

Cascade Mountains Ecological Region Overview

What are important/unique features and functions within this Ecological Region?

- The Newaukum and Skookumchuck rivers support the majority of the spring Chinook salmon population in the Chehalis Basin. Improving conditions for this population, especially enhancing summer holding habitat, is a key consideration for restoration in these watersheds.
- Diverse channel gradient, confinement, and size is a natural condition of the landscape that affects the potential for channel complexity and water storage.
- Deep-seated landslides—a source of episodic sediment to downstream reaches—have been documented in the upper watershed.
- Hanaford Creek has extensive floodplain wetlands, though channelization and industrial land use impacts are also prominent.
- Nonnative fish species (bass, sunfish) are observed in the mainstem river that connects geographic spatial units in this Ecological Region, in lower reaches of the Newaukum forks, and in the mainstem Newaukum River below the forks. Presence in the Skookumchuck River is unknown.
- There are significant hatchery influences on wild fish genetics.
- This Ecological Region supports multiple salmon species and Pacific lamprey.

What is working? What is broken?

- There is a lack of wood, channel incision, poor riparian conditions, and disconnected floodplains.
- Lower reaches of the Newaukum and Skookumchuck rivers have large potential for improved stream temperatures. There is a strong upstream-downstream temperature gradient, and downstream extents are undoubtedly influenced by the land use and lack of riparian buffers.
- Many landowners farm or mow grasses to the channel edge, which has significant effects on shading (temperature), food inputs (terrestrial insects), and other stream characteristics. WDFW snorkel and PIT-tag studies showed that juvenile coho salmon and steelhead are present in the lower South Fork Newaukum River in May and June, but some combination of mortality and upstream migration in July results in limited use for summer rearing habitat.
- There are invasive exotic plant species including reed canarygrass.
- Substantial channel length lacks stable gravel. The lower extents of the Newaukum and Skookumchuck sub-basins are heavily silted. Siltation (affected by the lack of riparian buffer and cattle access to streams) reduces survival of incubating eggs and affects the availability of benthic food resources.
- Spring Chinook salmon reach summer holding areas by late June and remain there throughout the summer until spawning begins in September. During this holding period, they are highly vulnerable to illegal harvest, which is known to occur within this Ecological Region.
- Skookumchuck Dam disconnected the upper and lower watershed and disrupted physical and biotic processes.
- Salzer, China, Coal, and Dillenbaugh creeks all have visible urban creek impacts.

What are your thoughts about some of the protection and restoration strategies and actions we feel are important for this Ecological Region?

- Protect and restore this Ecological Region at a high intensity because of its critical function as a spring Chinook salmon core area, the impacted habitat condition, and its high vulnerability to increasing development.
- Evaluate removal of Skookumchuck Dam or operational changes to benefit aquatic species.
- Increase community involvement in protecting spring Chinook salmon in summer holding areas.
- Increase enforcement against poaching.
- Strategically restore wet marsh habitats, such as in Stearns Creek and Hanaford Creek.
- Restore the lower reaches of the Newaukum and Skookumchuck rivers, specifically riparian buffers and instream wood for channel complexity and floodplain connectivity, to improve summer rearing and holding habitat for salmonids.
- The Skookumchuck and Newaukum rivers have significant hatchery activities; any restoration actions will have to consider these activities. Hatchery steelhead programs likely could also be improved to minimize impacts on wild populations.



The upper South Fork Newaukum River, including the Pigeon Springs area, is a key cold-water refuge for spring Chinook salmon and other indicator species that should be protected.



Skookumchuck Dam and its reservoir cause disconnection of the upper and lower watershed and of physical and biotic processes, though they also provide cold-water supplementation.



Stream conditions lacking wood and mature riparian areas are common throughout the Cascade Mountain Ecological Region.



Infrastructure in the floodplain has disrupted natural processes, as illustrated by this riprap embankment protecting a bridge crossing.



Stearns Creek is a priority for lowland marsh and prairie restoration. Like other creeks in the Cascade Mountain Ecological Region, much of Stearns Creek is restricted by fish passage barriers, channelization, poor riparian conditions, loss of floodplain habitats, and high water temperatures.