

## Addressing a critical conservation need

In Puget Sound there is an extreme deficit of functioning estuary habitat, severely impacting salmon; orcas and other wildlife, and the human communities that rely on them. The Skagit, Snohomish, and Stillaguamish Deltas draining into the Whidbey Basin account for ~70% of Puget Sound's historic delta habitat, yet only 31% of that acreage remains. Estuarine deltas are critical habitat for endangered Chinook salmon, providing shelter and food as they transition from freshwater rivers to the sea. The south fork of the Stillaguamish River, which drains into Port Susan Bay, historically supported over 20,000 Chinook/year. Today native-spawning Chinook populations are experiencing a steep decline, with less than 500 fish returning to spawn in 2019.<sup>1</sup> Returns are so low that since 2017 extensive fishery closures have been necessary to protect dwindling populations.<sup>2</sup> The Nature Conservancy is working to address this issue directly through estuary restoration at our Port Susan Bay Preserve.

The Conservancy pioneered large scale estuary recovery with work at Port Susan Bay in 2012; one of the largest on the ground projects for estuary habitat in Puget Sound at that time. Over

7,000 ft of sea dike was removed and set back to successfully reconnect 150 acres of land with the sea. This project spurred a wealth of learning, allowing for advancements in estuary science and practice that have improved other restoration projects in Puget Sound in the years since. By intensively monitoring the Port Susan Bay project for 5 years after completion, we can see that this early project now requires a second phase of work.<sup>3</sup> An excavated channel network and additional tidal and river outlets will accelerate estuary development; directly supporting plant establishment, juvenile salmonid growth and survival, and improving climate resilience.

Phase II restoration work at Port Susan Bay represents the opportunity to create fully functioning estuary habitat in the best possible location in the Stillaguamish Delta to foster healthy juvenile salmonids and support upstream habitat restoration. Work to maximize habitat connectivity at Port Susan Bay will also prepare this area for successful connection with additional habitat restoration, currently in planning by the Stillaguamish Tribe of Indians.

## Adaptive management

Adaptive management is an essential part of managing ecosystems successfully. Using the Conservancy's *Conservation by Design 2.0* approach, we have evaluated our work and assessed the further progress needed to achieve our intended outcomes. Thanks to the effort to attentively monitor the initial restoration, we have the necessary evidence base to now pursue a second phase of work at Port Susan Bay, and ensure the integrity of our contributions to salmon habitat recovery.

## Project Activities for Port Susan Bay Phase II

### MAXIMIZE SALMON-SUPPORTING HABITAT:

construct 9 new breached outlets, 9 dike footprint lowerings, 2 new river distributary connections, and 11 primary tide channels connected to an interior channel network.

**BASE OUR WORK IN SCIENCE:** employ hydraulic and channel allometry modeling to understand the expected site changes in flow & velocity and ensure appropriately designed actions.

**WORK WITH OUR PARTNERS:** solicit and incorporate input from technical experts, stakeholders and tribes; via meetings coordinated by the Conservancy and at partner forums.

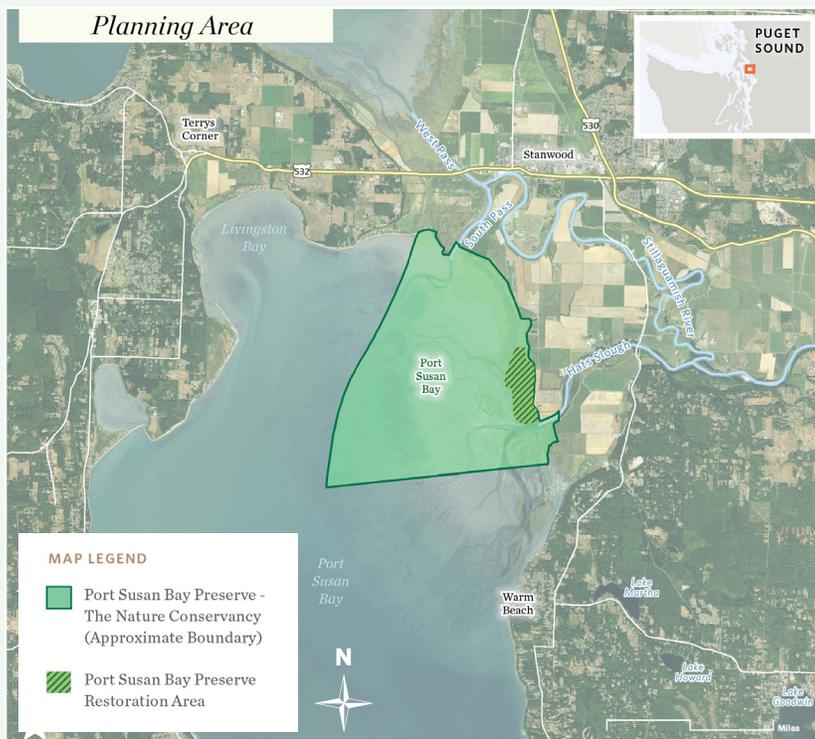
**PLAN FOR THE FUTURE:** in coordination with the Stillaguamish Tribe, use hydraulic modeling to design Port Susan Bay for optimal hydrologic connectivity with their future restoration work.

## Supporting local economy

The Port Susan Bay Phase II Restoration is a major capital project and requires the work of planners, engineers, construction workers, ecologists, community relations staff, and others. It also catalyzes jobs indirectly through the purchase of materials and supplies, and generally boosts the local economy during the on-site work period. More than 15 jobs have been supported by this project in its design phase, and at least 50 jobs would be expected over the construction and monitoring phases. Ready to go to construction as soon as 2021, this project will create needed work in a time of economic uncertainty.

- 1 Griffith, J. 2019. *The Stillaguamish Tribe of Indians Natural Resources Dept*, unpub. data.
- 2 WA Dept of Fish & Wildlife. 2020. *Season summaries and agreed fisheries*. [wdfw.wa.gov/fishing/management/north-falcon/summaries](http://wdfw.wa.gov/fishing/management/north-falcon/summaries)
- 3 Fuller, Roger N. 2018. *Port Susan Bay Estuary Restoration Project: Final Monitoring Report*. Report prepared for The Nature Conservancy. 100pp.

## Port Susan Bay Restoration Enhancement



## Port Susan Bay Project Preliminary Design

