Community Development Department

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MEMORANDUM

To:	Planning Commission
From:	Emily Arteche, Community Development Director
Date:	October 21, 2024
Subject:	Critical Areas Update and Best Available Science, BAS

Introduction:

The Washington Growth Management Act (GMA) requires cities to update their critical area ordinance or before December 31, 2024. Counties and cities have an additional 1-year extension, beyond the periodic update deadline, to complete the review and update of the Critical Areas Ordinance (CAO Update) pursuant to RCW 36.70A.130(7)(b). All critical areas must be designated, and functions and values protected using the best available scientific, (BAS) information.

The City's updated regulations should consider increased conservation and protection measures that may be necessary to preserve or enhance anadromous fisheries which are intended to preserve the natural environment, maintain fish and wildlife habitat, and protect drinking water.

In addition to updated critical area regulations the City will also consider updates flood hazard regulations in SMC Chapter 15.12.

Background:

The City of Snoqualmie critical area codes are regulated by SMC 19.12 and last updated by Ordinance 1176 in 2016. The Planning Commission recently completed draft Environmental Goals and Policies in March 2024, which included recommended policies for the use of Best Available Science; (BAS), the protection of anadromous fisheries, the restoration and maintenance of riparian management zones and their buffers, and for the protection of the City's environmental critical areas. The Department of Commerce provided a Critical Area Handbook; a complete guidance document for updating critical area regulations. This 2023 publication, addresses the following: Wetlands rating system, Voluntary Stewardship Program, agricultural activities, FEMA Biological Opinion, availability of LiDAR, monitoring and adaptive management, a salmon recovery roadmap, and other issues.

Washington State Department of Fish and Wildlife, (WDFW) and the Washington Department of Ecology (Ecology) released updated guidance based on BAS for management of riparian zones along streams and for wetland mitigation. BAS information was also provided by the Snoqualmie Tribe including information on Indigenous Knowledge/Traditional Ecological Knowledge (IK).

Analysis:

BAS is available in multiple environmental areas including riparian ecosystem, wetlands, critical aquifer recharge areas and others. BAS review for riparian ecosystem is best synthesized in Department of Ecology Volume 1, *Science Synthesis and Management Implications* (Quinn et al. 2020) which describes how riparian ecosystems and watersheds affect ecological functions and aquatic habitats and Volume 2, *Management Recommendations* (Rentz et al. 2020) which provides guidance for cities to protect and restore functioning riparian ecosystems. Healthy functioning riparian ecosystems are fundamental for clean water, productive salmon populations, and climate resilient watersheds.

According to Quinn et al. (2020) and Rentz et al. (2020), riparian ecosystems are defined as the area that provides full ecological function for bank stability, shade, pollution removal, detrital inputs, recruitment of large woody debris, and wildlife movement. The current term or approach to managing these habitats is to identify them as Riparian Management Zones (RMZ) rather than buffers, as is commonly used in most critical area ordinances. The preferred term is RMZ because buffer implies undeveloped natural areas that can contribute habitat to riparian functions, whereas RMZ is meant to capture the area capable of providing full functions and is managed to that end.

One of the goals of managing RMZs is the Desired Future Condition (DFC), in which habitat composition and structure is old, structurally complex conifer-dominated forest with large diameter trees, numerous snags and logs, and multi-strata canopies that promote plant diversity. This is used as the benchmark for the DFC in riparian areas. Riparian restoration is also expected to counteract climate change and protect juvenile salmon according to climate change models (Fullerton et al. 2022; Yan et al. 2021). A significant component of implementing the RMZ management concept is to use the site-potential tree height (SPTH) for determining RMZ widths on streams.

Tree height refers to the average height of the tallest dominant tree (200 years or older) in which key riparian ecosystem functions are effectively captured. The effectiveness of providing riparian functions decreases as the distance from a stream increases. Designating RMZs based on at least SPTH200 is therefore a scientifically supported approach to protecting and managing fully functioning riparian ecosystems, including salmon.

Rentz et al. (2020) describes procedures for delineating RMZs in city forested ecosystems. The inner edge of the RMZ should be based on the active channel as determined by the location of the stream ordinary high-water mark (OHWM) following the Department of Ecology's OHWM delineation manual (Anderson et al. 2016). The outer edge should be the recommended minimum based on SPTH200, (Site Potential Tree Height; SPTH) vegetation composition, and pollution removal.

The minimum RMZ width for pollution removal is 100 feet, which has been documented to remove 80-95% or more of common stream contaminants (e.g., nitrogen, phosphorous, sediment, and most pesticides). The mean SPTH200 in western Washington ranges from 100 to 240 feet and is correlated with soil types that support different climax tree species. The greater of the two (e.g., one full SPTH200 or the 100-foot pollution removal overlay) should be utilized to determine the regulated RMZ to protect all key riparian functions. WDFW created the SPTH mapping tool https://arcg.is/1ueq0a which may be used to help inform how BAS can be applied to RMZ's in the City. It provides 200-year site-potential tree height information at the parcel level for those areas that are proximate to waterbodies.

In addition, Quinn et al. (2020) and Rentz et al. (2020) do not distinguish between non-fish bearing and fish-bearing streams. No evidence or scientific literature has been identified that full riparian ecosystem functions along non-fish bearing streams are less important to aquatic ecosystems than full riparian ecosystem functions along fish-bearing streams, due to their connectivity.

BAS review for wetlands is best synthesized, *Wetland Mitigation in Washington State, Part 1:, Agency Policies and Guidance (Version 2)* (Ecology et al. 2021) which provides updated guidance on compensatory mitigation specifically for or selecting, designing, and implementing compensatory mitigation based on BAS, to ensure that environmental policies and regulatory requirements are achieved.

A draft ordinance and draft code amendments using BAS will be prepared for Planning Commission review at a subsequent meeting, along with a public hearing. Updates to Snoqualmie Municipal Code will also include updates to the City's Flood Hazard Regulations, SMC 15.12. Statutory requirements for the updates are defined in RCW 36.70A.030(5) and through Federal Emergency Management Agency (FEMA).

Next Steps

The City's consulting Senior Scientist, Jeff Gray Otak will present how Best Available Science could be applied to Snoqualmie critical area ordinance. After the presentation time will be allocated for questions and answers.