



## COMMUNITY PLANNING & ECONOMIC DEVELOPMENT

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Creating Solutions for Our Future

Ashley Arai, Director

**TO: Thurston County Planning Commission**

**FROM: Claire Swearingen, Associate Planner**

**DATE: April 1, 2026**

**SUBJECT: Wetlands Best Available Science and Concepts**

### Introduction

Wetlands are areas where water often saturates the soil or pools on the ground, whether permanently or seasonally. Wetlands support a variety of unique plants and animals, including threatened and endangered species of plants and animals. State law defines wetlands in WAC 365-190-030 as follows:

*“Wetland’ or ‘wetlands’ means areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate conversion of wetlands, if permitted by the county or city.”*

In addition to providing habitat, wetlands also help maintain water quality and play an important role in the hydrologic cycle. The functions and locations of wetlands often overlap with other critical areas, and areas protected under other County programs like the Habitat Conservation Plan, which protects habitat for federally listed endangered species. The functions of wetlands can be impacted by human activity, and avoiding intense or harmful activity within wetlands and their established buffers helps protect them. Wetland buffer widths are determined based on the characteristics of each wetland area.

### Functions and Values

Wetlands connect dry land and surface water systems, helping to manage water flow and filter out pollutants and sediments. Wetlands help mitigate damage from flooding by absorbing flood water, provide clean water to rivers and streams, and reduce erosion by slowing down water as it moves over the land. These functions occur on an individual site-specific scale, and on a larger watershed scale.

Wetlands perform a variety of functions that positively impact water quality, and the ability to impact water quality is related to the physical setting and features of the wetland. The



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underlying slope and geology, soil type, and plant variety and density all affect how wetlands function.

For example, wetlands on a slope generally store less water than wetlands in a depression.

Wetlands remove nutrients from the water that passes through them. While some nutrients are necessary for healthy ecosystems, too much organic material, especially from sources like manmade fertilizer, can cause pollution and eutrophication which negatively impact fish habitat. Wetlands also act as sinks for heavy metals and other pollutants, including pharmaceuticals and personal care products. Wetlands perform these functions most effectively when water has enough time and space to move through them slowly and they can support the vegetation that helps perform nutrient-filtering.

Wetlands also help surface water move across the landscape in a way that maintains healthy water quantities, and mitigates flooding and erosion. Because water moves slowly through wetlands, they help with groundwater recharge. Wetlands also help release floodwaters gradually and slowly, rather than all at once. When floodwaters release over time, they are less damaging and intense, and cause less erosion. Impervious surfaces in wetlands disrupt their ability to perform these hydrologic functions, and can worsen flooding and decrease water quantity in streams and aquifers. Disruption to the hydrology in wetlands also impacts the plants that can survive in them.

Wetlands provide habitat for many kinds of animals (mammals, birds, fish, reptiles, and amphibians), which rely on them at various life stages. The location, size, vegetation, seasonal changes, and connectivity of a wetland all impact how well it functions as a habitat for a given species. When wetlands areas, and the landscapes connected to them, are developed or urbanized, the quality of habitat function can be compromised, negatively affecting the number of animals that can survive in an ecosystem.

### Climate Change

Wetlands are sensitive to changes in the ecosystem, and at the same time, are very effective at helping guard against the impacts of climate change. Coastal wetlands help protect shorelines from flooding and erosion associated with sea level rise, and wetlands reduce the intensity of flood events and help disperse floodwaters. Flooding is a particular concern as climate change may increase the frequency and intensity of severe precipitation events and storms in the region. As surface water temperatures rise due to climate change and pollution and eutrophication threaten the health of aquatic ecosystems, wetlands help to provide streams, rivers, and aquifers with cool, clean water. Wetlands provide refuge for animals in hot, dry conditions, which are also intensified by climate change.

The plants, trees, and soils found in wetlands also act as carbon sinks, helping to clean the air and reduce greenhouse gas effects. The ability of wetlands to help protect against climate change impacts can be affected by disturbance to the landscape. Physical constructions can prevent wetlands from migrating in response to ecological and climatological changes, and can reduce a wetland's ability to support healthy hydrology. Pollution, chemical, and pH changes

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can also impact a wetland's ability to store carbon and remove pollutants from water. If wetlands are destroyed by human activity, animals will lose important refuge and habitat, especially for the dry months of the year.

**Protection Strategies**

Wetlands are generally protected by implementing buffers, or areas around a wetland where development is restricted. Wetland buffers help avoid impacts to wetlands by protecting vegetation, reducing harmful human activity in sensitive areas, and avoiding pollution and erosion. When impacts to a wetland can't be avoided, mitigation sequencing must be followed. The *Wetland Guidance for Critical Areas Ordinance (CAO) Updates (2022)* Washington Department of Ecology (Ecology) highlights three main factors for determining an appropriate buffer:

- *“The wetland type and the functions needing protection*
- *The types of adjacent land use and their expected impacts*
- *The characteristics of the buffer area (slope, soils, vegetation)”*

This guidance document from Ecology lays out three BAS-based options for calculating wetland buffers in critical areas ordinances. Each option provides a different balance of simplicity and site-specific flexibility. The appendix from Ecology elaborating on the buffer calculation options will be included with this memo.

- Option 1 is the most specific and most flexible, but also the most complex to implement.
- Option 2 balances simplicity with flexibility and specificity.
- Option 3 is the least flexible, but the simplest.

Buffer option 1 is the most site-specific and flexible, and is Ecology's preferred recommendation. Option 1 is the most complex option to implement and requires the most staff discretion. This option primarily considers the wetland category and the functions being protected. Wetland category, functions, values, and characteristics are determined using Ecology's wetland rating system. Habitat scores are particularly impactful on the buffer calculation under Option 1 because BAS has identified that habitat functions require greater protection. Option 1 also includes options to reduce buffer widths based on impact minimization measures and habitat corridor protection, granting more project-specific flexibility. Option 1 does assume a moderate to high impact from human activity, and doesn't focus on use-specific impacts. Additional standards to accommodate low-impact uses may be developed.

Buffer option 2 is based on the wetland category as determined using the wetland rating system and the intensity of impacts from the proposed use. Option 2 does not include provisions for buffer averaging or reduction based on the implementation of additional protection measures. Because it considers the specific use, there is still some flexibility and complexity involved in implementing Option 2, but not as much as Option 1.

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Buffer option 3 is the simplest and least flexible option. It only considers the wetland category as determined in the wetland rating system. Option 3 assumes high impacts from land use, and a high value habitat score for wetlands. Because it is the least flexible, the buffers in this option need to be able to protect the most sensitive wetlands from the most intense land uses. No distinction between levels of impact is made, and there is no consideration for impact mitigation. Option 3 is generally recommended for jurisdictions with limited staff capacity or very few wetlands.

Once a buffer is established, Ecology recommends the use of signs and fencing to ensure delineated wetlands remain protected in the future. Temporary sediment control fencing should be used during construction near wetlands, and once construction is complete, permanent, wildlife-friendly (usually wooded split-rail) fencing should be constructed around the wetland buffer to limit human and pet access, and ensure property visitors and future owners do not inadvertently impact the wetland. Ecology recommends that jurisdictions create effective, accessible signage that is educational and easy to understand, particularly for high-traffic or public areas.

## Discussion Points

- Which buffer calculation option should the CAO update implement?
- Should we consider any additional factors or priorities when establishing wetland buffers?
- Should changes be made to current signage and fencing requirements?
- Are there any other changes to the CAO wetlands chapter the Planning Commission wants to see in the update?

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