



Northwest **Power** and
Conservation Council

Quantitative Objectives Report

Report: **Chum**

Document: **Washington Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan - Washington Management Plan in Lower Columbia River Recovery Plan for Salmon and Steelhead**

Author: Lower Columbia Fish Recovery Board

Document Year: **2010**

Link: http://media.wix.com/ugd/810197_ed97ad06e02445f5927163b568dccd3c.pdf

Chum

<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Abundance Target</u>	<u>Contribution</u>	<u>Viability Objective</u>	<u>Productivity Improvement Target(%)</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Salmon		Threatened	NA	Stabilizing	Very Low	0
				Cowlitz-Summer		Threatened	900	Contributing	Moderate	>500
				Cowlitz-Fall		Threatened	900	Contributing	Moderate	>500
				Kalama		Threatened	900	Contributing	Moderate	>500
				Lewis		Threatened	1300	Primary	High	>500
				Washougal		Threatened	1300	Primary	High+	>500
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Grays/Chinook		Threatened	1600	Primary	Very High	0 (1)
				Elochoman/Skamokawa		Threatened	1300	Primary	High	>500
				Mill/Abernathy/Germany		Threatened	1300	Primary	High	>500
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Lower Gorge		Threatened	2000	Primary	Very High	0 (1)
				Upper Gorge		Threatened	900	Contributing	Moderate	>500

FOOTNOTES:

(1) Improvement increments are based on abundance and productivity; however, this population will require improvements in spatial structure or diversity to meet recovery goals

NOTES:

Abundance targets were estimated by population viability simulations based on population viability objectives. This number refers to median abundance over any successive 12-year period which is consistent with species generation times and the moving three-year average basis for assessing risk in the population viability analysis.

Primary, contributing, and stabilizing designations reflect the relative contribution of a population to recovery goals and objective levels of viability consistent with recovery criteria.

Viability objective is based on the scenario contribution.

Productivity improvement target is defined as the relative increase in population production or density-independent recruits per spawner required to reach the population viability objective (e.g. 100% = baseline x 2). This improvement is the net benefit of actions across all limiting factors (habitat, harvest, hatchery, hydropower, estuary, ecological). Increments are relative to conditions prevalent at time of listing.

Designated as a historical core population by the Technical Recovery Team: Grays/Chinook, Elochoman/Skamokawa, Cowlitz (fall), Cowlitz (summer), Lewis, and Lower Gorge

Designated as a historical legacy population by the Technical Recovery Team: Grays/Chinook, and Lower Gorge

Document: **Lower Columbia River Conservation and Recovery Plan for Oregon Populations of Salmon and Steelhead**

Author: ODFW

Document Year: **2010**

Link: http://www.dfw.state.or.us/fish/CRP/docs/lower-columbia/OR_LCR_Plan%20-%20Aug_6_2010_Final.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Abundance</u>	<u>Overall Risk Class</u>	<u>A&P Gap</u>	<u>Contribution to Delisting</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Youngs Bay		Threatened	TBD	Very High	NA	Stabalizing
				Scappoose River		Threatened	TBD	Low	NA	Primary
				Sandy River		Threatened	TBD	Low	NA	Primary
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Clatskanie		Threatened	TBD	Low	NA	Primary

Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Big Creek	Threatened	TBD	Very High	NA	Stabalizing
				Clackamas	Threatened	TBD	Moderate	NA	Contributing
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Lower Gorge Tributaries	Threatened	TBD	Very Low	NA	Support (WA)
				Upper Gorge Tributaries	Threatened	TBD	Moderate	NA	Support (WA)

NOTES:

Oregon recognizes the ESU as a State Management Unit - Lower Columbia River Chum

Oregon State Status - Critical

Oregon identified the Gorge populaitons as a single Gorge population

Document: **Revised Viability Criteria for Salmon and Steelhead in the Willamette and Lower Columbia Basins**

Author: Willamette/Lower Columbia Technical Recovery Team, ODFW

Document Year: **2006**

Link: http://www.fws.gov/pacific//Fisheries/Hatcheryreview/Reports/columbiagorge/EC--032Revised_Viability_CriteriaLC-TRTApril_2006.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Size Category</u>	<u>RFT and QET</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Clackamas		Threatened	NA	NA
				Sandy River		Threatened	NA	NA
				Hood River		Threatened	NA	NA
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Clatskanie		Threatened	Small	100
				Big Creek		Threatened	Medium	200

Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Scappoose River	Threatened	NA	NA
				Youngs Bay	Threatened	Medium	200
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Upper Gorge Tributaries	Threatened	NA	NA
				Lower Gorge Tributaries	Threatened	NA	NA

Document: **ESA Recovery Plan for Lower Columbia River Coho Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon, and Lower Columbia River Steelhead**

Author: NOAA Fisheries

Document Year: **2013**

Link: http://www.westcoast.fisheries.noaa.gov/publications/recovery_planning/salmon_steelhead/domains/willamette_lowercol/lower_columbia/final_plan_documents/final_lcr_plan_june_2013_-_corrected.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Target Persistence Probability</u>	<u>Contribution to Recovery</u>	<u>Target Abundance</u>	<u>% Survival Improvement</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Washougal	Fall	Threatened	High+	Primary	1300	>500
				Cowlitz-Fall	Fall	Threatened	Moderate	Contributing	900	>500
				Lewis	Fall	Threatened	High	Primary	1300	>500
				Salmon	Fall	Threatened	Very Low	Stabalizing	NA	0
				Clackamas	Fall	Threatened	Moderate	Contributing	500	NA
				Sandy River	Fall	Threatened	High	Primary	1000	NA
				Cowlitz-Summer	Summer	Threatened	Moderate	Contributing	900	>500

Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Kalama	Fall	Threatened	Moderate	Contributing	900	>500
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Mill/Abernathy /Germany	Fall	Threatened	High	Primary	1300	>500
				Grays/Chinook	Fall	Threatened	Very High	Primary	1600	0
				Elochoman/Skamokawa	Fall	Threatened	High	Primary	1300	>500
				Big Creek	Fall	Threatened	Very Low	Stabalizing	<500	NA
				Youngs Bay	Fall	Threatened	Very Low	Stabalizing	<500	NA
				Scappoose River	Fall	Threatened	High	Primary	1000	NA
				Clatskanie	Fall	Threatened	High	Primary	1000	NA
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Lower Gorge Tributaries	Fall	Threatened	Very High	Primary (1)	2000	0
				Upper Gorge Tributaries	Fall	Threatened	Moderate	Contributing (1)	900	>500

NOTES:
 Survival Improvement needed: Survival improvements indicate the percentage improvement (rounded to the nearest 10) in population survival needed to achieve target impacts and are taken. For populations where the survival improvement needed is larger than 500 percent, this table does not report the exact value. □

Oregon did not identify abundance targets for chum salmon populations because quantitative data for use in calculating abundance targets and conservation gaps are not available. In this table, NMFS has included placeholder abundance targets for Oregon chum salmon populations based on the minimum abundance thresholds presented in McElhany et al. 2006 and 2007. The minimum abundance threshold (MAT) represents a lower bound estimate for average population size associated with a given persistence level. Minimum abundance thresholds take into account environmental variation, genetic issues, ecosystem functions, catastrophic risk, and other biological and ecological factors that affect the relationship between abundance and persistence probability and that may not be explicitly addressed in the viability curve analysis. McElhany et al. (2007) advised that, before a population is assigned to a particular risk category, the population should exceed the viability curve criterion, minimal abundance threshold, and any qualitative TRT criteria. 14 "—" indicates that no data are available from which to make a quantitative assessment." □

Designated as a historical core population by the Technical Recovery Team : Youngs Bay, Grays/Chinook, Big Creek, Elochoman/Skamakowa, Cowlitz-Fall, Cowlitz-Summer, Lewis, Clackamas, and Lower Gorge □

Designated as a historical legacy population by the Technical Recovery Team: Grays/Chinook and Lower Gorge

Document: **Lower Columbia River Mainstem and Estuary Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/119232/Vol II A_Col_Estuary_mainstem.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Abundance</u>	<u>Productivity</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	N/A	I-205		Threatened	1250	>1
				Ives Island		Threatened	6400	>1
				Multnomah Falls		Threatened	2300	>1

NOTES:
Abundance performance levels represent twice the 2002 spawning escapement estimates

Document: **Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: <http://www.nwcouncil.org/media/6865748/RP.pdf>

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Abundance Goal</u>	<u>Viability Goal</u>	<u>Scenario Contribution</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Kalama		Threatened	150	Low	Contributing
				Cowlitz		Threatened	600	Medium	Contributing
				Sandy River		Threatened	NA	High	Stabilizing

Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Clackamas	Threatened	NA	Medium	Contributing
				Salmon	Threatened	75	Very Low	Stabilizing
				Lewis	Threatened	1100	High	Primary
				Washougal	Threatened	5200	High+	Primary
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Scappoose River	Threatened	NA	Low	Contributing
				Clatskanie	Threatened	NA	Medium	Contributing
				Big Creek	Threatened	NA	Low	Contributing
				Elochoman/Sk amokawa	Threatened	1100	High	Primary
				Grays/Chinoo k	Threatened	6000	High+	Primary
				Mill/Abernathy /Germany	Threatened	1100	High	Primary
				Youngs	Threatened	NA	High	Primary
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Lower Gorge Tributaries	Threatened	2800	High+	Primary
				Upper Gorge Tributaries	Threatened	600	Medium	Contributing

Document: **Grays Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21265/Vol_II_C_Grays.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Grays/Chinook		Threatened	4300-7800	High+

NOTES:
Primary population in recovery scenario

Document: **Elochoman, Skamakowa, Mill, Abernathy, and Germany Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/119235/Vol_II_D_Eloch_MAG.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Coast	Elochoman/Skamakowa		Threatened	1100	High

NOTES:

Document: **Cowlitz, Coweeman, and Toutle Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/119238/Vol_II_E_Cowlitz.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Cowlitz		Threatened	150-1100	Medium

NOTES:
Contributing population in recovery scenario

Document: **Kalama Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21268/Vol_II_F_Kalama.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Kalama		Threatened	150-1100	Low

NOTES:
Contributing population to recovery scenario

Document: **NF and EF Lewis Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/119241/Vol_II_G_Lewis.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	East Fork Lewis		Threatened	1100	High

NOTES:
Primary population in recovery scenario

Document: **Lower Columbia Tributaries: Bonneville and Salmon Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21271/Vol_II_H_L_Columbia_Tribs.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Lower Gorge Tributaries		Threatened	2600-3100	High

NOTES:

Document: **Washougal Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21274/Vol_II_I_Washougal.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Cascade	Washougal		Threatened	1100-9400	High

NOTES:
Primary population in recovery scenario

Document: **Wind Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21277/Vol_II_J_Wind.pdf

Chum

<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Wind		Threatened	<100-1100	Meidium

NOTES:
Contributing population in recovery scenario

Document: **Little White Salmon Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21280/Vol_II_K_Little_White.pdf

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<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Little White Salmon		Threatened	NA	Meidium

NOTES:
Contributing population in recovery scenario

Document: **Upper Gorge Tributaries Subbasin Plan**

Author: Northwest Power and Conservation Council and Partners

Document Year: **2004**

Link: http://www.nwcouncil.org/media/21283/Vol_II_L_Gorge_Tribs.pdf

Chum

<u>Recovery Domain</u>	<u>Recovery Sub Domain</u>	<u>ESU/DPS</u>	<u>MPG</u>	<u>Population</u>	<u>Run</u>	<u>ESA Listed</u>	<u>Number Objective</u>	<u>Viability Objective</u>
Willamette Lower Columbia	Lower Columbia River	Columbia River Chum Salmon	Gorge	Upper Gorge		Threatened	<100-1100	Meidium

NOTES:
Includes Wind River, Little White Salmon, and upper Gorge tributaries
Contributing population in recovery scenario