CHEHALIS LEAD ENTITY PRESENTS

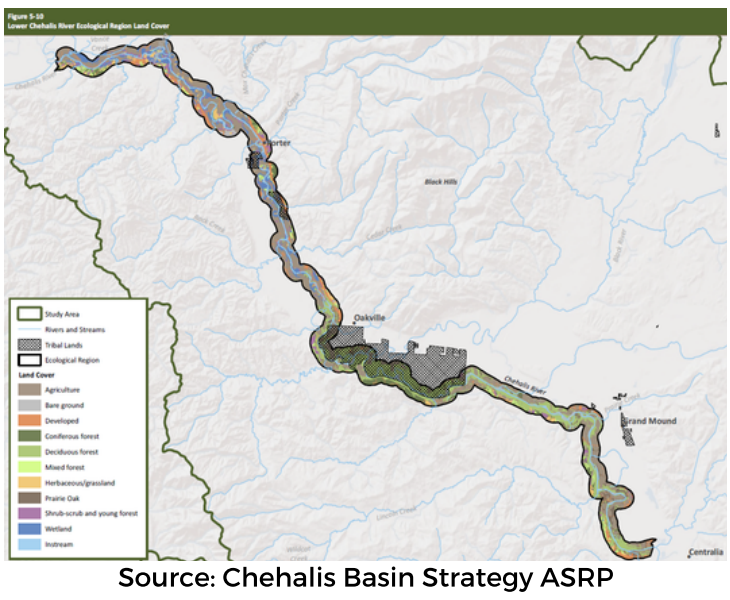
LOWER CHEHALIS RIVER ECOLOGICAL REGION

AN AQUATIC SPECIES RESTORATION PLAN TRANSLATION

CLICK ON THE PICTURES AND LINKS FOR MORE INFORMATION

STATISTICS FOR THIS REGION

- This ecological region encompasses 28 square miles and represents approximately 1% of the overall Chehalis Basin
- The entire ecological region is a low-elevation alluvial valley ranging from 180 feet to 80 feet in elevation
- Average annual precipitation is 50 to 75 inches above Elma and up to 100 inches below Elma.
- 66% of this ecological region lies within Grays Harbor County, and 20% in Thurston County, and 13% in Lewis County



Source: Chehalis Basin Strategy ASRP Phase 1, pg 127

CURRENT CONDITIONS

- Land cover is 34% agriculture, 24% deciduous forest, 8% wetland, 7% developed, 5% prairie oak, 5% shrub, 4% coniferous forest, 3% grassland, and small percentages of other cover
- Water quality is impaired primarily for temperature, low dissolved oxygen, bacteria, although the chemical dioxin and invasive species are also listed as impairments (Ecology 2018)
- Numerous remnant oxbows that are frequently connected to the main channel exist in this region
- Brazilian elodea is an invasive aquatic plant that continues to pose problems
- Summer water temperatures are modeled to increase 0.9 - 2.7 degrees Fahrenheit by 2080 (Beechie 2018)

Lower Chehalis River Current Snapshot

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

Restoration Potential: High

Protection Potential: Moderate

Geographic Spatial Units: Chehalis River Mainstem Reaches: Skookumchuck River, Skookumchuck River to Black River, Black River to Porter, and Porter to Satsop

Source: Chehalis Basin Strategy ASRP Phase 1, pg 126

IMPORTANCE TO WILDLIFE

- All upstream stocks of anadromous salmonid species pass through this ecological region. These stocks include fall- and spring-run Chinook salmon, coho salmon, chum salmon, and steelhead.
- Non-salmon indicator species include Western toad, northern red-legged frog, North American beaver, Olympic mudminnow, largescale sucker, mountain whitefish, Pacific lamprey, riffle and reticulate sculpin, speckled dace, and Western ridged mussel
- The bird indicator species present include great blue heron, Barrow's goldeneye, common goldeneye, and wood duck

Pacific Lamprey, Source: Center for Biological Diversity

LIMITING FACTORS

Salmon and other indicator species struggle with:

- High water temperatures
- Low flows
- Fish passage barriers
- Predation (non-native fish species and bullfrogs)
- Channel width and length
- Invasive plant species
- Sediment conditions (fine sediment accumulations)
- Low habitat diversity (lack of side channels and large wood, floodplain connectivity, spawning gravels, and marshes)
- Reduced quantity and quality of instream habitats

Invasive plant, Eurasian milfoil, Source: Washington State Noxious Weed Control Board

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ECOSYSTEM PROTECTIONS

Existing development and land use limits the protection actions that are more feasible in other ecological regions. The following are recommended for those areas that are less constrained by current uses

- Protect existing off-channel wetlands and wet prairies
- Protect existing riparian forest
- Protect cool-water inputs at tributary confluences

Hoxit Pond is is an example of off-channel habitat, Source: Chehalis Basin ASRP Phase 1. pg 131

RESTORATION REQUIRED

- Focus on restoration of habitat, such as improving connectivity of oxbows, side-channels, and backwaters
- Protect and restore riparian forest
- Restoration of floodplain wetlands that dry out in the summer to minimize habitat for non-native invasive fish species and bullfrog
- Install large wood to promote pool formation and stability of coarse gravel

An example a backwater that provides excellent habitat for numerous species, Source: Chehalis basin ASRP Phase 1. pg 132

WHY IS A HEALTHY RIPARIAN FOREST SO IMPORTANT?

The riparian zone is the area of land adjacent to a waterway and is typically defined by it's soil, vegetation, and presence of water.

- **Baseflow**

Base flow--that portion of water flowing in a stream that is due to ground water seepage into the channel--is further maintained by riparian vegetation that shades the water, keeping it cooler and slowing evaporation.

- **Nutrient Cycling**

Nitrogen, phosphorus, calcium, magnesium, and potassium, are taken up by shallow-rooted riparian vegetation and dissolved nutrients moving with the ground water may be taken up by deeper-rooted riparian vegetation. These nutrients taken up by riparian vegetation may be reintroduced into the water column when the vegetation dies and decomposes.

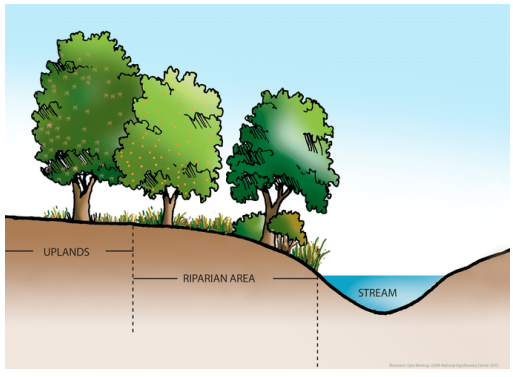

Diagram of the riparian area , Source: Nature Works Park

- **Energy Transfer**

Dead leaves falling from trees in the riparian forest can be transported downstream and as they decompose those nutrients are made available to in-stream animal communities along the way, supporting a diversity of food webs.

Example of a forested riparian zone on Metcalf Slough, Source: Google Maps

- **Reduction in Downstream Flooding**

Riparian area vegetation is a key factor in reducing downstream flooding. As floodwater flows through a vegetated area, the plants resist the flow and dissipate the energy, increasing the time available for water to infiltrate into the soil and be stored for use by plants.

- **Water Quality**

Riparian vegetation slows surface runoff from heavy rains, this allows the water to be absorbed into the soil and taken up by the vegetation. This filters contaminated (excess nutrients and pollutants) water before it flows straight into the river.

- **Wildlife**

Rooting herbaceous and woody vegetation helps shape aquatic habitat and stabilizes streambanks, retards erosion, and, in places, creates overhanging banks that serve as habitat for fish. Trapping sediment before it reaches the stream helps maintain a cleaner or more sediment-free stream bottom where aquatic organisms live. These organisms are important sources of food for fish and birds.

A riparian zone that needs restoration and re-planting, Source: http://regionalfisheriescoalition.org/

Source: https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/?cid=nrcs143_014199

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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