

Consistency & Gap Analysis Report

CRITICAL AREAS ORDINANCE UPDATE **KITSAP COUNTY**

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Prepared for:

Kitsap County
Department of Community Development



Title-page image: Clear Creek.

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1 INTRODUCTION

Kitsap County is currently performing the periodic update of its Comprehensive Plan and development regulations as required by the Washington State Growth Management Act (GMA). The GMA requires all local jurisdictions to review and evaluate their critical areas ordinance (CAO) as part of the periodic update.

Kitsap County's CAO is codified in Title 19 of the Kitsap County Code (KCC). Kitsap County's last periodic update of its CAO was completed in 2017.

Critical areas subject to regulation under GMA include wetlands, areas with a critical recharging effect on aquifers used for potable water, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas (Revised Code of Washington [RCW] 36.70A.030(6)).

In developing regulations to protect the functions and values of these critical areas, the GMA requires that best available science (BAS) be included, and "special consideration" be given to conservation or protection measures necessary to preserve or enhance anadromous fisheries.

The BAS Summary Report (DCG/Watershed 2023) was a precursor to this Consistency and Gap Analysis Report. Both reports have been prepared specifically to support the update of Kitsap County's CAO. The BAS Summary Report builds upon and supplements the County's existing record of BAS, highlighting recent additional BAS, including BAS related to climate change. This Consistency and Gap Analysis Report identifies where the BAS presented in the BAS Summary Report might be included in the County's CAO.

As part of preparation of this Consistency and Gap Analysis Report, Washington State Department of Commerce's Critical Areas Checklist, which is intended to help local governments update their critical areas regulations, was reviewed and completed. The completed checklist is included as Appendix A.

As noted above, this Consistency and Gap Analysis Report identifies where the BAS presented in the BAS Summary Report might be included in the County's CAO. Additionally, County staff have reviewed the CAO to identify potential improvements intended to make the CAO easier to use and administer. These staff-recommended discretionary amendments are included as Appendix B.

1.1 REPORT STRUCTURE

This report features a section for each of the critical area types subject to regulation under the GMA. For each type of critical area, the report includes:

- A brief overview of existing conditions in Kitsap County.
- A summary of existing protections afforded by the County.
- A code review and gap analysis. Each code review and gap analysis subsection begins with a table providing an at-a-glance review of related portions of the CAO, including recommendations for amendments. Following each table is discussion of the recommendations, including supporting rationale.

2 WETLANDS

2.1 OVERVIEW OF EXISTING CONDITIONS

Kitsap County has produced a map of potential wetlands, which can be seen at the following link. This map identifies potential wetland areas based on wetland data from the Washington State Department of Natural Resources, National Wetland Inventory and Kitsap County surveys. This map also identifies mapped areas of hydric soils, which are a wetland indicator.

https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical_Areas.pdf

Wetlands are found throughout the county. Wetlands are often located in transitional zones between aquatic and terrestrial ecosystems, though they can be found across the landscape. Some prominent wetland systems include the Morgan Marsh, Dewatto Wetland, and Hintzville Beaver Ponds, which are also considered shoreline waterbodies and are discussed in detail in the *Shoreline Inventory and Characterization* report (Kitsap County 2010).

Other online mapping sources for wetlands and hydric soils include:

- Washington Natural Heritage Program Data Explorer:
https://experience.arcgis.com/experience/174566100f2a47bebe56db3f0f78b5d9/page/Home/?utm_medium=email&utm_source=govdelivery

- National Wetland Inventory Wetlands Mapper:
<https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper>
- U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey:
<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

While the above mapping sources are a good place to start to identify potential wetland areas, many wetlands are unmapped. Any area of the county meeting the wetland definition and delineation criteria are considered wetlands, regardless of whether they are mapped. Wetland boundaries change over time and are subject to field delineation.

2.2 SUMMARY OF EXISTING PROTECTIONS

Kitsap County regulates wetlands in KCC Chapter 19.200, Wetlands. The intent of this chapter is to:

- Achieve no net loss and increase the quality, function and values of wetland acreage within Kitsap County by maintaining and enhancing, when required, the biological and physical functions and values of wetlands with respect to water quality maintenance, stormwater and floodwater storage and conveyance, fish and wildlife habitat, primary productivity, recreation, and education;*
- Protect the public's health, safety and welfare, while preventing public expenditures that could arise from improper wetland uses and activities;*
- Plan wetland uses and activities in a manner that allows property owners to benefit from wetland property ownership wherever allowable under the conditions of this title;*
- Prevent turbidity and pollution of wetlands and fish or shellfish bearing waters; and*
- Maintain the wildlife habitat.*

As discussed below, this chapter employs BAS-based protection strategies including regulatory protocols to identify and classify wetlands, assign buffer widths, and require impact avoidance, minimization measures, and compensatory mitigation for any wetland or buffer impacts.

2.2.1 Identification & Classification

Per KCC 19.200.210.A.1 and consistent with BAS, wetland delineations are conducted using the 1987 Corps of Engineers *Wetlands Delineation Manual* with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Corps 2010). The regional supplement provides greater detail on determining presence or absence of wetlands based on an examination of vegetation, soils, and hydrology in our ecoregion.

Per KCC 19.200.210.A.2 and consistent with BAS, wetlands are categorized using the 2014 Washington State Department of Ecology (Ecology) *Washington State Wetland Rating System for Western Washington* (Wetland Rating System) or as revised (Hruby 2014). The Wetland Rating System was first issued in 2004, annotated in 2006, and last updated in 2014.

2.2.2 Buffers

Wetlands are commonly protected from surrounding land uses through buffer width requirements. Ecology provides buffer width alternatives in Appendix 8-C of *Wetlands in Washington State, Volume 2: Guidance for Protecting and Managing Wetlands* (Granger et al. 2005). Appendix 8-C was modified in October 2014 and again in July 2018 (Ecology 2018). The recommended buffer widths assume the buffer is vegetated with a native plant community appropriate to the ecoregion.

Wetland buffer widths under the current code (KCC 19.200.220) were last updated in 2021 in conjunction with the Shoreline Master Program update. Buffer widths themselves did not change with that update; however, habitat score ranges for determining buffer widths were updated to align with Ecology's latest guidance. Required buffer widths currently range from 25-300 feet. They are based on wetland category, habitat functions score, and land use intensity. This is one of the BAS-based options in Appendix 8-C. Kitsap County Code allows the buffer widths recommended for proposed land uses with high-intensity impacts to wetlands to be reduced to those recommended for moderate-intensity impacts under certain conditions with use of minimization measures and implementation of a habitat corridor. This is also a BAS-based option presented in Appendix 8-C of the Ecology guidance.

2.2.3 Mitigation

Mitigation sequencing

Mitigation sequencing requires project applicants to first avoid wetland and buffer impacts to the extent feasible, then to minimize impacts, and lastly to mitigate unavoidable impacts. This standard approach to wetland regulation is stated in KCC 19.200.230. This

specific mitigation sequence is in line with BAS and follows the steps prescribed by current Ecology guidance for CAO updates: avoid, minimize, rectify, reduce, compensate, and monitor (Ecology 2022).

Compensatory mitigation

Compensatory mitigation may be achieved through a programmatic approach or an approved permittee-responsible mitigation plan. Programmatic approaches utilize third-party sponsors to provide mitigation credits, such as a mitigation bank or in-lieu fee program. Permittee-responsible mitigation is the default approach in the code; however, use of mitigation bank credits and in-lieu fee programs are both currently allowed as a type of off-site compensatory mitigation per KCC 19.200.230.D.2.d.

Ecology recommendations for mitigation ratios for projects in Western Washington vary by wetland category and the mitigation action proposed (Appendix 8-C, Table 8C-11). Buffer impacts are commonly mitigated at a one-to-one ratio. Mitigation ratios for direct wetland impacts are increased to account for temporal losses (Ecology 2022). The wetland mitigation replacement ratios currently in KCC Table 19.200.230 are in line with current BAS.

Compensatory wetland mitigation methods in order of preference are: 1) restoration: re-establishment, 2) restoration: rehabilitation-hydrologic processes restored, 3) creation (establishment), 4) preservation, and 5) enhancement. Preservation and enhancement only mitigation are least preferred because they result in a net loss of wetland area. Ecology prefers to see preservation or enhancement in combination with a no net loss mitigation method, such as creation (Ecology et al. 2021). The code does not currently address preservation as a mitigation option. However, the wetland mitigation replacement ratios in KCC Table 19.200.230 generally reflect this hierarchy, with enhancement requiring the largest replacement ratio.

Mitigation plans

To support the successful establishment of mitigation projects, Ecology's *Wetland Guidance for Critical Areas Ordinance (CAO) Updates, Western and Eastern Washington* (2022) provides guidance on the content of mitigation plans. Key items include measurable performance standards, maintenance and monitoring programs, adequate bond values, and proof of notice on title recording. The County's wetland mitigation report requirements are listed in KCC 19.700.715.

Monitoring

Monitoring requirements are currently mentioned in KCC 19.200.230.E and integrated into the mitigation report requirements section of KCC 19.700.715. Kitsap County is working to

improve the effectiveness of monitoring requirements and is incorporating a new monitoring permit requirement to track monitoring of mitigation sites.

2.3 CODE REVIEW & GAP ANALYSIS

The wetland content of the CAO appears generally to date with BAS. However, several potential amendments are recommended in this section; some to comply with BAS and some are suggestions for code improvement and clarity. The distinction will be noted in each section below. Notable recommendations include providing more detail on standard buffer condition requirements, removing buffer reduction options, and clarifying long-term protection measures. Recommendations are listed in Exhibit 2-1; each recommendation is discussed in more detail following the table.

Exhibit 2-1 Summary of wetland code review

Code Section	Title	Recommendations
19.200.205	Purpose and objectives.	None.
19.200.210	Wetland identification and functional rating.	<ol style="list-style-type: none"> 1. Consider eliminating Appendix A. 2. Consider removing reference to specific wetland rating system point totals. 3. Clarify application of exemptions for small wetlands.
19.200.215	Wetland review procedures.	None.
19.200.220	Wetland buffer requirements.	<ol style="list-style-type: none"> 4. Provide more detail on standard buffer condition requirements. 5. Review and update habitat corridor language. 6. Remove buffer reduction options. 7. Consider applying increased protections to bog wetlands to prevent stormwater impacts.
19.200.225	Additional development standards for certain uses.	None.
19.200.230	Wetland mitigation requirements.	<ol style="list-style-type: none"> 8. Require use of native plant stock. 9. Add allowance for mitigation based on the credit-debit method.
19.200.235	Incentives for wetland mitigation.	None.
19.700.710	Wetland delineation report.	None.
19.700.715	Wetland mitigation report.	10. Clarify long-term protection measures.
19.800 - Appendix A	Washington State Wetlands Rating System Categories.	See Recommendation #1.

Code Section	Title	Recommendations
19.800 - Appendix G	Checklist and Sample Outline for a Delineation Report.	None.
19.800 - Appendix H	Mitigation Plan Checklist.	None.

2.3.1 Wetland Identification & Functional Rating (KCC 19.200.210)

Recommendation #1: Consider eliminating Appendix A

Per KCC 19.200.210.A.2, wetlands are categorized using the 2014 Ecology Wetland Rating System or as revised. This is consistent with BAS. This regulation then goes on to reference Appendix A of KCC Chapter 19.800, which contains detailed descriptions of the current Wetland Rating System categories.

As a code improvement, the County should consider eliminating Appendix A, and the reference to it in this section, and relying instead on the source document (Wetland Rating System) to provide the current descriptions of each wetland category. This will help ensure that the latest descriptions and point totals are always used, which the code requires, and that Appendix A will not become outdated when the Wetland Rating System is revised. Removing this information will also help simplify and streamline the wetland code.

Recommendation #2: Consider removing reference to specific Wetland Rating System point totals

KCC 19.200.210.B provides a general description of each wetland category, including the point totals to qualify for each category based on the current Wetland Rating System. This is consistent with BAS. As a code improvement, however, to ensure the latest criteria are used in the future, the County should consider removing the specific point totals from the code and relying on use of the Wetland Rating System, where these point totals can be found. This will ensure that if the Wetland Rating System is updated, the code will not be in contradiction with the Wetland Rating System and BAS.

Recommendation #3: Clarify application of exemptions for small wetlands

KCC 19.200.210.C exempts some small Category III and IV wetlands from buffer provisions if certain criteria are met. BAS supports exemptions for certain wetlands from the avoidance and minimization measures of the mitigation sequence if all impacts are mitigated, and for certain wetlands from buffer provisions. In both cases, specific criteria must be met and a wetland report must be provided documenting that the criteria are met. The code currently includes most of the required criteria for these exemptions, however the following criterion (or equivalent) is missing is suggested to comply with BAS:

- *The wetland must not score 6 or more points for habitat function based on the Washington State Wetland Rating System for Western Washington.*

This section also includes a requirement that “A wetland report is prepared that identifies the specific wetland function affected or at risk, and provides mitigation to replace the affected or lost wetland function, on a per function basis” (KCC 19.200.210.C.6). As written, this requirement indicates that mitigation would be required for wetlands exempt from the buffer provisions; however BAS does not require mitigation for exemptions only from the buffer provisions. However, if the County would like to include an exemption from avoidance and minimization measures for these wetlands (i.e., allow fill), full mitigation would be required for any impacts. The County should review this exemption, including whether it should be expanded to include wetland impacts, and clarify the intention of KCC 19.200.210.C.6.

2.3.2 Wetland Buffer Requirements (KCC 19.200.220)

Recommendation #4: Provide more detail on standard buffer condition requirements

Some modifications and additional details in this section would improve clarity and align with Ecology guidance. BAS buffer recommendations are based on the assumption that the buffer is well vegetated with native species appropriate to the ecoregion. This is not currently stated in the code. If the buffer does not consist of vegetation adequate to provide the necessary protection, then either the buffer area should be planted or the buffer width should be increased. Ecology (2022) suggests the following language be added in the description of required standard buffer widths to ensure a buffer condition that is adequate to protect the wetland resource:

The buffer widths ... assume that the buffer is vegetated with a native plant community appropriate for the ecoregion. If the existing buffer is unvegetated, sparsely vegetated, or vegetated with invasive species that do not perform needed functions, the buffer must either be planted to create the appropriate native plant community or be widened to ensure that the buffer provides adequate functions to protect the wetland.

Recommendation #5: Review & update habitat corridor language

The code’s current buffer system includes the option of reducing the buffer through provision of a habitat corridor and implementation of minimization measures to reduce the level of impact from the adjacent land use. KCC 19.200.220.B.2.e. Ecology’s 2022 guidance for CAO updates has updated the language for habitat corridor requirements. While the overall concept remains the same, more detail and clarification is provided on what is a “legally protected, relatively undisturbed and vegetated area.” The County should

review the updated guidance and consider whether any code updates are necessary to better align with the updated guidance.

Additionally, the language in KCC 19.200.220.B.2.e.i, indicating wetlands that require a corridor to reduce the buffer, should be updated for consistency with the wetland buffer tables and BAS in regard to habitat score ranges. While the moderate habitat score range has been updated in the buffer table, the language in this section still refers to a moderate or high habitat score as five points of more. This should be updated to six points or more, consistent with the buffer table and BAS.

Recommendation #6: Remove buffer reduction options

KCC 19.200.220.B.2 includes several administrative buffer reduction options. Current BAS does not support additional buffer reductions beyond the habitat corridor/minimization measures reduction to reduce the level of impact from adjacent land use, as discussed above. In the past it was common to allow a buffer reduction with enhancement of existing, degraded buffer. This is listed as an allowed proposal for an administrative buffer reduction in KCC 19.200.220.B.2.d.i. However, Ecology's current buffer recommendations are based on a buffer that is already well vegetated. If the existing buffer area is not currently vegetated in a manner to provide the necessary buffer function, then the buffer area should be planted, or the buffer width should be increased. Reducing buffer area in circumstances where buffers are already degraded will result in a high-risk approach to protecting wetland function. Rather, Ecology recommends that buffer reductions should be tied to reducing the impacts from the adjacent land use. Further reductions would not generally be supported.

The reduction described in KCC 19.200.220.B.2.e is in line with BAS. Any other reduction would need to be processed through a variance or reasonable use exception. The County should consider removing the administrative buffer reductions for single-family dwellings and other proposed uses described in KCC 19.200.220.B.2, a-d. However, the County requires consistency with the variance criteria for all buffer reductions even if the review is administrative.

Recommendation #7: Consider applying increased protections to bog wetlands to prevent stormwater impacts

Bogs are important carbon sinks that are highly sensitive to disturbance, particularly stormwater discharges and changes in pH. As a strategy to manage climate change impacts to wetlands, applying increased protections to bog wetlands and associated buffers to prevent stormwater impacts that could change pH and alter sensitive plant communities is recommended. KCC Table 19.200.220.E includes no additional surface discharges to bog wetlands as a recommended protection measure in addition to the listed buffer widths.

The County could consider adding low impact development or stormwater management requirements to the text of the code.

2.3.3 Wetland Mitigation Requirements (KCC 19.200.230)

Recommendation #8: Require use of native plant stock

It is considered a best management practice for restoration activities to use native plant species appropriate to the site for revegetation of disturbed or degraded areas. This is also a strategy to manage climate change impacts to wetlands, as use of native plant stock grown under local conditions can increase resilience under climate stressors. While it is likely the policy employed in practice, the mitigation requirements do not currently state a specific requirement for use of native species. The County could consider adding this requirement to improve the code.

Recommendation #9: Add allowance for mitigation based on the credit-debit method

To give regulators and applicants a functions-based alternative to set mitigation ratios, Ecology has developed a tool called the credit-debit method. This method, like the Ecology wetland rating form, is a peer-reviewed rapid assessment tool. The credit-debit approach may be used to calculate functional gain of the proposed mitigation and functional loss due to proposed wetland impacts. This generates acre-points that can be compared in a balance sheet. Depending on specific site conditions, this may result in less or more mitigation than would be required under the standard mitigation ratio guidance. While not required to comply with BAS, the County may want to consider adding language that would allow, as an alternative to the mitigation ratios, mitigation based on the credit-debit tool described in *Calculating Credits and Debits for Compensatory Mitigation in Wetlands of Western Washington: Final Report* (Hruby 2012).

2.3.4 Wetland Mitigation Report (KCC 19.700.715)

Recommendation #10: Clarify long-term protection measures

Wetlands and their buffers need long-term protection to prevent degradation over time. BAS suggests protection include legal mechanisms to prevent future development of compensatory mitigation sites. While site protection is listed as a mitigation report requirement in KCC 19.700.715.B.12, limited details are provided and the types of protection listed could be better clarified. The most effective long-term protection is to place the wetland and buffer in a non-buildable tract during the platting stage, as is already required by KCC 19.200.225.D, that is owned and maintained by an organization dedicated to protecting them. The boundaries of that tract should be clearly marked to help prevent unintentional encroachments. Delineation, recording, and signage clearly denoting the

buffer and wetland area helps prevent degradation over time. Following project approval, and prior to site construction, the buffer and wetland should be measured, recorded on binding legal documents, and clearly marked on the ground. At a minimum, the wetland and buffer tract should be recorded on the property deed with language restricting actions that may adversely impact the wetland and buffer. Ecology suggests a mitigation plan include proof of establishment of a Notice on Title for the remaining wetlands and buffers on the development project site (if any) and a legal site protection mechanism for the compensatory mitigation areas. The County should consider expanding KCC 19.700.715.B.12 to include more detail on the long-term site protection requirements, and evaluate use of a Notice to Title, Easement, or other legal mechanism.

3 FISH & WILDLIFE HABITAT CONSERVATION AREAS

3.1 OVERVIEW OF EXISTING CONDITIONS

Kitsap County has produced a map of fish and wildlife habitat conservation areas, which can be viewed at the link below. This map includes streams and lakes, but does not include wildlife habitat conservation areas as the County relies on Priority Habitats and Species maps and databases by the Washington Department of Fish and Wildlife, mentioned below. Features on the maps are approximate and may be based on hydrologic modeling. Mapping inaccuracies or data gaps may be present. Actual locations of all critical areas are subject to field verification per KCC19.100.160. Kitsap County is in the process of coordinating with partners to improve stream mapping.

https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical_Areas.pdf

A key resource used by the County for the identification of wildlife habitat conservation areas is the Priority Habitats and Species (PHS) information provided by Washington Department of Fish and Wildlife (WDFW), which is available at the following link:

<http://wdfw.wa.gov/conservation/phs/>

WDFW lists priority habitats and species by county. Exhibits 3-1 and 3-2 below show current priority habitats and species listed for Kitsap County. As WDFW notes, habitats and species can change over time as distributions expand or contract. WDFW's online mapping tool, PHS on the Web, is not considered to be inclusive of all priority habitats and species in Kitsap County. Any occurrence of a priority habitat or species is subject to regulation under the CAO, regardless of PHS on the Web mapping.

Exhibit 3-1 Priority habitats in Kitsap County

Priority Habitats	
Biodiversity Areas & Corridors	Instream
Herbaceous Balds	Puget Sound Nearshore
Old-Growth/Mature Forest	Caves
Oregon White Oak Woodlands	Cliffs
Riparian	Snags And Logs
Freshwater Wetlands & Fresh Deepwater	Talus

Source: WDFW 2023.

Exhibit 3-2 Priority species in Kitsap County

Category	Priority Species (Common Name)	State Status	Federal Status
Fishes	Pacific Lamprey		
	River Lamprey	Candidate	
	White Sturgeon		
	Pacific Herring		
	Longfin Smelt		
	Surfsmelt		
	Bull Trout/Dolly Varden	Candidate*	Threatened*
	Chinook Salmon		Threatened
	Chum Salmon		Threatened
	Coastal Res./Searun Cutthroat		
	Coho Salmon		
	Pink Salmon		
	Rainbow Trout/Steelhead	Candidate **	Threatened**
	Pacific Cod		
	Pacific Hake		
	Walleye Pollock		
	Black Rockfish		
	Bocaccio Rockfish		Endangered
	Brown Rockfish		
	Copper Rockfish		
	Greenstriped Rockfish		
	Quillback Rockfish		
	Redstripe Rockfish		
	Tiger Rockfish		
	Yellowtail Rockfish		
	Lingcod		
	Pacific Sand Lance		
	English Sole		

Category	Priority Species (Common Name)	State Status	Federal Status
	Rock Sole		
Amphibians	Western toad	Candidate	
Reptiles	Western pond turtle	Endangered	
Birds	Common loon	Sensitive	
	Marbled murrelet	Threatened	Threatened
	Western grebe	Candidate	
	W WA nonbreeding concentrations of: Loons, Grebes, Cormorants, Fulmar, Shearwaters, Storm-petrels, Alcids		
	W WA breeding concentrations of: Cormorants, Storm-petrels, Terns, Alcids		
	Great blue heron		
	Western High Arctic Brant		
	Cavity-nesting ducks: Wood Duck, Barrow's Goldeneye, Common Goldeneye, Bufflehead, Hooded Merganser		
	Western Washington nonbreeding concentrations of: Barrow's Goldeneye, Common Goldeneye, Bufflehead		
	Harlequin Duck		
	Trumpeter Swan		
	Waterfowl Concentrations		
	Mountain Quail		
	Sooty Grouse		
	W WA nonbreeding concentrations of: Charadriidae, Scolopacidae, Phalaropodidae		
	Band-tailed Pigeon		
	Yellow-billed Cuckoo	Endangered	Threatened
	Vaux's swift		
Mammals	Dall's Porpoise		
	Humpback Whale	Endangered	Endangered
	Gray Whale	Sensitive	
	Sperm Whale	Endangered	Endangered
	Harbor Seal		
	Orca (Killer Whale)	Endangered	Endangered
	Harbor Porpoise	Candidate	
	California Sea Lion		
	Steller Sea Lion		

Category	Priority Species (Common Name)	State Status	Federal Status
	Roosting Concentrations of: Big-Brown Bat, Myotis Bats, Pallid Bat		
	Townsend’s Big-eared Bat	Candidate	
	Keen’s Myotis	Candidate	
	Columbian Black-tailed Deer		
Invertebrates	Pinto Abalone	Endangered	
	Pacific Geoduck		
	Butter Clam		
	Native Littleneck Clam		
	Manila Littleneck Clam		
	Olympia Oyster		
	Pacific Oyster		
	Dungeness Crab		
	Pandalid Shrimp (Pandalidae)		
	Western Bumble Bee	Candidate	
Puget Blue	Candidate		

Source: WDFW 2023.

*Bull Trout only

**Steelhead only

Additionally, a project planning tool from the U.S. Fish and Wildlife Service, Information for Planning and Consulting (IPaC), includes the monarch butterfly (candidate) and northern spotted owl (threatened) as listed species with critical habitat in Kitsap County.

3.2 SUMMARY OF EXISTING PROTECTIONS

Kitsap County regulates fish and wildlife habitat conservation areas in KCC Chapter 19.300, Fish and Wildlife Habitat Conservation Areas. The intent of this chapter, as stated in KCC 19.400.305, Purpose, is “to identify fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures designed to achieve no net loss of critical area functions and values and to maintain viable fish and wildlife populations and habitat over the long term.” Further, it is also the intent of this chapter to:

- A. *Preserve natural flood control, storm water storage, and drainage or stream flow patterns;*
- B. *Prevent turbidity and pollution, control siltation, protect nutrient reserves, and maintain water flows and quality for anadromous and resident fish, marine shellfish and forage fish;*

- C. *Encourage nonregulatory methods of habitat retention whenever practical, through mechanisms such as education and the open space tax program; and*
- D. *Avoid or minimize human and wildlife conflicts through planning and implementation of wildlife corridors where feasible.*

The CAO includes a variety of provisions to protect fish and wildlife habitat conservation areas. Key protections in the CAO include buffers and building setbacks. KCC Table 19.300.315 identifies numerical buffer widths and building setbacks for lakes under 20 acres and streams not regulated by the Shoreline Master Program. Stream buffer widths range from 50-150 feet; the buffer width for all lakes is 100 feet. In areas where channel migration zones can be identified, the buffer distance is measured from the edge of the channel migration zone. The minimum building setback in all cases is 15 feet from the edge of the buffer. Buffers and building setbacks for wildlife habitat conservation areas are determined through a habitat management plan (HMP), if applicable.

All development permits within known Class I Wildlife Habitat Conservation Areas require the submittal and approval of an HMP. Development permits within known Class II Wildlife Habitat Conservation areas may require the submittal of a HMP, as determined during project review. The HMP is required to consider measures to retain and protect wildlife habitat and address effects of land use intensity, buffers, setbacks, impervious surfaces, erosion control and retention of natural vegetation as described in KCC 19.300.315.C.

3.3 CODE REVIEW & GAP ANALYSIS

Recommendations for amendments to fish and wildlife habitat conservation area regulations are provided in Exhibit 3-1 below; each recommendation is discussed in more detail following the table. Two recommendations (#2 & #5) that stem from recent WDFW riparian management guidance with potentially more far-reaching implications will be further addressed in a forthcoming technical memo.

Exhibit 3-3 Summary of fish & wildlife habitat conservation areas code review

Code Section	Title	Recommendations
19.150.475	Priority species (definition)	1. Make minor update to the definition of "priority species."
19.300.310	Fish and wildlife habitat conservation area categories	2. Consider the designation of fish and wildlife habitat conservation areas

Code Section	Title	Recommendations
		based on recent WDFW riparian management guidance. 3. Reference the Washington Department of Natural Resources Natural Heritage Program.
19.300.315	Development Standards	4. Consider adding mitigation sequencing standards. 5. Consider approach to riparian protection based on recent WDFW riparian management guidance
19.700.720	Special Reports – Habitat Management Plan	6. Update references to guidance documents. 7. Consider incorporating additional habitat management plan (HMP) requirements.

3.3.1 Priority Species Definition (KCC 19.150.475)

Recommendation #1: Make minor update to the definition of “priority species”

KCC 19.150.475, which defines “priority species,” includes mention of “heron rookeries.” For consistency with current WDFW PHS terminology, updating “heron rookeries” to “nesting colonies” is recommended.

3.3.2 Fish & Wildlife Habitat Conservation Areas Categories (KCC 19.300.310)

Recommendation #2: Consider the designation of fish and wildlife habitat conservation areas based on recent WDFW riparian management guidance

As documented in the BAS Summary Report (DCG/Watershed 2023), WDFW has issued recent guidance (Rentz et al. 2020) for the protection of riparian areas. This guidance has implications for how the County designates fish and wildlife habitat conservation areas. This issue will be considered in more detail in a forthcoming memo reviewing the guidance in context of Kitsap County.

Recommendation #3: Reference the Washington Department of Natural Resources Natural Heritage Program

KCC 19.300.310.B.3.a, in identifying Class I Wildlife Habitat Conservation Areas, includes the following criterion:

Habitats recognized by federal or state agencies for federal and/or state-listed endangered, threatened and sensitive species documented in maps or databases available to Kitsap County, including but not limited to the database on priority habitats and species provided by the Washington Department of Fish and Wildlife (KCC 19.300.310.B.3.a.i).

The Washington Department of Natural Resources Natural Heritage Program also provides lists and locations of high-quality ecosystems and rare plants. Accordingly, referencing this important resource in the above criterion is recommended.

3.3.3 Development Standards (KCC 19.300.315)

Recommendation #4: Consider adding mitigation sequencing standards

KCC 19.300.305 states that:

The intent of this chapter is to identify fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures designed to achieve no net loss of critical area functions and values and to maintain viable fish and wildlife populations and habitat over the long term.

This aim is consistent with WAC 365-196-830(4), which requires that if development regulations allow harm to critical areas, they must require compensatory mitigation of the harm. However, KCC 19.300.315 lacks clarity on standards that ensure no net loss of critical area functions, particularly mitigation sequencing. Mitigation sequencing is a requirement of a Habitat Management Plan per KCC 19.700.720.

The regulations contained within KCC 19.300.315 do not reference mitigation sequencing. In comparison, the wetland regulations require and describe mitigation sequencing in KCC 19.200.230.A. Requiring and describing mitigation sequencing in KCC 19.300.315 is recommended. Further, explicitly stating that no net loss of functions and values should result from the application of mitigation sequencing is also recommended.

Recommendation #5: Consider approach to riparian protection based on recent WDFW riparian management guidance

As documented in the BAS Summary Report (DCG/Watershed 2023), WDFW has issued recent guidance (Rentz et al. 2020) for the protection of riparian areas. This guidance has implications for how the County protects fish and wildlife habitat conservation areas. This issue will be considered in more detail in a forthcoming memo reviewing the guidance in context of Kitsap County.

3.3.4 Special Reports – Habitat Management Plan (KCC 19.700.720)

Recommendation #6: Update references to guidance documents

In the context of habitat management plans, KCC 19.700.720.A states that “WDFW Priority Habitat and Species (PHS) Management Recommendations, dated May 1991, and all applicable volumes and revisions, or the National Bald Eagle Management Guidelines may serve as guidance for this report.”

Prior to the publication of species and habitat-specific management recommendations, WDFW published a consolidated *Management Recommendations for Washington's Priority Habitats and Species* (Roderick & Milner 1991). This reference is still applicable for those priority habitats and species which lack tailored management recommendations. However, species and habitat-specific management recommendations should be used to prepare habitat management plans where applicable. Such management recommendations currently include:

- *Management Recommendations for Washington's Priority Species, Volume I: Invertebrates* (Larsen et al. 1995)
- *Management Recommendations for Washington's Priority Species, Volume III: Amphibians and Reptiles* (Larsen 1997)
- *Management Recommendations for Washington's Priority Species, Volume IV: Birds* (Larsen et al. 2004)
- *Management Recommendations for Washington's Priority Species, Volume V: Mammals (Interim)* (WDFW 2010)
- *Management Recommendations for Washington's Priority Habitats and Species: Dungeness Crab* (Fisher & Velasquez 2008)
- *Management Recommendations for Washington's Priority Habitats and Species: Great Blue Heron* (Azzerad 2012)

Amending the wording in KCC 19.700.720.A to better reflect the wide range of priority habitats and species management recommendations available is recommended.

Additionally, regarding the reference to “the National Bald Eagle Management Guidelines,” in 2016 WDFW recommended that the designation of sensitive status for bald eagles was no longer appropriate, and that the species be removed from Washington's list of endangered species, which subsequently occurred. While still afforded some federal

protections, removing the reference to the National Bald Eagle Management Guidelines in this section is recommended.

Recommendation #7: Consider incorporating additional habitat management plan (HMP) requirements

For consistency with the guidance in WDFW's *Riparian Ecosystems, Volume 2: Management Recommendations* (Rentz et al. 2020), incorporating the following additional HMP requirements in KCC 19.700.720, B-D, is recommended:

- Identification of all critical areas within and adjacent to the project site, including ecosystem functions that need to be protected.
- Measurable standards and expectations to monitor compliance and defined triggers for requiring more actions. Examples of measurable standards could include extent of vegetative cover, composition of riparian tree species and maximum invasive plant cover. Also, specification of the frequency of visits to monitor the site and who is responsible for preparing, reviewing, and submitting monitoring reports.
- If necessary, a cost estimate for monitoring (the code could require the project proponent to post a bond for this amount or more to allow for overages).

4 GEOLOGICALLY HAZARDOUS AREAS

4.1 OVERVIEW OF EXISTING CONDITIONS

Kitsap County has produced a map of geologically hazardous areas, which can be seen at the following link. This map indicates that geologically hazardous areas are prevalent in the county.

https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical_Areas.pdf

Several specific locations of the county have been identified as at risk of landslide hazards including, but not limited to: Rolling Bay Walk, Crystal Springs Drive, Rockaway Beach, Fort Ward Hill, Prospect Point, Kingston Bluff, Suquamish Bluff, Hood Canal Bluff, and Lower Wheaton Way Canyon (KCDEM 2019).

4.2 SUMMARY OF EXISTING PROTECTIONS

The Kitsap County *Multi-Hazard Mitigation Plan* (KCDEM 2019) addresses several types of geologically hazardous areas, including earthquakes, landslides and erosion, and tsunamis.

For each type of area, the plan sets forth mitigation strategies, including priority, timeline, and cost.

Kitsap County regulates geologically hazardous areas in KCC Chapter 19.400, Geologically Hazardous Areas. The intent of this chapter, as stated in KCC 19.400.405, Purpose and applicability, is as follows:

1. *Provide standards to protect human life and property from potential risks;*
2. *Regulate uses of land in order to avoid damage to structures and property being developed and damage to neighboring land and structures;*
3. *Control erosion, siltation, and water quality to protect anadromous and resident fish and shellfish;*
4. *Provide controls to minimize erosion caused by human activity; and*
5. *Use innovative site planning by placing geologically hazardous areas and buffers in open space and transferring development density to suitable areas on the site.*

KCC Section 19.400.410, General requirements, sets forth generally applicable development regulations. This includes KCC 19.400.410.B.4, which states that any development activity requiring a permit or any clearing within an erosion or landslide area shall not adversely impact wetlands, fish and wildlife habitat conservation areas, or their buffers. This section also includes standards for clearing, grading and vegetation removal in KCC 19.400.410.D. Further, this section allows the Department of Community Development to require clustering to increase protection to geologically hazardous areas.

KCC Section 19.400.435, Development standards, sets forth regulations specific to erosion and landslide hazard areas, and seismic hazard areas. These regulations address requirements for top and toe of slope setbacks for erosion and landslide hazard areas.

Finally, in KCC Section 19.400.440, Review procedures, KCC 19.400.440.B requires that a geological assessment be performed when a proposed activity is located within a potential hazard area.

4.3 CODE REVIEW & GAP ANALYSIS

In general, KCC Chapter 19.400, Geologically Hazardous Areas, appears to include BAS. This section makes a limited number of recommendations for minor amendments.

Recommendations are listed in Exhibit 4-1; each recommendation is discussed in more detail following the table.

Exhibit 4-1 Summary of geologically hazardous areas code review

Code Section	Title	Recommendations
19.400.405	Purpose and applicability.	None.
19.400.410	General requirements.	None.
19.400.415	Designation of geologically hazardous areas.	None.
19.400.420	Erosion hazard areas.	1. Indicate that channel migration zones may be mapped by other sources in accordance with agency guidance.
19.400.425	Landslide hazard areas.	2. Provide additional detail in the general information on landslide hazard areas. 3. Add additional specificity on landslide hazard indicators.
19.400.430	Seismic hazard areas.	4. Add additional specificity on seismic hazard indicators.
19.400.435	Development standards.	None.
19.400.440	Review procedures.	None.
19.400.445	Recording and disclosure.	None.

4.3.1 Erosion Hazard Areas (KCC 19.10.420)

Recommendation #1: Include channel migration zones mapped in accordance with agency guidance

KCC 19.400.420.B identifies criteria for identifying potential erosion hazard areas. KCC 19.400.420.B.1.a states that Areas of High Erosion Hazard include “channel migration zones, as mapped by the Washington Department of Ecology.” The Washington Department of Ecology has published guidance for delineating channel migration zones (Ecology 2014). The County could consider amending KCC 19.400.420.B.1.a to also include channel migration zones mapped by others if mapped in accordance with guidance published by the Washington Department of Ecology.

4.3.2 Landslide Hazard Areas (KCC 19.10.425)

Recommendation #2: Provide additional detail in the general information on landslide hazard areas

KCC 19.400.425.A states that in general:

Landslide hazard areas include those areas at risk of mass movement due to a combination of geologic, topographic, and hydrologic factors, such as bedrock, soil, slope (gradient), slope aspect, structure, hydrology, and other factors. Landslide hazards are further classified as either shallow or deep-seated.

For additional detail, the County could consider adding that landslide hazard areas include runout distances from the toe of the slope.

Recommendation #3: Add additional specificity on landslide hazard indicators

KCC 19.400.425.C enumerates landslide hazard indicators. One indicator is “areas with slopes containing soft or liquefiable soils” (KCC 19.400.425.C.10). To provide additional specificity, the County could consider adding that such areas include unconsolidated glacial deposits subject to elevated groundwater levels after prolonged rainfall or rain-on-snow events.

4.3.3 Seismic Hazard Areas (KCC 19.10.430)

Recommendation #4: Add additional specificity on seismic hazard indicators

KCC 19.400.430.C enumerates seismic hazard indicators. For tsunami and seiche hazard areas, the code states that these areas are generally adjacent to Puget Sound marine waters and lakes that are designated as “A” or “V” zones as identified by Federal Emergency Management Agency and depicted on the Federal Emergency Management Agency maps or other maps adopted by Kitsap County (KCC 19.400.430.C.4). Tsunami and seiche hazard areas would also include areas inundated by projected wave heights resulting from an offshore (Cascadia Subduction Zone) earthquake. The County could consider adding text to KCC 19.400.430.C.4 to identify such areas as additional seismic hazard indicators.

5 FREQUENTLY FLOODED AREAS

5.1 OVERVIEW OF EXISTING CONDITIONS

Kitsap County has produced a map of Federal Emergency Management Agency (FEMA) flood zones, which can be seen at the following link.

[https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical Areas.pdf](https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical%20Areas.pdf)

The map includes some coastal areas, including the northwestern portion of the tip of the Kitsap Peninsula. Rivers and streams in Kitsap County with mapped floodplains include the following: Gamble Creek, Grover’s Creek, Dogfish Creek, Clear Creek, Chico Creek, Gorst

Creek, Big Beef Creek, Tahuya River, Seabeck Creek, Anderson Creek (Holly), Union River, Blackjack Creek, Curley Creek, Minter Creek, Burley Creek, and Olalla Creek.

5.2 SUMMARY OF EXISTING PROTECTIONS

Kitsap County has taken a variety of steps to protect communities from flooding and to protect the ecological functions of frequently flooded areas.

In coordination with the cities within its boundaries, the County has developed a *Multi-Hazard Mitigation Plan* (KCDEM 2019). The plan was most recently updated in 2019. The plan includes extensive consideration of flood mitigation strategies.

In December 2020, the *Kitsap County Stormwater Comprehensive Plan* (HDR 2020) was adopted by the County, a requirement of its National Pollutant Discharge Elimination System (NPDES) Permit, to address how the County will manage, operate, and finance stormwater-related activities within unincorporated areas of the county. The plan guides how the County will address surface water and stormwater management needs and requirements, including flooding.

Compliance with current stormwater design standards is a tool to protect floodplains from the adverse effects of development. The County requires compliance with the recently updated stormwater design standards specified in the *Kitsap County Stormwater Design Manual* (Kitsap County Department of Public Works & DCD 2021).

Kitsap County regulates frequently flooded areas in KCC Chapter 19.500, Frequently Flooded Areas. The aims of this chapter, as stated in KCC 19.500.505, Purpose, are to:

- ... *protect the public health, safety and welfare from harm caused by flooding.*
- ... *prevent damage and/or loss to both public and private property.*
- ... *give special consideration to anadromous fish habitat in combination with Chapter 19.300, Fish and Wildlife Habitat Conservation Areas, and Title 22, Shoreline Master Program.*

KCC Chapter 19.500, Frequently Flooded Areas, adopts by reference Title 15, Flood Hazard Areas. The purpose of Title 15 is to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. Title 15 designates special flood hazard areas and establishes permit requirements for construction and development in these areas. Special flood hazards areas are land areas of the county subject to a one percent or greater chance of flooding in any given year as indicated by FEMA maps. Under

KCC Chapter 19.500, Frequently Flooded Areas, critical drainage areas, as defined in Title 12, Stormwater Drainage, are also considered frequently flooded areas.

In 2008, the National Marine Fisheries Service issued a Biological Opinion, which found that implementation of the National Flood Insurance Program in the Puget Sound region jeopardizes federally threatened salmonids and Southern Resident killer whales. KCC Chapter 15.13, Provisions for Habitat Protection, responds to the Biological Opinion. Pursuant to this chapter, before new development activities are permitted within the floodplain, compliance with National Flood Insurance Program protection standards for critical habitats for listed species must be demonstrated.

5.3 CODE REVIEW & GAP ANALYSIS

This section recommends that the County consider expanding the designation and/or protection of frequently flooded areas in KCC Chapter 19.500, which could potentially entail a variety of changes to the code.

Exhibit 5-1 Summary of frequently flooded areas code review

Code Section	Title	Recommendations
19.500.505	Purpose	1. Consider expanding the designation and/or protection of frequently flooded areas.

5.3.1 Purpose (KCC 19.500.505)

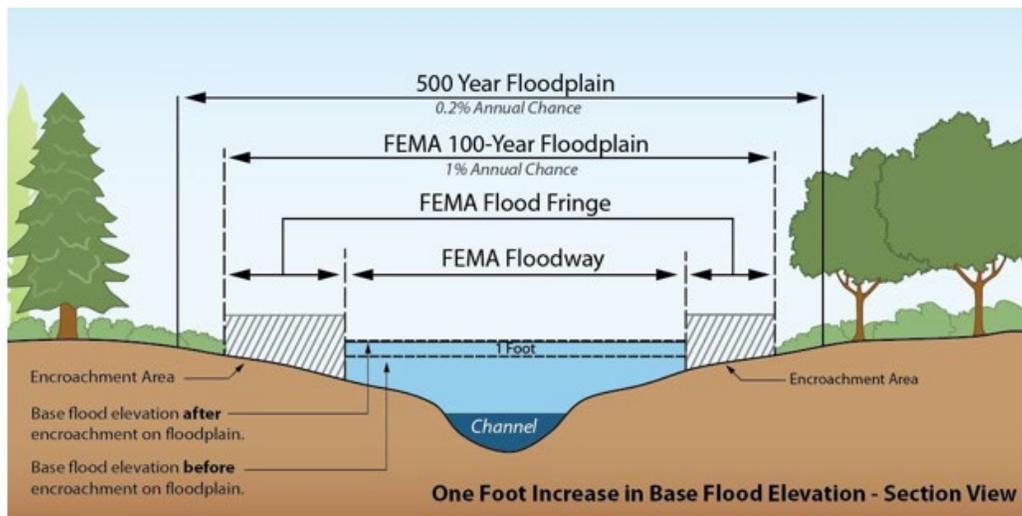
Recommendation #1: Consider expanding the designation &/or protection of frequently flooded areas

In regulating frequently flooded areas, KCC Chapter 19.500, Frequently Flooded Areas, states that the County uses Title 15, Flood Hazard Areas. Title 15 applies to “all areas of special flood hazards within the jurisdiction of Kitsap County.” Areas of special flood hazards are identified by the Federal Insurance Administration in a scientific and engineering report entitled The Flood Insurance Study for Kitsap County and Incorporated Areas, dated November 4, 2010, and accompanying Flood Insurance Maps, as revised. KCC Chapter 19.500, Frequently Flooded Areas, also indicates that critical drainage areas, as defined in Title 12, Stormwater Drainage, are included for areas of review under frequently flooded areas.

Many other communities in Washington take a similar approach and regulate areas of special flood hazards using National Flood Insurance Program standards . Commerce notes

that this approach can meet the minimum requirements if there are no special circumstances (Commerce 2023). Flood Insurance Maps were developed for flood insurance rating purposes to calculate the ability of the flood plain to convey flood discharges while allowing for part of the floodplain to be developed. The maps are based on limited stream gauging data (mostly before the 1950s), one-dimensional water surface modeling from 1977, hydraulic analysis with a fixed-bed, step backwater model with the lines drawn at the point the floodway rose one foot in modeling.

Exhibit 5-2 FEMA floodway



Source: Pierce County.

Commerce also notes, however, that FEMA maps do not address all flood risk in communities, do not account for climate change, sediment routing, channel dynamics, or stormwater input flows, and do not consider impacts to stream habitat or riverine functions from development.

Commerce therefore encourages local governments to consider additional flood risks in their communities and address related regulatory issues in their frequently flooded areas chapter based on BAS. The Washington State Department of Ecology also encourages local governments to exceed FEMA minimum requirements for floodplain management (Ecology n.d.).

Most of the streams and rivers in Kitsap County are in alluvial (Qa) or glacial drift (Qgd) channel deposits with abundant sediment storage and large amounts of woody debris. Flooding in these streams is a three-dimensional process with movable bed forms where high flows of different recurrence intervals can mobilize bed sediments and frequently

cause log jams to break up or form new deposits. Flooding in county streams and rivers often results from prismatic storage of sediment behind large woody debris resulting in channel avulsions and bend migrations not considered in FEMA flood insurance maps.

Frequently flooded areas can experience flooding from channel flushing flows in the range of 1.6 to 2-year recurrence intervals (bank full), channel maintenance flows in the range of 2 to 10-year recurrence intervals, and channel forming and floodplain activation flows of 10 to 50-year recurrence intervals. The 100-year recurrence interval high flow, which is the basis for the areas of special flood hazard regulated by the County, has no particular significance in stream biology or geomorphology.

Recent technological advances could allow the County to augment regulation of frequently flooded areas with other available geomorphic analyses, particularly those using LiDAR data and geospatial programs. The County could consider expanding the designation and/or protection of frequently flooded areas based on other available geomorphic analyses. Expanding the designation and/or protection of frequently flooded areas in KCC Chapter 19.500 could potentially entail a variety of changes to the code, such as:

- Including additional flood hazard areas
- Consideration of climate change
- Addressing channel migration
- Providing higher development standards
- Stronger consideration of ecological functions and values

6 CRITICAL AQUIFER RECHARGE AREAS

6.1 OVERVIEW OF EXISTING CONDITIONS

Kitsap County has produced a map of Category I and II critical aquifer recharge areas, which can be seen at the following link. As evident from the map, these critical aquifer recharge areas cover vast areas of the county.

[https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical Aquifer Recharge Areas.pdf](https://www.kitsapgov.com/dcd/DCD%20GIS%20Maps/Critical%20Aquifer%20Recharge%20Areas.pdf)

As described in Kitsap County's "Water as a Resource" Policy (Resolution 109-2009), approximately 80% of the residents in the county rely on groundwater sources for potable

water (Lane 2009). The remaining water supply comes from the Union River and primarily serves the City of Bremerton (BERK & Parametrix 2012).

To maintain potable water uses and potential uses of existing aquifers, both water quality and quantity must be managed. The regulation of development and land use activities that may impact the quantity or quality of groundwater is critical to public welfare given the reliance on groundwater for the county's potable water supply (Mauger et al. 2015).

6.2 SUMMARY OF EXISTING PROTECTIONS

Kitsap County regulates critical aquifer recharge areas in KCC Chapter 19.600, Critical Aquifer Recharge Areas. The aims of this chapter, as stated in KCC 19.600.605, Purpose, are as follows:

- A. *Identify, preserve and protect aquifer recharge areas that are susceptible to contamination by preventing degradation of the quality and, if needed, the quantity of potable groundwater;*
- B. *Recognize the relationship between surface and groundwater resources;*
- C. *Give priority to potable water resource areas per WAC 365-190-100 in the planning and regulation of land uses that may directly or indirectly contaminate or degrade groundwater; and*
- D. *Balance competing needs for water supply while preserving essential natural functions and processes, especially for maintaining critical fish and wildlife habitat conservation areas.*

KCC 19.610 classifies critical aquifer recharge areas into two categories, Category I and Category II, based on the potential of land use activities to adversely affect groundwater. Factors considered in the identification of critical aquifer recharge areas includes the depth to water table, soil characteristics, presence of flat terrain, and the presence of permeable surficial geology.

KCC Table 19.600.620 comprises a list of activities with potential threat to groundwater quality. These activities are typically prohibited in Category I critical aquifer recharge areas. If these activities are proposed in a Category II critical aquifer recharge area, submittal of a hydrogeological report may be required.

Further, development in critical aquifer recharge areas requires stormwater best management practices in accordance with KCC Title 12, Stormwater Drainage.

6.3 CODE REVIEW & GAP ANALYSIS

Overall, KCC Chapter 19.600, Critical Aquifer Recharge Areas, appears to generally reflect BAS. However, this section includes a couple recommendations for amendments. The most substantive recommendation is to include areas at risk of seawater intrusion as a type of Category I critical aquifer recharge area. Recommendations are listed in Exhibit 6-1; each recommendation is discussed in more detail following the table.

Exhibit 6-1 Summary of critical aquifer recharge areas code review

Code Section	Title	Recommendations
19.600.605	Purpose.	None.
19.600.610	Critical aquifer recharge area categories.	<ol style="list-style-type: none"> 1. Add areas at risk of seawater intrusion as a type of Category I critical aquifer recharge area. 2. Identify specific types of critical aquifer recharge area maps that may be produced.
19.600.615	Development standards.	None.
19.600.620	Activities with potential threat to groundwater quality.	None.

6.3.1 Critical Aquifer Recharge Area Categories (KCC 19.600.610)

Recommendation #1: Add areas at risk of seawater intrusion as a Type of Category I critical aquifer recharge area

KCC 19.600.610.A identifies specific types of Category I critical aquifer recharge areas, which are those areas where the potential for certain land use activities to adversely affect groundwater is high. As noted in KCC 19.600.620.A.4, the County may add, reclassify or remove Category I critical aquifer recharge areas based on additional information.

To address areas identified at risk of seawater intrusion as a result of groundwater withdrawals and sea level rise, the County could consider adding areas at risk of seawater intrusion as a type of Category I critical aquifer recharge area in KCC 19.600.610.A. Such areas at risk are typically within one-half mile of marine shorelines with wells pumping from near or below mean sea level. A seawater intrusion risk assessment may be required for new wells in these areas.

Recommendation #2: Identify specific types of critical aquifer recharge area maps that may be produced

KCC 19.600.610.C indicates that the County, in coordination with other agencies, will produce maps indicating the location of critical aquifer recharge areas and their defining characteristics. The County could consider identifying specific types of critical aquifer recharge areas maps that may be produced by the County, Public Health District, or water purveyors, including the following:

- Maps indicating the location of existing wells and their respective aquifers, particularly for Group A and Group B wells, to use in a well monitoring program for tracking groundwater level trends and groundwater quality changes.
- Maps of abandoned or decommissioned wells to assure the wells do not become pathways for contamination of local aquifers.
- Maps indicating the location of existing activities listed in KCC Table 19.600.620 with potential threat to groundwater quality.

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7.5 FREQUENTLY FLOODED AREAS

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Design Manual.

https://dcd.kitsapgov.com/ordnances/Stormwater_HTML_20210902/Content/FrontMatter/TitlePage.htm

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Areas Ordinance. **<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Guidance-for-floodplains-Critical-Areas-Ordinance>**

7.6 CRITICAL AQUIFER RECHARGE AREAS

BERK & Parametrix. (2012). *Kitsap County UGA Sizing and Composition Remand, Final Supplemental Environmental Impact Statement.*

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Mauger, G.S., Casola, J.H., Morgan, H.A., Strauch, R.L., Jones, B., Curry, B., Busch Isaksen, T.M., Whitely Binder, L., Krosby, M.B. & Snover, A.K. (2015). *State of Knowledge: Climate Change in Puget Sound.* Climate Impacts Group, University of Washington, Seattle. **<https://doi.org/10.7915/CIG93777D>**

Appendix A

COMMERCE CHECKLIST

Critical Areas Checklist

A Technical Assistance Tool from Growth Management Services – updated November 2022

Name of city or county:	
Staff contact, phone, and e-mail address:	
<p>INSTRUCTIONS</p> <p>This checklist is intended to help local governments update their development regulations, pursuant to the schedule in RCW 36.70A.130(5) (updated in 2022). We strongly encourage but do not require jurisdictions to complete the checklist and return it to Growth Management Services (GMS), along with their updates. This checklist may be used by all jurisdictions, including those local governments planning for resource lands and critical areas only. For general information on update requirements, refer to A Guide to the Periodic Update Process Under the Growth Management Act – Fully Planning Counties & Cities, 2022 and Keeping your Comprehensive Plan and Development Regulations Current: A Guide to the Periodic Update Process under the Growth Management Act, August, 2016 and WAC 365-196-610 (updated in 2015).</p> <p>Bold items are a GMA requirement or may be related requirements of other state or federal laws. <u>Underlined</u> items are links to Internet sites and may include best practices or other ideas to consider.</p> <p>Commerce WAC provisions are advisory under Commerce’s statutory mandate to provide technical assistance, RCW 43.330.120 which states that the Department of Commerce “...<i>shall help local officials interpret and implement the different requirements of the act through workshops, model ordinances, and information materials.</i>” If you have questions, call GMS at (360) 725-3066.</p> <p>Updates to Commerce WAC – Revisions to the Commerce WAC relating to critical areas have been provided in a table with dates of changes on the Growth Management Act Periodic Update web site. The table can be used with this checklist to determine what changes have been made since the last update of your critical areas regulations.</p>	<p>Contents</p> <p>Instructions..... 1</p> <p>Overall Requirements..... 2</p> <p>Wetlands..... 3</p> <p>Critical Aquifer Recharge Areas..... 4</p> <p>Frequently Flooded Areas..... 5</p> <p>Geologically Hazardous Areas..... 6</p> <p>Fish and Wildlife Habitat Conservation Areas..... 7</p> <p>Designating and Protecting Waters of the State..... 8</p> <p>Anadromous Fisheries..... 8</p> <p>Reasonable Use Exceptions..... 8</p> <p>Agricultural Activities..... 9</p> <p>Forest Practices Regulations..... 9</p> <p>Good Ideas..... 9</p>

How to fill out the checklist

Using the current version of your critical areas regulations, fill out each item in the checklist. Select the check box or type in text fields, answering the following question:

Is this item addressed in your current Critical Areas Ordinance (CAO)? If YES, fill in the form with citation(s) to where in the plan or code the item is addressed. We recommend using citations rather than page numbers because they stay the same regardless of how the document is printed. If you have questions about the requirement, follow the hyperlinks to the relevant statutory provision or rules. If you still have questions, visit the [Commerce Growth Management Services Web page](#) or [contact one of the Commerce planners](#) assigned to your region.

CRITICAL AREAS

Regulations protecting critical areas are required by **RCW 36.70A.060(2)** and **RCW 36.70A.172(1)**. [WAC 365-195-900 through 925](#) provide guidelines. Guidance can also be found in Commerce’s [Critical Areas Handbook \(Updated June, 2018\)](#); the Minimum Guidelines [WAC 365-190-080 – 130](#); Best Available Science, [Chapter 365-195 WAC](#); and Procedural Criteria, [WAC 365-196-485](#) and [WAC 365-196-830](#), and on Growth Management’s [Critical Areas](#) webpage.

Regulations required to protect critical areas

Addressed in current plan or regulations? If yes, note where

OVERALL REQUIREMENTS

The CAO includes best available science to clearly designate and protect all critical areas that might be found within the jurisdiction.

1. Designation of Critical Areas

RCW 36.70A.170(1)(d) required all counties and cities to designate critical areas.

RCW 36.70A.170(2) requires that counties and cities consider the Commerce Minimum Guidelines pursuant to RCW 36.70A.050.

RCW 36.70A.050 directed Commerce to adopt the Minimum Guidelines to classify critical areas. [WAC 365-190-080 through 130 \(updated in 2010\)](#) provide guidance on defining or “designating” each of the five critical areas.

[WAC 365-190-040 \(updated in 2010\)](#) outlines the process to classify and designate natural resource lands and critical areas.

2. Definition of Critical Areas

RCW 36.70A.030(6) provides definitions for critical areas. Sections (6) regarding fish and wildlife habitat conservation areas; (14) regarding geologically hazardous areas; and (31) regarding wetlands were updated in 2010.

[WAC 365-190-030 \(updated 2010\)](#) provides definitions in the Minimum Guidelines.

<p>3. Protection of Critical Areas RCW 36.70A.060 (2) required counties and cities to adopt development regulations that protect the critical areas required to be designated under RCW 36.70A.170. RCW 36.70A.172(1) requires the inclusion of best available science in developing policies and development regulations to protect the functions and values of critical areas. In addition, counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-196-830 (updated 2017) provides guidance on protection of critical areas.</p> <p>4. Inclusion of Best Available Science RCW 36.70A.172(1) requires inclusion of the best available science (BAS). Chapter 365-195 WAC outlines recommended criteria for determining which information is the BAS, for obtaining the BAS, for including BAS in policies and regulations, for addressing inadequate scientific information, and for demonstrating “special consideration” to conservation or protection measures necessary to preserve or enhance anadromous fisheries. WAC 365-195-915 provides criteria for including BAS in the record.</p> <p>5. No net loss of critical area functions and values is a requirement for development regulations in WAC 365-196-830(4). If development regulations allow harm to critical areas, they must require compensatory mitigation of the harm.</p>	<p>Was BAS documented in the record for the review and updates to the critical areas regulations?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No Location in Text:</p> <p>Do your regulations address no net loss and require compensatory mitigation?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No Location in Text:</p>
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<p>WETLANDS DEFINITION The definition of wetlands is consistent with RCW 36.70A.030(31) (updated in 2012).</p>	<p>Is the wetland definition consistent with RCW 36.70A.030(21)?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Location in Text:</p>
<p>WETLANDS DELINEATION Wetlands are delineated using the approved federal wetland delineation manual and applicable regional supplements in accordance with WAC 173-22-035 (updated in 2011).</p>	<p>Are wetlands delineated using the approved Federal Wetland Delineation</p>

<p>See Ecology's Wetland Delineation page and WAC 365-190-090 (updated in 2010) for additional assistance.</p>	<p>Manual and Regional Supplements?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p> <p>Location in Text:</p>
<p>WETLANDS PROTECTION</p> <p>Policies and regulations protect the functions and values of wetlands. RCW 36.70A.172(1) Counties and cities are encouraged to make their actions consistent with the intent and goals of "protection of wetlands", Executive Order 89-10 as it existed on September 1, 1990.</p> <p>WAC 365-190-090(3) recommends using a wetlands rating system that evaluates the existing wetland functions and values to determine what functions must be protected. Ecology updated its recommended wetlands rating systems effective January 2015. For information on the rating system, including the July 2018 adjustments to ranges for habitat scores, see:</p> <ul style="list-style-type: none"> • 2014 Updates to the Washington State Wetland Rating Systems • Washington State Wetland Rating System for Western Washington • Washington State Wetland Rating System for Eastern Washington <p>For other resources and guidance on protecting wetlands, go to Ecology's Local Wetland Regulations: Growth Management Act technical assistance and see:</p> <ul style="list-style-type: none"> • Wetland Guidance for Critical Areas Ordinance (CAO) Updates: Western and Eastern Washington (2022) 	<p>Do the regulations use a rating system to determine wetlands protection?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p> <p>Location in Text:</p>

<p>CRITICAL AQUIFER RECHARGE AREAS</p> <p>Policies and regulations protect the functions and values of critical aquifer recharge areas. RCW 36.70A.172(1).</p> <p>Policies and regulations protect the quality and quantity of groundwater used for public water supplies. RCW 36.70A.070(1) and WAC 365-196-485(1)(d).</p> <p>The following references also relate to protection of groundwater resources:</p> <p>RCW 90.44 – Regulation of Public Groundwaters</p> <p>RCW 90.48 – Water Pollution Control</p> <p>RCW 90.54 – Water Resources Act of 1971</p> <p>RCW 36.36.020 - Creation of aquifer protection area (1988)</p> <p>WAC 365-190-100 Critical Aquifer Recharge Areas (2010)</p> <p>WAC 173-100 Groundwater Management Areas and Programs (1988)</p> <p>WAC 173-200 Water Quality Standards for Groundwaters of the State of Washington (1990)</p>	<p>If groundwater is used for potable water, do regulations protect the quality and quantity of ground water?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> N/A</p> <p>Location in text:</p>
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<p>WAC 365-196-735 Consideration of state and regional planning provisions (list) (2010)</p> <p>The Critical Aquifer Recharge Areas Guidance Document (updated 2021) provides information on protecting functions and values of critical aquifer recharge areas, best available science, how to work with state and local regulations and adaptive management.</p> <p>Also, consider the following:</p> <ul style="list-style-type: none"> • Prohibiting or strictly regulating hazardous uses in critical aquifer recharge areas (CARAs) and designating and protecting wellhead areas. See Ecology’s guidance on Critical Aquifer Recharge Areas. • Limiting impervious surfaces to reduce stormwater runoff, as required under Phase I and II municipal stormwater permits. Ecology’s Stormwater Manual for Western Washington (updated in 2012) includes low impact development (LID) related definitions, requirements, and an LID performance standard. See Stormwater Management and Design Manuals on Ecology’s web page. • For additional guidance on LID resources, see Commerce’s Incentivizing low-impact development guidebook. 	<p>Are the critical aquifer recharge regulations consistent with current mapping of these critical areas?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in text:</p>
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<p>FREQUENTLY FLOODED AREAS</p> <p>Regulations protect the functions and values of frequently flooded areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1) WAC 365-196-830 provides: "Protection' in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety."</p> <p>WAC 365-190-110 (updated in 2010) directs counties and cities to consider the following when designating and classifying frequently flooded areas:</p> <ol style="list-style-type: none"> Effects of flooding on human health and safety, and to public facilities and services; Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in RCW 36.70A.110; The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out; The potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change; Greater surface runoff caused by increasing impervious surfaces. 	<p>Are frequently flooded areas designated and regulated using FEMA and Ecology guidance?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text:</p>
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Classification of and regulations for frequently flooded areas should not conflict with the [FEMA](#) requirements for the National Flood Insurance Program (NFIP). See [Ecology's Frequently Flooded areas: Critical Areas Ordinance](#) webpage and [44 CFR 60](#).

Communities that are located on Puget Sound or the Strait of San Juan de Fuca, or have lakes, rivers or streams that directly or indirectly drain to those water bodies, are subject to the NFIP Biological Opinion (BiOp) for Puget Sound. The biological opinion required changes to the implementation of the NFIP in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound watershed. FEMA Region X has developed an implementation plan that allows communities to apply the performance standards contained in the Biological Opinion by implementing:

- 1) [a model ordinance](#);
- 2) [a programmatic Checklist](#); or
- 3) on a permit by permit basis as long as it can be demonstrated that there is no adverse effect to listed species. Communities have the option of utilizing their CAOs as part of a programmatic response to address the requirements of the biological opinion. FEMA must approve a community's biological opinion compliance strategy.

Additional resources:

[RCW 86.12](#) Flood Control by Counties

[RCW 86.16](#) Floodplain Management

[RCW 86.26](#) State Participation in Flood Control Maintenance

[RCW 86.16.041](#) Floodplain Management Ordinance and Amendments

[WAC 173-158-070](#) Requirements for construction in Special Flood Hazard Areas

Are you utilizing your CAO as part of a programmatic response to the BiOp?

Yes

No

N/A

Location in Text:

<p>DEFINITION OF GEOLOGICALLY HAZARDOUS AREAS</p> <p>The definition of geologically hazardous areas is consistent with <u>RCW 36.70A.030(14)</u> (updated 2012) and <u>WAC 365-190-120(1)</u>.</p> <p>"Geologically hazardous areas" means areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.</p>	<p>Is the geologically hazardous areas definition consistent with RCW 36.70A.030(14)?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text:</p>
<p>PROTECTION OF GEOLOGICALLY HAZARDOUS AREAS</p> <p>Regulations protect the functions and values of geologically hazardous areas and safeguard the public from hazards to health and safety. RCW 36.70A.172(1) <u>WAC 365-196-830</u> (2010) provides:" "Protection" in this context means preservation of the functions and values of the natural environment, or to safeguard the public from hazards to health and safety."</p> <p>Geologically hazardous areas are designated, and their use is regulated or limited consistent with public health and safety concerns. <u>RCW 36.70A.030(14)</u> provides a definition (updated in 2012) and <u>WAC 365-190-120</u> describes the different types of hazardous areas (2010):</p> <ul style="list-style-type: none"> • Geologically hazardous areas include: <ul style="list-style-type: none"> • seismic hazards • tsunami hazards • landslide hazards • areas prone to erosion hazards • volcanic hazards • channel migration zones • areas subject to differential settlement from coal mines or other subterranean voids. <p>The Department of Natural Resource's Washington Geological Survey Geologic Hazards and the Environment website includes information on earthquakes and faults, landslides, volcanoes and lahars, tsunamis, hazardous minerals, emergency preparedness, historic mines and includes geologic hazard maps that can be accessed from the Geologic Information Portal.</p>	<p>Are uses in geologically hazardous areas designated and regulated or limited consistent with public health and safety?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text:</p>

<p>DEFINITION OF FISH AND WILDLIFE HABITAT AND CONSERVATION AREAS</p> <p>The definition of fish and wildlife habitat conservation areas is consistent with RCW 36.70A.030(6) (updated 2012) and WAC 365-190-030 (updated in 2015). The definition of fish and wildlife habitat conservation areas was amended to state that they do not include: “<i>such artificial features or constructs as irrigation delivery systems, irrigation infrastructure, irrigation canals, or drainage ditches that lie within the boundaries of and are maintained by a port district or an irrigation district or company</i>”.</p>	<p>Is the FWHCA definition consistent with RCW 36.70A.030(6)?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text:</p>
<p>PROTECTION OF FISH AND WILDLIFE HABITAT AND CONSERVATION AREAS</p> <p>Policies and regulations protect the functions and values of fish and wildlife habitat conservation areas. RCW 36.70A.172(1) and RCW 36.70A.030(6) (updated 2012).</p> <p>WAC 365-190-130(4) says local jurisdictions should consult WDFW’s Priority Habitat and Species webpage. BAS regarding biodiversity areas and corridors has advanced significantly since 2015. Recent updates and resources include:</p> <ul style="list-style-type: none"> • Aquatic Habitat Guidelines (2010, 2014) • Priority Habitat and Species maps (updated daily) • Priority Habitats and Species List (updated March 2022) • Priority Habitats and Species: Management recommendations: <ul style="list-style-type: none"> • Landscape Planning for Washington’s Wildlife (2009) • Land Use Planning for Salmon, Steelhead and Trout (2011) • Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications (2020) • Riparian Ecosystems, Volume 2: Management Recommendations (2020) • Shrub-Steppe Management Recommendations (2020) • Oregon White Oak Woodlands Ecosystems Management Recommendations (1998) • Management recommendations for Washington’s Priority Species (by taxa) • Puget Sound Kelp Conservation and Recovery Plan (2020) • Stream Habitat Restoration Guidelines (2012) • Water Crossing Design Guidelines (2013) <p>Areas “with a primary association with listed species” should be considered per WAC 365-190-130(2)(a). Consult WDFW’s Threatened and Endangered Species list and U.S. Fish and Wildlife Service’s Information for Planning and Consultation resources for up to date information on all state and federal listed species.</p> <p>Also see the Puget Sound Partnership’s Salmon Recovery website for Water Resource Inventory Area (WRIA) Plans in Puget Sound.</p>	<p>Have you reviewed your regulations regarding any applicable changes in management recommendations for priority habitats and species?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text</p> <p>Have you reviewed your regulations regarding any changes in species listings?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text</p>

<p>REASONABLE USE EXCEPTIONS</p> <p>The Critical Areas Ordinance (CAO) allows for “reasonable use” if the CAO would otherwise deny all reasonable use of property. Reasonable use provisions should limit intrusions into critical areas to the greatest extent possible and apply the mitigation sequence as needed for no net loss of ecosystem functions and values RCW 36.70A.370 (1991). Common exemptions include emergencies, remodels that do not further extend into critical areas, surveying, walking, and development that has already been completed with critical areas review under a previous permit. See Critical Areas Handbook, Chapter 3: Structuring Critical Areas Regulations, p.9 (Updated June, 2018).</p>	<p>Do you have reasonable use provisions?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Location in Text:</p>
<p>AGRICULTURAL ACTIVITIES (COUNTIES ONLY)</p> <p>Non-VSP Counties Critical areas regulations as they specifically apply to agricultural activities in counties or watersheds not participating in the Voluntary Stewardship Program (VSP) have been reviewed, and if needed, revised pursuant to RCW 36.70A.130. RCW 36.70A.710(6) "Agricultural activities" means all agricultural uses and practices as defined in RCW 90.58.065.</p> <p>VSP Counties After watershed work plan approval, VSP counties are encouraged to reference and describe their participation in the program within their critical areas development regulations (WAC 365-196-832). See Critical Areas Handbook, Chapter 5: Protecting Critical Areas in Natural Resource Lands (Updated June, 2018).</p>	<p>Did you review your regulations as they apply to agricultural activities?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text:</p>
<p>FOREST PRACTICES APPLICATION REGULATIONS</p> <p><i>If applicable, regulations for forest practices have been adopted: RCW 36.70A.570 (adopted in 2007).</i></p> <p>RCW 76.09.240, amended in 2011, requires many counties over 100,000 in population, and the cities and towns within those counties to adopt regulations for forest practices. These are often included in clearing and grading ordinances.</p>	<p>Have you adopted forest practices regulations?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A</p> <p>Location in Text:</p>
<p>GOOD IDEAS</p> <p>Non-regulatory measures to protect or enhance functions and values of critical areas may be used to complement regulatory methods. These may include:</p> <ul style="list-style-type: none"> • public education • stewardship programs • pursuing grant opportunities • water conservation • joint planning with other jurisdictions and non-profit organizations • stream and wetland restoration activities • transfer of development rights 	<p>Are you using non-regulatory measures to protect critical areas?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Location in Text:</p>

Monitoring and adaptive management is encouraged in [WAC 365-195-905\(6\)](#) to improve implementation of your regulations. See Commerce's Monitoring and Adaptive Management chapter in the [Critical Areas Handbook \(June 2018\)](#).

Do you have a monitoring and adaptive management program for your CAO?

Yes

No

Location in Text: