CHEHALIS LEAD ENTITY PRESENTS

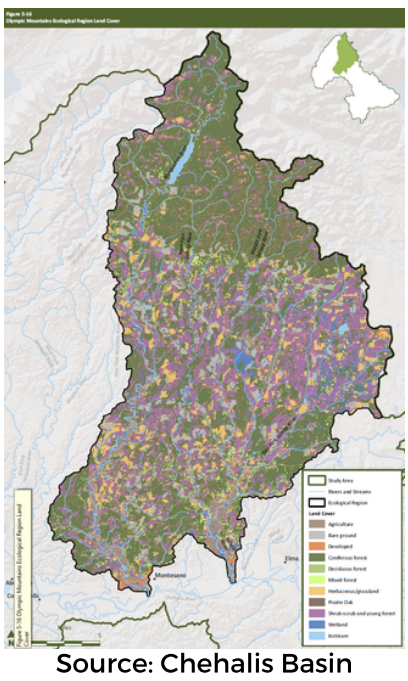
OLYMPIC MOUNTAINS ECOLOGICAL REGION

AN AQUATIC SPECIES RESTORATION PLAN TRANSLATION

CLICK ON THE PICTURES AND LINKS FOR MORE INFORMATION

STATISTICS FOR THIS REGION

- This ecological region encompasses 496 square miles and represents approximately 18% of the overall Chehalis Basin
- The highest point in this region is Capitol Peak at 2,659 feet in the Black Hills
- Average annual precipitation is 50 to 75 inches, although it can reach up to 200 inches in the Porter, Mox Chehalis, and Cloquallum Creek drainages
- 64% of this ecological region lies within Grays Harbor County, 35% within Mason County, and less than 1% in Jefferson County



Source: Chehalis Basin Strategy ASRP Phase 1, pg 162

CURRENT CONDITIONS

- Land cover is 48% coniferous forest, 25% scrub-shrub, 8% grassland, 4% developed, 4% wetland, 4% bare ground, and small percentages of other cover
- Water quality is impaired primarily for temperature, low dissolved oxygen, and bacteria (Ecology 2018)
- The Satsop River sub-basin has lost 20% of its historical marsh habitat and the Wynoochee River sub-basin has lost about 50%
- The Satsop River sub-basin has lost about 55% of its historical beaver pond habitat, and the Wynoochee River sub-basin has lost about 80%
- There are two fish hatcheries the Satsop Springs and Bingham Creek Hatchery

Olympic Mountains Current Snapshot

Condition of Watershed Processes:
Hydrology – moderately impaired
Floodplain connectivity – impaired
Riparian condition – moderately impaired
Water quality – moderately impaired

Restoration Potential: High

Protection Potential: High

Geographic Spatial Units: East Fork Satsop River, Middle Fork Satsop River, West Fork Satsop River, Lower Satsop River, Lower Wynoochee River, and Middle Wynoochee River

Source: Chehalis Basin Strategy ASRP Phase 1, pg 150

IMPORTANCE TO WILDLIFE

Largescale Sucker, Source: Roughfish.com, fishingwithpole

- The salmonid species present in this ecological region include fall-run Chinook salmon, chum salmon, coho salmon, and steelhead
- The bird indicator species present include common goldeneye, great blue heron, and wood duck
- Non-salmon indicator species include Western toad, coastal tailed frog, Van Dyke's salamander, northern red-legged frog, North American beaver, Olympic mudminnow, largescale sucker, mountain whitefish, Pacific lamprey, riffle and reticulate sculpin, and speckled dace

LIMITING FACTORS

Bohemian knotweed, Source: Washington State Noxious Weed Control Board

Salmon and other indicator species struggle with:

- High water temperatures (primarily lower rivers)
- Reduced quantity and quality of instream habitats
- Steep slopes/landslide risk
- Sediment load (fine sediments)
- Fish passage barriers
- Flow (primarily low flows)
- Low habitat diversity (lack of side channels, large wood, floodplain connectivity, and beaver ponds)
- Channel instability (bed scour and sediment transport)
- Predation (non-native fish species)
- Invasive plant species, including reed canarygrass and knotweed

CREATED BY GRAYS HARBOR STREAM TEAM
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OLYMPIC MOUNTAINS ECOLOGICAL REGION

ECOSYSTEM PROTECTIONS

- Protect extensive wetland habitats and other aquifer recharge areas that support cold-water inputs
- Protect estuary-adjacent areas at confluences with the Chehalis River as sea level rise will cause estuary zones to shift upstream
- Protect headwater lakes in the Wynoochee and West Fork Satsop River sub-basins for unique amphibian assemblages and species diversity
- Protect seasonal streams that provide substantial chum and coho salmon habitat

Dry Run Creek, a tributary to the East Fork Satsop River, provides essential salmon habitat in the Fall and Winter, Source: Alexa Brown

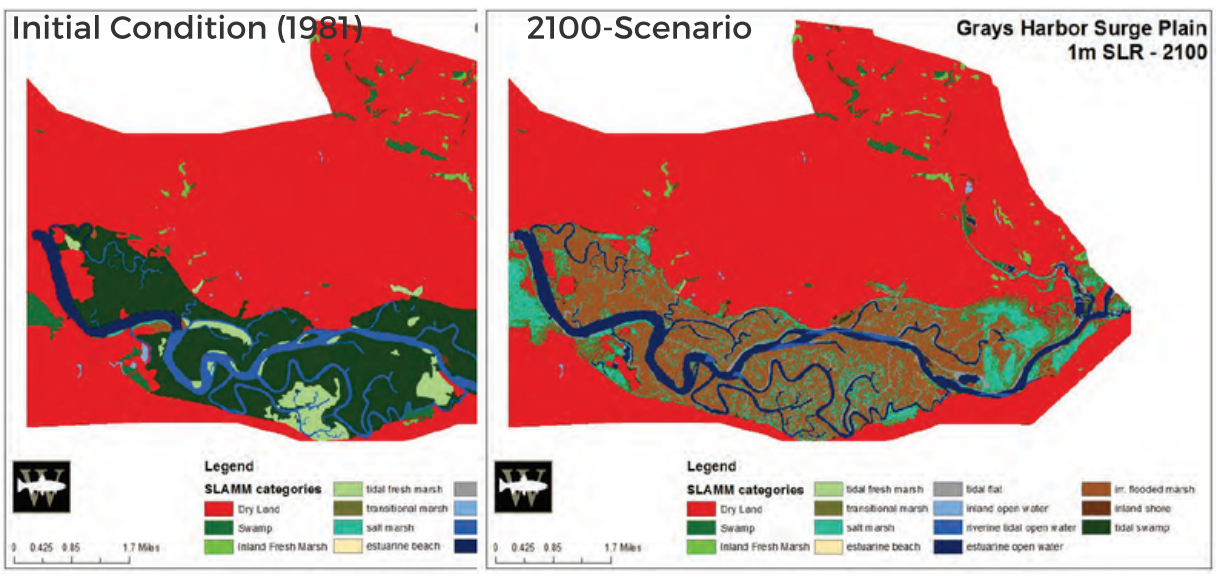
RESTORATION REQUIRED

- Restore riparian areas in the lower rivers to maintain cooler water temperatures and slow unnaturally high channel movement
- Place extensive stable instream wood to improve channel stability, trap alluvium (finer gravel), increase variations in bed textures, increase the number of pools and cover, raise streambeds, and increase floodplain and wetland connectivity and promote groundwater recharge
- Address fish passage barriers, particularly those associated with fish hatcheries and Fish collection facilities
- Reconnect floodplains to restore and increase off-channel habitats that are particularly important for juvenile coho and Chinook salmon
- Target estuary-adjacent areas at confluences with the Chehalis River for restoration as sea level rise will cause estuary zones to shift upstream
- Implement and monitor the early action restoration projects on the Wynoochee and East Fork Satsop Rivers to evaluate the effectiveness of restoration techniques and identify opportunities for additional restoration projects

A fish passage barrier culvert, Source: Alexa Brown

RISING SEA LEVEL IMPACTS ON THE COMMUNITY AND ESTUARY?

- "Relative sea level rise (RSLR) is the long-term (over multiple years or decades) average sea surface height relative to a fixed point on land. Relative sea level changes reflect both changes in absolute sea level and vertical movement of the land surface (i.e., subsidence or uplift). In Washington state, vertical land movement can impact near- and long-term changes in observed and projected relative sea level rise." (2)



97% decline in forested swamp land in the Chehalis Surge Plain, Source: Wild Fish Conservance

- "Rising seas place coastal communities and ecosystems at risk. A 183 cm (or 6ft.) rise in sea levels could result in the flooding of 9,300 homes in Grays Harbor and 1,700 homes in Pacific County even without the additional factors of a high tide or storm event. The resulting damage to homes and other infrastructure from this level of flooding would be over a billion dollars over the course of the next century." (1)
- "Rising seas will also cause declines in coastal habitats like eelgrass beds that depend on a narrow optimal depth range and salt marshes that need room to migrate inland. A decline in these protective habitats may further exacerbate the impacts of erosion and inundation." (1)

Source: (1) Coastal Resilience - South West Washington, (2) Washington Coastal Hazards Resilience Network - Sea Level Rise: Research and Tools

CHECK OUT ADDITIONAL RESOURCES

- Chehalis Lead Entity: http://www.chehalisleadentity.org/
- Chehalis Basin Partnership: https://chehalisbasinpartnership.org/
- Chehalis Basin Strategy: https://chehalisbasinstrategy.com/asrp/

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