

The alteration and restoration of Lint Slough

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History of the Lint Slough salmon rearing research facility

Lint Slough is a small "finger" of the Alsea River estuary located in Waldport, Oregon, which drains a 4.5 square mile basin. Infrastructure associated with a former fish research facility has recently been removed and the slough is being transformed back to its natural condition.

In 1963 the Oregon Game Commission (now the Oregon Department of Fish and Wildlife) transformed Lint Slough into a salmon rearing research facility for coho, chinook, steelhead, and cutthroat trout. They dammed the upper and lower ends of the slough to create a ¾ mile long rearing pond. Lint Creek fed freshwater into the pond from upstream and the ocean fed saltwater into the pond via a levied canal built along the west side of the pond. Water control structures allowed researchers to



Chinook salmon/ ODFW.

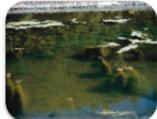
regulate salinity in the pond. Researchers attempted to raise juvenile fish to the smolt phase at an accelerated rate and release the smolts into the ocean by autumn for the benefit of sport and commercial fishermen. Many challenges thwarted their efforts to raise fish in this facility. After ten years of largely unsuccessful experimentation, research ceased and the facility was abandoned.



Aerial photos of Lint Slough/ ODFW.

Fish rearing pens/ODFW.

Challenges of rearing fish in the Lint Slough salmon rearing research facility



Algal bloom / ODFW.

- Algal blooms
- Fish diseases
- Catastrophic mortality

Restoring Lint Slough

In the year 2000, the Oregon Department of Fish and Wildlife began dismantling the salmon rearing research facility and restoring Lint Slough to its natural condition.

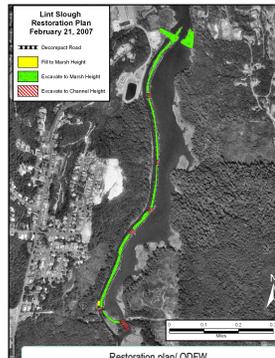
Restoration Goals



Excavating dam/ ODFW.

- Remove research facility infrastructure.
- Restore natural processes which will sustain the slough as an intertidal habitat.
- Preserve 50 acres of saltmarsh and 80 acres of mudflat habitat.
- Restore passage for anadromous fish.
- Increase habitat for birds.

Timeline



Restoration plan/ ODFW.

1963: Installed salmon rearing research facility. Dam
1973: Closed and abandoned research facility.
2000: Modified lower dam to allow fish passage.
2009: Removed lower dam, upper, canal outlet, and water control structures. Breached levee. Excavated built-up areas to marsh height. Disposed on concrete and fill off-site. Replaced City of Waldport water line. Excavated surface around upper dam to marsh height.

Funding

Grant money from the U.S. Fish and Wildlife Service was matched by state monies committed from the Oregon Watershed Enhancement Board. Many state agencies and conservation organizations gave in-kind contributions.

Restoration Component	Cost
Excavate lower levee	\$15,000
Biological monitoring	\$20,000
Excavate and haul away upper dam	\$25,000
Remove water control structures	\$25,000
Administrative costs	\$30,000
Excavate and haul away lower dam	\$150,000
Replace City of Waldport water line	\$300,000
Total:	\$565,000

Species Benefiting



Short-billed dowitchers/ Kocourek.

•**Birds.** Migratory shorebirds and waterfowl gain additional resting and feeding areas. Bald eagles and peregrine falcons gain additional hunting areas. Seabirds such as marbled murrelets receive boosted prey availability.



Recreational kayaker/ Kocourek.

•**Fish.** Salmon receive increased juvenile rearing habitat. Adults regain access to spawning habitat up Lint Creek. Pacific lamprey, surf smelt and sand lance receive additional estuarine habitat.



Western marsh-rosemary/ Pickart.

•**Humans.** Lint Slough is public land owned by the State of Oregon. People gain access to the site for recreational activities such as bird-watching, fishing, waterfowl hunting, and kayaking.

•**Plants.** Saltmarsh plants gain habitat while invasive species are deterred by restored tidal inundations. Lint Slough contains the only population of western marsh-rosemary in the state of Oregon, which may spread into newly restored areas within Lint Slough.

References

Emmett, Robert, R. Llanso, J. Newton, R. Thom, M. Hornberger, C. Morgan, C. Levings, A. Copping, and P. Fishman. 2000. Geographic signatures of North American West Coast Estuaries. *Estuaries* 23:765-792.
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Acknowledgments

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For further information

Please contact kocourea@onid.orst.edu. More information on this and related projects can be obtained at <http://www.dfw.state.or.us/>.