

# COWLITZ COUNTY CRITICAL AREAS ORDINANCE TECHNICAL REPORT

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Critical Areas Ordinance Gap Analysis (REVISED)

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## INTRODUCTION

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To comply with Growth Management Act (GMA) mandates, Cowlitz County (County) began updating its Comprehensive Plan in 2014 and is currently in the process of updating its Critical Areas Ordinance. The County last updated its full critical areas regulations in 2009. The State requires that Cowlitz County update their comprehensive plans and regulations on or before June 30, 2017, and every eight years thereafter (RCW 36.70A.130). This deadline must be met for the County to remain eligible to receive funds from the public works assistance and water quality accounts in the State Treasury. To support the County’s GMA-mandated Critical Areas Ordinance update, The Watershed Company prepared a Review of Existing Conditions and Best Available Science report. This document is a preliminary Gap Analysis of Cowlitz County’s Critical Areas Regulations. Together, these documents A) review existing conditions in the County and relevant science related to management of critical areas, and B) recommend updates to the County’s critical area provisions that comply with State guidance and best available science (BAS).

This report is organized into the five major critical areas: wetlands, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas. In addition, Section 6 provide additional topics that should be addressed in the CAO update process.

## 1 WETLANDS

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The wetlands section of the critical areas regulations should be updated to be more consistent with BAS. Notable recommendations include updating buffer width requirements to align with BAS, updating buffer averaging and reduction standards, and providing more detailed mitigation regulations. Table 1-1 summarizes recommendations, which are addressed in more detail below.

Table 1-1. Wetlands regulations section review summary

Code Section	Title	Review Comment / Recommendations
<b>19.15.120.B</b>	Critical Area Assessment – Additional Requirements for Wetlands	<ul style="list-style-type: none"> <li>• Include description of or reference to wetland assessment method used</li> </ul>

Code Section	Title	Review Comment / Recommendations
19.15.120.C	Performance Standards – General Requirements	<ul style="list-style-type: none"> <li>• Consider renaming this section, and other sections that refer to “performance standards”</li> <li>• Ensure “full mitigation” requirement applies to impacts to all wetland categories</li> <li>• Include provisions for non-vegetated buffers</li> <li>• Consider consolidating to one set of standard buffers, and revise to align with new rating system</li> <li>• Limit buffer averaging to 25% and revise buffer reduction provisions</li> <li>• Revise buffer use provisions to limit disturbances to outer 25% of buffer, and to allow for normal and routine maintenance and repair</li> </ul>
19.15.120.D	Performance Standards – Compensatory Mitigation Requirements	<ul style="list-style-type: none"> <li>• Consider moving wetland-specific mitigation standards to this section</li> <li>• Consider adding options for credit/debit method</li> <li>• Consider adding provisions addressing preference of mitigation actions</li> <li>• Consider adding mitigation requirements for buffer impacts</li> </ul>

**Section 19.15.120.B: Critical Area Assessment – Additional Requirements for Wetlands**

This section contains requirements for critical area assessments for wetlands. Due to recent changes to the wetland rating system, we recommend that a reference to the method used or a description of the method used to perform the wetland functional assessment be included in the assessment requirements. Any applicable forms or data sheets used during the functional assessment should also be included in the submittal.

**Section 19.15.120.C: Performance Standards – General Requirements**

Performance standards are used to measure the success of an action such as a mitigation project; this term is not appropriate for use in describing protective measures for existing wetlands. For this and other sections containing protective provisions, we recommend replacing the term “performance standards” with “development standards” or “development regulations.”

Sections 19.15.120.C.1 through C.3 define allowances for activities and uses in each wetland category. While all activities and uses are prohibited within Category I wetlands, “activities and uses that result in unavoidable and necessary impacts may be permitted” in Category II, III, and IV wetlands. To better align with BAS and ensure no net loss of wetlands, we recommend that the provision in 19.15.120.C.3 (Category IV wetlands) that reads, “Full mitigation for the acreage and loss of functions will be provided under the terms established under CCC 19.15.170” be revised in order to apply to all wetland categories.

In accordance with BAS, Section 19.15.120.C.4.a assumes that the standard buffer widths defined in this section support relatively intact vegetation, “adequate to protect the wetland

functions and values at the time of the proposed activity.” However, the provision does not address any requirements in the event that the buffer is *not* adequately vegetated. To better align with BAS, we recommend incorporating the following language into this provision:

*If the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer should either be planted to create the appropriate plant community, or the buffer should be widened to ensure that adequate functions of the buffer are provided.*

The standard buffers defined in Tables 19.15.120-B and .120-C are generally well aligned with BAS: They are based on both wetland habitat score and level of intensity of land use impacts, and they are wide enough to protect wetland functions and values. However, these buffers are broken out into two separate tables by wetland function. We recommend combining the two tables into one to address all buffer scenarios. Table 1-3 presents an example of this approach, per Ecology guidance. Note that the table also includes recommended buffer widths for special types of wetlands, for which the habitat score is not relevant to buffer width determination.

Table 1-2. Standard wetland buffer widths for use with the 2014 wetland rating system.

Wetland Category	Habitat Score	Impact of Proposed Land Use		
		Low	Moderate	High
<b>Category I: Bogs</b>	NA	125 ft	190 ft	250 ft
<b>Category I: Wetlands with a high conservation value</b>	NA	125 ft	190 ft	250 ft
<b>Category I and II: all other</b>	8-9	150 ft	225 ft	300 ft
	5-7	75 ft	110 ft	150 ft
	<5	50 ft	75 ft	100 ft
<b>Category III</b>	5-7	75 ft	110 ft	150 ft
	<5	40 ft	60 ft	80 ft
<b>Category IV</b>	NA	25 ft	40 ft	50 ft

Section 19.15.120.C.4.d includes allowances for wetland buffer width flexibility, including averaging and reduction. To better align with BAS, buffer averaging should be limited at any given location along the buffer to 25 percent of the standard width, or 25 feet, whichever is greater. Also, given that standard buffers must be fully vegetated, buffer reduction with enhancement (19.15.120.C.4.d.ii.(A)) no longer provides an increase of buffer functions adequate to justify reduction of buffer width. Therefore, to better align with BAS, we recommend removal of this provision. The remaining buffer reduction provisions, which require use of

impact-minimization measures, should be revised to align with the 2014 wetland rating system and associated habitat score values.

Lastly, BAS indicates that disturbances within wetland buffers, when allowed, should be located as far from the wetland itself as possible in order to minimize adverse impacts to the wetland. In the existing, CAO, Section 19.15.120.C.4.g.ii limits stormwater management facilities to the outer 25 percent of the buffer. We recommend revising Section 19.15.120.C.4.g.i, which addresses passive recreation development activity, to similarly restrict walkways and trails to the outer 25 percent of the buffer. We also recommend adding provisions to allow for normal maintenance and repair of existing facilities, including nonconforming uses or structures, provided that such activities do not increase the footprint of the facility.

#### **Section 19.15.120.D: Performance Standards – Compensatory Mitigation Requirements**

In the existing CAO, this section requires that wetland mitigation be consistent with applicable state and federal guidance documents as well as with Section 19.15.170, Mitigation requirements. Given the added specificity of the requirements for wetland mitigation, the County should consider moving the provisions in section 19.15.170 relevant only to wetland mitigation into this section.

The wetland mitigation ratios presented in Table 19.15.170-A (Section 19.5.170.E.5.a) are generally in alignment with BAS. To supplement the table, we recommend including additional provisions to define the preferred type(s) of wetland mitigation. For example, compensatory mitigation should provide similar wetland functions to those lost, and restoration and creation of wetlands should be preferred over enhancement of degraded wetlands. Preservation of high-quality wetlands should be considered as the sole means of compensation for wetland impacts only under certain circumstances. Also, this section should specify that buffer impacts should be mitigated at a 1:1 ratio.

Lastly, for greater flexibility, the County may wish to consider allowing a credit-debit analysis to be applied to individual projects. The credit-debit method is a tool “for estimating whether a plan for compensatory mitigation will adequately replace the functions and values lost when a wetland is altered. The tool is designed to provide guidance for both regulators and applicants during two stages of the mitigation process: 1) estimating the functions and values lost when a wetland is altered [debits], and 2) estimating the gain in functions and values that result from the mitigation [credits]” (Hruby 2012). Ecology issued the tool in 2012 before the current 2014 wetland rating system was completed. As a result, use of the credit-debit method effectively requires two separate wetland ratings: one for buffer determination, with the 2014 rating system; and one for credit-debit calculation, with the credit-debit method rating system. While the option to use the credit-debit method is based on a wetland functions analysis and provides more flexibility for applicants, the method is inherently more complex than use of mitigation

ratios. At present, the credit-debit method is used primarily for calculating credits for mitigation banks and in-lieu fee programs, which are addressed in section 19.15.170.D.

## 2 FISH AND WILDLIFE HABITAT CONSERVATION AREAS

The County’s existing Fish and Wildlife Habitat Conservation Area regulations should be updated to improve clarity and align with current BAS. Considerations for updates to these regulations are discussed below, and include revisions to allowances within designated Riparian Habitat Areas and requirements for minimum mitigation. A summary of the review of these regulations is provided in Table 2-1 below.

Table 2-1. Fish and wildlife habitat conservation area regulations section review summary

Code Section	Title	Review Comment / Recommendations
19.15.130.E	Performance Standards – Specific Habitats	<ul style="list-style-type: none"> <li>Clarify allowed uses in RHAs and conditions under which they may be allowed</li> <li>Consider limiting allowed uses to outer 25 percent of RHA</li> <li>Consider limiting RHA reduction allowances to 25 percent through averaging</li> <li>Consider revising “Aquatic Habitat” provisions for consistency with SMP and allowed RHA use provisions</li> </ul>
19.15.130.F	Performance Standards – Mitigation Requirements	<ul style="list-style-type: none"> <li>Consider defining minimum mitigation requirements</li> </ul>

### Section 19.15.130.E: Performance Standards – Specific Habitats

Section 19.15.130.E.3 designates Riparian Habitat Areas (RHAs) adjacent to rivers and streams. The standard RHA widths defined in Table 19.15.130-B are generally consistent with BAS. However, the County should consider revisions to the existing allowances for reduction of RHA widths as well as allowances for uses within RHAs.

Section 19.15.130.E.3.f defines three options for development within RHAs. Option 2 allows development within the outer one-half of the RHA together with a level one critical areas habitat assessment. Under this option, mitigation sequencing is required in compliance with section 19.15.170. However, this option effectively allows an administrative reduction of the RHA by 50 percent. Option 3 allows development within the inner one-half of the RHA together with a level two critical areas habitat assessment, which includes a plan for protection and enhancement of functions within the RHA.

Rather than relying on the critical areas habitat assessment process, we recommend that the County include regulations that provide a clear list of the uses and developments that may be permitted within an RHA, and the conditions under which they may be permitted. In order to

ensure that required RHAs provide adequate buffer functions, BAS suggests limiting allowed uses to the outer 25 percent of the RHA where feasible. Reduction of standard RHA widths should also be limited to 25 percent at any given point through buffer averaging. Additional flexibility may be appropriate for water-dependent uses in RHAs on shorelines of the state, as provided in section 19.15.130.E.3.f.iv of the existing regulations.

Section 19.15.130.E.4 is entitled “Aquatic Habitat.” However, this section includes provisions for uses and development within RHAs. The County should consider revising this section to apply to uses and developments permitted within both waters of the state and associated RHAs. Revisions should ensure consistency with both the general allowed and exempt activity provisions in the existing sections 19.15.060 and .070, respectively, and with the County’s shoreline regulations.

### **Section 19.15.130.F: Performance Standards – Mitigation Requirements**

This section includes mitigation requirements for alterations to fish and wildlife habitat conservation areas. It refers to the Washington State Department of Fish and Wildlife “and other state or federal agencies’ management recommendations and guidance documents,” as well as to Section 19.15.170, for mitigation requirements and best practices. In practice, the County decides on the level of mitigation and receives feedback from state or federal agencies if more is required. To provide support for local decision-making and implementation, the County should consider including minimum mitigation requirements, such as the following:

*Mitigation will be required to the level or extent necessary to achieve no net loss of critical area functions and values. Mitigation will be required at a minimum ratio of one to one (area impacted to area replaced).*

## **3 FREQUENTLY FLOODED AREAS**

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Section 19.15.140 of the existing CAO addresses frequently flooded areas in the County. The section defines all areas mapped by FEMA as within the 100-year floodplain as frequently flooded areas, and refers to Chapter 16.25 of the Cowlitz County Code, Floodplain Management, for regulation of these areas. Regulatory actions to prevent flood hazards include elevation above grade and prohibition of development in the floodway. This flood hazard approach is consistent with BAS, and no changes are recommended to this section.

## **4 GEOLOGICALLY HAZARDOUS AREAS**

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Section 19.15.150 defines and regulates geologically hazardous areas in Cowlitz County. These are areas that are susceptible to erosion, sliding, earthquake, or other geological events, which in Cowlitz County includes volcanic eruption events. This section provides requirements for all geologically hazardous areas including restricting critical facilities and utility transmission

facilities and not increasing or creating any threat from the geologic hazard (19.15.150.C). These general requirements are consistent with BAS and no changes are recommended.

Seismic hazards are required to comply with the adopted International Building Code or International Residential Code (19.15.150.D). Development in mine hazard areas requires compliance with the general standards and a geotechnical assessment (19.15.150.E). No changes are recommended for these sections.

Cowlitz County shares a portion of Mt. St. Helens with Skamania County and thus has a special responsibility to consider the types of volcanic hazards that could occur and the types of development appropriate for potentially affected areas. Cowlitz County describes this approach in 19.15.150.F.1 as a preamble to the volcanic hazard area regulations. The CAO establishes four hazard areas based on direct proximity to the volcanic cone and three levels of susceptibility to volcanic flows. Although the extent and effects of volcanic eruptions can vary widely, this approach is based on BAS available for Mt. St. Helens. The Volcanic Hazard Zone 1, which extends in a 5 mile radius from the volcanic cone, only allows four activity types, none of which include construction of any new structures. The Flowage Hazard Zones do not limit types of development specifically, but do require an evacuation and emergency management plan. No changes are recommended to these sections.

Erosion hazard areas (19.15.150.G) are identified by the U.S. Department of Agriculture's Natural Resource Conservation Service as having a "severe" or "very severe" erosion hazard and also those areas impacted by shore land and/or streambank erosion or within a channel migration zone. Protective controls include requiring an erosion control plan, applying seasonal soil disturbance restrictions, and requiring a drainage plan. These approaches are consistent with BAS and no changes are recommended.

Landslide hazard areas (19.15.150.H) are very important in Cowlitz County given its history of frequent and severe landslides. Given the complexity of landslide activities, the County's current CAO uses multiple factors to designate landslide hazard areas (19.15.150.H.1.a). A buffer of 50 feet from the edge of landslide hazard areas is required. The buffer can be reduced or increased depending on site specific considerations and documentation from a qualified professional. Design and development standards must be met in addition to the preparation of a Critical Area Assessment with the level of report defined by site specific conditions. Finally, mitigation of long-term impacts is required. These approaches are consistent with BAS and no changes are recommended.

## 5 CRITICAL AQUIFER RECHARGE AREAS

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Section 19.15.160 of the existing CAO addresses critical aquifer recharge areas in the County. Section 19.15.160.A.1 describes a three tiered categorization system of Slight, Moderate, and

Severe aquifer sensitivity and refers to Table 19.15.160-A Aquifer Sensitivity Rating for Cowlitz County Soil Types where all soil types in the County are placed into one of the sensitivity categories. The aquifer recharge sensitivity categories are based on “DRASTIC – A Standardized System for Evaluating Groundwater Pollution Potential Using Hydrogeologic Settings” (Aller et al. June 1987, U.S. Environmental Protection Agency, Publication Number 800287035). This system continues to be consistent with BAS.

The current CAO approach applies a sensitivity category and requires a Level One or Level Two Hydrogeologic Assessment throughout the full extent of soil types in the Moderate or Severe category. Cowlitz County would like to further refine this application by incorporating data available on wellhead protection areas where groundwater recharge provides drinking water to well systems. Wells are separated into Group A and Group B wells depending on the number of connections served. Using wellhead protection areas combined with soil sensitivity categories will refine the designation of CARAs within the County in alignment with BAS for prioritizing protection of groundwater from contamination. Table 5-1 summarizes potential recommended changes for the CARAs chapter.

Table 5-1. Critical Aquifer Recharge Areas regulations section review summary

Code Section	Title	Review Comment / Recommendations
<b>19.15.160.A.1</b>	Critical Aquifer Recharge Areas Designation and Classification	<ul style="list-style-type: none"> <li>• Provide description of well types and wellhead protection areas within Cowlitz County</li> <li>• Add to 1.a., 1.b., and 1.c. a defined radius around wellhead protection areas for Group A and Group B wells</li> <li>• This will reduce the area within the County where CARAs regulations will apply compared to the current CAO</li> </ul>
<b>Table 19.15.160-A</b>	Aquifer Sensitivity Rating for Cowlitz County Soil Types	<ul style="list-style-type: none"> <li>• Currently based on a highly simplified adaptation of the DRASTIC model, revisit categories, develop sensitivity index and mapping</li> </ul>
<b>19.15.160.1.D</b>	Performance Standards – General Requirements	<ul style="list-style-type: none"> <li>• Consider renaming section, consistent with recommendations in Wetlands section, above</li> <li>• Subsection D.3. – Revisit whether a surface water management or stormwater regulation plan is now available for direct reference</li> </ul>
<b>19.15.160.D</b>	Performance Standards – Specific Uses	<ul style="list-style-type: none"> <li>• Consider renaming section, consistent with recommendations in Wetlands section, above</li> <li>• Consider potentially adding additional specific restrictions for additional specific uses, if necessary</li> </ul>

## 6 ADDITIONAL TOPICS

The CAO update process will include updates to all chapter of the CAO, not just the critical areas specific regulations. As such the County will be reviewing the following:

Table 6-1. Additional Topic in CAO

Code Section	Title	Review Comment / Recommendations
19.15.050	Definitions	<ul style="list-style-type: none"> <li>Review CAO definitions for consistency with SMP and other code regulations (to be conducted after updates to individual chapters).</li> </ul>
19.15.070	Exemptions	<ul style="list-style-type: none"> <li>Review potential for tree removal exemption or alternate permitting process.</li> <li>Review potential for non-conforming use expansion exemption or process.</li> </ul>
19.15.090	Critical areas determination and permitting	<ul style="list-style-type: none"> <li>Need to update CAO to reflect actual determination and permitting process.</li> </ul>
19.15.110	Critical area inventory maps	<ul style="list-style-type: none"> <li>Incorporate new mapping resources as shown in Table 6-2, below.</li> </ul>
19.15.170	Mitigation requirements	<ul style="list-style-type: none"> <li>Compare with draft final Shoreline Master Program mitigation requirements.</li> <li>Consider moving some mitigation requirements into the wetlands section, as noted above in Section 1.</li> </ul>
19.15.180	Subdivisions and short subdivisions	<ul style="list-style-type: none"> <li>Review to incorporate and create consistency with the County's new stormwater regulations.</li> </ul>

Table 6-2. Mapping Resources

TOPIC	MAP / DATA SOURCE	LINK*	NOTES
<b>GEOLOGIC HAZARDOUS AREAS</b>	Wegmann, Karl W., 2006, Digital landslide inventory for the Cowlitz County urban corridor, Washington; version 1.0: Washington Division of Geology and Earth Resources Report of Investigations 35, 24 p. text, 14 maps, scale 1:24,000.	<a href="#">HERE</a>	N/A
	Czajkowski, J.L.; Bowman, J.D., 2014, Faults and Earthquakes in Washington State. Washington Department of Natural Resources, 1 plate, scale 1:24,000	<a href="#">HERE</a>	N/A
	USDA NRCS: Cowlitz County General Soils Map (2006)	<a href="#">HERE</a>	N/A
	WDNR: Liquefaction Susceptibility Map of Cowlitz County (2004)	<a href="#">HERE</a>	N/A
	Cowlitz County: Digital Maps of area with 30% or greater slope	No Link Available	N/A
	WEB MAP - WDNR: Geologic Information Portal	<a href="#">HERE</a>	N/A
	WEB MAP - WDNR: Geologic Map	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Surface Geology</li> <li>• Seismic Features</li> <li>• Ground Response</li> <li>• Landslides &amp; Landforms</li> <li>• Volcanic Vents</li> </ul>
	WEB MAP - WDNR: Seismic Hazards Catalog (Cascadia)	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Facility Damage</li> <li>• Liquefaction Susceptibility</li> </ul>
	WEB MAP - WDNR: Natural Hazards	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Surface Geology</li> <li>• Seismic Features</li> <li>• Ground Response</li> <li>• Landslides &amp; Landforms</li> <li>• Lahar Hazards</li> </ul>
	WEB MAP – WDNR: Subsurface Geology	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Subsurface Geology</li> </ul>
	WEB MAP – WDNR: Earth Resource Permit Locations	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Earth Resource Permit Sites</li> </ul>

	WEB MAP – USDA NRCS: Web Soil Survey	<a href="#">HERE</a>	Resource Tabs <ul style="list-style-type: none"> <li>• Soil Map</li> <li>• Soil Data Explorer</li> </ul>
<b>FREQUENTLY FLOODED AREAS</b>	WEB MAP – WECO: Flood Hazard Map	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Flood Hazard Areas</li> </ul>
<b>CRITICAL AQUIFER RECHARGE AREAS</b>	NRCS: Cowlitz Area Soil Survey (2006)	<a href="#">HERE</a>	N/A
	WEB MAP – WECO: Washington State Well Log Viewer	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Wells</li> </ul>
	WEB MAP – USDA NRCS: Web Soil Survey	<a href="#">HERE</a>	Resource Tabs <ul style="list-style-type: none"> <li>• Soil Map</li> <li>• Soil Data Explorer</li> </ul>
<b>FISH &amp; WILDLIFE</b>	WDNR: Natural Heritage Mapping Data	No Link Available	N/A
	WDNR: State Natural Area Preserves & Natural Resource Conservation Area Maps	No Link Available	N/A
	WEB MAP – USFWS: Wetland Mapper	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Wetlands</li> </ul>
	WEB PAGE – WDFW: Priority Habitat and Species Map Request Page	<a href="#">HERE</a>	For use in conjunction with PHS Web Map (next line)
	WEB MAP – WDFW: Priority Habitat and Species Map (PHS Web Map)	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• PHS Data</li> </ul>
	WEB MAP – WDOT: Fish Passage Barriers	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Lakes and Streams</li> </ul>
	WEB MAP – USGS: National Hydrography Map	<a href="#">HERE</a>	<i>This resource is fairly technical and should be used as a secondary resource</i> Resource Layers <ul style="list-style-type: none"> <li>• Hydrography</li> </ul>
	WEB MAP – WDFW: SalmonScape Map	<a href="#">HERE</a>	Resource Layers <ul style="list-style-type: none"> <li>• Fish Distribution (by species)</li> <li>• Habitat</li> </ul>
	WEBPAGE – NWFSC: Environmentally Significant Units (Lower Columbia)	<a href="#">HERE</a>	Resource Pages <ul style="list-style-type: none"> <li>• Lower Columbia River Chinook</li> <li>• Lower Columbia River Chum</li> <li>• Lower Columbia River Steelhead</li> </ul>

\* Links have been shortened for formatting purposes.

NWFSC – Northwest Fisheries Science Center  
USDA NRCS – United State Dept. of Agriculture – Natural Resource Conservation Service  
USFWS – United States Fish & Wildlife Service

USGS – United States Geology Survey  
WECO – Washington State Dept. of Ecology  
WDFW – Washington Dept. of Fish & Wildlife  
WDNR – Washington State Dept. of Natural Resources

## 7 REFERENCES

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