

### 6.3.3 Strategies and Actions for the Lakes Stratum

#### Lakes Stratum for Oregon Coast Coho Salmon

**Independent Populations:** Siltcoos, Tahkenitch, and Tenmile

**Dependent Populations:** Sutton (Mercer Lake)

**Current Status:** High level of certainty that the Lakes Stratum and the Siltcoos, Tahkenitch, and Tenmile coho salmon populations are sustainable.

**Primary Limiting Factor:** Non-indigenous fish species

**Secondary Limiting Factors:** Stream complexity (loss of rearing habitat) and water quality

#### Recovery Strategy for the Lakes Stratum

NMFS recognizes that the lakes stratum has consistently been the most sustainable within the ESU. The primary strategy to ensure the continued health of the populations in the Lakes Stratum is to reduce summer predation rates by non-indigenous fish species. Non-indigenous fish predation of juvenile coho salmon occurs primarily during summer rearing in the lake populations reducing survival rates to the smolt stage. Consequently, the summer lake rearing life stage of Oregon Coast coho salmon in the Lakes populations has been eliminated. However, the lakes are continuing to function as important habitat for Oregon Coast coho salmon smolts during the winter months as non-indigenous fish are inactive during cold water temperatures.

The secondary recovery strategy for the populations in the Lakes Stratum is to protect current high quality summer and winter rearing habitat in the tributaries of the lakes, and strategically restore the quality of adjacent habitat. It identifies priorities for restoration of ecological processes that will improve water quantity, water quality, connectivity of stream adjacent wetlands, and instream habitat complexity. It improves water temperature, and channel complexity by improving protection from adverse management practices, such as timber management, agricultural, and beaver control.

Additionally, the lakes are showing very poor water quality from heavy nutrient loading, high water temperatures, and sediment loading, especially in the arms of the lake. The actions can address these factors by restoring ecological processes in the headwaters of the lakes mentioned above, improving and maintaining streamflow, and developing improved environmental practices of lake front owners.

The following actions illustrate the types of actions that could be implemented to improve Lake Stratum coho salmon populations and habitats. Other approaches could also be implemented to achieve the desired results. The actions will be further refined, sequenced, and scheduled in coordination with other agencies and local stakeholders.

#### Key Strategies and Potential Actions for the Lakes Stratum

- Coordinate with the Oregon Department of Fish and Wildlife to reduce predation rates by reducing populations of non-indigenous fish in Siltcoos, Tahkenitch, Tenmile, and

Mercer Lakes. Exploitation rates of non-indigenous fish will need to be increased to such a level that summer rearing of juvenile Oregon Coast coho salmon is restored.

- Implement and, as necessary, revise local regulatory mechanisms, voluntary and incentivized efforts to protect and restore watershed processes that promote winter and summer rearing habitats (e.g., wood recruitment, habitat complexity, floodplain connectivity). Examples of regulatory programs include the Oregon Agricultural Water Quality Management Act, Oregon Forest Practices Act, FEMA National Floodplain Insurance Program, and state beaver statutes and administrative rules. Develop and approve scientifically credible, thorough Strategic Action Plans for the Siltcoos, Tahkenitch, and Tenmile Lake populations, consistent with ESU-level common framework. (See actions identified in Section 6.2.1.2, under Listing Factor A1, habitat actions at the ESU level.)
- Implement the Strategic Action Plans to protect and restore ecosystem processes and functions of coho salmon habitats. Actions identified in SAPs will likely include activities such as restoring the summer lake rearing life stage of the Oregon Coast coho salmon life history, habitat capacity for rearing juvenile coho salmon by increasing large wood loading, beaver pond habitat, and wetland/ off-channel connectivity; and by increasing native riparian vegetation to shade stream reaches during warm summer months and provide long-term wood recruitment.
- Collaborate with governmental, non-governmental, and other organizations to identify and implement actions that will protect and restore watershed processes, provide stream complexity for juvenile rearing, increase shading to reduce stream temperatures, and connect wetland and off-channel habitats.
- Coordinate with ODEQ, ODF, ODA, SWCDs, Lake Front Owners Association, Watershed Councils, and others to identify and implement actions that will decrease sedimentation and nutrient loading into Siltcoos and Tenmile Lake. Sedimentation of lakes has been caused by poor road management and road density, increased landslides, and poor riparian areas lacking adequate vegetative no-touch buffers.
- Provide and support public outreach, education, and volunteer actions to protect and restore ecosystem process and functions, encourage beaver conservation and beaver dam analogues, and improve juvenile coho salmon rearing habitats.
- As resources allow, develop and approve scientifically credible, thorough Strategic Action Plans for the Mercer Lake Population, consistent with ESU-level common framework.
- Improve wood recruitment to support long-term increases in habitat complexity by improving timber harvest activities and agricultural practices.
- Increase habitat complexity by increasing large wood, boulders, or other instream structure and conducting riparian planting projects.
- Improve floodplain connectivity by increasing beaver pond abundance and reducing or limiting development of channel-confining structures, including roads and infrastructure.

*Estuaries*

- Update estuary assessments of tidal habitats important for coho salmon rearing and development to assess status and guide future development and implementation of restoration activities.

**Priority Watershed Actions***Non-indigenous Fish Species*

1. Organize an interagency team to evaluate and identify non-indigenous fish removal strategies:
  - a. Evaluate the use of all potential techniques for complete removal.
  - b. Evaluate long-term electrofishing methods.
  - c. Consider a bounty program to remove warm-water fish in the lake, commercial fisheries, volunteer tournaments with prizes, eliminating bag limits, or a combination of all. (Note: Implementing regulations to eliminate bag limits by themselves are not effective at removing enough non-indigenous fish to provide any meaningful summer rearing potential for juvenile Oregon Coast coho salmon in the lakes.)
2. Monitor non-indigenous fish species in the lake for ongoing predation and competition with Oregon Coast coho salmon.
  - a. Assess summer versus winter predation and survival rates of Oregon Coast coho salmon juveniles.
  - b. Assess the role of over-water structures in the predator-prey interaction.

*State and Private Timber Lands*

1. Increase protection of riparian forests with no-touch buffer widths.
2. Increase placement of large wood into stream channels.
3. Eliminate the construction of permanent new roads, unless constructed to relocate another permanent road that has greater impacts on Oregon Coast coho salmon habitat.
4. Decommission roads where practicable with emphasis on roads adjacent to riparian areas.
5. Identify landslide prone areas and avoid road building or heavy timber harvest in these risk avoidance areas.
6. Develop conservation plans for state and private forest lands.

*Rural (including residential and agricultural) Lands*

1. Plant, restore and protect riparian areas adjacent to stream channels using voluntary actions with regulatory backstops in place. Provide minimum no-touch buffers on streams.
2. Improve lateral connectivity from the stream channels to adjacent wetlands.
3. Conserve water usage to allow more instream water.

*Private Lake Front Lands*

1. Improve septic drainage areas such to eliminate chemical contamination with the Lakes.

2. Evaluate the opportunity to install community sewage treatment systems.
3. Plant, restore and protect riparian areas adjacent to the lake.
4. Avoid fertilization or other chemicals from reaching the lake.
5. Do not remove downed wood from the lake.
6. Implement ODFW dock guidelines for all dock repairs, replacements, and new construction.

## Secondary Watershed Actions

### *Beaver Management*

1. Include strategies to increase beaver, beaver ponds, and beaver dam analogues in strategic action plans.
2. Seek agreements with state and federal agencies and others to pursue non-lethal means of beaver removal (see Section 6.2.1.2, A1-1.2 above). If necessary, revise regulatory mechanisms to prohibit killing beaver within the range of Oregon Coast coho salmon unless property or infrastructure damage is occurring and only when all other options are exhausted.
3. Create a program to educate landowners, managers, policymakers, and the public in general about the benefits of beaver ponds to the health of our ecosystems, with a focus on benefits to salmonids. Include opportunities to conserve and manage beaver through cost effective, non-lethal management practices (Pollock et al. 2015).
4. Implement the Beaver Restoration Guidebook (Pollock et al. 2015) to incorporate beaver, beaver ponds, and beaver dam analogues into restoration actions. Develop a pilot demonstration effort, considering the lands on the Elliott State Forest within the Tenmile Lake populations first, and implement this integrated restoration strategy.

### *Federal Lands*

- Protect the estuary from any recreational use encroachment.
- Manage recreational off-road vehicle for no entry into riparian areas.
- Seek fish passage into Clear Lake for Oregon Coast coho salmon (partnering with ODOT and the City of Reedsport).

**Table 6-6.** Habitat component specific actions to restore high quality coho salmon habitat in the Lakes Stratum.

Action ID	Habitat component	Strategy	Action	Area	Priority
LS-1	Lakes	Remove non-indigenous species	Evaluate all potential techniques to remove desired species	Tenmile, Siltcoos, Tahkenitch, and Mercer Lakes	1
LS-2	Lakes	Reduce sewer from entering lakes	Work with DEQ for specifications	Tenmile, Siltcoos, Tahkenitch, and Mercer Lakes	Medium
LS-3	Lakes	Reduce predation in lakes	Placement of grating on docks and overwater structures. Reduce the amount of structures and pilings.	Tenmile, Siltcoos, Tahkenitch, and Mercer Lakes	Medium
LS-4	Tributaries	Improve wood recruitment to support long-term increases in habitat complexity	Improve timber harvest activities (increased harvest buffers on private industrial timberlands, reduce road densities on private and state timberlands)	All streams where coho salmon would benefit immediately	High
LS-5	Tributaries	Improve wood recruitment to support long-term increases in habitat complexity	Improve state agricultural practices (grazing and hay production buffers on ag land adjacent to ESA-listed streams)	All streams where coho salmon would benefit immediately	High
LS-6	Tributaries	Improve water quality	Improve water quality by improving channel complexity, stream shade, and substrate retention.	Population wide	High
LS-7	Tributaries	Increase habitat complexity	Increase large wood, boulders, or other instream structure	All streams where coho salmon would benefit immediately	High
LS-8	Tributaries	Increase habitat complexity	Conduct riparian planting projects on streams that flow through or adjacent to ag lands to increase wood recruitment to streams	All streams where coho salmon would benefit immediately;	High
LS-9	Tributaries	Increase habitat complexity	Improve state agricultural practices (disallow stream channel dredging in ESA-listed streams flowing through or adjacent to ag lands)	All streams where coho salmon would benefit immediately;	High
LS-10	Off-Channel	Increase habitat complexity and connectivity to side-channels	Increase large wood, boulders, or other instream structure	All streams where coho would benefit immediately	High
LS-11	Off-Channel	Increase habitat complexity and connectivity and access to alcoves, off-channel ponds, floodplains, and wetlands	Increase beaver pond abundance	All streams where coho salmon would benefit immediately	High
LS-12	Mainstem	Improve water quality	Improve water quality by improving channel complexity, stream shade, and substrate retention.	Population wide	High
LS-13	Mainstem	Improve instream flows	Develop water conservation strategies on the upslope agricultural areas with the intent of transferring conserved water to instream flows.	Population wide	Medium
LS-14	Mainstem	Protect the mainstem below the Lakes from any encroachment	Manage recreational off-road vehicle for no entry into riparian areas.	Estuary wide	Medium

Action ID	Habitat component	Strategy	Action	Area	Priority
LS-15	Wetlands	Increase habitat complexity and connectivity and access to alcoves, off-channel ponds, floodplains, and wetlands	Increase beaver pond abundance	All streams where coho salmon would benefit immediately	High
LS-16	Wetlands	Improve direct and indirect wetland connectivity to streams	Reduce existing and limit development of channel-confining structures including roads and infrastructure in the floodplain that disconnect wetlands from tributaries and mainstems	All streams where coho salmon would benefit immediately	Medium
LS-17	Estuary	Protect the estuary from any encroachment	Manage recreational off-road vehicle for no entry into estuarine areas.	Estuary wide	Medium