



**KITSAP COUNTY**  
**CRITICAL AREAS ORDINANCE**  
**SCIENCE SUPPORT DOCUMENT**

*A document accompanying the Critical Areas Ordinance Second Draft*

**May 17, 2005**

**Kitsap County**  
**Department of Community Development**  
**614 Division St. MS-36**  
**Port Orchard, WA 98407**



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## **Executive Summary**

The Growth Management Act (GMA) requires all local jurisdictions, including Kitsap County, to adopt development regulations in order to protect critical areas. The GMA further requires local jurisdictions to review, update and/or revise their critical areas ordinances and related policies every seven years.

In the fall of 2003, Kitsap County Department of Community Development undertook a cooperative Critical Areas Ordinance (CAO) revision process. In accordance with Washington Administrative Code (WAC) 365-195-900 through 920, this review must include best available science. Best available science is defined as valid and reliable information, which forms a scientific basis to develop and implement critical areas policies or regulations (WAC 365-195-905). For the Kitsap County process, best available science was used to determine whether critical area standards found in Kitsap County's CAO required revision.

The purpose of this report is to demonstrate that the standards of the Kitsap County Critical Area Ordinance Second Public Draft dated May 17, 2005 are within the acceptable range of the compiled best available scientific literature, and therefore, should be adopted.

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## I. Purpose

The purpose of this report is to demonstrate that the revised standards fall within the acceptable range of the compiled best available scientific information. The proposed revisions to CAO standards and requirements are discussed in terms of the scientific evidence that substantially support them.

### A. Growth Management Act Mandates

The Kitsap County CAO Second Public Draft contains revised protection requirements for wetlands, fish and wildlife habitat conservation areas and critical aquifer recharge areas.

In 1998, the Growth Management Act was amended to include the following section: "In designating and protecting critical areas under this chapter, counties and cities shall include the best available science in developing policies and development regulations to protect the functions and values of critical areas. In addition, counties and cities shall give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries."

### B. Kitsap County Policies, Goals and Objectives

Planning and management direction for the consideration of best available science and for the protection of critical areas is contained in the Kitsap County Comprehensive Plan and Amendments and the Countywide Planning Policies. These documents have county-adopted policies, goals and objectives that clearly state priorities for critical areas designation and protection.

### C. Best Available Science

To assist cities and counties in identifying and including best available science in revising their policies and regulations, the Washington State Department of Community Trade and Economic Development promulgated rules (WAC 365-195-900 through 365-195-925) in 2000. These rules are briefly explained below.

<b>Table 1. Criteria for determining what constitutes Best Available Science</b>						
<b>Source<sup>(a)</sup></b>	<b>Peer Review</b>	<b>Methods</b>	<b>Logical conclusions &amp; Reasonable references</b>	<b>Quantitative Analysis</b>	<b>Context</b>	<b>References</b>
Research	X	X	X	X	X	X
Monitoring		X	X	Y	X	X
Inventory		X	X	Y	X	X
Survey		X	X	Y	X	X
Modeling	X	X	X	X	X	X
Assessment		X	X		X	X
Synthesis	X	X	X		X	X
Expert Opinion			X		X	X

X = characteristic must be present for information derived to be considered scientifically valid and reliable

Y = presence of characteristic strengthens scientific validity and reliability of information derived, but is not essential to ensure scientific validity and reliability

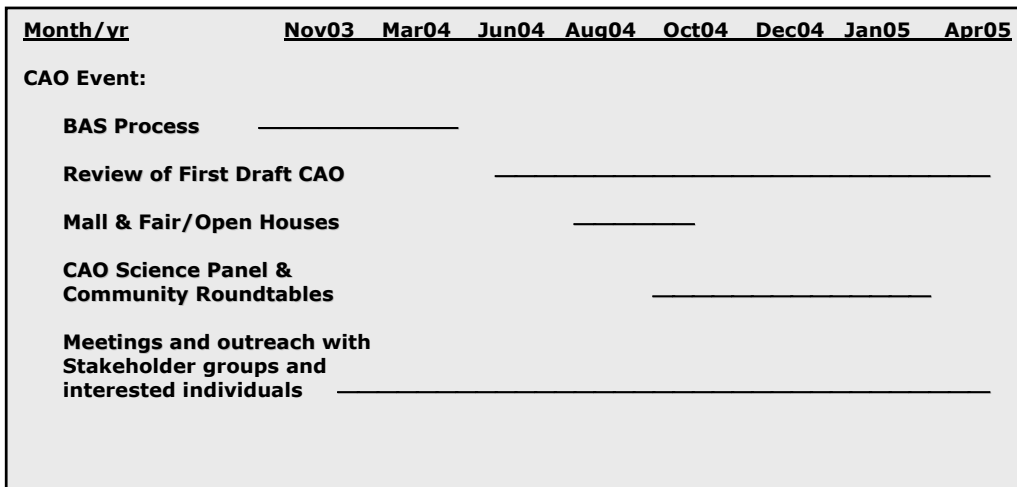
## D. Critical Areas Ordinance (CAO) Update History

Kitsap County relied primarily on existing scientific information determined by other local, state and federal natural resource agencies to meet the best available science criteria. Between November 2003 and March 2004, a review of best available science for local applicability to Kitsap County was assisted by a Technical Review Committee, convened by the County and composed of representatives from local, and state natural resource agencies, tribes, and various community stakeholder groups. Committee members were guided by a duty and purpose statement that emphasized "...assisting the county in determining what best available science is appropriate to consider" in updating the County's CAO. A record of the Committee's meeting notes and of the best available science was compiled and indexed. The compiled literature and committee activities were posted on the internet and organized in binders.

Throughout the CAO update process, various events were scheduled to provide opportunity for public participation (Figure 1, below). On June 22, 2004, the Kitsap County CAO First Public Draft was issued. A public comment period was opened on the CAO First Public Draft and several meetings to introduce that document were scheduled and held with stakeholder groups, business and civic organizations and the general public. Additional public outreach and information was also provided at three different open houses, a booth in the county's shopping mall and the county fair.

In October 2004, a panel of northwest scientific experts was assembled to address questions from the public about critical areas and best available science. Following the critical areas science panel, three separate community roundtable discussions were held to discuss and gain feedback from members of the public on what critical area functions were important in Kitsap County. A report on those roundtable discussions was published and widely circulated. Throughout these events, numerous smaller outreach meetings, briefings and discussions were held with public and private officials, civic organizations, stakeholder groups and private, individual property owners.

**Figure 1. Cooperative Public CAO Process (November 2003 to Present)**



## II. Discussion and Analysis of Revised Standards

The following discussions and analyses emphasize the revised standards for each of the five critical areas contained in the Critical Areas Ordinance: wetlands, fish and wildlife habitat conservation areas, geologically hazardous areas, frequently flooded areas and critical aquifer recharge areas. Each section cites the specific critical area code containing the proposed revised standard, its existing standard in the current Critical Areas Ordinance, and the best available science supporting the revised standard.

For wetlands, there are three areas of revised standards. For fish and wildlife habitat conservation areas, there are also three areas of revised standards. The ordinance's existing standards for geologically hazardous areas and frequently flooded areas were reviewed in terms of the best available science and found to be within acceptable ranges. Minor revisions to the standards for critical aquifer recharge areas were made based on local conditions supported by best available science.

### A. Wetlands

#### Revised Standard Summary- Wetland Functional Rating

Adoption of an improved, updated 2004 wetland rating system developed by the WA Dept. of Ecology is proposed. The current ordinance uses an earlier, 1993 version of the ratings system published by Dept of Ecology.

<b>Revised Standard Citation</b>	<b>1998 Critical Area Standard</b>	<b>Best Available Science on Revised Standard</b>
<b>KCC 19.200.210 Wetland Identification and Functional Rating</b>	KCC 19.200.215 Wetland Categories... (f) for the purposes of establishing wetland buffers.. <i>Wa. Department of Ecology Washington State Wetland Rating System for Western Washington, 2<sup>nd</sup> Edition, 1993.</i>	19.200.210 Adopt by the department... <i>Washington State Department of Ecology Publication # 04-06-025. Washington State Wetland Rating System for Western Washington.</i>

#### Analysis and Discussion

The updated wetland ratings system reflects an improved understanding of wetlands' hydrologic and fish/wildlife functions. The revised wetland rating system is more quantitative than the 1993 wetland ratings system and characterizes both the opportunity and the potential for a wetland to support a given function or range of functions. It provides the best available science to assess vegetated wetlands and the functions they provide, as well as a wetland's significance, rarity, sensitivity and ability to be replaced. Adoption of the revised state wetland rating system permits Kitsap County to use the best available scientific technique in assessing wetland functions and values. To not adopt the revised state rating system would constitute a significant deviation from best available science and create the potential for net loss of critical areas functions and values.

## Revised Standard Summary – Wetland Buffer Widths

A flexible wetland buffer width system is proposed and is based on guidance published by the Washington Dept. of Ecology. The current standard for wetland buffers uses fixed buffer widths.

<b><u>Revised Standard Citation</u></b>	<b>1998 Critical Area Standard</b>	<b>Best Available Science on Revised Standard</b>
<p><b>KCC 19.200 220 Development Standards for Wetland Buffers</b>  <b>A. Determining Buffer Widths – Table 1 Base Buffer Widths- adjustments made based on intensity of land use proposed</b>  <b>Category I – 200 feet</b>  <b>Category II – 100 feet</b>  <b>Category III – 50 feet</b>  <b>Category IV – 30 feet</b></p> <p><b>D. Width of Buffers by Category of Wetland and proposed land use intensity (Tables 1 through 5)</b></p>	<p><b>[Fixed Wetland Buffer Widths]</b>  <b>Category I – 200 feet</b>  <b>Category II – 100 feet</b>  <b>Category III – 50 feet</b>  <b>Category IV – 25 feet</b></p>	<p><i>Washington State Department of Ecology Publication # 03-06-016. Sheldon, D. et. al. November 2004. Freshwater Wetlands in Washington State Volume I: A synthesis of the Science. 5.5.6.1 Summary of Key Points- Buffer Ranges and Characteristics from the Literature.:</i>            Fixed minimum width buffers are a starting point for protecting wetland functions.  <i>Appendix 8-C Buffer Alternative 3:</i>            Buffer width based on wetland category, intensity of impacts and wetland functions. This alternative provides the most flexibility in establishing wetland buffer widths and offers more site-specific/project based analysis than do fixed buffer widths.</p>

## Analysis and Discussion

The Washington Department of Ecology states unequivocally that the publication “Freshwater Wetlands in Washington State” is the best available science on wetlands, their functions and values and methods to manage and protect them. After complete review and analysis, Kitsap County agrees and determines that this compilation reflects the best source of best available science with applicability to Kitsap. The critical areas ordinance incorporates the Department of Ecology’s recommended flexible buffer approach contained in “Appendix 8-C” of the freshwater wetlands publication. By adopting this option, Kitsap County’s wetlands program is in line with state-agency supported and well recognized best available science.

## Revised Standard Summary - Wetlands Compensatory Mitigation

The current standard for compensatory wetland mitigation places wetlands enhancement as an equal and initial option alongside wetland replacement and creation. Best available science recently published jointly by the US Army Corps of Engineers and the Washington Department of Ecology shows that enhancement should be a last option as it is not as successful a mitigation tool as is restoring or creating wetlands.

<u>Revised Standard Citation</u>	<b>1998 Critical Area Standard</b>	<b>Proposed Standard and Best Available Science</b>
<b>KCC 19.200.250 Wetland Mitigation Requirement</b>	Section 700 I Wetlands Mitigation Plan. Sequence: enhancement, creation/replacement.	<i>Washington State Department of Ecology Publication # 04-06-013b. April 2004. US Army Corps of Engineers Seattle District, US Environmental Protection Agency Region 10. Guidance on Wetland Mitigation in Washington State</i> Compensatory mitigation sequence: restoration (reestablishment and rehabilitation), creation, enhancement and preservation

### Analysis and Discussion

This updated state-federal wetlands mitigation guidance document is based on best available science and improves wetland mitigation standards for success. It allows for more site-specific flexibility with enhanced goals, objectives and performance standards than previous mitigation guidelines. Kitsap County has determined that adoption of this guidance document permits the wetlands mitigation portion of the critical areas ordinance to be within best available science.

## B. Fish and Wildlife Habitat Conservation Areas

### Revised Standard Summary – Fish and Wildlife Habitat Conservation Purpose Statement

Proposed additional language to purpose statement of this section to include “no net loss.” Current standard does not contain this standard.

<u>Revised Standard Citation</u>	<b>1998 Critical Area Standard</b>	<b>Best Available Science On Revised Standard</b>
<b>KCC 19.300.Fish and Wildlife Habitat Conservation Areas 19.300.305 Purpose. The purpose of this chapter is to identify regulated fish and wildlife habitat conservation areas and establish habitat protection procedures and mitigation measures that are designed to achieve no net loss of fish and wildlife species and habitats...</b>	KCC 19.300.305 This section applies to all...uses within two hundred feet of areas designated as fish and wildlife habitat conservation areas.	Added language on no net loss of fish and wildlife species and habitats: <i>RCW 36.70A.020 Planning Goals (9) conserve fish and wildlife habitat</i>

### Analysis and Discussion

Kitsap County reviewed the implementing statutory language contained in the Growth Management Act and compared it to the ordinance’s purpose statement of the fish and wildlife habitat conservation area. The language in the RCW is straightforward in directing that fish and wildlife habitat be conserved. The language added to the fish and wildlife section purpose

**Comment [J1]:** Don't think we want to make this statement. We should focus here on the BAS or science as reviewed by other jurisdictions, not on their ordinances. This sentence might give the appearance of our initial consideration of standards based on political consistency with other jurisdictions rather than on the consideration of science. Other CAO stds. may be a mix of science and “other” local goals specific to those jurisdictions.

statement more clearly communicates the importance Kitsap County places on conserving fish and wildlife habitat.

### Revised Standard Summary - Freshwater Stream Buffers

The proposed standard adopts in final the interim “director’s interpretation” stream buffer standards. These interim standards were generated after the federal listing of two local anadromous fish species as threatened and/or endangered. The proposed standard also reflects best available science applicable to Kitsap County.

<b><u>Revised Standard Citation</u></b>	<b>1998 Critical Area Standard</b>	<b>Best Available Science On Revised Standard</b>
<b>KCC 19.300.315 Development Standards A. Buffers and Building Setbacks Table 4:</b>  <b>Type S Buffer Width 200 feet</b>  <b>Type F Buffer Width 150 feet</b>  <b>Type Np Buffer Width 50 feet</b>  <b>Type Ns Buffer Width 50 feet</b>	KCC 19.300.315 Development Standards  Type 1 Buffer Width 200 feet  Type 2 and 3 Buffer Width 200 feet w/ listed species 100 feet w/out listed species  Type 4 Buffer Width 50 feet  Type 5 Buffer Width 25 feet	Named stream reaches: published in <i>Kitsap County Class I Wildlife Conservation Areas for ESA Listed Salmon Species</i> (Oct. 2000). Knutson, K. L. and Naef, V.  L. 1997. <u>Management Recommendations Washington’s priority habitats: Riparian</u> . Washington Department of Fish and Wildlife. 181 pp. May, C.W. 2003. <u>Stream-Riparian Ecosystems In the Puget Sound Lowland Eco-Region: A Review of Best Available Science</u> . Watershed Ecology LLC. 78 pp.

### Analysis and Discussion

Best available science clearly states that the size of riparian buffers is directly related to conserving the existing stream resource, the water quality and habitat functions and anadromous fisheries. Kitsap County received and reviewed abundant amounts of scientific literature on stream buffers and riparian habitat. The bulk of the published scientific work that has been done has been conducted in steep-sloped forestland areas where the environmental needs are entirely different than those found in lowland, urbanizing contexts like Kitsap County. The proposed revisions to stream buffers for Type S and Type F stream reaches provides protection for a broad range of riparian functions and are clearly within the acceptable range of best available science.

According to the cited best available scientific literature, the actual size of buffer needed to protect the ecological integrity of lower-order (Type Np and Ns) stream reaches is difficult to precisely establish. Kitsap County’s critical areas ordinance continues to include provisions to both increase and decrease the buffer widths to address stream reaches that may not exhibit uniform functionality. The compiled best available science supports the established buffer widths for Type Np and Ns. The buffer widths fall within the ranges for the riparian functions of water quality, sediment and erosion control. Additionally, they provide for general levels of protection for mammals and bird habitats.

## Revised Standard Summary – Saltwater and Lake Shoreline Buffers:

Saltwater and lake shoreline buffer widths have moderate changes proposed from current standards.

<u>Revised Standard Citation</u>	<b>1998 Critical Area Standard</b>	<b>Best Available Science On Revised Standard</b>
<b>Table 4 (cont'd): Saltwater Shorelines and Lakes</b>	KCC 19.300.315 Development Standards. Saltwater Shorelines and Lakes	May, C.W. 2003. <u>Stream-Riparian Ecosystems In the Puget Sound Lowland Eco-Region: A Review of Best Available Science</u> . Watershed Ecology LLC. 78 pp.
<b>Urban, Semirural, Rural 35 foot buffer</b>	Urban, Semi-Rural and Rural 35-foot buffer width on saltwater shorelines and lakes with listed species	
<b>Conservancy 50 foot buffer</b>	Conservancy 0 to 100 foot buffer depending on development	
<b>Natural 100 foot buffer</b>	Natural 100 foot buffer width	

### Analysis and Discussion

Protection of Kitsap County's marine and lake shoreline habitats are directly addressed by Title 22 Kitsap County Shoreline Management Program. This program, in combination with the proposed revised buffers, provides an acceptable level of conservation for important shoreline habitat features. The critical areas ordinance is additive to other existing local laws and programs by addressing upland development buffers from marine and lake shorelines. The proposed buffer widths are, according to best available science, satisfactory for the habitat functions of shorelines. The proposed buffers widths ensure no net loss of riparian functions, and address the consideration to anadromous fish.

## C. Geologically Hazardous Areas

### Revised Standard Summary – Consideration Added to Protect Anadromous Fish

<u>Regulatory Standard Citation</u>	<b>1998 Critical Area Standard</b>	<b>Proposed Standard and Best Available Science:</b>
<b>KCC 19.400.405 Geologically Hazardous Areas. Purpose</b>	Control erosion, siltation and water quality to protect marine shellfish.	Control erosion, siltation and water quality to protect <i>anadromous and resident fish</i> and marine shellfish. RCW 36.70A.172 and WAC 365-190-900

### Analysis and Discussion

The existing development standards in the critical areas ordinance for geologically hazardous areas were reviewed and found to generally address the goals and management direction of statutory and regulatory criteria. The geologically hazardous areas chapter was updated in 1999

and adopted by the Kitsap County Board of County Commissioners. The standards were found, however, to lack sufficient consideration to anadromous fish, pursuant to the statutory mandates in the Growth Management Act. Language was added to comply with these requirements.

## D. Frequently Flooded Areas

### Revised Standard Summary – Consideration Added to Protect Anadromous Fish

<b>Regulatory Standard Citation</b>	<b>1998 Critical Area Standard</b>	<b>Proposed Standard and Best Available Science:</b>
<b>KCC 19.500.505 Purpose</b>	No inclusion for anadromous fish.	This section will give special consideration to anadromous fish habitat.

#### Analysis and Discussion

This section of Kitsap County’s critical areas ordinance was updated in 2003 and adopted by the Kitsap County Board of County Commissioners to comply with state and federal flood insurance program requirements. The existing development standards in the critical areas ordinance for frequently flooded hazardous areas were reviewed nonetheless and found to sufficiently address the goals and management direction of relevant statutory and regulatory criteria. They were found, however, to lack sufficient consideration to anadromous fish, pursuant to the statutory mandates in the Growth Management Act. Language was added to comply with these requirements.

## E. Critical Aquifer Recharge Areas – Identification Criteria

Adding water-bearing surface geology to identify and classify critical aquifer recharge areas is proposed.

<b>Regulatory Standard Citation</b>	<b>1998 Critical Area Standard</b>	<b>Proposed Standard and Best Available Science</b>
<b>KCC 19.600 Critical Aquifer Recharge Areas</b>	No inclusion of water-bearing surface geology	Inclusion of water-bearing surficial geology and increased time-of-travel zones to help prevent aquifer contamination

#### Analysis and Discussion

The development standards for critical aquifer recharge areas were reviewed in terms of best available science and the criteria contained in state administrative rules. The proposed revisions to this section include improved classifications and incorporation of water-bearing surface geology as a method to identify and classify critical aquifer recharge areas. These revisions will improve the scientific basis to identify and classify critical aquifer recharge areas. The development standards comply with the goals of protecting this critical area.

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### III. Summary and Conclusions

The Kitsap County revised critical areas ordinance contains updated standards for wetlands, and for fish and wildlife habitat conservation areas (streams, lakes and marine and shorelines). The remaining changes made to the code language are not substantive and provide needed clarifications and improvements from the 1998 critical areas ordinance code language. For the revision and update process, all compiled best available science was reviewed with specific applicability to Kitsap County.

There remains substantial controversy over what constitutes the best or most reliable method to establish buffer size requirements and formulate appropriate buffer standards. Buffer averaging, buffer reductions with concomitant enhancement, and mitigation provide opportunities for better protection of critical area functions and values. Kitsap County's critical areas ordinance maintains and improves the site-specific provisions to establish buffers and therefore clearly provide definitive levels of protection of critical area functions and values.

The previously issued report entitled "A Summary of Best Available Science Review: Kitsap County Critical Areas (December 2004)" and the scientific and technical literature compiled in "Kitsap County Draft Critical Areas Ordinance; Volumes I and II (August 2004)" provide the documentation on best available science and the methods that Kitsap County followed to meet State and County requirements for critical areas protection. Kitsap County established critical area standards that fell within the recommended published ranges of Best Available Science while balancing other County obligations and goals.

Based on the analysis contained in this document, it is recommended that: 1) this report be adopted and the best available science be accepted and approved; and 2) that the standards to protect critical area functions and values contained in the Second Public Draft be adopted as falling within the acceptable range of best available science.