

8: Columbia River Fishery Management – (Briefing)

TABLE OF CONTENTS

	Page
Decision Page (Green Sheet)	1
Columbia River Fishery Management Recommendations	3
Management Strategies for Columbia River Recreational and Commercial Fisheries: 2013 and Beyond	15
Appendix A	
Defining Management Objectives for Recreational Fisheries Downstream from Bonneville Dam	25
Appendix B	
Enhancement of Hatchery Production for Harvest by Non-tribal Commercial Fisheries in Off-Channel Areas of the Columbia River Downstream from Bonneville Dam	31
Appendix C	
Analysis of Recreational Angler Trips and Ex-Vessel Value of Mainstem and Off- Channel Commercial Fisheries Under the Current Management Policy and the Alternative Management Framework Being Considered by the Columbia River Fishery Management Workgroup	37

“GREEN SHEET”

Meeting dates:	November 8, Commission Meeting
Agenda item #8:	Columbia River Fishery Management – (Briefing/Public Hearing)
Staff Contact:	Cindy LeFleur, Columbia River Policy Coordinator, and Guy Norman, Region 5 Director
Presenter(s):	Guy Norman, Region 5 Director

Background:

Columbia River recreational and commercial fisheries are a vital part of the social and economic fabric of Oregon and Washington, providing valuable jobs and economic vitality to rural and urban communities. Optimizing the economic value of these fisheries within a conservation-based framework that assists recovery of Columbia and Snake River fish species is a management priority.

Current fishery management strategies have become very complex with the majority of the salmon and steelhead populations listed as threatened or endangered under the federal Endangered Species Act (ESA). An important strategy for managing non-tribal fisheries consistent with efforts to recover ESA-listed salmon and steelhead and conserve white sturgeon is to make the fisheries more selective, i.e. deploy gears and techniques and use time and area closures to minimize the catch of certain species and/or allow the safe release of wild fish.

With the harvest constrained by the ESA, the sport and commercial fisheries are limited in achieving their ideal objectives for their fisheries. Sport fisheries are not open throughout the entire season and commercial fisheries are restricted from harvesting significant hatchery surpluses. Because of the limitation of ESA impacts allocated to non-Indian fisheries, there has been spirited debate among the fishing sectors regarding the appropriate allocation of these impacts. The allowable impact rates do not satisfy the needs of all of the user groups. To provide more impacts for one sector means taking away from another sector. These conflicts divide stakeholders and communities and hinder a unified effort to work towards fish recovery objectives.

The Washington and Oregon Fish and Wildlife Commissions have agreed to work together, with agency staff and key stakeholders, in an effort to develop alternative approaches to management of the sport and commercial fisheries on the Columbia River. To that end, a Workgroup has been developed consisting of three commissioners from each state. Advisors to the Workgroup include two sport and two commercial fishing stakeholders from each state and a Clatsop County commissioner representing the four Columbia River coastal counties of Pacific, Wahkiakum, Clatsop and Columbia. Key staff members from the two agencies are providing policy and technical support.

A staff document was prepared for the first meeting (September 21 in Olympia) that represented fishery management strategies for initial analysis and discussion with the Workgroup and advisors. The staff document (Attachment 1) was revised for the second meeting (October 18 in Portland) to reflect discussions and additional information and analysis requested from the first meeting. Another document (Attachment 2) was developed by the Washington Work Group members and presented at the second meeting. The documents contain short-term (2013-2016) and long-term (2017 and beyond) options. Follow-up questions and request for further analysis of options by staff were made by Workgroup members and advisors. The additional information developed by staff will be presented and discussed at the third meeting, scheduled for November 15 in Astoria, Oregon.

Policy issue(s) you are bringing to the Commission for consideration:

The framework used to begin discussions in the Workgroup has been guided by fishery management strategies that Oregon Governor Kitzhaber has asked the Oregon Fish and Wildlife Commission to work with Washington to develop by December, 2012. The outcome is intended to enhance the economies of Washington and Oregon as a whole, ensure the vitality of sport and commercial fisheries and those communities that rely on them and contribute to fish conservation and recovery.

Public involvement process used and what you learned:

There is time provided at the Workgroup meetings for public comment. Representatives of the Columbia River Inter-tribal Fish Commission, the Northwest Indian Fisheries Commission, and the Oregon Council of Trout Unlimited were invited guests and provided comment at the first Workgroup meeting. Both agencies have websites with current Workgroup information included (see Communications Plan). Public comment will be provided at this and future commission meetings as options are developed and recommendations are presented to the Washington Fish and Wildlife Commission.

Action requested:

None – briefing only.

Draft motion language:

NA

Justification for Commission action:

NA

Communications Plan:

http://wdfw.wa.gov/conservation/fisheries/lower_columbia/

http://www.dfw.state.or.us/fish/OSCRP/CRM/LMCR_fisheries_mgmt_reform.asp

Form revised 10/16/2008 - sdy

Columbia River Fishery Management Recommendations

Washington State Fish and Wildlife Commissioners

October 17, 2012

Introduction

Washington and Oregon have jointly managed fisheries on the lower river for nearly a century. We continue to believe that any effective long-term management plan must be developed by the two states working together. Failure to implement a shared plan threatens our ability to implement orderly fisheries, endangers the economic well-being and stability of the fishing industry, and risks the conservation of wild stocks of salmon, steelhead, and sturgeon throughout the Columbia River basin.

The Washington members of the Columbia River Fishery Management Work Group (WCWG) have reviewed the letters and guidance from Governor Kitzhaber. We agree with Governor Kitzhaber that Columbia River fisheries management is complex and requires the states to balance the legitimate needs and interests of many groups and organizations. We respect the objectives that he has expressed, but recognize that our responsibility is to implement the statutory mandate provided for us by the Washington State legislature.

This document provides our preliminary recommendations for fishery management and artificial production programs affecting lower Columbia River fisheries. Our intent is to promote a focused discussion that leads to comprehensive and cohesive recommendations to our respective commissions. In developing these preliminary recommendations, we have drawn from the joint staff report¹, the suggestions of our advisors, public comment, and the technical analyses provided by our staff.

Our task is a difficult one, and we fully anticipate that these recommendations will be modified as we learn more through the Columbia River Fishery Management Work Group process. The WCWG is committed to work with our counterparts in Oregon to engage in an open and transparent process to improve the management and vitality of our commercial and recreational salmon and sturgeon fisheries in the lower Columbia River.

¹ Management Strategies for Columbia River Recreational and Commercial Fisheries: 2013 and Beyond. October 12, 2012 draft.

Guiding Principles

The WCWG support the following principles to guide the development of fishery management recommendations for lower Columbia River fisheries.

- 1) Promote the recovery of ESA-listed species and the conservation of wild stocks of salmon, steelhead, and sturgeon in the Columbia River.
- 2) Continue leadership promoting fish recovery, including improved fish survival through the federal Columbia River hydropower system, improved habitat conditions in the tributaries and estuary, hatchery reform, reduced predation by fish, birds, and marine mammals, and fishery management that meets conservation responsibilities.
- 3) Continue to meet terms of *U.S. v. Oregon* management agreements with Columbia River tribes.
- 4) In a manner that is consistent with conservation and does not impair the resource, seek to maintain the economic well-being and stability of the fishing industry of the state. Enhance the economic benefits of off-channel commercial fisheries in a manner consistent with conservation and wild stock recovery objectives.
- 5) For steelhead, salmon, and sturgeon, prioritize recreational fisheries in the mainstem and commercial fisheries in off-channel areas of the lower Columbia River.
- 6) Phase out the use of non-selective gill nets in non-tribal commercial fisheries in the mainstem Columbia River. Transition gill net use to off-channel areas.
- 7) Develop and implement selective fishing gear and techniques for commercial mainstem fisheries to optimize conservation and economic benefits.
- 8) Maintain consistent and concurrent policies between Oregon and Washington related to management non-tribal Columbia River fisheries to ensure orderly fisheries as well as the sharing of investments and benefits.

General Provisions

The WCWG recommends the following general provisions regarding the management of fisheries and artificial production programs in the lower Columbia River.

- 1) **Implement Alternative Commercial Fishing Gear for Fall Fisheries.** Initiate pilot commercial fisheries with alternative gears in 2013, incrementally increase implementation in 2014 and 2015, and target full implementation for fall fisheries in 2016 or sooner.

The development and implementation of alternative commercial gears such as purse seines and beach seines provides the opportunity to target fishery harvests on abundant hatchery stocks, reduce the number of hatchery-origin fish in natural spawning areas,

limit impacts to nontarget species and stocks, and provide commercial fishing opportunities.

- 2) **Buyback Gill Net Licenses.** Develop in 2013 and implement beginning in 2014 a program to buyback Washington and Oregon gill net licenses for the Columbia River. Develop, evaluate, and implement other tools to reduce the number of gillnet licenses in a manner consistent with the principles of this plan.

A buyback program will reduce the potential for crowding in off-channel commercial fishing areas and, for interested fishers, promote a transition to alternative fishing gear.

- 3) **Enhance the Ability for Commercial Fishers to Fish in Off-Channel Areas.** Evaluate and implement enhancements (including boundaries, seasons, and new areas) to off-channel commercial fishing areas where the likelihood of impacting ESA-listed stocks is low.
- 4) **Re-Shape Fall Fisheries.** Implement a fall fishery strategy that improves commercial access to hatchery fall Chinook, hatchery coho, and Upriver Bright fall Chinook, addresses lower river hatchery reform, is coordinated with recreational objectives and the terms and conditions of *U.S. v. Oregon*.
 - a) Develop and implement a mark-selective seine fishery for hatchery Chinook and coho during August and September in the lower River.
 - b) Provide a large mesh Upriver Bright fall Chinook target fishery upstream of the Lewis during August and September.
 - c) Develop and implement a mark selective fishery to harvest late stock Washington hatchery Coho in October.
- 5) **Increase Artificial Production in a Manner Consistent with Conservation Objectives.** Increase artificial production using locations, species, stocks, and control mechanisms (i.e., weirs, mark-selective fisheries) in a manner consistent with wild stock conservation objectives. An initial proposal to provide mutual benefits to Washington and Oregon commercial fishers is to increase:
 - a) Spring Chinook by 1 million fish by 2013 and 1.25 million by 2016
 - b) Bright Fall Chinook by 0.5 million fish by 2013 and 0.75 million by 2016
 - c) Coho by 1 million fish by 2013 and 4.8 million by 2016

Increasing artificial production provides the opportunity to offset the loss of commercial fishing opportunities in the mainstem of the Columbia River for Washington and Oregon commercial fishers. New or enhanced artificial production programs must be designed in a manner that maintains our ability to meet conservation and recovery objectives for wild stocks. Successful implementation of these programs will require a concerted, coordinated, and sustained effort by the states and stakeholders to secure the necessary funding.

- 6) **Adaptively Manage Fisheries.** The commissions shall review by January 31, 2015 or sooner the implementation of the fishery management actions and artificial production programs in the lower Columbia River. Management of non-tribal fisheries will be adaptive and adjustments may be made to sharing agreements if the commercial or recreational fishery expectations are not achieved. While recognizing the prioritization of recreational fisheries in the mainstem of the Columbia River, reconsideration of the sharing agreements may be considered under the following circumstances:
- a) Failure to meet conservation objectives.
 - b) Conflicts with terms of *U.S. v Oregon* management agreements with Columbia River tribes.
 - c) Biological, fiscal, and/or legal circumstances that delay or preclude implementation of alternative gear, buyback of commercial fishing licenses, and/or additional off-channel hatchery investments.
 - d) Significantly lower than expected returns of harvestable fish to off-channel sites.
 - e) Insufficient space within off-channel sites to accommodate the commercial fleet.
 - f) Significantly lower than expected commercial catches in the mainstem Columbia River using selective gears.
 - g) Significantly lower than expected economic benefits to commercial and recreational fishers.

Fishery Management

The WCWG recommends the following actions to enhance the management of fisheries in the Columbia River.

- 1) **Increase Management Certainty.** Implement outreach programs to increase understanding of recreational fishing rules, improved enforcement programs, and enhanced fishery monitoring to enhance the accounting of catch and fishing related mortality, increase management certainty, and ensure conservation effectiveness.

- 2) **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. Dedicate additional resources and expertise to this task.

Fishery Objectives and Sharing

The WFWC recommendations for fishery objectives and sharing are provided in attachments A through F.

Attachment A. Spring Chinook Fishery

Sharing Metric: Nontribal incidental-take of ESA-listed upriver spring Chinook

Objectives:

- 1) Meet terms of *U.S. v. Oregon* management agreements with Columbia River tribes.
- 2) Promote conservation and recovery of wild spring Chinook stocks.
- 3) Maximize recreational fishing opportunities for hatchery spring Chinook in the mainstem Columbia River below Bonneville Dam in a manner consistent with policies and agreements regarding the sharing of spring Chinook throughout the Columbia River basin.
- 4) Implement commercial fisheries in off-channel areas to provide revenue to the commercial fishery and supply markets for spring Chinook.

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
Existing Policy	~60-65%	Mainstem Columbia River and Snake River	~35-40%	Mainstem Columbia River below Bonneville Dam and off-channel areas	Tangle Net Gill Net
2013	70%	"	30%	Mainstem Columbia below Bonneville Dam	Tangle Net
				Off-Channel Areas	Tangle Net Gill Net
2014	70%	"	30%	Mainstem Columbia below Bonneville Dam	Tangle Net
				Off-Channel Areas	Tangle Net Gill Net
2015	70%	"	30%	Mainstem Columbia below Bonneville Dam	Tangle Net
				Off-Channel Areas	Tangle Net Gill Net
2016	70%	"	30%	Mainstem Columbia below Bonneville Dam	Tangle Net
				Off-Channel Areas	Tangle Net Gill Net
2017	80%	"	20% ¹	Off-channel and bubble areas of the Columbia River	Tangle Net Gill Net Beach Seine Purse Seine

¹ Share not included in preseason catch buffer.

Attachment B. Summer Chinook Fishery

Sharing Metric: Nontribal share of summer Chinook below Priest Rapids Dam

Objectives:

- 1) Meet terms of *U.S. v. Oregon* management agreements with Columbia River tribes.
- 2) Meet terms of agreements with the United Tribes of the Colville Reservation.
- 3) Promote conservation and recovery of wild summer Chinook stocks.
- 4) Maximize recreational fishing opportunities for hatchery summer Chinook in the mainstem Columbia River below Priest Rapids Dam in a manner consistent with policies and agreements regarding the sharing of summer Chinook throughout the Columbia River basin.

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
Existing Policy	50%	Mainstem Columbia River below Priest Rapids Dam	50%	Mainstem Columbia River below Bonneville Dam	Gill Net
2013	70%	Mainstem Columbia River below Priest Rapids Dam	30%	Mainstem Columbia River below Bonneville Dam	Gill Net
2014	80%	"	20%	"	"
2015	80%	"	20%	"	"
2016	80%	"	20%	"	"
2017	100%	"	0% ²	NA	NA

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

² The commissions shall review by January 31, 2015 the need to provide a share of summer Chinook to the commercial fishery as incidental impacts in off-channel areas.

Attachment C. Tule Fall Chinook Fishery

Sharing Metric: Nontribal incidental-take of ESA-listed tule fall Chinook

Objectives:

- 1) Meet terms of *U.S. v. Oregon* management agreements with Columbia River tribes.
- 2) Promote conservation and recovery of wild fall Chinook stocks.
- 3) Maximize recreational fishing opportunities for hatchery fall Chinook in the mainstem Columbia River below Bonneville Dam in a manner consistent with policies and agreements regarding the sharing of fall Chinook throughout the Columbia River basin.
- 4) Implement commercial fisheries in off-channel areas to provide revenue to the commercial fishery and supply markets for fall Chinook.
- 5) Implement commercial fisheries with alternative gear in the mainstem of the Columbia River to remove excess hatchery-origin Chinook, provide revenue to the commercial fishery, and supply markets for fall Chinook.

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
Existing Policy	~50%	Mainstem Columbia below Bonneville Dam	~50%	Mainstem Columbia River below Bonneville Dam and off-channel areas	Gill Net
2013	≤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
2014	≤70%	“	≥30%	“	Gill Net Pilot Beach Seine Pilot Purse Seine
2015	≤70%	“	≥30%	“	“
2016	≤70%	“	≥30%	Mainstem Columbia River below Bonneville Dam	Beach Seine Purse Seine
				Off-channel areas	Gill Net
2017	≤80%	“	≥20%	“	“

Attachment D. Upriver Bright Chinook Fishery

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

Objectives:

- 1) Meet terms of *U.S. v. Oregon* management agreements with Columbia River tribes.
- 2) Promote conservation and recovery of wild fall Chinook stocks.
- 3) Maximize recreational fishing opportunities for fall Chinook in the mainstem Columbia River below Bonneville Dam in a manner consistent with policies and agreements regarding the sharing of fall Chinook throughout the Columbia River basin.
- 4) Implement commercial fisheries with large mesh in the mainstem of the Columbia River in zones 4 and 5 (upstream of the Lewis River to remove excess hatchery-origin bright Chinook, harvest surplus wild bright Chinook, provide revenue to the commercial fishery, and supply markets for high quality fall Chinook.

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
Existing Policy	~50%	Mainstem Columbia below Bonneville Dam	~50%	Mainstem Columbia River below Bonneville Dam	Gill Net
2013	Up to Tule Limit	Mainstem Columbia below Bonneville Dam	Up to Tule Limit	Mainstem Columbia River below Bonneville Dam	Large Mesh Net Pilot Beach Seine Pilot Purse Seine
2014	"	"	"	"	Large Mesh Net Pilot Beach Seine Pilot Purse Seine
2015	"	"	"	"	"
2016	"	"	"	Mainstem Columbia River below Bonneville Dam	Beach Seine Purse Seine
				Above Lewis River	Large Mesh Net
2017	"	"	"	"	"

Attachment E. Coho Fishery

Sharing Metric: Nontribal incidental-take of ESA-listed coho

Objectives:

- 1) Meet terms of *U.S. v. Oregon* management agreements with Columbia River tribes.
- 2) Promote conservation and recovery of wild coho stocks.
- 3) Implement commercial fisheries with alternative gear in the mainstem of the Columbia River to remove excess hatchery-origin coho, provide revenue to the commercial fishery, and supply markets for coho.
- 4) Implement commercial fisheries in off-channel areas to provide revenue to the commercial fishery and supply markets for coho.
- 5) Provide recreational fishing opportunities for coho in the mainstem Columbia River below Bonneville Dam in a manner consistent with policies and agreements regarding the sharing of coho throughout the Columbia River basin.

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
Existing Policy	-	Mainstem Columbia below Bonneville Dam	-	Mainstem Columbia River below Bonneville Dam and off-channel areas	Gill Net
2013	¹	"	¹	Mainstem Columbia River below Bonneville Dam and off-channel areas	Gill Net Pilot Tangle Net Pilot Beach Seine Pilot Purse Seine
2014	"	"	"	"	"
2015	"	"	"	"	"
2016	"	"	"	"	Tangle Net Beach Seine Purse Seine
2017	²	"	²	"	"

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

² 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 in attachments C and D, and alternative 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.

Attachment F. Sturgeon Fishery

Sharing Metric: Allowable harvest of sturgeon below Bonneville Dam minus a 10% conservation buffer

Objectives:

- 1) Promote conservation and recovery of sturgeon ¹.
- 2) Provide recreational fishing opportunities for sturgeon in the mainstem Columbia River below Bonneville Dam.
- 3) Implement commercial fisheries in off-channel areas to provide revenue to the commercial fishery and supply markets for sturgeon.

Fishing Year	Recreational Fishery		Commercial Fishery		
	Share	Location	Share	Location	Gear
Existing Policy	80%	Mainstem Columbia below Bonneville Dam	20%	Mainstem Columbia River below Bonneville Dam and off-channel areas	Large Mesh Net
2013	"	"	"	"	"
2014	"	"	"	"	"
2015	"	"	"	"	"
2016	"	"	"	"	"
2017	"	"	"	"	"

1 The commissions will implement nonretention regulations for recreational and commercial fisheries for sturgeon in 2013 if the November, 2012 abundance estimates do not increase relative to 2011.

Management Strategies for Columbia River Recreational and Commercial Fisheries: 2013 and Beyond

Working Document for Discussion and Consideration by the Columbia River Fishery Management Workgroup

Provided by Oregon and Washington Staff

October 12, 2012

Background

Columbia River recreational and commercial fisheries are a vital part of the social and economic fabric of Oregon and Washington, providing valuable jobs and economic vitality to rural and urban communities. Optimizing the economic value of both these fisheries within a conservation-based framework that assists recovery of Columbia and Snake River fish species currently listed under the federal Endangered Species Act (ESA) is a management priority.

Thirteen species of salmon and steelhead are currently listed under the ESA in the Columbia River basin. Limits on the allowable incidental-take of these species (ESA-impacts) significantly constrain access by recreational, commercial and tribal fisheries to hatchery stocks and healthy wild fish runs. There have been a series of adjustments made to commercial and recreational fisheries, including development of additional selective fisheries, to meet conservation responsibilities and provide harvest opportunities. However, perennial conflicts occur between recreational and commercial fishers over how best to manage non-tribal fisheries under these constraints. Conflicts also exist over the use of gill nets in non-tribal mainstem commercial fisheries. These conflicts divide stakeholders and communities and detract from a unified effort to recover fish runs. In this context, further development of fishery strategies is needed to meet the needs of the recreational and commercial fisheries.

As mentioned above, a current strategy for managing non-tribal fisheries consistent with efforts to recover ESA-listed salmon and steelhead and conserve white sturgeon is to make them selective, i.e. deploy gears and techniques and use time and area closures to minimize the catch and/or allow the safe release of imperiled wild fish. Although this strategy is presently used for some fisheries, there are opportunities to expand its use. This strategy also lessens the degree in which limits on the allowable incidental-take of ESA-listed fish species constrain access by fisheries to hatchery stocks and healthy wild fish runs

What follows is a description of the key elements of an alternative management framework for non-tribal Columbia River recreational and commercial fisheries. The framework is intended to enhance the economies of Oregon and Washington as a

whole, ensure the long-term viability of recreational and commercial fisheries and those communities that rely on them, and contribute to fish conservation and recovery. The elements of the framework constitute a comprehensive and cohesive package and are comprised of progressive actions necessary to achieve the desired outcomes. Consequently, the framework should be considered in its entirety when implementing fisheries in the near- and long-terms.

Guiding Principles

1. Continue leadership promoting fish recovery, including improved fish survival through the federal Columbia River hydropower system, improved habitat conditions in the tributaries and estuary, hatchery reform, reduced predation by fish, birds, and marine mammals, and harvest management that meets conservation responsibilities.
2. Continue active management to conserve ESA-listed and weak stocks, and continue to meet terms of *U.S. v. Oregon* management agreements with Columbia River Treaty Tribes.
3. 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 harvest impacts by fishery. Dedicate additional resources and expertise to this task.
4. Enhance the overall economic contribution of non-tribal fisheries to Oregon and Washington and enhance the overall economic viability of commercial and recreational fisheries.
5. Adopt a policy priority for recreational fisheries in the mainstem and commercial fisheries in off-channel areas of the lower Columbia River, addressing salmon and sturgeon fisheries. Toward this end:
 - a) Assign mainstem recreational fisheries a sufficient share of ESA-impacts and harvestable surplus to enhance current fishing opportunity and economic benefit.
 - b) Assign commercial fisheries a sufficient share of the ESA-impacts and harvestable surplus to effectively harvest fish in off-channel areas and harvest surplus fish with selective techniques in the mainstem Columbia River.
6. Phase out the use of non-selective gill nets in non-tribal commercial fisheries in the mainstem Columbia River. Transition gill net use to off-channel areas.
7. Meaningfully enhance off-channel commercial fisheries to provide additional economic benefit and ultimately more fish for commercial harvest, consistent with conservation and fish recovery objectives. Enhancements should include
 - a. Providing additional hatchery fish for release in off-channel areas by shifting currently available production, and where possible providing new production for release in off-channel areas, emphasizing complementary conservation benefits in tributaries.

- b. Expanding existing seasons and boundaries in off-channel areas and/or establishing new off-channel areas, allowing increased harvest in areas where the likelihood of impacting ESA-listed stocks is lower than the mainstem.
8. Develop and implement selective-fishing gear and techniques for commercial mainstem fisheries to optimize conservation and economic benefits when recreational fishery objectives are met.
9. Develop and adopt consistent and concurrent policies between Oregon and Washington related to management of non-tribal Columbia River fisheries, as well as the sharing of investments and benefits.

Approach

The approach to developing and implementing an alternative management framework for non-tribal Columbia River recreational and commercial fisheries described below incorporates concepts in Oregon Governor Kitzhaber's proposal (as described in letters to the Oregon Fish and Wildlife Commission dated August 9 and August 14, 2012 and in a document released on September 20, 2012 in response to questions by various stakeholders). It also incorporates additional details developed by Oregon and Washington staff and refined through the deliberative process conducted by the Columbia River Fishery Management Workgroup. The final approach will be determined by the respective Fish and Wildlife Commissions in Oregon and Washington.

To avoid significant economic harm to the commercial fishery, the approach to phasing out the use of non-selective gill nets in mainstem Columbia River commercial fisheries would include a transition period. The intent is to complete the transition by the end of 2016, although the period may be extended by one year if circumstances warrant it. During this period, the use of gill nets would be allowed in the mainstem as evaluation of alternative gear continues, strategies to further access harvestable surplus in the mainstem are developed, and additional hatchery fish are released in off-channel areas. To help lessen economic impacts on commercial fisheries during the transition, only a partial shift toward a higher mainstem priority for recreational fisheries would occur. The transition period would span the time needed for returns on new investments in off-channel areas, for evaluation and implementation of alternative selective fishing methods, and for evaluation of economic objectives for commercial fisheries under the alternative management framework. This period would also provide opportunities to secure political support and additional resources (i.e., money, infrastructure, and fish) and adopt statutes necessary for the long-term implementation of this management framework.

1. Transition period (2013-2016)

- a. A fixed framework would be used to assign shares of ESA-impacts and harvestable surplus to each of the Columbia River non-tribal fisheries. Within

this framework, shares would be assigned to each non-tribal fishery as follows:

- 1) Spring Chinook: Assign 70% of the ESA-impact for upriver spring Chinook stocks to mainstem recreational fisheries (current share is 60% under “base case”). Assign the balance (30%) to off-channel and mainstem commercial fisheries.
- 2) Summer Chinook: Assign 70% of the harvestable surplus available for use downstream from Priest Rapids Dam to mainstem recreational fisheries (current share is 50%). Assign the balance (30%) to mainstem commercial fisheries.
- 3) Sockeye: Assign 70% of the ESA-impact for Snake River sockeye to mainstem recreational fisheries (current share is 50%). Assign the balance (30%) to mainstem commercial fisheries for incidental harvest of sockeye in Chinook-directed fisheries. If NOAA Fisheries increases the allowable ESA-impact for Snake River sockeye, provide opportunities for increased commercial harvest using selective gear if developed and practical.
- 4) Tule Fall Chinook: Assign no more than 70% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational fisheries to meet management objectives (current share is approximately 50%). Assign 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, consistent with the Washington Commission Hatchery and Fishery Reform Policy.
- 5) Upriver Bright Fall Chinook: Assign no more than 70% of the ESA-impact for Snake River Wild fall Chinook to mainstem recreational fisheries to meet management objectives (current share is approximately 50%). Assign the balance (not less than 30%) to off-channel and mainstem commercial fisheries. Establish reasonable recreational fisheries objectives that reflect a modest increase in the priority for mainstem recreational fisheries (Appendix A). As per 1c (below), provide additional mainstem commercial harvest when recreational fishery objectives are expected to be met. The focus of mainstem commercial fisheries would be to harvest Upriver Bright fall Chinook in the area upstream of the Lewis River where the incidental take of lower river tule fall Chinook is reduced and in the area downstream from the Lewis River as alternative selective gear is developed.

- 6) Coho: 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. Assign 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 unable to use all of the ESA-impact for Lower Columbia Natural coho, assign the remainder to mainstem commercial coho fisheries. As selective techniques and alternative gear are developed, additional commercial mainstem coho fisheries will be provided with an emphasis on harvesting hatchery coho in October when wild coho are less abundant.
 - 7) Chum: Continue practice of no target chum fisheries. 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).
 - 8) White Sturgeon: Allocate 90% of the harvestable surplus for use in non-tribal fisheries and hold 10% in reserve as an additional conservation buffer above the maximum harvest rate allowed in Oregon's white sturgeon conservation plan. Assign 80% of the white sturgeon available for harvest to the recreational fishery (current share is 80%). Assign the balance (20%) to off-channel and mainstem commercial fisheries.
- b. Alternative selective gear will be used for the non-tribal mainstem commercial fisheries referenced above (Section 1a). If alternative selective gear is not available and practical, based on administrative, biological or economic factors, the use of gill nets in these fisheries will be allowed during the transition period.
 - c. Under the following conditions, opportunities for additional mainstem commercial fishing may be provided during the transition period using alternative selective gear, or gill nets if alternative selective gear is not available and practical. This approach is expected to provide substantive additional mainstem commercial fishing opportunities during the interim for Upriver Bright fall Chinook.
 - 1) If mainstem recreational fisheries are unable to fully use their shares of ESA-impacts or harvestable surplus.
 - 2) If the goals for mainstem recreational fisheries are expected to be met.

- d. The following actions will take place during the transition period to enhance harvest levels and opportunities for commercial fisheries in off-channel sites (see Appendix B for details):
- 1) Enhanced hatchery production at existing off-channel sites:
 - a) *Spring Chinook*: The number of juvenile spring Chinook acclimated for release at off-channel sites will be enhanced by approximately 1,000,000 fish annually (current releases are approximately 1.2M, including a 250,000 increase by Oregon beginning in 2010). The increase in 2010 was a result of Commission direction in 2008 and adults from those releases began returning in 2012. Oregon will acclimate an additional 500,000 juvenile spring Chinook annually for release beginning in 2013. Washington will pursue funding to acclimate an additional 200,000 to 250,000 juvenile spring Chinook annually.
 - b) *Coho*: The number of juvenile coho acclimated for release at off-channel sites will be enhanced by approximately 900,000 fish annually (current releases are approximately 4M, including a 120,000 increase by Oregon beginning in 2010). Oregon will acclimate an additional 600,000 juvenile coho annually for release beginning in 2013. Washington will acclimate an additional 200,000 juvenile coho annually beginning in 2013.
 - c) *Select Area Bright Fall Chinook*: To offset reductions in mainstem commercial harvest of summer Chinook, Oregon will rear an additional 500,000 juvenile Select Area Bright fall Chinook annually for release at off-channel sites (current releases are approximately 1.5M). These releases should begin in 2013, if broodstock can be collected during fall 2012.
 - 2) Expanding existing off-channel sites: Oregon will seek funding to evaluate the feasibility of providing more commercial fishing opportunity and more commercially fishable area at existing off-channel sites. In the long-term, the proportion of overall impacts allocated to off-channel areas is expected to be approximately double (20%) what it is now (10%) in order to accommodate expanded and new sites.
 - 3) New off-channel sites: Oregon and Washington will seek funding to evaluate the feasibility of establishing new off-channel sites consistent with the expected long-term allocation of impacts described above.

- e. Reporting requirements for lost and derelict commercial fishing nets will be consistent between Oregon and Washington, and will align with the current policy in Washington.
- f. Using the model results in Appendix C, the ex-vessel value for commercial fisheries (mainstem plus off-channel) during the transition period would be reduced. For recreational fisheries, however, the number of angler trips would increase.

2. Long Term (Beyond 2016)

- a. A fixed framework will be used to assign shares of ESA-impacts and harvestable surplus to each of the Columbia River non-tribal fisheries. The shares assigned to off-channel commercial fisheries will be secured by holding them harmless from pre-season buffers. This will assist fish recovery by reducing the opportunity for hatchery fish to stray into lower Columbia River tributaries and will maximize the economic value of the harvest. Within this framework, shares will be assigned to each non-tribal fishery as follows:
 - 1) Spring and Summer Chinook: Assign 80% of ESA-impacts and harvestable surplus to mainstem recreational fisheries to meet management objectives and the balance (20%) to commercial fisheries.
 - 2) Sockeye: 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. If NOAA Fisheries increases the allowable take of ESA-listed Snake River sockeye, provide for increased commercial harvest using selective gear if developed and practical.
 - 3) Tule Fall Chinook: Assign no more than 80% of the ESA-impact for lower Columbia River tule fall Chinook to mainstem recreational fisheries to meet management objectives (Appendix A). Assign 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, consistent with the Washington Commission Hatchery and Fishery Reform Policy.
 - 4) Upriver Bright Fall Chinook: Assign no more than 80% of the ESA-impact for Snake River Wild fall Chinook to mainstem recreational fisheries to meet management objectives (Appendix A). Assign the balance (not less than 20%) to off-channel and mainstem commercial fisheries. The focus of mainstem commercial fisheries would be to target Upriver Bright fall

Chinook in the area upstream of the Lewis River where the incidental take of lower river tule Chinook is reduced and to harvest Upriver Bright fall Chinook in the area downstream from the Lewis River in selective fisheries that target Washington Lower River Hatchery Chinook and coho.

- 5) Coho: 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. Assign 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, assign the remainder to mainstem commercial coho fisheries. As per 2b (below), it is expected that substantive new selective mainstem commercial fisheries will be available for hatchery coho, particularly in October.
 - 6) Chum: Continue practice of no target chum fisheries. 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).
 - 7) White Sturgeon: Allocate 90% of the harvestable surplus for use in non-tribal fisheries and hold 10% in reserve as an additional conservation buffer above the maximum harvest rate allowed in Oregon's white sturgeon conservation plan. Assign 80% of the white sturgeon available for harvest to the recreational fishery. Assign the balance (20%) to off-channel and mainstem commercial fisheries.
- b. Non-tribal mainstem commercial fisheries will be restricted to the use of selective gear and fishing techniques. As during the transition period, opportunities for additional mainstem commercial fishing may be provided as described below. This approach is expected to provide substantive mainstem commercial opportunities in the long-term for Upriver Bright fall Chinook, lower river hatchery fall Chinook and hatchery coho.
- 1) If mainstem recreational fisheries are unable to fully use their shares of ESA-impacts or harvestable surplus.
 - 2) If the goals for mainstem recreational fisheries are expected to be met.
- c. Efforts to enhance economic benefits for off-channel commercial fisheries will continue, based on available funding, by (see Appendix B for details):
- 1) Investing in major capital improvements at existing off-channel sites in Oregon, which would enable the rearing or acclimation of an additional 1,250,000 juvenile spring Chinook, 750,000 juvenile Select Area Bright fall

Chinook, and 4,700,000 juvenile coho annually (these numbers include the additional production put in place during the transition period).

- 2) Investing in the infra-structure and fish rearing and acclimation operations necessary to establish new off-channel sites in Oregon and/or Washington, as identified by evaluations completed during the transition period.
- d. Using the model results in Appendix C, the ex-vessel value for commercial fisheries (mainstem plus off-channel) would not be reduced in the long term. For recreational fisheries, however, the number of angler trips would increase.

Management of non-tribal fisheries will be adaptive and adjustments may be made if certain triggers occur (e.g. modify how fish are shared among fisheries and how mainstem fisheries are managed). These triggers would come into play if key assumptions necessary to achieve the desired outcomes for recreational and commercial fisheries and conservation prove to be inaccurate or untrue. Efforts would then determine why the assumptions were flawed and identify actions necessary to correct course. Correcting course, however, does not mean dismantling the foundations of this alternative management framework or removing its key elements described above. These elements constitute a cohesive package and actions necessary to achieve the desired outcomes. In this context, the triggers may include:

- 1) Significantly lower than expected returns of harvestable fish to off-channel sites.
- 2) Insufficient space within off-channel sites to accommodate the commercial fleet.
- 3) Significantly lower than expected catches using selective gears.
- 4) Biological, fiscal or legal circumstances that delay or preclude implementation of alternative gear and additional off-channel hatchery investments.
- 5) Significantly lower than expected economic return to commercial fishers.
- 6) Conflicts with terms of *U.S. v Oregon* management agreements with Tribes.
- 7) Failure to meet conservation needs, e.g. reducing the proportion of hatchery fish on spawning grounds.

Appendix A

Defining Management Objectives for Recreational Fisheries Downstream from Bonneville Dam

Analysis of Management Guidelines and Available Recreational Fishing Days Under the Current Management Policy and the Alternative Management Framework Being Considered by the Columbia River Fishery Management Workgroup.

Spring Chinook

In 2008, the Fish and Wildlife Commissions in Oregon and Washington adopted the current fisheries management policy for Columbia River spring Chinook in the area downstream from Bonneville Dam. This policy defines the objective for recreational spring Chinook fisheries downstream of Bonneville Dam as:

- Before the run-size update: A high likelihood that the fishery will remain open for at least 45 days in March and April.
- After the run-size update: If impacts remain, harvest opportunity through May.

This objective was based on a “base-case” sharing formula for upriver spring Chinook ESA-impacts. Under the base case, recreational fisheries downstream from Priest Rapids and Lower Granite dams are collectively allocated 63% of the available impact. This percentage reflects the differences between Oregon and Washington in the recreational fisheries’ share. Washington allocated 65% to recreational fisheries under the base case, while Oregon allocated 60%. In addition, the recreational fisheries’ share is further divided between fisheries downstream and upstream from Bonneville Dam. Currently, the fishery downstream from Bonneville Dam is allocated 75% of the ESA-impact available for recreational fishing.

Spring Chinook fisheries are not only managed based on the ESA-impact for upriver stocks, but also for “catch-balancing” under the 2008-2017 *US v. Oregon* Management Agreement. The management guideline is defined under the Agreement based on the ESA-impact allowed for tribal fisheries after the forecasted run size is reduced by a 30% conservation buffer. Under the base case, the management guideline defined under the catch-balance provisions of the Agreement is less than what it would be under the policies adopted by Oregon’s and Washington’s Fish and Wildlife Commissions.

The management guideline and corresponding number of fishing days for the recreational fishery downstream from Bonneville Dam was modeled for a base-case run size of 225,000 upriver spring Chinook and 65,000 Willamette spring Chinook. Under the current policy, the base case is defined as a forecasted run-size for upriver spring Chinook ranging from 55,000 to 271,000 and for Willamette spring Chinook greater than 50,000. The management guideline and number of fishing days were modeled under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Under the alternative management framework, the percentage of the available ESA-impact for upriver spring Chinook allocated to recreational fisheries downstream from Priest Rapids and Lower Granite dams would increase to 70% during the transition period

(2013-2016) and 80% in the long term (2017 and beyond). Results of the modeling are summarized in Table A.1.

Table A.1. Comparisons of key characteristics of the spring Chinook recreational fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Analyses assume forecasted run sizes of 225,000 for upriver spring Chinook and 65,000 for Willamette spring Chinook, a mark rate of 75%, and that the run-size forecast would be updated on May 10.

Management period	Time frame	Management guideline before May 10 (number landed + release mortality)	Catch of upriver spring Chinook before May 10 (number landed + release mortality)	Number of consecutive fishing days (beginning March 1)
Before the run-size update	Current	9,324	9,447	42
	Transition	10,387	10,600	44
	Long term	11,170	11,189	45
		Management guideline after May 10 (number landed + release mortality)	Estimated catch of upriver spring Chinook after May 10 (number landed + release mortality)	Number of consecutive fishing days (beginning May 10)
After the run-size update (May 10)	Current	3,950	3,450	37
	Transition	4,492	3,450	37
	Long term	6,219	3,450	37

Before the run-size update

The management guideline and number of fishing days for the recreational fishery downstream from Bonneville Dam under the policy proposed for the transition period is two more than under the current policy. The impact shares assigned to the recreational fishery downstream from Bonneville Dam translate into a 65% share of the overall management guideline for upriver spring Chinook under the current policy and a 72% share during the transition period.

The differences between the management guideline and number of fishing days for the recreational fishery downstream from Bonneville Dam under the current policy and the policy proposed for the long term are greater than during the transition period. The share of the overall management guideline for upriver spring Chinook in the long term would be 78% (vs. 65% under the current policy). Under the base case, this additional share translates to 3 more days of fishing.

After the run-size update

Although the management guideline for the recreational fishery downstream from Bonneville Dam is substantially different under the current policy and the policies proposed for the transition period and the long-term, the number of fishing days is the same. This is because, under the base case, the recreational fishery would be open from the date the run-size is updated (May 10) through the remainder of the season (June 15). Under this scenario, the recreational fishery downstream from Bonneville Dam would use 87% of its management guideline under the current policy, 77% during the transition period, and 55% in the long term. However, the fishery may have the capacity to increase catch rates in the May-June period in a given year if river conditions are good for fishing and/or effort increases. If catch rates improve, there would be expected differences in the number of fishing days between current, transition, and long-term periods.

Summary

Given the fixed impact sharing approach in the alternative management framework for the transition period and the long term, the current objective for the recreational fishery downstream from Bonneville Dam in March and April (a high likelihood that the fishery will remain open for at least 45 days) may not be relevant because the number of days of fishing is driven by the run-size forecast and its buffer, catch rate and mark rate.

Summer Chinook

In 2008, the Fish and Wildlife Commissions in Oregon and Washington adopted the current fisheries management policy for Columbia River summer Chinook as follows:

- Manage the upper Columbia summer Chinook populations for natural and hatchery aggregate escapement goals.
- Allocate non-Treaty harvest of summer Chinook downstream from Priest Rapids Dam equally (50% each) between recreational and commercial fisheries.
- Structure fisheries consistent with the fishery framework in the 2008-2017 *U.S. v. Oregon* Management Agreement.
- Structure fisheries consistent with the management agreement between the Washington Department of Fish and Wildlife and the Colville Tribe for salmonids originating above Priest Rapids Dam.

Currently, recreational fishers downstream from Priest Rapids Dam can only retain adipose fin-clipped summer Chinook.

The management guideline and corresponding number of fishing days for the recreational fishery downstream from Bonneville Dam was modeled for a run size of 75,000 summer Chinook. As with spring Chinook, the management guideline and number of fishing days were modeled under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Under the alternative management framework, the percentage of harvestable surplus of summer Chinook allocated to recreational fisheries downstream from Priest Rapids Dam would increase to 70% during the transition period

(2013-2016) and 80% in the long term (2017 and beyond). Results of the modeling are summarized in Table A.2.

Table A.2. Comparisons of key characteristics of the upper-Columbia summer Chinook recreational fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Analyses assume a forecasted run size of 75,000 summer Chinook, a mark rate of 66%, an allocation of 600 summer Chinook to recreational fisheries in the Columbia River between Bonneville and Priest Rapids dams, and no contribution from the Colville Tribes.

Time frame	Management guideline (number landed + release mortality)	Catch of upper-Columbia summer Chinook (number landed + release mortality)	Number of consecutive fishing days (beginning June 16)
Current	2,231	2,239	13
Transition	3,363	3,385	26
Long term	3,929	3,935	40

Summary

In the analysis described above, increasing the recreational fisheries share of the harvestable surplus would double the number of fishing days during the transition period and triple it in the long term. Additional harvest opportunity may be provided in future years if, as in past years, the Colville Tribe allocates some of its share of the harvestable surplus for use in non-Treaty fisheries downstream from Priest Rapids Dam and when the Colville Tribal Hatchery comes fully on-line and its production returns as adults to the Columbia River. As with spring Chinook, it may not be necessary to define a management objective for the recreational fishery downstream from Bonneville Dam because under the fixed harvest sharing approach in the alternative management framework the number of recreational fishing days in the transition period and the long term is driven by the run-size forecast, catch rate and mark rate.

Fall Chinook

The current fisheries management policy for managing fall Chinook (and coho) is:

- Optimize the non-treaty harvest of Chinook and coho and provide recreational and commercial fisheries a balanced opportunity.
- Consider fair and reasonable catch opportunity, stability and duration of fisheries, as well as sharing of the conservation responsibility when developing recreational and commercial fishing options.

Correspondingly, the current management approach is to:

- Calculate the allowable in-river ESA-impact for each ESA-listed stock encountered by the fisheries.
- Work with fisheries stakeholders and the public in the “North of Falcon” process to develop an annual “Non-Indian Columbia River Fall Fishery Chinook Allocation Agreement” that describes expected season structures for each fishery.

- Calculate catch expectations for each fishery and the shares of allowable impacts necessary to meet those expectations, based on the proposed season structures.

Two management scenarios were used to model the management guideline and corresponding number of fishing days for the recreational fishery downstream from Bonneville Dam. In one scenario, the ESA-impact level was 7.28% for lower river hatchery (LRH) tule fall Chinook (38% including ocean fisheries) and 11% for Snake River wild (Bright) fall Chinook. The run sizes for all Chinook stocks encountered by fisheries under this scenario were actual numbers observed in 2006. In the other scenario, the ESA-impact level was 7.8% for lower river hatchery tule fall Chinook (41% including ocean fisheries) and 15% for Snake River wild (Bright) fall Chinook. The run sizes for all Chinook stocks encountered by fisheries under this scenario were actual numbers observed in 2011. As with spring and summer Chinook, the management guideline and number of fishing days were modeled under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Under the alternative management framework, the percentage of the ESA-impact for tule fall Chinook allocated to recreational fisheries downstream from Bonneville Dam would increase up to 70% during the transition period (2013-2016) and up to 80% in the long term (2017 and beyond). The model displays the recreational opportunity based on the above allocations, but actual allocation would be driven by weighing the recreational fishery season objectives with conservation objectives and upriver bright harvest objectives. The percentage of ESA-impacts for Bright fall Chinook allocated to recreational fisheries downstream from Bonneville Dam would vary depending on the number of days the recreational fishery was open before reaching its tule fall Chinook impact limit. Results of the modeling are summarized in Table A.3.

Summary

Buoy 10: In the analysis below, the recreational fishing season was defined to last through Labor Day (34 days; assuming Labor Day is September 3). However, in the long term when in-river LRH impacts equaled 7.8%, the modeled fishery lasted into the first week of October (65 days).

Warrior Rock to Bonneville Dam: Although the fishery is open through December 31, very little, if any fishing for Chinook occurs after October. Therefore in the analysis below, the recreational fishing season was assumed to be essentially complete by the end of October (92 days).

Between Tongue Point and Warrior Rock: In the analysis below, the recreational fishing season was defined based on the remaining LRH impacts available to recreational fisheries. As such the number of recreational fishing days in this area increased by 20% during the transition period (45 days) and 100% in the long term (75 days) under the lower LRH impact scenario and by 45% during the transition period (61 days) and 120% in the long term (92 days) under the higher LRH impact scenario.

Season objectives for the fall Chinook recreational fisheries are needed to ensure an appropriate balance between mainstem recreational fishing and mainstem commercial fishing using selective gear. There are two objectives for the mainstem commercial fisheries. One objective is to target Washington Lower River Hatchery tule Chinook to help reduce strays, consistent with the Washington Commission Hatchery and Fishery

Reform Policy. This objective is on par with objectives for mainstem recreational fisheries. Another objective is to harvest Upriver Bright fall Chinook in the area upstream of the Lewis River where the incidental take of lower river tule fall Chinook is reduced and in the area downstream from the Lewis River as alternative selective gear is developed. This objective would be pursued only when recreational fisheries objectives are expected to be met.

The analysis in Table A.3 sets up a discussion of how many recreational fishing days are “reasonable” in each of the fisheries (Buoy 10, Tongue Point-to-Warrior Rock, and Warrior Rock to Bonneville Dam), given the need to allocate some level of LRH impact to the mainstem commercial fishery targeting Washington Lower River Hatchery tule Chinook. Reductions in the recreational fisheries’ share of LRH impacts (shown in column 4 of Table A.3) would consequently reduce the number of fishing days in one or more of the recreational fisheries shown in columns 6-8 of Table A.3, as well as the share of Snake River wild (Bright) impacts needed by those fisheries. .

Table A.3. Comparisons of key characteristics of the fall Chinook recreational fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. The “current” scenario set the recreational fishery’s share of the in-river ESA impact for lower river hatchery tule equal to 57% (recent three-year pre-season average). Analyses assumed the same stock-specific harvest rates as in 2012 pre-season model, that the in-river share of available LRH impacts was 19% (recent three-year pre-season average) and that the Snake River recreational fishery used 0.5% of the Snake River wild (Bright) ESA-impact.

In-river ESA Impact Level	Time frame	Fall Chinook Stock	Management guideline (In-river ESA-Impact Level/Share)	Catch	Number of consecutive fishing days (beginning August 1 and ending no later than October 31, when fishing for fall Chinook essentially ends)		
					Buoy 10	Tongue Point to Warrior Rock	Warrior Rock to Bonneville Dam
Lower river hatchery tule fall Chinook = 7.2% Snake River wild (Bright) fall Chinook = 11%	Current	Tule	4.12% (59%)	4,700	34	37	92
		Bright	4.42% (42%)	20,000			
	Transition	Tule	5.04% (70%)	5,600	34	45	92
		Bright	5.83% (56%)	25,200			
	Long term	Tule	5.78% (80%)	6,300	34	75	92
		Bright	6.97% (68%)	29,400			
Lower river hatchery tule fall Chinook = 7.8% Snake River wild (Bright) fall Chinook = 15%	Current	Tule	4.44% (57%)	10,400	34	42	92
		Bright	5.15% (40%)	31,000			
	Transition	Tule	5.43% (70%)	12,300	34	61	92
		Bright	6.72% (55%)	38,300			
	Long term	Tule	6.03% (77%)	13,500	65	92	92
		Bright	7.63% (65%)	42,600			

Appendix B

Enhancement of Hatchery Production for Harvest by Non-tribal Commercial Fisheries in Off-Channel Areas of the Columbia River Downstream from Bonneville Dam

Current Program

Production: Currently production targets in existing off-channel sites in the Columbia River downstream from Bonneville Dam for spring Chinook, tule fall Chinook, Select Area Bright fall Chinook and coho total 13.57 million. This total includes 250,000 spring Chinook and 120,000 coho transferred from other facilities for release in off-channel sites beginning in 2010. This total also includes 350,000 spring Chinook released at the Deep River site, which will be discontinued effective in 2013. The specific release targets for the current program by species and stock are shown in Table B.1.

Table B.1. Current production targets for juvenile salmon released for harvest in off-channel areas in the Columbia River downstream from Bonneville Dam. The totals by species and stock are 1.55 million spring Chinook, 6.4 million tule fall Chinook, 1.45 million Select Area Bright fall Chinook, and 4.17 million coho.

Off-Channel Area	Release Site	Production Target	Off-Channel Area	Release Site	Production Target
Youngs Bay	Klaskanine Hatchery	600,000 Coho 2.1 million Tule Fall Chinook	Blind Slough & Knappa Slough	Net Pens	420,000 Coho 300,000 Spring Chinook
	South Fork Klaskanine Hatchery	350,000 Coho 700,000 Select Area Bright Fall Chinook		Big Creek Hatchery	3.6 million Tule Fall Chinook 535,000 Coho
	Net Pens	825,000 Coho 750,000 Select Area Bright Fall Chinook 650,000 Spring Chinook	Deep River	Net Pens	750,000 Coho 700,000 Tule Fall Chinook 350,000 Spring Chinook
Tongue Point	Net Pens	Grays River Hatchery		150,000 Late Stock Coho	

Harvest: For the years 2007 through 2011, average harvest levels from off-channel areas has been highest during the fall fisheries, driven primarily by coho (Table B.2.). Also, harvest during the spring fisheries in recent years has rivaled levels in the mainstem. However, the recent average includes 2010, in which harvest was more than twice the previous peak catch (~24,000).

Fisheries in the off-channel areas are highly selective for local, targeted stocks. In recent years, almost 90% of the harvest in the winter, spring, and summer fisheries has been local stocks. In the fall fisheries, recent harvests have been comprised of 90% local stocks for fall Chinook and about 98% for coho.

Table B.2. Average harvest levels and fishing seasons for commercial fisheries in off-channel areas in the Columbia River downstream from Bonneville Dam for 2007 through 2011.

Season and Harvest (5-year average, 2007-2011)					
	Winter (mid-Feb. – mid-March ¹)	Spring (mid-April – mid-June)	Summer (mid-June – July)	Fall (September – October ²)	Sum
Youngs Bay	477 Chinook	6,719 Chinook	1,010 Chinook	8,305 Chinook	16,511 Chinook
				26,787 Coho	26,787 Coho
Tongue Point/ South Channel		444 Chinook (2008-2011)		1,249 Chinook	1,693 Chinook
				7,990 Coho	7,990 Coho
Blind Slough/ Knappa Slough	134 Chinook	1,455 Chinook		4,411 Chinook	6,000 Chinook
				4,899 Coho	4,899 Coho
Deep River	60 Chinook	79 Chinook		858 Chinook	997 Chinook
				11,301 Coho	11,301 Coho
Totals	671 Chinook	8,697 Chinook	1,010 Chinook	14,823 Chinook	25,201 Chinook
				50,978 Coho	50,978 Coho
¹ Youngs Bay and Blind Slough winter seasons typically extend into early April ² Youngs Bay fall season starts in early August					

Total Releases of Hatchery Fish in Off-Channel Sites Under the Alternative Management Framework

Total releases of hatchery fish in off-channel sites under the alternative management framework and the corresponding contribution of those fish to commercial fisheries in the off-channel areas are shown in Table B.3. The number of additional fish proposed for release during the transition period and in the long term is described by salmon stock below.

Transition Period

Spring Chinook: As stated above, proposed enhancements of hatchery production in existing off-channel areas include 250,000 spring Chinook transferred from other facilities for release in off-channel sites beginning in 2010. In addition to these fish, Oregon proposes to acclimate an additional 500,000 juvenile spring Chinook annually for release beginning in 2013 (Table B.3.). Washington will pursue funding to acclimate an additional 200,000 to 250,000 juvenile spring Chinook annually (Table B.3).

Coho: As stated above, proposed enhancements of hatchery production in existing off-channel areas include 120,000 coho transferred from other facilities for release in off-channel sites beginning in 2010. In addition, Oregon proposes to acclimate an additional 600,000 juvenile coho and Washington an additional 200,000 annually for release beginning in 2013 (Table B.3).

Select Area Bright Fall Chinook: To offset reductions in mainstem commercial harvest of summer Chinook, Oregon proposes to rear an additional 500,000 juvenile Select Area

Bright fall Chinook annually for release at off-channel sites (Table B.3.). These releases would begin in 2013, if broodstock can be collected during fall 2012.

Long Term

Spring Chinook: In addition to the 950,000 to 1 million additional juvenile spring Chinook proposed for release in off-channel sites during the transition period, Oregon proposes to acclimate an additional 250,000 juvenile spring Chinook annually for release beginning in 2017 (Table B.3.).

Coho: In addition to the 920,000 additional juvenile coho proposed for release in off-channel sites during the transition period, Oregon proposes to acclimate an additional 3,780,000 juvenile coho annually for release beginning in 2017 (Table B.3.).

Select Area Bright Fall Chinook: In addition to the additional 500,000 juvenile Select Area Bright fall Chinook proposed for release annually at off-channel sites during the transition period, Oregon proposes to rear an additional 250,000 juvenile Select Area Bright fall Chinook annually for release beginning in 2017 (Table B.3.).

Table B.3. Total number of spring Chinook, coho and Select Area bright fall Chinook slated for acclimation and release in off-channel sites in the Columbia River downstream from Bonneville Dam and the contribution of those fish as kept catch to commercial fisheries. Assumed survival of smolts to adults harvested at each site was 0.5% for spring Chinook, 1.4% for coho, and 0.3% for Select Area Bright fall Chinook. Catch estimates do not include incidental harvest of non-local stocks.

Time frame	Stock	State	Release numbers	Kept catch (number landed)
Transition (2013-2016)	Spring Chinook	Oregon	1,700,000	7,251
		Washington	200,000 -250,000	
	Coho	Oregon	3,870,000	68,460
		Washington	1,100,000	
	Select Area Bright Fall Chinook	Oregon	1,950,000	4,995
	Long term (2017 & beyond)	Spring Chinook	Oregon	1,950,000
Washington			200,000 -250,000	
Coho		Oregon	7,650,000	110,950 - 124,180
		Washington	1,100,000	
Select Area Bright Fall Chinook		Oregon	2,200,000	6,090 - 6,600

Evaluations of Opportunities to Expand Existing Off-Channel Sites and Establish New Ones

In response to an inquiry from the Oregon’s Governor’s Office, the Oregon Department of Fish and Wildlife estimated costs associated with evaluations of opportunities to expand existing off-channel sites and establish new ones (Table B.4 and Table B.5). The estimates are based on personnel costs for agency staff in Oregon and would likely differ if Oregon and Washington shared work associated with each evaluation.

Table B.4. Tasks and biennial costs associated with evaluations of opportunities to expand commercial fisheries in exiting off-channel sites in the Columbia River downstream from Bonneville Dam

Task	Approach	Needs	Effort	Cost per Unit Effort	Total Cost
Evaluate the feasibility of providing more fishing time to commercially harvest salmon at existing off-channel sites.	Use the existing fleet to collect data that will inform assessment of risk of increased impacts associated with expansion into currently closed timeframes, target-stock harvest potential, and overall stock composition.	Test fishery (full fleet)			no cost
		On-board observers (EBA)	24 months	\$3,966	\$95,185
		S&S for test fishing			\$11,815
		Additional fishery samplers (EBA) needed to maintain sample rates (assuming greater harvest level from increased production)	54 months	\$3,966	\$214,166
		S&S for fishery sampling			\$28,835
		TOTAL			\$350,000
Evaluate the feasibility of expanding the fishable area of existing off-channel sites	Option A. Use the existing fleet to collect data that will inform assessment of risk of increased impacts associated with expansion into currently closed areas, target-stock harvest potential, and overall stock composition.	Test fishery (full fleet)			no cost
		On-board observers (EBA)	54 months	\$3,966	\$214,166
		S&S for test fishing			\$30,835
		Additional fishery samplers (EBA) needed to maintain sample rates (assuming greater harvest level from increased production)	54 months	\$3,966	\$214,166
		S&S for fishery sampling			\$30,834
		TOTAL			\$490,000
	Option B. Use a test fishery with contracted fishers to collect data that will inform assessment of risk of increased impacts associated with expansion into currently closed areas, target-stock harvest potential, and overall stock composition.	Asst. Project Lead (NRS2)	24 months	\$5,693	\$136,621
		Test fishery (contracted)	420 days	\$1,200	\$504,000
		On-board observers (EBA)	54 months	\$3,966	\$214,166
		S&S for test fishing			\$35,524
		Additional fishery samplers (EBA) needed to maintain sample rates (assuming greater harvest level from increased production)	54 months	\$3,966	\$214,166
		S&S for fishery sampling			\$35,524
		TOTAL			\$1,140,000

Table B.5. Tasks and biennial costs associated with evaluations of opportunities to establish three new off-channel commercial fisheries sites in the Columbia River downstream from Bonneville Dam

Task	Approach	Needs	Effort	Cost per Unit Effort	Total Cost
Evaluate three new off-channel sites to determine their potential to produce meaningful numbers of fish for commercial harvest (evaluations to be completed in spring 2015).	Evaluate commercial harvest opportunity in new fishing sites.	Project Leader (SFWB or NRS3)	24 months	\$6,801	\$163,235
		Project Assistant (NRS1)	24months	\$5,124	\$122,970
		Determine potential new fishing sites proximate to new rearing sites			--
		Test fishery (contracted)	630 days	\$1,200	\$756,000
		On-board observers (EBA)	54 months	\$3,966	\$214,166
		S&S for test fishing			\$51,982
		Sub total			\$1,308,352
	Evaluate suitability for acclimation and release at new sites.	Determine potential new rearing sites			No cost
		DEQ consultation for new net pen complexes			No cost
		Water quality technicians (Technician)	8 months	\$4,512	\$36,094
		Juvenile salmonid assessment fieldworkers (EBA)	72 months	\$3,966	\$285,554
		Input from ODFW Fish Propagation Program and hatchery managers on logistical potential			
		Sub total			\$321,648
		Grand total			

Appendix C

Analysis of Recreational Angler Trips and Ex-Vessel Value of Mainstem and Off-Channel Commercial Fisheries Under the Current Management Policy and the Alternative Management Framework Being Considered by the Columbia River Fishery Management Workgroup.

Mainstem Recreational and Commercial Fisheries Downstream from Bonneville Dam

The analyses summarized below do not include mainstem coho fisheries because the drivers for fall-season recreational fisheries are ESA impacts for Chinook and there has been limited opportunity in recent years for significant commercial fishing for coho in the mainstem. As selective harvest techniques are developed in the future, the management intent is to provide increased opportunity for commercial fishing for hatchery coho in the mainstem.

Spring Chinook

The catches of upriver and all stocks of spring Chinook in the recreational fishery downstream from Bonneville Dam and in mainstem commercial fisheries were estimated for a base-case run size of 225,000 upriver spring Chinook and 65,000 Willamette hatchery spring Chinook. Under the current policy, the base case is defined as a forecasted run-size for upriver spring Chinook ranging from 55,000 to 271,000 and for Willamette hatchery spring Chinook greater than 50,000. Analyses compared catches under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Under the alternative management framework, the percentage of the available ESA-impact for upriver spring Chinook allocated to recreational fisheries downstream from Priest Rapids and Lower Granite dams would increase to 70% during the transition period (2013-2016) and 80% in the long term (2017 and beyond).

Once the catches were estimated, the corresponding number of recreational fishing days and associated angler trips were calculated (Table C.1), as was the ex-vessel value of spring Chinook landed in mainstem commercial fisheries (Table C.2).

It is important to note that in the period after the run-size update (May and June) the analysis indicates that the recreational fishery would not be able to catch all the spring Chinook available to them under the management guideline because they run out of fishing days. This is due to the fact that catch rates during this time are generally low. Under the “current” scenario the unused catch would total about 475 spring Chinook. In the transition period and long term, these numbers would be about 830 and about 2,750, respectively. This picture would change if the recent trend in recreational fisheries of increasing catch rates held true during May and June. The upriver spring Chinook that go uncaught in the recreational fishery downstream from Bonneville Dam could be reassigned to recreational fisheries upstream of Bonneville Dam, to the commercial fishery, or to conservation.

The analysis indicates that the mainstem commercial fishery also would not be able to catch all the spring Chinook available to them in May and June under the management

guideline. However, this is because fishers most likely would have to fish with large-mesh gill nets. As such they would likely use up all their available ESA-impacts before they reach the guideline. Under the “current” scenario, the mainstem commercial fishery would be unable to land about 1,500 spring Chinook, which have an ex-vessel value of about \$100,000. During the transition period, the mainstem commercial fishery would be unable to land about 1,100 spring Chinook, which have an ex-vessel value of about \$75,000.

Table C.1. Comparisons of upriver spring Chinook catch, kept catch of all spring Chinook stocks, number of fishing days, and number of angler trips for the recreational fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Analyses assume forecasted runs sizes of 225,000 for upriver spring Chinook and 65,000 for Willamette spring Chinook, a mark rate of 75%, and that the run-size forecast would be updated on May 10.

Management period	Time frame	Catch of upriver stocks before May 10 (number landed + release mortality)	Kept catch of all stocks before May 10 (number landed)	Number of consecutive fishing days (beginning March 1)	Number of angler trips before May 10
Before the run-size update	Current	9,447	12,312	42	109,840
	Transition	10,600	13,763	44	119,854
	Long term	11,189	14,504	45	124,931
		Catch of upriver stocks after May 10 (number landed + release mortality)	Kept catch of all stocks after May 10 (number landed)	Number of consecutive fishing days (beginning May 10)	Number of angler trips after May 10
After the run-size update (May 10)	Current	3,450	3,938	37	55,522
	Transition	3,450	3,938	37	55,522
	Long term	3,450	3,938	37	55,522

Summer Chinook

The catches of upper-Columbia summer Chinook in the recreational fishery downstream from Bonneville Dam and in mainstem commercial fisheries were estimated for a run size of 75,000 summer Chinook. As with spring Chinook, analyses compared catches under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Under the alternative management framework, the percentage of harvestable surplus of summer Chinook allocated to recreational fisheries downstream from Priest Rapids Dam would increase to 70% during the transition period (2013-2016) and 80% in the long term (2017 and beyond).

Once the catches were estimated, the corresponding number of recreational fishing days and associated angler trips were calculated (Table C.3), as was the ex-vessel value of summer Chinook landed in mainstem commercial fisheries (Table C.4).

Table C.2. Comparisons of upriver spring Chinook catch, kept catch of all spring Chinook stocks, and ex-vessel value of kept catch for the mainstem commercial fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Average weights of kept fish in pounds (lbs) and average price per pound (\$) are 2011 values. Analyses assume forecasted runs sizes of 225,000 for upriver spring Chinook and 65,000 for Willamette spring Chinook, a mark rate of 75%, and that the run-size forecast would be updated on May 10.

Management period	Time frame	Catch of upriver stocks before May 10 (number landed + release mortality)	Kept catch of all stocks before May 10 (number landed)	Average weight (lbs) of kept catch before May 10	Average price (\$) per lb of kept catch before May 10	Ex-vessel value (\$) of kept catch before May 10
Before the run-size update	Current	2,433	3,131	14.1	\$6.00	\$264,842
	Transition	947	1,218	14.1	\$6.00	\$103,043
	Long term	0 ¹	0 ¹	14.1	\$6.00	\$0
		Catch of upriver stocks after May 10 (number landed + release mortality)	Kept catch of all stocks after May 10 (number landed)	Average weight (lbs) of kept catch after May 10	Average price (\$) per lb of kept catch after May 10	Ex-vessel value (\$) of kept catch after May 10
After the run-size update (May 10)	Current	1,664	1,920	14.1	\$4.84	\$131,035
	Transition	1,297	1,496	14.1	\$4.84	\$102,093
	Long term	0 ¹	0 ¹	14.1	\$4.84	\$0

¹ assumes all of ESA-impacts allocated to commercial fisheries are used in off-channel areas

Table C.3. Comparisons of upper-Columbia summer Chinook catch, kept catch, number of fishing days, and number of angler trips for the recreational fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Analyses assume a forecasted run size of 75,000 summer Chinook, a mark rate of 66%, an allocation of 600 summer Chinook to recreational fisheries in the Columbia River between Bonneville and Priest Rapids dams, and no contribution from the Colville Tribes.

Time frame	Catch (number landed + release mortality)	Kept catch (number landed)	Number of consecutive fishing days (beginning June 16)	Number of angler trips
Current	2,239	2,078	13	25,000
Transition	3,385	3,142	26	45,047
Long term	3,935	3,652	40	62,189

Table C.4. Comparisons of upper Columbia summer management guideline, kept catch, and ex-vessel value of kept catch for the mainstem commercial fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Average weights of kept fish in pounds (lbs) and average price per pound (\$) are 2011 values. Analyses assume a forecasted run size of 75,000 summer Chinook and an allocation of 600 summer Chinook to recreational fisheries in the Columbia River between Bonneville and Priest Rapids dams, and no contribution from the Colville Tribes.

Time frame	Management guideline	Kept catch (number landed)	Average weight (lbs) of kept catch	Average price (\$) per lb of kept catch	Ex-vessel value (\$) of kept catch
Current	2,831	2,831	17.4	\$3.08	\$151,719
Transition	1,698	1,698	17.4	\$3.08	\$90,999
Long term	1,132	1,132	17.4	\$3.08	\$60,666

Fall Chinook

Two management scenarios were used to model the catch of tule and Bright fall Chinook in the recreational fishery downstream from Bonneville Dam and in mainstem commercial fisheries. In one scenario, the ESA-impact level was 7.28% for lower river hatchery (LRH) tule fall Chinook (38% including ocean fisheries) and 11% for Snake River wild (Bright) fall Chinook. The run sizes for all Chinook stocks encountered by fisheries under this scenario were actual numbers observed in 2006. In the other scenario, the ESA-impact level was 7.8% for lower river hatchery tule fall Chinook (41% including ocean fisheries) and 15% for Snake River wild (Bright) fall Chinook. The run sizes for all Chinook stocks encountered by fisheries under this scenario were actual numbers observed in 2011. As with spring and summer Chinook, analyses compared catches under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Under the alternative management framework, the percentage of the ESA-impact for tule fall Chinook allocated to recreational fisheries downstream from Bonneville Dam would increase to 70% during the transition period (2013-2016) and 80% in the long term (2017 and beyond). The percentage of ESA-impacts for Bright fall Chinook allocated to recreational fisheries downstream from Bonneville Dam would vary depending on the number of days the recreational fishery was open before reaching its tule fall Chinook impact limit.

Once the catches were estimated, the corresponding number of recreational fishing days and associated angler trips were calculated (Table C.5), as was the ex-vessel value of fall Chinook landed in mainstem commercial fisheries (Table C.6).

It is important to note that for the higher ESA-impact scenario (7.8% for lower river hatchery tule fall Chinook (LRH) and 15% for Snake River wild (Bright) fall Chinook) the analysis indicates that the recreational and commercial fisheries would not be able to catch all the upriver Bright fall Chinook available to them because of constraints imposed by the LRH impacts. Under the “current” scenario the unused catch would total about 5,500 upriver Bright fall Chinook. In the transition period and long term, these numbers would be about 7,400 and about 8,700, respectively. If the mainstem

commercial fishery could access these fish in their September and October fisheries, the ex-vessel value would be about \$143,000 under the “current” scenario, \$193,000 in the transition period, and \$227,000 in the long term.

Table C.5. Comparisons of tule and Bright fall Chinook catch, number of fishing days and angler trips for recreational fisheries downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. The “current” scenario set the recreational fishery’s share of the in-river ESA impact for lower river hatchery tule equal to 57% (recent three-year pre-season average). Analyses assumed the same stock-specific harvest rates as in 2012 pre-season model, that the in-river share of the total available LRH impacts (ocean + river) was 19% (recent three-year pre-season average) and that the Snake River recreational fishery used 0.5% of the Snake River wild (Bright) ESA-impact.

In-river ESA Impact Level	Time frame	Catch of tule stocks (number landed)	Catch of Bright stocks (number landed)	Number of consecutive fishing days (beginning August 1 and ending no later than October 31, when fishing for fall Chinook essentially ends)			Number of angler trips
				Buoy 10	Tongue Point to Warrior Rock	Warrior Rock to Bonneville Dam	
Lower river hatchery tule fall Chinook = 7.2%	Current	4,700	16,100	34	37	92	125,000
	Transition	5,600	21,400	34	45	92	145,000
Snake River wild (Bright) fall Chinook = 11%	Long term	6,300	25,600	34	75	92	160,000
Lower river hatchery tule fall Chinook = 7.8%	Current	10,400	25,100	34	42	92	160,000
	Transition	12,300	32,400	34	61	92	190,000
Snake River wild (Bright) fall Chinook = 15%	Long term	13,500	36,700	65	92	92	200,000

Commercial Fisheries in Existing Off-Channel Areas

For the transition period analyses assumed “current” production was enhanced by 1.0 million spring Chinook, 500,000 Select Area Bright fall Chinook, and 920,000 coho. For the long term, off-channel fisheries were modeled assuming enhancements totaled 1,250,000 spring Chinook, 750,000 Select Area Bright fall Chinook and 4,700,000 coho. Under the “current” scenario, off-channel fisheries were modeled assuming returns from a base production of 950,000 spring Chinook, 1.45 million Select Area Bright Chinook and 4.17 million coho. All scenarios assumed that survival of smolts to adults harvested at each site was 0.5% for spring Chinook, 0.3% for Select Area Bright fall Chinook, and 1.4% for coho. Catch estimates do not include incidental harvest of non-local stocks. Results are summarized in Table C.7.

Table C.6. Comparisons of tulle and Bright fall Chinook kept catch, and ex-vessel value of kept catch for the mainstem commercial fishery downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. The “current” scenario set the recreational fishery’s share of the in-river ESA impact for lower river hatchery tulle equal to 57% (recent three-year pre-season average). Analyses assumed the same stock-specific harvest rates as in 2012 pre-season model, that the in-river share of available LRH impacts was 19% (recent three-year pre-season average) and that the Snake River recreational fishery used 0.5% of the Snake River wild (Bright) ESA-impact.

In-river ESA Impact Level	Time frame	Season	Kept catch (number landed)		Average weight (lbs) of kept catch	Average price (\$) per lb of kept catch		Ex-vessel value (\$) of kept catch (tulle + Bright)
			Tulle	Bright		Tulle	Bright	
Lower river hatchery tulle fall Chinook = 7.2% Snake River wild (Bright) fall Chinook = 11%	Current	Late Aug	4,726	9,163	21.0	\$0.54	\$2.31	\$860,672
		Sep/Oct	1,368	13,499	15.6	\$0.52	\$1.67	
	Transition	Late Aug	3,530	6,819	21.0	\$0.54	\$2.31	\$658,309
		Sep/Oct	1,073	10,708	15.6	\$0.52	\$1.67	
	Long term	Late Aug	2,300	4,427	21.0	\$0.54	\$2.31	\$449,842
		Sep/Oct	752	7,792	15.6	\$0.52	\$1.67	
Lower river hatchery tulle fall Chinook = 7.8% Snake River wild (Bright) fall Chinook = 15%	Current	Late Aug	11,739	13,079	21.0	\$0.54	\$2.31	\$1,349,269
		Sep/Oct	4,431	20,973	15.6	\$0.52	\$1.67	
	Transition	Late Aug	8,151	9,032	21.0	\$0.54	\$2.31	\$959,113
		Sep/Oct	3,265	15,499	15.6	\$0.52	\$1.67	
	Long term	Late Aug	6,088	6,729	21.0	\$0.54	\$2.31	\$722,000
		Sep/Oct	2,451	11,782	15.6	\$0.52	\$1.67	

Summary

The changes in angler trips and ex-vessel values described below are based on the modeled analyses described above and are relative to values calculated for the “current” scenario.

With respect to mainstem recreational fisheries in the spring, summer and fall, the total number of angler trips in the transition period would increase by 51,000 (16%) under the medium fall Chinook ESA-impact scenario and by 61,000 (17%) under the high fall Chinook ESA-impact scenario. In the long term, the number of angler trips would increase by 87,000 (28%) under the medium fall Chinook ESA-impact scenario and by 92,000 (26%) under the high fall Chinook ESA-impact scenario.

With respect to mainstem and off-channel commercial fisheries, the average annual ex-vessel value in the transition period would decrease by about \$143,000 (5%) under the medium fall Chinook ESA-impact scenario and \$331,000 (11%) under the high fall Chinook ESA-impact scenario.

For the period 2017 through 2020, the average annual ex-vessel value of commercial fisheries would increase by \$195,000 (7%) under the medium fall Chinook ESA-impact scenario, but would decrease by about \$21,000 (or 0.7%) under the high fall Chinook ESA-impact scenario.

For the period after 2020, the average annual ex-vessel value of commercial fisheries would increase by \$431,000 (17%) under the medium fall Chinook ESA-impact scenario and by \$215,000 (7%) under the high fall Chinook ESA-impact scenario.

Table C.7. Comparisons of average annual kept catch, and average annual ex-vessel value of kept catch for spring Chinook, Select Area Bright fall Chinook, and coho for commercial fisheries in existing off-channel areas downstream from Bonneville Dam, under the current management policy and under the alternative management framework being considered by the Columbia River Fishery Management Workgroup. Assumed survival of smolts to adults harvested at each site was 0.5% for spring Chinook, 0.3% for Select Area Bright fall Chinook, and 1.4% for coho. Catch estimates do not include incidental harvest of non-local stocks. Production numbers for the “current” scenario were 950,000 spring Chinook, 1,450,000 Select Area Bright fall Chinook and 4,170,000 coho. The transition period includes additional releases of spring Chinook (250,000) and coho (120,000) that began in 2010. The transition period also assumes additional releases of spring Chinook beginning in 2013 (500,000) and 2014 (250,000); Select Area Bright fall Chinook beginning in 2014 (500,000), and coho beginning in 2013 (800,000). For the long term, additional releases (above those released during the transition period) of all stocks (250,000 spring Chinook, 250,000 Select Area Bright fall Chinook and 3,780,000 coho) were assumed to begin in 2017, with full returns from all releases occurring in 2021.

Time frame	Stock	Kept catch (number landed)	Average weight (lbs) of kept catch	Average price (\$) per lb of kept catch	Ex-vessel value (\$) of kept catch
Current	Spring Chinook	4,750	12.1	\$5.23	\$300,594
	Select Area Bright Fall Chinook	4,350	13.8	\$2.28	\$136,868
	Coho	58,380	9.5	\$1.38	\$765,362
Transition (2013-2016)	Spring Chinook	7,251	12.1	\$5.23	\$458,865
	Select Area Bright Fall Chinook	4,995	13.8	\$2.28	\$157,163
	Coho	68,460	9.5	\$1.38	\$897,511
Long term (2017-2020)	Spring Chinook	10,268	12.1	\$5.23	\$649,790
	Select Area Bright Fall Chinook	6,090	13.8	\$2.28	\$191,696
	Coho	110,950	9.5	\$1.38	\$1,454,555
Long term (2021 & beyond)	Spring Chinook	11,000	12.1	\$5.23	\$696,113
	Select Area Bright Fall Chinook	6,600	13.8	\$2.28	\$207,622
	Coho	124,180	9.5	\$1.38	\$1,628,000

As pointed out above, under the higher tule and upriver Bright fall Chinook ESA-impact scenario the analysis indicates that the recreational and commercial fisheries would not be able to catch all the upriver Bright fall Chinook available to them because of constraints imposed by the LRH impacts. The management intent under the alternative management framework is to enable the commercial fishery to harvest these upriver Bright fall Chinook by fishing in the mainstem upstream of the Sandy River. If commercial fishers were to harvest all the Bright fall Chinook not used in recreational or lower-river commercial fisheries, their harvest would increase by about 7,400 in the transition period and about 8,700 in the long term. If these fish were harvested in September and October fisheries, the ex-vessel value of this additional harvest would be about \$193,000 in the transition period and \$227,000 in the long term. The net economic affect would be to reduce the \$331,000 reduction in ex-vessel value during the transition period to about \$138,000. In the long term, the ex-vessel value would increase from a reduction of about \$21,000 from 2017 through 2020 to an increase of about \$206,000.