%	7.0%	20.0%	6.0%
% Difference from Current	Actual			41%	145%	45%	60%	-125%

Note: Values do not reflect differences in run sizes in each year.

Table 2I (extended): Comparison of expected (pre-Policy) and actual (post-Policy) ex-vessel value for the non-treaty commercial fishery during the Policy based on ODFW analysis

Fishery	Stock	Status	Expected (pre-Policy)				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	$262,673	$550,820	$777,035	$567,787	$302,776
Mainstem Gillnet	Summer Chinook	Existing	$192,223	$204,169	$289,034	$385,105	$238,012
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	$3,475,916	$2,868,149	$3,547,915	$2,799,595	$922,305
Mainstem Gillnet	Coho	Existing	$28,742	$534,392	$102,809	$0	$0
Select Area Gillnet	Spring Chinook	Expanded	$730,514	$336,492	$737,727	$752,921	$1,222,604
Select Area Gillnet	Fall Chinook	Expanded	$779,085	$497,362	$359,096	$240,414	$283,192
Select Area Gillnet	Coho	Expanded	$569,780	$1,456,864	$252,187	$371,363	$432,625
Mainstem Seine	Lower River Hatchery Chinook	New	$0	$0	$0	$0	--
Mainstem Seine	Coho	New	$0	$0	$0	$0	--
Mainstem Tangle-net	Coho	New	$0	$0	$0	$0	$0
Totals			$6,038,933	$6,448,248	$6,065,803	$5,117,186	$3,401,514

Table 2I (continued)

Fishery	Stock	Status	Actual (post-Policy)				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	$202,405	$322,675	$580,660	$415,641	$0
Mainstem Gillnet	Summer Chinook	Existing	$144,962	$172,266	$206,307	$275,108	$0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	$2,812,736	$2,575,129	$2,515,140	$2,799,595	$922,305
Mainstem Gillnet	Coho	Existing	$39,486	$460,466	$78,612	$0	$0
Select Area Gillnet	Spring Chinook	Expanded	$747,281	$353,896	$925,104	$926,477	$1,463,829
Select Area Gillnet	Fall Chinook	Expanded	$779,085	$497,362	$378,842	$301,281	$323,253
Select Area Gillnet	Coho	Expanded	$569,780	$1,622,922	$297,190	$428,588	$581,649
Mainstem Seine	Lower River Hatchery Chinook	New	$0	$0	$51,434	$26,894	$0
Mainstem Seine	Coho	New	$0	$0	$5,215	$6,392	$0
Mainstem Tangle-net	Coho	New	$86,085	$162,732	$49,624	$0	$0
Totals			$5,381,820	$6,167,447	$5,088,127	$5,179,976	$3,291,036

Table 2I (continued)

Fishery	Stock	Status	Actual versus Modeled				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	($60,268)	($228,145)	($196,375)	($152,146)	($302,776)
Mainstem Gillnet	Summer Chinook	Existing	($47,261)	($31,903)	($82,727)	($109,997)	($238,012)
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	($663,180)	($293,020)	($1,032,775)	$0	$0
Mainstem Gillnet	Coho	Existing	$10,744	($73,926)	($24,197)	$0	$0
Select Area Gillnet	Spring Chinook	Expanded	$16,767	$17,404	$187,377	$173,556	$241,224
Select Area Gillnet	Fall Chinook	Expanded	$0	$0	$19,746	$60,867	$40,061
Select Area Gillnet	Coho	Expanded	$0	$166,058	$45,003	$57,225	$149,024
Mainstem Seine	Lower River Hatchery Chinook	New	$0	$0	$51,434	$26,894	$0
Mainstem Seine	Coho	New	$0	$0	$5,215	$6,392	$0
Mainstem Tangle-net	Coho	New	$86,085	$162,732	$49,624	$0	$0
Totals			($657,113)	($280,801)	($977,676)	$62,790	($110,478)

Question 15

Table 15D: Select Area Harvest During the Winter, Spring, Summer Fisheries

	SAFE Spring Chinook	Lower River Spring Chinook	Upriver Spring Chinook	Total Spring Chinook	Summer Chinook	SAB Fall Chinook	Total
2010	21,139	1,801	1,507	24,447	20	425	24,892
2011	8,523	1,176	305	10,004	35	1,062	11,101
2012	8,493	788	329	9,610	1	446	10,057
2013	5,067	1,331	260	6,658	11	1,395	8,064
2014	2,236	730	260	3,226	47	1,370	4,643
2015	11,121	1,533	804	13,458	147	62	13,667
2016	8,694	1,094	348	10,136	94	266	10,496
2017	15,389	1,668	468	17,525	47	24	17,596
2010-2012 Average	12,718	1,255	714	14,687	19	644	15,350
2013-2017 Average	8,501	1,271	428	10,201	69	623	10,893

Table 15E: Fall Chinook Harvest in Select Areas.

	Youngs Bay	Tongue Point	Blind Slough	OR Total	Deep River	SAFE Total
2010	8,048	1,402	10,205	19,655	1,011	20,666
2011	12,339	2,527	5,768	20,634	2,295	22,929
2012	16,197	2,466	3,366	22,029	1,691	23,720
2013	14,360	5,828	2,362	22,550	1,592	24,142
2014	11,830	5,460	4,666	21,956	2,161	24,117
2015	6,765	3,614	3,405	13,784	4,303	18,087
2016	6,398	2,007	2,027	10,432	1,999	12,431
2017	6,277	2,251	1,636	10,164	1,870	12,034
2010-2012 Average	12,195	2,132	6,446	20,773	1,666	22,438
2013-2017 Average	9,126	3,832	2,819	15,777	2,385	18,162

Table 15F: Coho Harvest in Select Areas.

	Youngs Bay	Tongue Point	Blind Slough	OR Total	Deep River	SAFE Total
2010	27,564	6,734	5,201	39,499	19,260	58,759
2011	26,538	6,504	1,388	34,430	15,083	49,513
2012	5,986	3,902	1,534	11,422	3,932	15,354
2013	14,254	14,165	3,882	32,301	10,002	42,303
2014	65,937	50,752	24,620	141,309	27,188	168,497
2015	11,463	9,721	1,698	22,882	4,519	27,401
2016	15,784	11,284	1,493	28,561	6,162	34,723
2017	13,603	12,534	2,460	28,597	9,382	37,979
2010-2012 Average	20,029	5,713	2,708	28,450	12,758	41,209
2013-2017 Average	24,208	19,691	6,831	50,730	11,451	62,181

Table 15G (extended): Modeled Fishery Ex-Vessel Values from Workgroup Report Table C5.

Fishery	Stock	Status	Ex-Vessel Value (Modeled)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$394,493	$395,519	$503,300	$605,566	$631,805
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$436,943	$436,943	$457,237	$481,779	$484,139
Select Area Gillnet	Coho	Expanded	$743,337	$765,362	$912,194	$912,194	$912,194	$912,194
Totals			$1,496,695	$1,596,798	$1,744,656	$1,872,731	$1,999,539	$2,028,138
Difference from Current			$0	$100,103	$247,961	$376,036	$502,844	$531,443
% Difference from Current			0%	7%	17%	25%	34%	36%
Fishery	Stock	Status	Ex-Vessel Value (Actual)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$747,281	$353,896	$925,104	$926,477	$1,463,829
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$779,085	$497,362	$378,842	$301,281	$323,253
Select Area Gillnet	Coho	Expanded	$743,337	$569,780	$1,622,922	$297,190	$428,588	$581,649
Totals			$1,496,695	$2,096,146	$2,474,179	$1,601,136	$1,656,346	$2,368,731
Fishery	Stock	Status	Ex-Vessel Value (Actual vs Modeled)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$316,415	$352,788	($41,624)	$421,804	$320,911	$832,024
Select Area Gillnet	Fall Chinook	Expanded	$436,943	$342,142	$60,419	($78,395)	($180,498)	($160,886)
Select Area Gillnet	Coho	Expanded	$743,337	($195,582)	$710,728	($615,004)	($483,606)	($330,545)
Totals			$1,496,695	$499,348	$729,523	($271,595)	($343,193)	$340,593
% Difference from Current	Expected		0	7%	17%	25%	34%	36%
% Difference from Current	Actual			33%	49%	-18%	-23%	23%

Note: Values do not reflect differences in run sizes in each year.

The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The actual results in Table 15G include other catch that occurred during the fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences.

Table 15H (extended): Expected (Pre-Policy) Ex-Vessel Values Based on ODFW Analysis

Fishery	Stock	Status	Expected (Pre-Policy) Ex-Vessel Values				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$730,514	$336,492	$737,727	$752,921	$1,222,604
	Fall Chinook	Expanded	$779,085	$497,362	$359,096	$240,414	$283,192
	Coho	Expanded	$569,780	$1,456,864	$252,187	$371,363	$432,625
Totals			$2,079,379	$2,290,718	$1,349,010	$1,364,698	$1,938,421
Fishery	Stock	Status	Actual Ex-Vessel Values				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$747,281	$353,896	$925,104	$926,477	$1,448,119
	Fall Chinook	Expanded	$779,085	$497,362	$378,842	$301,281	$323,253
	Coho	Expanded	$569,780	$1,622,922	$297,190	$428,588	$554,719
Totals			$2,096,146	$2,474,179	$1,601,136	$1,656,346	$2,326,091
Fishery	Stock	Status	Actual versus Modeled Ex-Vessel Value				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Select Area Gillnet	Spring Chinook	Expanded	$16,767	$17,404	$187,377	$173,556	$225,515
	Fall Chinook	Expanded	$0	$0	$19,746	$60,867	$40,061
	Coho	Expanded	$0	$166,058	$45,003	$57,225	$122,094
Totals			$16,767	$183,461	$252,126	$291,648	$387,670

Question 37

Table 37B: Mainstem Sport Catch of Salmon and Steelhead by Season

Year	Spring	Summer		Fall-Mainstem			Fall-Buoy 10		Total
	Chinook	Chinook	Sockeye	Chinook	Coho	Steelhead	Chinook	Coho	
2010	29,247	2,539	218	17,326	1,584	6,034	6,807	7,980	71,735
2011	11,694	5,160	1,427	28,169	1,667	12,053	10,919	7,614	78,703
2012	13,332	2,897	3,948	22,438	884	5,618	18,550	7,385	75,052
2013	6,950	1,832	502	31,879	951	6,139	22,594	7,620	78,467
2014	15,728	1,980	938	26,336	5,761	6,375	26,788	57,744	141,650
2015	19,586	5,928	958	41,525	995	4,212	36,422	36,859	146,485
2016	12,666	3,080	744	25,133	1,317	1,862	17,780	9,181	71,763
2017	9,047	3,516	264	26,138	3,114	237	28,398	18,834	89,548
Average 2010-2012	18,091	3,532	1,864	22,644	1,378	7,902	12,092	7,660	75,163
Average 2013-2017	12,795	3,267	681	30,202	2,428	3,765	26,396	26,048	105,583

NOTE: Harvest does not reflect differences in run sizes each year.

Table 15C: Harvest by Species for all Select Areas

Year	Spring Chinook	Summer Chinook	Fall Chinook	Coho	Total
2010	24,447	20	21,091	58,759	104,317
2011	10,004	35	23,991	49,513	83,543
2012	9,610	1	24,166	15,354	49,131
2013	6,658	11	25,537	42,303	74,509
2014	3,226	47	25,487	168,497	197,257
2015	13,458	147	18,149	27,401	59,155
2016	10,136	94	12,697	34,723	57,650
2017	17,525	47	12,058	37,979	67,609
Average 2010-2012	14,687	19	23,083	41,209	78,997
Average 2013-2017	10,201	69	18,786	62,181	91,236

Note: Values are not adjusted for differences in run sizes each year.

Table 37D: Mainstem Commercial Harvest

Year	Spring Chinook	Summer Chinook	Fall Chinook	Coho
2010	9,041	4,684	31,141	18,920
2011	4,539	5,010	51,419	13,482
2012	6,118	1,692	36,871	2,615
2013	2,213	1,868	84,906	9,766
2014	4,074	2,743	101,762	70,531
2015	7,231	3,944	84,238	4,479
2016	3,613	2,990	59,055	1,269
2017	-	-	19,398	931
Average 2010-2012	6,566	3,795	39,810	11,672
Average 2013-2017	3,426	2,309	69,872	17,395

Table 37C (extended): Modeled Recreational Catch Compared to Actual Results (provided by Workgroup table C1-C3)

Stock	Numbers of Fish (Modeled Values)					
	Current	Transition				Long-Term
		2013	2014	2015	2016	2017
Spring Chinook	16,250	17,701	17,701	17,701	17,701	18,443
Summer Chinook	2,239	2,805	2,805	3,385	3,385	4,063
Fall Chinook	30,200	33,800	33,800	33,800	33,800	33,800
Stock	Numbers of Fish (Actual Values)					
	Current	Transition				Long-Term
		2013	2014	2015	2016	2017
Spring Chinook	16,250	6,950	15,728	19,586	12,666	9,047
Summer Chinook	2,239	1,832	1,980	5,928	3,080	3,516
Fall Chinook	30,200	54,473	53,124	77,947	42,913	54,536
Stock	Numbers of Fish (Actual versus Modeled)					
	Current	Transition				Long-Term
		2013	2014	2015	2016	2017
Spring Chinook	16,250	(10,751)	(1,973)	1,885	(5,035)	(9,396)
Summer Chinook	2,239	(973)	(825)	2,543	(305)	(547)
Fall Chinook	30,200	20,673	19,324	44,147	9,113	20,736

Table 37F (Extended): Summary of modeled current mainstem commercial fishery harvest (numbers of fish) compared to expected harvest for potential alternative fisheries by year and fishery, 2013-2021 from Workgroup Table C4.

Fishery	Stock	Status	Numbers of Fish (Modeled Values)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	5,051	2,714	2,714	2,714	2,714	0
Mainstem Gillnet	Summer Chinook	Existing	2,831	2,264	2,264	1,698	1,698	0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	37,990	23,080	23,080	23,080	23,080	0
Mainstem Gillnet (2S)	Fall Chinook	New	-	13,570	13,570	13,570	13,570	0
Mainstem Gillnet	Coho	Existing	25,881	22,099	22,099	22,099	21,375	0
Select Area Gillnet	Spring Chinook	Expanded	5,000	6,234	6,250	8,805	9,951	10,000
Select Area Gillnet	Fall Chinook	Expanded	18,528	18,528	18,528	19,173	19,953	20,028
Select Area Gillnet	Coho	Expanded	56,700	58,380	69,580	69,580	75,954	75,954
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	0	0	0	0	0	23,080
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	0	0	0	0	0	13,570
Mainstem Seine	Lower River Hatchery Chinook	New	0	11,194	11,194	11,194	27,441	27,441
Mainstem Seine	Coho	New	0	6,010	6,010	6,010	14,374	14,374
Mainstem Tangle-net	Coho	New	0	20,160	20,160	20,160	20,160	20,160

Table 37F (Continued):

Fishery	Stock	Status	Numbers of Fish (Actual Values)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	5,051	2,213	4,074	7,231	3,613	0
Mainstem Gillnet	Summer Chinook	Existing	2,831	1,868	2,743	3,944	2,990	0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	37,990	82,475	94,962	77,069	57,940	19,398
Mainstem Gillnet (2S)	Fall Chinook	New	-					
Mainstem Gillnet	Coho	Existing	25,881	1,952	43,867	2,242	0	0
Select Area Gillnet	Spring Chinook	Expanded	5,000	5,042	2,164	11,055	8,605	15,210
Select Area Gillnet	Fall Chinook	Expanded	18,528	24,142	24,117	18,087	12,431	12,034
Select Area Gillnet	Coho	Expanded	56,700	40,344	160,696	26,132	33,115	36,221
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	0	0	0	0	0	0
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	0	0	0	0	0	0
Mainstem Seine	Lower River Hatchery Chinook	New	0	0	2,439	2,763	728	0
Mainstem Seine	Coho	New	0	0	1,031	564	482	0
Mainstem Tangle-net	Coho	New	0	4,831	18,234	993	0	0

The expectations from the Workgroup estimated fishery values associated with a particular fishery, for example, coho harvest in a coho-directed fishery. The actual results in Table 37F include other catch that occurred during the fisheries, such as Chinook caught during a coho target fishery. Thus, the results are not completely comparable as the actual values include all fish harvested in any fishery; however, these results can be used as relative references in respect to the magnitude of differences.

Table 37F (Continued):

Fishery	Stock	Status	Numbers of Fish (Actual vs Modeled Values)					
			Current	Transition				Long-Term
				2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	5,051	(501)	1,360	4,517	899	0
Mainstem Gillnet	Summer Chinook	Existing	2,831	(396)	479	2,246	1,292	0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	37,990	59,395	71,882	53,989	34,860	19,398
Mainstem Gillnet (2S)	Fall Chinook	New	-	(13,570)	(13,570)	(13,570)	(13,570)	0
Mainstem Gillnet	Coho	Existing	25,881	(20,147)	21,768	(19,857)	(21,375)	0
Select Area Gillnet	Spring Chinook	Expanded	5,000	(1,192)	(4,086)	2,250	(1,346)	5,210
Select Area Gillnet	Fall Chinook	Expanded	18,528	5,614	5,589	(1,086)	(7,522)	(7,994)
Select Area Gillnet	Coho	Expanded	56,700	(18,036)	91,116	(43,448)	(42,839)	(39,733)
Mainstem (Gear to be Determined; Zone 4-5)	Fall Chinook	New?	0	0	0	0	0	(23,080)
Mainstem (Gear to be Determined; 2S)	Fall Chinook	New	0	0	0	0	0	(13,570)
Mainstem Seine	Lower River Hatchery Chinook	New	0	(11,194)	(8,755)	(8,431)	(26,713)	(27,441)
Mainstem Seine	Coho	New	0	(6,010)	(4,979)	(5,446)	(13,892)	(14,374)
Mainstem Tangle-net	Coho	New	0	(15,329)	(1,926)	(19,167)	(20,160)	(20,160)

Table 37G (Extended): Expected (Pre-Policy), Actual, and Actual Versus Modeled Number of Fish Landed Based on ODFW Analysis

Fishery	Stock	Status	Expected Values (ODFW Model)				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	2,872	6,954	9,676	4,936	1,962
Mainstem Gillnet	Summer Chinook	Existing	2,477	3,251	5,526	4,185	2,373
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	101,921	105,768	108,715	57,940	19,398
Mainstem Gillnet	Coho	Existing	1,421	50,910	2,932	0	0
Select Area Gillnet	Spring Chinook	Expanded	4,929	2,058	8,816	6,991	7,187
Select Area Gillnet	Fall Chinook	Expanded	24,142	24,117	17,144	9,920	10,890
Select Area Gillnet	Coho	Expanded	40,344	144,254	22,175	28,693	24,631
Mainstem Seine	Lower River Hatchery Chinook	New	0	0	0	0	--
Mainstem Seine	Coho	New	0	0	0	0	--
Mainstem Tangle-net	Coho	New	0	0	0	0	0
Totals			182,753	366,831	178,918	119,152	76,018

Table 37G (Continued)

Fishery	Stock	Status	Actual Values (ODFW Model)				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	2,213	4,074	7,231	3,613	0
Mainstem Gillnet	Summer Chinook	Existing	1,868	2,743	3,944	2,990	0
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	82,475	94,962	77,069	57,940	19,398
Mainstem Gillnet	Coho	Existing	1,952	43,867	2,242	0	0
Select Area Gillnet	Spring Chinook	Expanded	5,042	2,164	11,055	8,605	8,605
Select Area Gillnet	Fall Chinook	Expanded	24,142	24,117	18,087	12,431	12,431
Select Area Gillnet	Coho	Expanded	40,344	160,696	26,132	33,115	33,115
Mainstem Seine	Lower River Hatchery Chinook	New	0	0	2,763	728	--
Mainstem Seine	Coho	New	0	0	564	482	--
Mainstem Tangle-net	Coho	New	4,831	18,234	993	0	0
Totals			162,867	350,857	150,080	119,904	73,549

Table 37G (Continued)

Fishery	Stock	Status	Actual vs. Modeled Values (ODFW Model)				
			Transition				Long-Term
			2013	2014	2015	2016	2017
Mainstem Gillnet	Spring Chinook	Existing	(659)	(2,880)	(2,445)	(1,323)	(1,962)
Mainstem Gillnet	Summer Chinook	Existing	(609)	(508)	(1,582)	(1,195)	(2,373)
Mainstem Gillnet (Zone 4-5)	Fall Chinook	Existing	(19,446)	(10,806)	(31,646)	0	0
Mainstem Gillnet	Coho	Existing	531	(7,043)	(690)	0	0
Select Area Gillnet	Spring Chinook	Expanded	113	106	2,239	1,614	1,418
Select Area Gillnet	Fall Chinook	Expanded	0	0	943	2,511	1,541
Select Area Gillnet	Coho	Expanded	0	16,442	3,957	4,422	8,484
Mainstem Seine	Lower River Hatchery Chinook	New	0	0	2,763	728	0
Mainstem Seine	Coho	New	0	0	564	482	0
Mainstem Tangle-net	Coho	New	4,831	18,234	993	0	0
Totals			(19,886)	(15,974)	(28,838)	752	(2,469)

APPENDIX B: Advisory Group Meeting Notes

Columbia River Recreational Advisory Group Meeting Note- May 15th, 2018
WDFW Ridgefield Office- 5525 S 11th St, Ridgefield WA 98642

Attendance:
CRRAG Members:
Pete Boone, Lance Beckman, , Harry Barber, Mark Heirigs, Chris Winn, Bob Rees, Randy Woolsey, Jim Bridwell
WDFW Staff:
Cindy LeFleur, Tim Sippel, Ryan Lothrop, Myrtice Dobler (note taker)
Public:
Liz Hamilton, Allen Thomas, Robert Krueger, Gregg Robinson, Kirk Harrison, Marv Chesley, Don Kinsey, Rob Bignall, Bill Chapman

Purpose of meeting:
Advisory Group/Public Comprehensive Review of Columbia River Basin Salmon Management Policy C-3620 (2013-17)

Meeting Agenda:

Time	Topic
4:00- 4:20	Introductions/ Agenda/ Review update and timeline
4:20- 5:45	Review Category A responses
5:45- 6:45	Review Category B responses
6:45-7:00	Wrap- up/ What's next

Meeting Notes:
Ryan Lothrop opened meeting
Introductions
Agenda

- What we want/need
  - Clarification on points we're missing
  - Are we answering accurately?
  - Strengthen an argument
- 2 categories
  - A- completed
  - B- what's remaining

Timeline

- Review began late winter- Mid March
- Presentation in Wenatchee to FC and FWC
  - Policy review hard to read/follow
- Draft Policy Review posted Mar 26

- Mid-April presentation to Fish Committee
    - Fish Committee is: Carpenter, Thorburn, Graybill, Kehoe
- 2 set of advisory meetings
    - Today
    - Next one July 12th
- Goal to have completed Policy Analysis by Sept 1
    - To present to Commission mid-September
- Hope to have joint Commission with ODFW- not scheduled

Went over where information is on the website

Category A
When completed everything will be in category A. Things will be broken into sections/themes Some sections will have supplemental staff comments.

Question 25

- Seems to imply sampling program isn't good enough. Sampling program is good, large. Include creel sampling program
- Don't see purpose
- Concerns that it singles out fishing guide community. If you're only gathering guide data and not other sport, how will the data be used?

Question 17

- Cost of certification will not be covered in small fishery. Section done well. Captured important points

Question 18

- Run literature search: Look at other buyback programs to see what has worked and not
- Feels like it's being stonewalled and no progress is being made – this needs to be in the record
- If they don't want to use the alt gear we should pursue the buybacks
- Goal was based on lack of SAFE areas in WA or thought it was so that commercials could sell their gill nets and go purchase their seines or traps

Question 22

- No we haven't found areas, but that we have increased production in SAFE areas
- Progress can be defined in different ways. More fish are being caught in SAFE areas than there have ever been.
- WA in no way pays share of fish produced in SAFE areas

Question 27

- Expand released fish for whole fishery and include oversized sturgeon % of bycatch

- Higher ratio Steelhead: Chinook
- Disappointment from CRRAG that there will not be a mandatory observer program this year. CRRAG feels that commercials should have an observer and that the policy requires it

Question 7

- Show Sport and Wanapum fisheries using impacts up there – when there is a Ringold sport fishery the impacts are shared between the two fisheries
    - Concern of small sport spring Chinook they are allowed to use. Restarting spring hatchery at Ringold

Question 5

- CRRAG Comments: predation is river wide and we don't have a good handle on what it is. Predation is not just at Bonneville Dam. Lower river predation is huge. No good estimate on how predation is downstream. They are finding new pullouts – Coffin Rock by Trojan – docks at Rainier covered with them. Sea lions in the tributaries now too – Washougal, Kalama and Lewis
- Want information on Puget Sound study of effect of seals on smolts
- Share information of Bill that was being introduced on lethal take of sea lions
- Both Stellar and California sea lions are in river
- Staff is doing an amazing job on Marine Mammals. Hope Commission knows that

Question 16

- Clarify – only alternative gear can be used in main stem (WA Policy)
- WA & OR Commissions need to come to agreement. Issues on both following agreement. Hope WA sticks to agreement from years ago. Seems like whenever Commission gets together there's backpedaling.
- Lot of history Commission needs to understand
- Sport fishermen have done what was asked
- Go for messy rather than to go back further

Category B

Question 9

- Reword first paragraph on allowing allocation of SAFE fisheries
- Want table of mainstem and SAFE catch for sport and commercial
- Definition of prioritized? Take into account what happens in season versus what was planned
    - "Establishes exclusive access to recreational" language makes it sound like commercial are getting screwed

Question 23

- Study on the Yakima hooking mortality – check to see if this included barbed versus barbless hooks

- Include discussion of anglers who lose more hatchery fish because of the barbless requirement as it relates to pHOS
- Oregon Commission handled it differently. OR staff recommended removal of barbless
    - Mortality affected by where the hook was in the fish. Not barbed, treble, etc.
    - Include discussion of anglers who lose more hatchery fish

Question 1

- Well run hatcheries help keep fisheries. Cutting hatcheries wouldn't help bring back wild fish
- Include number of NORs in the fall Chinook table. Helps explain why the pHOS is so high – there are not very many NORs
- Are fisheries contributing to solving problem? Not much.
- Consider role that sport fleet can play in 'mopping' up hatchery fish
    - Talking lower river fall Chinook tules
    - Sport fisheries are contributing
- Pursue joint-state grant for outreach/identification
    - To train sport and commercial fleet on learning to release Tules
    - Partnering with OR and going back to NOAA with a grant
- Look into ability to sterilize smolts – ask scientists/literature review. Change genetic programing

Question 3

Look up SASSI rating on Summer Chinook

Notify Commission that URBs are not 100% naturally produced stock

- There is a gradation of healthy stocks. Currently if stock is not listed it's heathy. Should be if low and close to ESA it should be listed
- Summer Chinook – look up the SASSI rating for this population. Thinks maybe getting to danger zone
- Why wasn't escapement changed to reflect need of spawning ground?
    - Not sure. US V OR chose not to change goal
    - What escapement goal are we managing to? Escapement to Priest Rapids. We should be managing for what spawning grounds need
- Notify Commission that URBs are not 100% naturally produced stock. Talk about where produced

Wrap-up/ what's next:

Meatiest categories for CRRAG are Allocation, Alt Gear and Economics

- Lots of preliminary analysis
- Place to look for first
- That's where to look for meeting on July 12th

List of questions by category

- Those that are strictly management, alt gear etc.
- Send cheat sheet of categories

Updated document?

- Continuous process
    - Cleaner to have final iterations
    - Challenge on how to share
- For June Fish committee meeting
    - Plan to have
        - Commercial, tribal, management, recreational
    - Will present
    - We've gone through what we will give in June
- If you have additional comments- please send to us
- Economics – will that be presented in June?
    - No that will be later on
    - Hopefully touch on it in July
        - Concern of commercial baselines and values with nothing on Recreational Angler trips
    - We will try to do what we can
    - South WIC study – from 2006
        - Good resource
        - But old data
        - Funding to get to do another look

Meeting notes

- Plan to turn around notes quickly
- Share with CRRAG make sure accurate
- Will be on public website once approved
- Goal of 1 week turnaround

Action Items:

WDFW staff:

- Set item on agenda for Mitchell Act BIOP
    - Would be interested to know where we stand in Hatcheries
- Send cheat sheet of categories
- Update Policy Review document with input from CRRAG

CRRAG:

- Review of meeting notes
- If you have additional comments- please send to us

Next Meeting:

Date: July 31, 2018	Time: 4pm-7pm	Location: WDFW Region 5 Office
Time	Topic	
4:00- 4:20	Introductions/ Agenda/ Review update and timeline	
4:20- 6:00	Review Category A responses	
6:00- 6:45	Review remaining Category B responses	
6:45- 7:00	Wrap- up/ What's next	

Columbia River Commercial Advisory Group Meeting Notes- May 15th, 2018
WDFW Ridgefield Office- 5525 S 11th St, Ridgefield WA 98642

Attendance:
CRCAG Members:
Bryce Devine, Kent Martin, Robert Sudar, Les Clark, Bill Hunsinger, Greg Johnson, Jim Wells, Jim Coleman
WDFW Staff:
Ryan Lothrop, Cindy LeFleur, Tim Sippel, Myrtice Dobler (note taker)
Public:
Blair Peterson

Purpose of meeting:
Advisory Group/Public Comprehensive Review of Columbia River Basin Salmon Management Policy C-3620 (2013-17)

Meeting Agenda:

Time	Topic
10:00-10:20	Introductions/ Agenda/ Review update and timeline
10:20-11:45	Review Category A responses
11:45-12:45	Review Category B responses
12:45-1:00	Wrap- up/ What's next

Meeting Notes:
Introductions and review of agenda
Reviewed where to find information from meetings and the Fish Committee online.

Timeline
- We are at May advisory meeting.
- Next is June 14th- Public meeting with fish committee
- July 31- Next Columbia River Commercial Advisory Group meeting
- August- Fish Committee meeting to attempt to finalize review doc.
    - Allows 2 weeks to finish review before presentation to Commission in Sept.
- We hope to have joint Commission with ODFW- nothing scheduled yet

We've broken up the document into theme sections/chapters. Currently we have and "A" section of completed items and a "B" section of in progress.

Intention for this meeting
- Share what we have, receive comments, questions and feedback on the analysis.
    - Thinks it went well, would have liked a stronger stand on some positions.
    - Our (staff's) job

        - provide information, would like to hear where we could have been stronger
    - Better, fairer allocation. Strong fishery comes from strong commercial fishery, raise fish.

Question 11
Provide definition of selective gear and what is a selective fishery. Make selective gear definitions more black and white on what gear is or isn't. Difference between catch and release and selectivity.

Selective Gear (Questions 11, 12 and 33)
We need a clear definition of selectivity. It is currently confusing. Confusing and misleading and question on accuracy of numbers, issue with terms used. Discussion on selectivity of seines: we need to provide hard data on seines.

Selective vs. Non-selective (Question 11)
- We are selective because of time and area.
- Giving protection for a weaker stock.
- Selectivity is a confusing thing – alt gear is not selective.
    - The Commission waiting for definitive answer. Someone needs to state functional gear
    - Commission needs to hear agreement between what CRCAG says and what staff defines.
    - Selectivity is different from catch and release.
    - Avoidance is #1 thing for document.
    - Calling it (Zone 4-5 fishery) non-selective for Chinook makes it sound bad. We are trying to catch Chinook.
    - Early March. We could fish selectively with our gillnets.
    - Approach is confusing and misleading.
    - On analysis Q11- "this guiding principle is coming from…" did not come from workshop.
    - Members of CRCAG requested that we include a citation for the governor's statement
    - Felt it was not a collaborative decision – the Policy development/workgroup process
    - Saying that seines are selective: data shows differently.
    - We need statement in this report – seines either work or they don't. Make that statement clearer. And Gillnets can be fished selectively

Alternative Gear (Questions 11, 12, 13, 19, and 33)
Would like more discussion on pound net- requested meeting with Blair Peterson
Suggested WDFW summarize (in 5 or so bullets) what's working and what's not

- Hammer on the fact that alt gear has not been developed.
    - Make it clear that this hasn't work
- Never given accurate data on seine fishery or sport hooking mortality. Why don't you have hard facts?

    - Sport hooking mortality- never been checked
    - Seines haven't fished 2 years
- Tooth nets. Bought them, made the investment
- Time, area, and mesh works. We need to go back
- Get back to the facts
    - Perfected tooth net and didn't have to put any fish in the live box, didn't catch any steelhead
    - Feels commercial fishermen have done a good job
    - They didn't get any credit for it
- No fishery was designed for catch and release
    - Trying to design it with tools we have- some work, some don't
- Pound Net. Purpose of NOAA study was to catch steelhead. That's why it had such a high catch. But had low mortality.
    - New pound net – don't know cost
    - Questions on feasibility
    - Request for further discussion was made- will set up a future meeting with Blair where he can go into more detail
- Is the plan working?
    - We don't have any viable options for alt gear
    - Sport priority- not working
        - License sales?
        - Angler trips
        - Economics
        - Fish caught
    - Make 5 or so bullets of what's working, and what's not

<u>Select Areas/ SAFE</u> (Question 8, 15, and 22)
Problems with retailers stocking enough gear based on select areas
Fishermen camping out to save the best spots

- WA has not been able to develop any new SAFE fisheries
- Show numbers for SAFE
    - What are catches now and compare to 10-year average before plan
    - Hours spent to catch fish
- Select Areas don't work for entire fleet
    - Top four places in Young's bay- 1 guy controls it
- WA doesn't have any Select Areas
- Select Area Brights – released in Oregon SAFE
    - Highest money fish for Select Areas
- OR and WA Select Areas are different as night and day
    - Cathlamet channel didn't work- no homing scent
    - Not enough room for fisherman
        - Quality is down. Fish for public should have best quality and stocks

- Tremendous loss (damage) of gear in Select Areas
- Gear is based on Select Areas, but retailers don't buy that much
    - Two months before opener they're out of gear
    - Net availability is not what it was

Observers (Question 27)

- Insurance issues on boats (WA) - belief that they were protected from observers injury
- What did we get
    - Enforcement cracking down on us
    - Still hear "we need more data"

Policy

Commercial advisors want to recommend to the Commission that this plan is not working

- Opening statement for Commission
    - In general, that commercial advisors conclude that this plan is not working.
        - Wants that point to be made
- Put policy in without the science. Did it backwards
- Defining problem to Commission
    - Built on pillars of what was supposed to work
        - SAFE
        - Alt gear
    - Select area (Q22)
        - WA fishers not engaging
        - Not economic
    - OR select area
        - 9.5% of landing from WA fisherman
        - Went up initially now going down
    - What the WA Commission has done with Policy
        - No spring Chinook
        - No sturgeon
        - No summer chinook
        - Fall chinook
            - 60% of 2007
        - Supposed to have SAFE areas and alt gear
    - Line out the facts
        - No additional WA SAFE areas
        - Tried in Cathlamet Channel – didn't work
        - No science in document, no data
- Goals of policy were not justified by the science
    - Improve conservation
        - No evidence that conservation has been improved
    - Prioritize Rec. Fishing
        - Already prioritized.

        - OR shows little bit of improvement
        - Angler trips are flat or down
        - Increase license sales – license sales flat
- Select Areas
    - Get data on OR select area release and catch
    - Increase releases in OR
        - Couldn't do it
    - Tried to improve main stem
        - Only 20% more for spring
        - Part of what was promised from earlier working groups

Allocation (Questions 6, 7, 30, 32, 34, 35, and 36)
Discussion of allocation and the effect on the fishery- concern over 20% allocation
Asked WDFW staff to tell consequence of brights and wild
Encouraged WDFW to defend the science

- Impact splits
    - Cannot live with the 20% allocation
    - Predators are eating the fish
    - Can't run mainstem fishery and Select Areas in spring with 20%
    - Fall will go 20% with only selective gear, but no selective gear to use
- Issue is not alternative gears: it's that all the fish go to sport anglers
- Tell consequence – brights and wild – means low mark rate for selective fisheries
- Defend the science
- Three choices
    - Pull plug on hatchery production
    - Let commercial fishery catch more fish
    - Bring tribes down river to catch hatchery surplus

Economics (Questions 8, 37, and 38)

- Loss of economic sustenance is impacting the local communities
- Economics of Select Areas – trying to make most of Select Areas but they are not economical
- Buyers – WA Select Areas are not good for WA buyers and WA buyers cannot buy in OR without OR buyers license
- Economic impacts have been masked by an increase in prices and abundance
- Fishermen and buyers having a portfolio of fisheries. Last year less than a month of buying – used to be 10 months. Fishermen fish in the mainstem, SAFE, crab fishery and Alaska to build their portfolio
- The commercial fishery used to be a stepping stone fishery, Fairly inexpensive to start, but there's no interest from young fishermen
- There is a cost of having to put money and resources into a variety of gear.

- Selling the business is difficult now because there is no value left in it. People cannot afford to repair boats. No young guy can buy it. Not a good investment. No future in it the way it is.
    - $6-$7 thousand is what license are worth
    - Was about $10K when it Policy started
    - Has been as high as $45K
    - With fishing we've had could have been $20-25K
- Request for harvest matrixes with allocation shares – the way it used to be – worked well
- Hatchery cuts are occurring because people can't catch fish
- Even with big runs we came short of predictions for harvest

Buybacks (Question 18)

- What was the intention of the buybacks?
- Nothing benefits
    - All it does is get rid of the gill nets – cannot tell where sport has benefited
    - Lower harvest of food fish. Is this what was intended by the legislature?
- Only talking about buy out due to Policy
- Policy destroyed fishery

Logbooks (Question 25)

- Commercial Advisory encouraged use of log books for guides. OR and WA have never put anything for limited entry guide boats. There isn't enough room for the amount of people going fishing

Concurrency (Questions 16, and 40)

- Advisors expressed concern over lack of concurrency. One policy for both states.

Question 25:

- Feels log books would help fill data gaps. Encouraged log books for guides.

Question 17

- Improve information availability about commercial fisheries. Feels there is a lack of availability for locals business to sell Columbia River salmon. Acknowledge lack of information on commercial fishery online. We need to inform people that there is a commercial fishery. If you can advertise to sell the sport fishery why not commercial? The answer shouldn't be that you have to catch your own fish to eat.
- Issue with 'Eat Wild' flyer. WDFW Marketing did the flyer with intention to sell licenses. Frustrating to keep trying to get information to consumers
    - Monterey Bay Aquarium is where seafood information comes from – sustainability seafood. Downgraded Columbia River coho from yellow to red.
- Lack of availability for local CR salmon

- Restaurateur spoke at Commission meeting in Astoria. Cannot feed them Columbia River salmon.

Question 18

- Concerns over how the value of the buybacks would be measured. When you decrease our numbers we get weaker.
  - Value. Look at what they were worth, not now that their economies are devastated. When Policy was initiated value was estimated.

Question 22

- SAFE Areas
  - 350,000 Chinook smolts were to be added. We didn't release all of the fish that were planned for
    - Only way Select Areas work is for spring and fall
    - Balance economics with production cost. Not going to pencil out
  - Expansion of select areas can also mean additional impacts needed to prosecute
- Economics of SAFE
  - Give numbers and compared with numbers in the past
    - Show money put into getting fish out and then how many come back. Commission thinks releasing must be harvesting- not happening
  - Cost of raising compared to returns. These numbers should be impressed to Commission.
    - New predation is occurring. Commission needs to know. It's a huge unknown.
  - Young's Bay is averaging 4 fish/ fisherman
  - Number of participants doesn't count those who didn't catch anything
    - Only get data from sales

Question 27

- Share results from monitoring- and describe what the information means
- Told WDFW to be more aggressive in your own Science
- Is the analysis saying what it needs to say, i.e. can you use 8-9"gear in Zone 4-5?
  - Make the step for the Commission to describe what the information means. Be more aggressive in your own Science. Be clear and precise – these aren't kill nets. Used appropriately it's can be good for harvest

Question 28:

- Concern over who was running and funding the Cowlitz study. That study is not where the bulk of the fish are being caught
  - Fish there are a lot more resistant to hooking and handling than in the Columbia
  - Be careful not to apply it everywhere
- Commercial advisors requested more information on Mt. Hood Environmental. Would like those involved (with Mt. Hood Environmental) to be shared with Commission.

Question 6:

- The allocation table is misleading in terms of how much they are fishing. Asked for catch data. Commercial advisors requested to be involved in the agreement discussion with Colville Tribe.
    - Concerned about table. Table is actual sharing of harvest. Does not reflect escapement goals being doubled.
        - Colville's are not catching share
        - Sports can't catch their share
    - It is not like the spring. In this case it's about how willing the Colville Tribe is to fish
    - Are you giving them enough fish to catch allocation? If so, why aren't they catching them?
        - We used to get a kick back from unharvested Colville fish
    - Violating terms of last Colville agreement
        - Obligated to maintain commercial fishery

Other Topics Discussed:

- Organization of CRCAG- Discussion on roles, membership, and participation.
- Discussion of sturgeon how fishing was allowed in lower river in the winter/spring but not anymore.

Action Items:

WDFW staff:

- Go through comments and implement them in the Policy Review Document for CRCAG review
- Schedule a meeting with Blair where he can provide a more detailed presentation- perhaps September

CRCAG:

- Review of meeting minutes
- If you have additional comments- please share them with us

Next Meeting:
We went as late as we could to complete the review document. That took us to the end of July

Date: July 31, 2018	Time: 10am-1pm	Location: WDFW Region 5 Office
Time	Topic	
10:00-10:20	Introductions/ Agenda/ Review update and timeline	
10:20-12:00	Review Category A responses	
12:00-12:45	Review remaining Category B responses	
12:45-1:00	Wrap- up/ What's next	

Columbia River Recreational Advisory Group Meeting Notes- July 12th, 2018
WDFW Ridgefield Office- 5525 S 11th St, Ridgefield WA 98642

Attendance:
CRRAG Members:
Harry Barber, Clinton Winn, Randy Woolsey, Mark Heirigs, Ken Beer, Lance Beckman, Pete Boone
WDFW Staff:
Cindy LeFleur, Ryan Lothrop, Myrtice Dobler (note taker)
Public:
Larry Cassidy, Don Kinsey

Purpose of meeting:
Advisory Group/Public Comprehensive Review of Columbia River Basin Salmon Management Policy C-3620 (2013-17)

Meeting Agenda:

Time	Topic
4:00- 4:15	Introductions/ Agenda/ Review update and timeline
4:15- 4:45	Economics
4:45- 5:15	Allocation
5:15- 6:00	Alternative Gear
6:00- 6:15	Concurrency
6:15- 6:30	Selective Fisheries
6:30- 6:45	Q1 Supplemental: Conservation Benefits
6:45- 7:00	Wrap-up / What's next

Meeting Notes:
Introductions/Agenda/Review
Ryan quickly summarized where we are and what the process is (details in handouts). He highlighted the next Fish Committee meeting which is open to the public

- August 9th in Olympia at 4pm. Feel free to join us

Economics
There was a discussion on the use of angler trips in comparison of commercial ex-vessel values. This is a measure used in the policy. It was requested to add a narrative on the value of angler trips and noted that it would be nice to know the impact of sport fishermen (WA and OR) on the economy.

Question on how WDFW arrives at the estimated angler trips; more information will be provided to the advisory group. The main ways are:

- ODFW flies the river twice a week and counts boats and bank anglers

- There are samplers on both sides of the river, 7 days/week at beaches and boat ramps
- Put those 2 together = catch and angler estimates
- Staff provided a PPT to the group on this topic after the meeting

Question 2- Economic Enhancements

- Concern was expressed about showing how the poor run size has effected angler trips.
- It was suggested to show angler trips per fish, instead of just per run size
- In regards to tables 2D through F it was noted that a value is placed on the number caught and the amount received (per fish), it would be useful to know what those expected and actual values were.
- It seems that both recreational and commercial indicate a declining number compared to what was modeled.

Question 15- Enhancements to Select Area fisheries

After a quick summary by Cindy and a note that we plan to add futuristic numbers, due to Mitchell Act BIOP, the advisory group highlighted the following items:

- They would like to see a table, by year, of the commercial and sport catch totals in select areas and main stem (whole river to McNary)
- A listing of all the select areas, with amount of fish released by species and harvested with description of the purpose of select areas

It was noted by a member of the public that on SAFE areas Bonneville Power spends $2.8 million compared to $2.3 million return. They questioned the soundness of the investment – that is paid by rate payers.

Question 20- Opportunities, transition phase

- There was a discussion on lack of URB, this fishery didn't occur during the policy.

Question 21- Opportunities, long term

- The advisory group had a discussion on how the poor upcoming run size will be disastrous, and there were questions on how it would be reflected. We are expecting to go from 15% to 8.25% harvest rate and so you would expect to cut the numbers in half.

Question 37- Economic expectations (similar to Q2)

There were discussion on the tables in question 37, several notes were:

- Need to show these in terms in some kind of percentage change- show trend
- For Table 37E provide a totals row, perhaps by chinook, Coho (for each section).
- In Table 37G which shows effect of policy while neutralizing run size. It was asked to make notes of factors effecting sport fishery- weather, catch rates, run timing, water temperature and flow.

For the economic section it was noted that this needs to be distilled into 5 or 6 lines. Staff agreed that we are missing the narrative in this section, and we plan to have a separate document to summarize the whole review information at a high level.

Allocation
This section hasn't really changed since the group went over it in March. Staff plan to reformat the document for ease of reading.

Question 30- Spring Chinook Allocation
- There was discussion on catch balancing and ESA impacts, and how they work.
- The advisory group did not like that the table only shows the percent used, and not actual sharing between fisheries.
- They would also like to see the ESA impacts and what actually happened.

Question 31- Spring Chinook Buffer
- The question was did the buffer succeed? Yes, we didn't exceed impacts.
- This is because of catch balancing.
- There was further discussion on catch balancing.

Question 32- Spring Chinook Allocation, Sport
- There was further discussion on why catch balancing is applied to the whole river.
- The advisory group noted that the data in table 32A are skewed by 2017 and if you take that out it would change average. It has been suggested to run the data without the 2017 information to give a clearer picture.

Question 34- Summer Chinook Allocation, above PRD
- The advisory group recommended staff describe what a summer chinook season looks like, angler days/days open.
- There was also a discussion on allocation in relation to the Colville fishery.

Question 35- Summer Chinook Allocation, below PRD
- There was discussion on the original response to this question, ultimately staff ran out of time to put this together.
- Discussion on the allocations, if we reached the 70-30 split, and looking at how much of the allocations were used.

Alternative Gear
Concern was expressed of having non-selective gill nets in the main stem. There was also discussion about seine net studies and the actual fisheries in 2014.
Question 12- Alternative Gear Development
- There was a discussion on the challenges of seines- the cost, increase need for staff, and economic viability
- The advisors brought up the difference between spring/summer/fall seasons
- It was asked how the Colville tribe make seines so effective- there was talk on stock and rates, as well as location

Question 19- Alternative Gear Progress

- Advisory group members felt that this section was missing by-catch (spring chinook tangle nets, summer chinook gillnets) and sturgeon. Staff pointed out that it all should be in commercial

Concurrency

Cindy summarized the document, there was little discussion.

Selective Fisheries

The document was summarized by staff.

- The group discussed how mark-selective can be challenging- missing marking, strong wild population
- Several of the advisory group members felt that the effect of gillnets on steelhead was misrepresented. They also expressed concern over missing steelhead mortalities, which would affect the fishery.

Q1 Supplemental

We did add to this, suggest read through it- policy is not a conservation policy

- Missing elimination of by-catch, major conservation consideration and should be in there.
    - By-catch of some fisheries are provided in their appropriate section (i.e., commercial).

Other Comments

Due to the dense content it was suggested staff meet individually with Commission members not particularly oriented in fishing

There's no mention of impacts of sea lions- have heard impacts can be higher than allocation

- It is not in these sections, but is under management section in question 5 on predation

Action Items:

WDFW Staff:

- Update Policy Review document with input from CRRAG

CRRAG:

- Review of meeting minutes
- If you have additional comments- please send to us

Next Meeting:

Date: July 18, 2018	Time: 1:00- 3:30pm	Location: Benton PUD
This is not an official advisory group meeting, but an opportunity for public on the eastside to review the Columbia River Basin Salmon Management Policy C-3620		
Time	Topic	
1:00- 1:15	Introductions/ Agenda/ Review update and timeline	
1:15- 2:30	Review Category A (completed) responses	
2:30- 3:15	Review Category B (incomplete) responses	
3:15- 3:30	Wrap- up/ What's next	

Columbia River Recreational Advisory Group Meeting Notes- July 18th, 2018
Benton PUD 2721 W. 10th Avenue, Kennewick, WA

Attendance:
CRRAG Members:
WDFW Staff: Jim Brown, Chris Donley, Paul Hoffarth, Chad Jackson, Mike Livingston, Ryan Lothrop, Steve Pozzanghera, Tim Sippel, Jeremy Trump, Bill Tweit
Public: Rich Coleman, Doug Baldwin, Dave Graybill (WFW Commissioner), Lance Hebdon (IDFG)

Meeting Agenda:

Time	Topic
1:00-1:15	Introductions/Agenda/Review update and timeline
1:15-2:00	Recreational
2:00-2:15	Commercial
2:15-2:30	Tribal
2:30-2:45	Management
2:45-3:00	Alternative Gear
3:00-3:15	Allocation
3:15-3:30	Economics
3:30-3:45	Wrap-up/What's next

Meeting Notes:

Introductions/agenda/review update and timeline

- Upper Columbia Review also taking place and may not be moving at the same timeframe (Commissioner Graybill)
    - Region 2 and 3 will be meeting in Aug. on the Upper Columbia Review.
- Does this include the Snake River?
    - Commissioner Graybill would like to see a complete review of the entire Columbia River system including upper Columbia and Snake.
- Open question/comments
    - One of the main thing in 2012 meeting was minimizing commercial fishing. Average weight of fish harvested in fall commercial fishing had declined. We should remove commercial gillnetting.
    - Guide licenses and ocean charter fisheries should be recognized as recreational fishing dollars.
    - Ocean fishery structure are they taking 80%.
    - Review commercial OR and WA gillnet fleet size.

Recreation

- Has the recreational fishery been prioritized in the mainstem and has the commercial fishery been priorities in off-channel areas? – no discussion/comments

- What science was used by the Department for the barbless hook regulation? – no discussion/comments
- What tributaries in Washington are exempt from the barbless hook regulations? – no discussion/comments
- Has the Department made any progress on the use of logbooks in the recreational fisheries? – no discussion/comments

Commercial

- Has the Department made progress in implementing the Marine Stewardship council certification program?
    - Discussion at last fish committee meeting was that it was not cost effective.
- Has the Department Made progress in implementing a buyback program?
    - There was a comment here about economics of Columbia River commercial fishing.
- Has the Department made progress on developing new off-channel sites in Washington?
    - New approach being discussed on Deep River for SAFE (subyearling w/ multi timing release approach)
- What were the results from monitoring the 2017 commercial fishery and how do they compare with expectations? – no discussion/comments

Tribal

- Has the Department met the needs of the Colville Tribe and terms of the agreements? – no discussion/comments
- Has the Department met the needs of the Wanapum Tribe? – no discussion/comments

Management

- What conservation benefits have occurred as a result of the Policy?
    - May be easier to answer the question “Were there conservation benefits as a result of the Policy?”
    - The document will be consolidated between the #1 latest response and supplemental #1 response.
- Have fisheries focused on abundant wild stocks as well as hatchery stocks? – no discussion/comments
- What mark-selective fisheries have occurred? – no discussion/comments
- What has the Department done to reduce salmon predation?
    - Is avian predation management for cormorants?
        - Avian predation-has created some displacement of birds and may have moved the problem to other areas.
- Are Washington and Oregon policies and regulations the same? – no discussion/comments

- Has the Department made any progress on implementing outreach programs for recreational fisheries compliance, increased effectiveness of enforcement programs and enhanced monitoring of fisheries? – no discussion/comments
- Did the Department seek funding to estimate release mortalities in recreational fisheries? – no discussion/comments
- What has the Department done to improve fishery management tools? – no discussion/comments
- What regulations or policies are not concurrent with Oregon? – no discussion/comments

Alternative Gear

- Have gill nets been phased out of the mainstem? Did a thorough evaluation occur? – no discussion/comments
- What is the definition of non-selective gill nets? Definition of 'selectivity' is contained within the supplemental document located on the advisory group website – no discussion/comments
- What alternative gears have been developed and what were the performance characteristics?
    - Was NOAA doing test netting/test fisheries below Bonneville or were they working with WDFW and ODFW?
- What alternative gears have been implemented into permanent rules?
    - Using pocket seines as Colville tribe used near the mouth of the Okanogan? (Commissioner Graybill) Bill discussed that this was a similar method to the seines used in lower Columbia for steelhead, but may be a problem with mortality estimates/method to assess mortality.
- What has occurred regarding alternative gear funding, development, testing and implementation? – no discussion/comments

Allocation

- What was the actual allocation sharing of spring Chinook between sport and commercial fisheries and how did it compare to Policy? – no discussion/comments
- Did the spring Chinook management buffer keep the non-treaty fisheries from exceeding the ESA guidelines? – no discussion/comments
- What was the actual allocation sharing of spring Chinook within the sport fishery and how did it compare to the Policy? – no discussion/comments
- What was the actual allocation sharing of spring Chinook between sport and commercial fisheries and how did it compare to the Policy? What were the results of testing alternative gears? – no discussion/comments
- What was the actual allocation sharing of summer Chinook above and below Priest Rapids Dam and how did it compare to the Policy? – no discussion/comments
- What was the actual allocation sharing below Priest Rapids Dam and how did it compare to the Policy? – no discussion/comments

- What was the actual allocation sharing of sockeye, fall Chinook and coho between sport and commercial fisheries and how did it compare to the Policy? – no discussion/comments

Economics

- What economic enhancements were expected to occur for the recreational and commercial fisheries and did they occur?
    - With moving commercial to off channel areas, the expectation was blossoming recreation. We need to recognize that the Policy was developed during times of abundant returns and that the runs have been declining. (Commissioner Graybill)
- What progress has been made on achieving overall economic well-being and stability of both commercial and recreational fisheries? – no discussion/comments
- Have the off-channel areas been economically enhanced compared to before the Policy was implemented? – no discussion/comments
- Were additional opportunities for the commercial fishery provided during the transition phase? – no discussion/comments
- Were additional opportunities for the commercial fishery provided during the long term? – no discussion/comments
- What were the catches and economic expectations of the sport and commercial fisheries and were they achieved when compared to different run sizes? – no discussion/comments
- If the catches and economic expectations were not achieved what was done to determine why and were corrections made? – no discussion/comments
- Did any of the expectations regarding catch, economics, off-channel limitations, legal/financial issue, conservation objectives or other circumstances occur that would require the Department to reconsider the fishery management strategy of the Policy and if so what changes occurred?
    - Should include fleet size of Oregon and Washington total number of licenses, number actively fishing, and income of commercial vessels. (Commissioner Graybill)

Next Meeting:

Date: August 9	Time: ~4 p.m. start	Location: Olympia, Double Tree Hilton
Staff presents latest update to Columbia River Policy Review report to the Washington Fish and Wildlife's Fish Committee		
Time	Topic	
15 minutes	Timeline update	
1 hour 45 minutes	Report update	

Columbia River Commercial Advisory Group Meeting Notes- July 31st, 2018
WDFW Ridgefield Office- 5525 S 11th St, Ridgefield WA 98642

Attendance:
CRCAG Members
Les Clark, Bryce Devine, Kent Martin, Robert Sudar, Jim Coleman, Ken Wirkkala, Greg Johnson- on the phone
WDFW Staff
Bill Tweit, Cindy LeFleur, Ryan Lothrop, Myrtice Dobler
Public
None

Meeting Agenda:

Time	Topic
10:00- 10:15	Introductions/ Agenda/ Review update and timeline
10:15- 10:45	Economics
10:45- 11:15	Allocation
11:15- 12:00	Alternative Gear
12:00-12:15	Concurrency
12:15- 12:30	Selective Fisheries
12:30- 12:45	Q1 supplemental: conservation benefits
12:45- 1:00	Wrap-up/ What's next

Meeting Notes:
Introductions/ Agenda/ Review update and timeline
Directive to provide final report by the end of August. What we are covering will be sent to the Fish Committee by the end of the day for the August 9th meeting.

Ian Courter, with Mt. Hood Environmental is going to be the consultant who will work to summarize our report.

One member brought up submitting an addendum from interested parties. If the advisory group members would like to write up a document we could attach that as part of the advisory group comment section.

Concerns were expressed over how political the management in. Many in the group believe that the best sport fishery sport fishermen will ever have is when we all raise fish together for everyone.

Advisory Group (AG) wants to make sure that the final report is simplified. Discussion on how the detailed analysis is needed so that the simplification would be accurate.

Economics

Question 2- Economic Enhancements

- Would like to note that sport decreased even though they got 80%- greater priority
- Discussion on the pre-policy choice of years. We used 2010-12 partly because that's what OR used. AG feels adding 2009 would make a difference in catch size because of a large coho catch year and Policy development during 2009-11.
- Discussion on mark selective fisheries for sport fishing, how it happened and some of the effects of that management
    - Sports have an opportunity to fish in the tributaries- while commercial have to stay where they are
- Modeled higher impact rate (15%) on Snake River wild- past fall we ended up at 28-30% usage (constrained by B steelhead). But there were no more Snake River wild available- this is likely where we'll land if this continues.
    - Impacts coming out of the recreational fishery
    - Concern of moving in these lower run years- won't create commercial values as expected because the sharing won't be there.
    - Modeling assumed all kinds of things that didn't happen. Run size, price per pound, total harvest of fish.
- When you restrict any fishery with opportunity it can't thrive and threatens sustainability

Question 15- Enhancements to Select Area fisheries

- There are lots of numbers, what is your conclusion of this section? - AG would like staff to find a way to simplify the information.
- AG have a concern over saying that the SAFE areas were successful it will lead the Commission to an incorrect conclusion.
- Future of the SAFE areas- pHOS issues
    - If we're losing the most valuable stock for that fishery, the Commission should be reminded of that.
- URB contributes more to other fishermen
- There was a discussion about BPA's position on funding select areas- will figure out more in September
    - Phone call today between OR, WA, and BPA- we know what our position was but not the results of the call.

Synopsis

- You make point that 3 million was not a hard target, but a measure. This should also be pointed out in the staff summary. We also can't judge success on one year's success but whether the trend matches what was predicted.
- The data at a whole seems to indicate that there's not a relation between sport and commercial fisheries. Taking fish from the commercials does not add to recreational. Increase in angler days do not directly transfer to the shift in impact.

- There were comments on wording of synopsis; it seems some items stated more clearly in intro.

Table Specific Comments

Table 2A	• Does not feel like the trips declined due to run-size- will be discussed later
Table 2D	• Based on the runsize adjustment you don't see much improvement • AG feels that table makes sense
Table 2F	• Suggests staff look at average number of days in pre policy seasons to see if they gained anything.
Table 2H	• It's hard to have commercial fishery when it's based on impacts. Often by the time everything comes through there are no impacts left. The group would like an adjustment in the impact split. • Discussion on the experiment of purse seines. It doesn't matter how many fish a trap catches it's about how many fish they're allowed to keep. • Needs to support a high capitol high volume approach- would like this to be reiterated to the Commission. • Questions on inflation and how that's accounted for
Table 2I	• Seine net fishery's cost to gillnet fishery is that reflected? • AG noted that graphs don't address what it takes to get these fish- the loss involved in expense. The cost to operate the fisheries will not be included as staff are not economists. Travel to Select Areas (or Zone 4-5) is costly for all except those who live nearby. • Not all catch is created equal based on effort/operational cost to catch fish o Youngs Bay, one fisherman mentioned that he fished 4 months every week and came up with almost 100 fish by then end of it- but it's different from being able to fish closer to where he lived. o Difference between fishing 3 nights vs. 1 night • Will they see the whole picture- pre policy • Doesn't think what's happening there now isn't much different from what was happening 10 years ago. SAFE was producing good runs of fish prior to policy and smolt releases now aren't different in most cases from what they were in the past - only a 10-20% increase at most in some runs and declines in others.
Table 15A	• These were release goals- doesn't mean they'll come back
Table 15C	• Another place 2009 data is important- 2014 catch dominates everything, 2009 was an 80,000 catch year in the Select areas (another peak coho year) • Lots of juvenile fish released does not translate into significant adult catches
Table 15I	• Tributaries are select areas for recreational- not fair to look at only main stem for recs. • With basin rec. catch numbers included, rec. catches will expand dramatically. • Select Areas are not filling any holes for WA fishermen- There's not enough area to fish, for example Deep River would be too crowded

	• The difference between states- WA license holders don't participate in a high level in these areas. OR solution is not working well for WA.

Allocation

The advisory group suggested providing not only the end numbers but what was supposed to happen and what changed in the season. For example, 31 and 32 higher than anticipated sharing was from forgone impacts given to commercial fishery and this is something that commercial fisheries should be using (same thing in the summer).

Question 35- Summer Chinook Allocation, below PRD

- AG requested a note explaining that should we exceed prescribed sharing- was part of foregone catch – we can almost always catch our share, sport often cannot especially when fishing selectively in a relatively small run with a large wild component (like summer returns)
- Discussion on using the percentages and how to reflect the accurate story

Question 36- Allocation sockeye, fall Chinook, coho

- Didn't fish for coho partly due to the lack of URB impacts in 2016 and lack of steelhead impacts in 2017. There were fish to harvest but not impacts available to prosecute fisheries.
- Would like to explore what is it costing the state (economically) due to the rigid impacts

Table Specific Comments

Table 30B	• Include what they were supposed to get • 42% was from when the recs couldn't use- in season management not policy. Share the whole narrative
Table 32B	• A description of season is important to explain the final numbers
Table 33B	• Shows how the whole river is being shared- this looks good • Testing was done- but unsuccessful • Too many sockeye and steelhead handled. • A discussion of where commercial numbers came from
Table 35A	• Should have a column of unused catch- Show percent of allocation used next to % share.
Table 36A	• Still missing actual sharing
Table 36B	• Is there a place where we can show what the model assumed? o Assumption that sport wouldn't use allocation of URB o Fishery was modeled with commercial higher. o Commercial will not be able to achieve economic value

Alternative Gear

Tangle nets are a good alternative gear for spring, but we don't have enough impacts to use them- better to use in late May, rather than give up our spring fishery. Tangle nets for spring

Chinook is an alternative gear, it was used very successfully, and we were still shut out of any spring Chinook fishery in the mainstem long-term via the Policy.

Question 10- Gill nets phased out

- There was discussion on what was meant by 'evaluation.' Some did not feel that there was an evaluation.
- Some items that could fall in the category are
    - Steelhead- industry and staff
    - OR evaluations
    - Models portraying if we didn't use 4-5 and went to different zones

Question 11- Definition of non-selective gill nets

- AG was pleased with comprehensive analysis.

Question 12- Alternative Gear Development

- AG requested staff add summary covering seins and tangle nets and note economic threshold
- There was a question on the 'fair' listing on the tangle nets release conditions?- table taken from OR, table was developed earlier in the process
    - Would argue released in good condition not fair.
- Tangle nets missing in analysis portion

Question 13- Alternative Gear Implementation

- Purse seine in Columbia River discussion
    - Why they aren't being used and will that change?
- The AG would like to have potential gear conflicts included
- Scale is important- There's not enough fish to operate gear like this

Question 14- Alternative Gear Incentives

- Members said they do not see what's spent on research as an incentive
- How much fish you want to catch compared to runsizes - why spend money on gear that might not even be allotted a fishery

Table Specific Comments

Table 19A	• The fish caught by seines were not as desirable (size, quality, only allowed to keep clipped fish, higher level of tules)
Table 19 A/B	• Limited effort on the Seine fishery (Table 19 A and B) concerned on the accuracy of total #. Some zones were not effective for beach seining or purse seining. • 2014 many fishermen went gillnet fishing for coho
Figure 19.1	• Not accurate in study period • Timeframe used to asses mortality rates (had some initial issues due to human error)

	• We need to fish on volume- will need to evaluate performance earlier when peak is)

Concurrency
This has been out for a while, there was a quick review. The general idea of the document is encouraging the Commission to fix the non-concurrency.

Selective Fisheries
We were asked what Selective Fishing is, that's the goal of this document. Advisors were asked to check and see if this does what they think it should and they agreed.

Q1 supplemental: conservation benefits
The advisory group suggested staff add to summary paragraph.

There was a discussion on hook and release mortality studies.

- Willamette study- Spring Chinook study
    - Higher than what's being used in Columbia
- The study is over 20 years old, no recent hooking mortality studies for what's really going on and the sport fishery and they are getting more of the allocation.
- Concern whether same gear is being used.
- Review release mortality rates during spring Chinook studies 15 years ago.

Other Topics
Discussion on monitors on boats and where we are- mostly where we were before.

Predator mortality- we know it's going on but don't have a way to estimate it. The fisheries aren't being held responsible.

Would like to have a statement of this is what policy was supposed to do

- Re-shift allocation
- Replace gillnets with alternative gear

Pound net update:
We don't have a signed contract or finalized plan. But are still actively engaged in finalization. The primary objective is to look at commercial viability, not mortality, and will do stock comp of steelhead (at Idaho's request).

This will be done as a test fishery to determine commercial viability. This means Chinook, coho and steelhead ESA impacts are coming out of research category- separate from fishing category (cannot trade back and forth)

The current time frame is August 15 through October 31. But we plan to go until we run out of impacts or funding. The estimated start up and take down (non-fishing) costs are around 40-50K. At this time the study will be using the same site Blare Petersen has been using.
We believe that the data is more valuable than the revue received from the fish. For sale of the fish, we are not required to put it out to bid, but required to get fair market value. Picking the buyers are up to us, but finding someone to buy the relatively small amounts of fish is tricky.

Action Items:
WDFW staff:

- Update Policy Review documents with input from CRCAG

CRCAG:

- Review documents (especially selective fisheries) and share any comments
- Review meeting notes for finalization

Next Meeting:
No CRCAG meeting scheduled. But you are invited to attend the Fish Committee meeting on August 9th.