

Restoring the Squamish Estuary: Improving access to Salmon Habitat

PRESENTATION BY:

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SQUAMISH RIVER WATERSHED SOCIETY

MARCH 3, 2023



PRESENTATION TO:



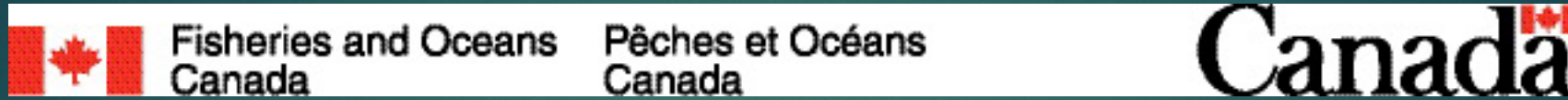
History of the Squamish River Watershed Society

- ▶ Formed in 1998 with a holistic approach towards watershed restoration
- ▶ Promoting environmental sustainability in the Squamish Watershed
- ▶ Helping to conserve, protect, and enhance the natural environment
- ▶ Developing human sensitivity and awareness to the environment through education and outreach programs and activities
- ▶ Supporting and encouraging technical, academic, and community-based opportunities

History of the Squamish River Watershed Society - AGENDA

- ▶ Acknowledgement
- ▶ Photo History of Squamish Estuary from 1950 to present
- ▶ Overview of Restoration Activities in Estuary from 2001 to present
- ▶ Chelem Trail Restoration from 2001 to present
- ▶ West Barr log sort Restoration 2015 – 2017
- ▶ Central Estuary Restoration Project 2018 to present
- ▶ Educational Outreach Programming
- ▶ Thank you

Partnership, Support, and Funding



Location Map of Squamish Estuary

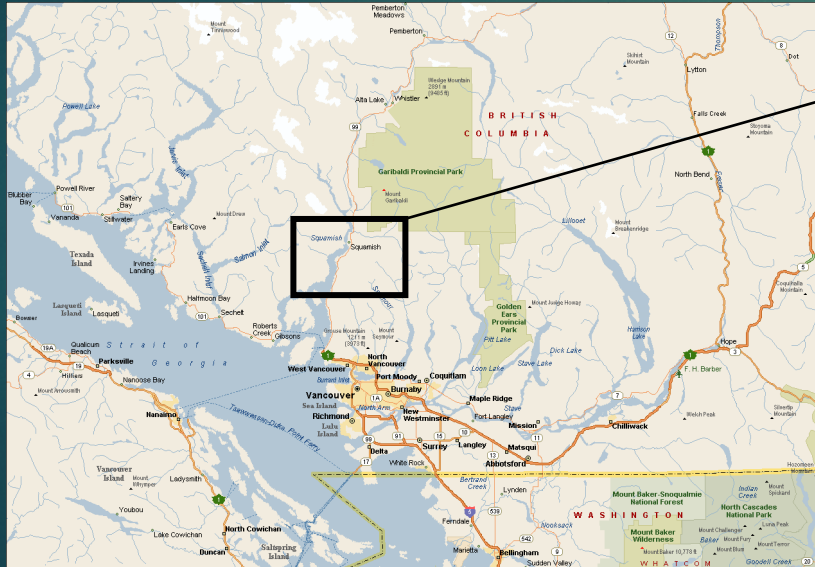


Photo History of Squamish Estuary

1954



Photo History of Squamish Estuary

1969



1973

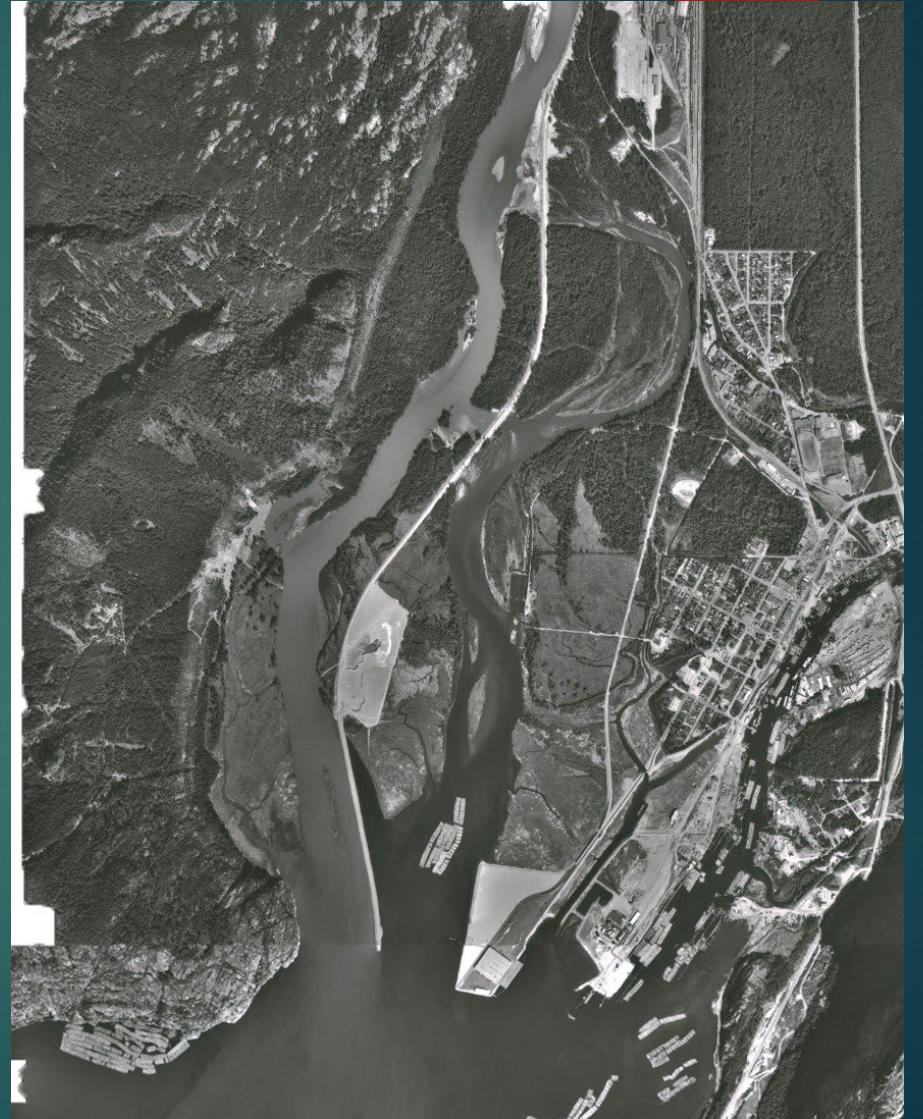


Photo History of Squamish Estuary

1969



1973

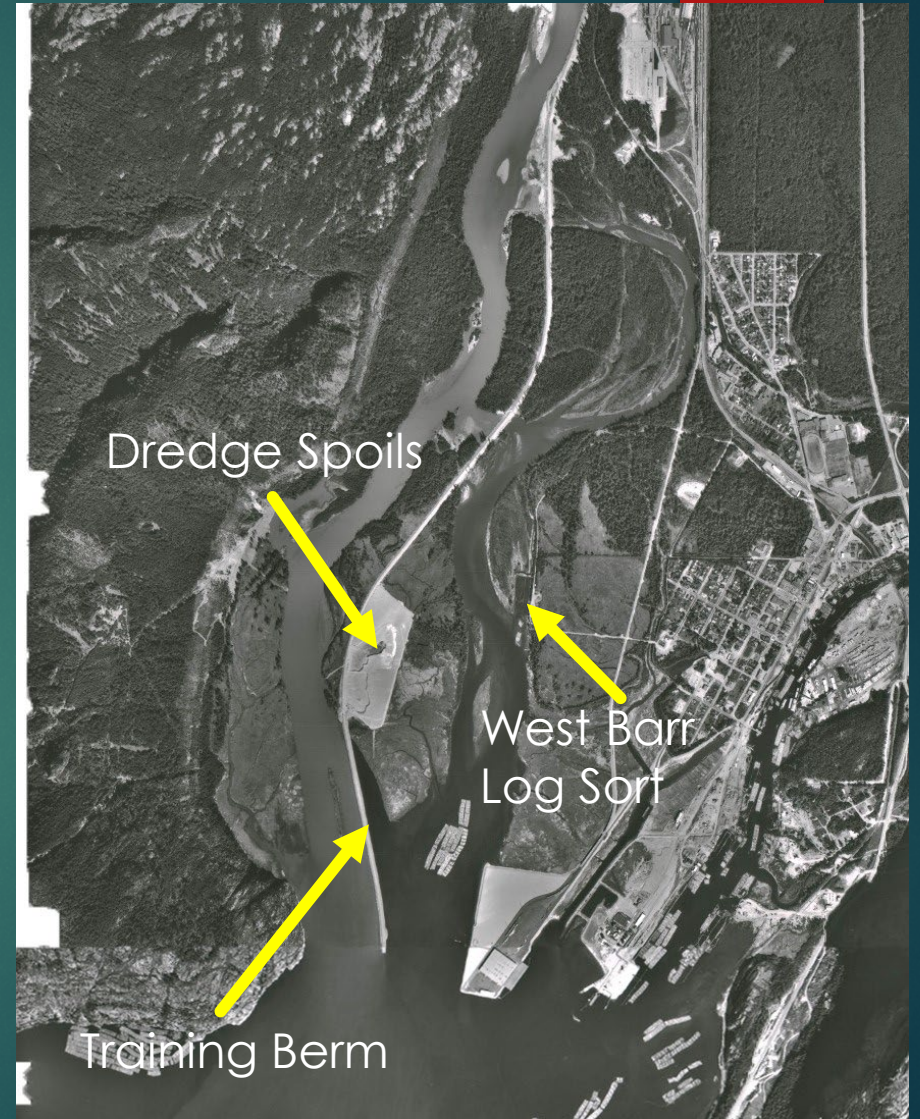


Photo History of Squamish Estuary

2019



Photo History of Squamish Estuary

2022



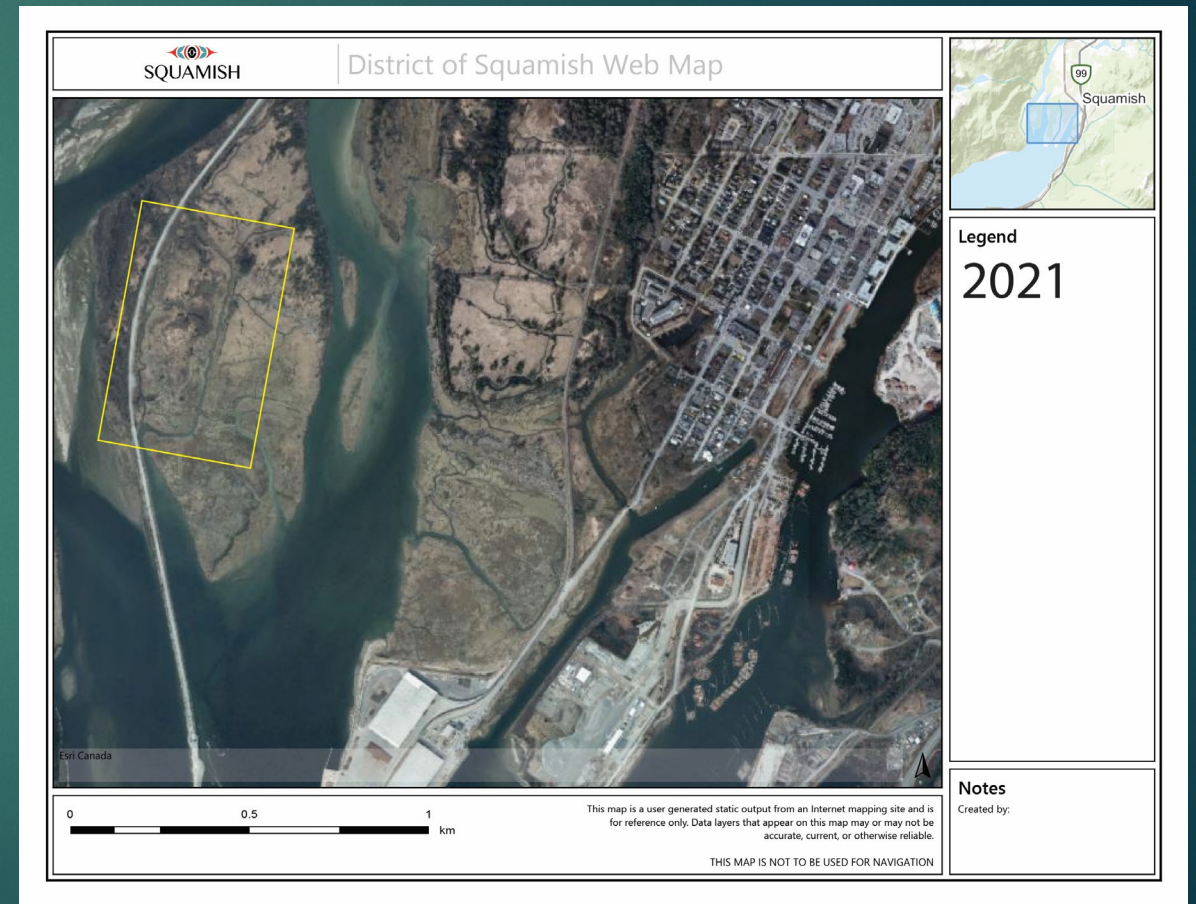
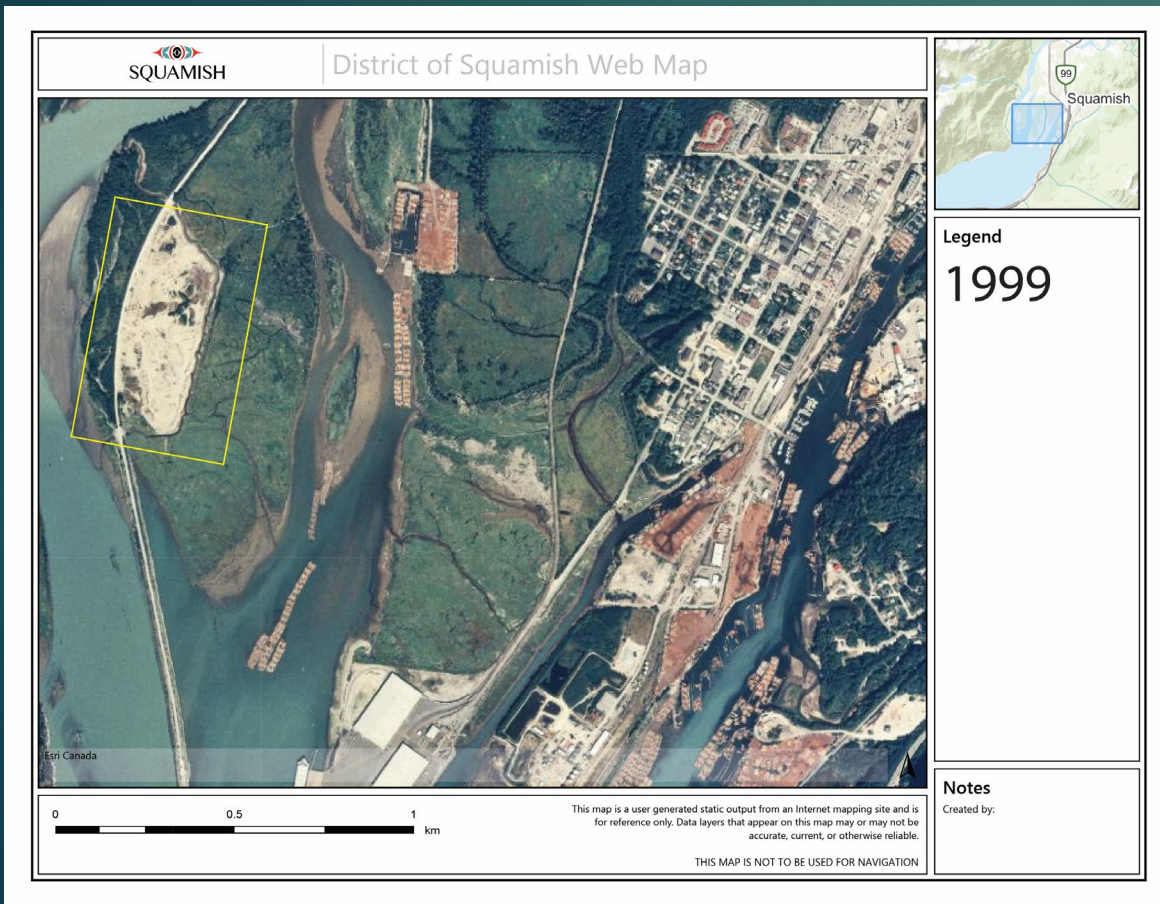
Restoring the Squamish Estuary from 2001 to the present

- ▶ 2001 – 2023:
- ▶ Culvert crossings
- ▶ Fish-friendly box Culvert (2019 & 2020)
- ▶ Opening 850m of Spit to restore connectivity between river & estuary (2021 – 2023)



2001 – 2005

Chelem Trail Restoration



2001 – 2005

Chelem Trail Restoration

- ▶ Restoring the former Dredge Spoils site to 15 hectares of functional estuarine habitat
- ▶ Removal of over 100,000 cubic metres of dredge material
- ▶ Installed two culvert crossings
- ▶ Constructed two tidal channels and a walking trail (followed by additional tidal channels from 2007 to 2013)
- ▶ Over 1,000 native riparian trees, shrubs, and sedge plugs planted
- ▶ Salt marsh
- ▶ Outdoor living classroom as part of hands-on experiential educational program

2001 – 2005 Chelem Trail Restoration

2003



2001 – 2005 Chelem Trail Restoration

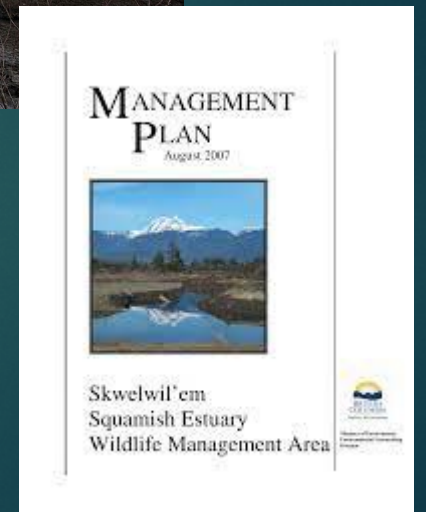
2015



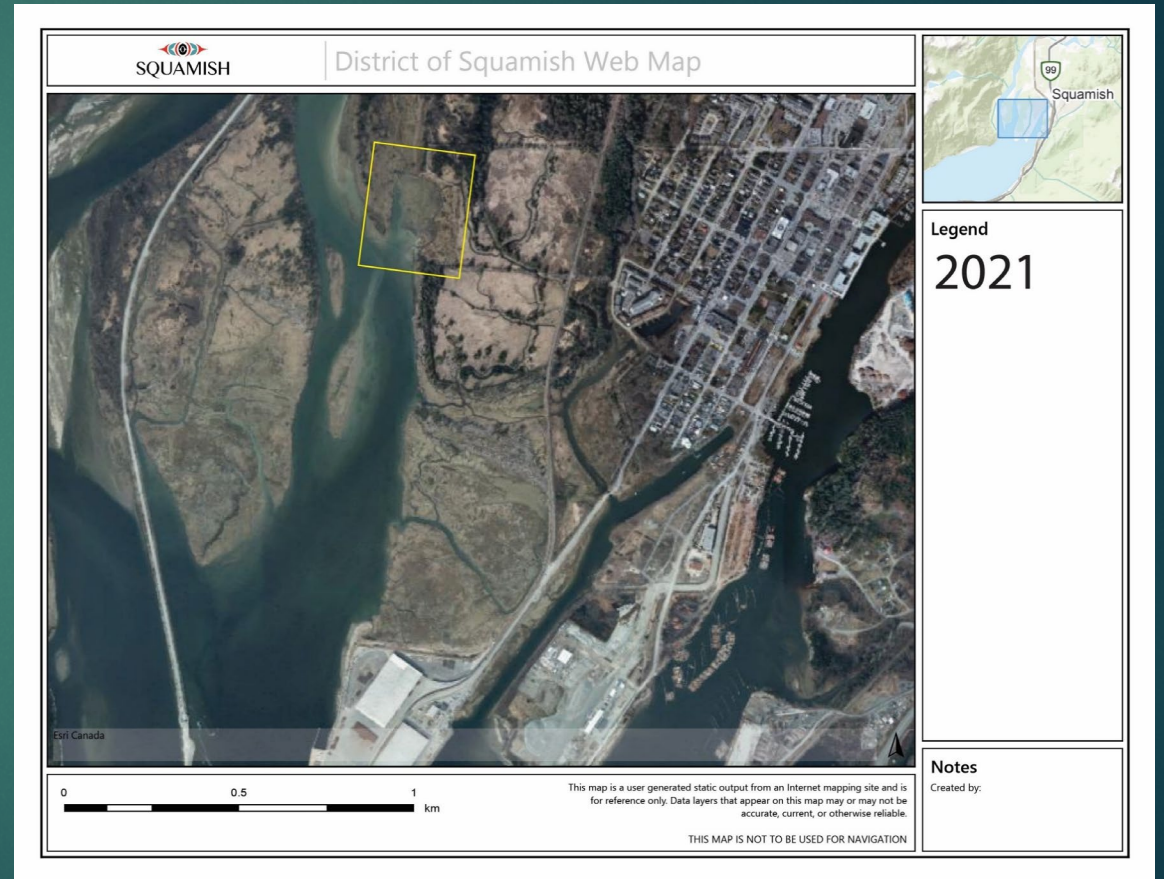
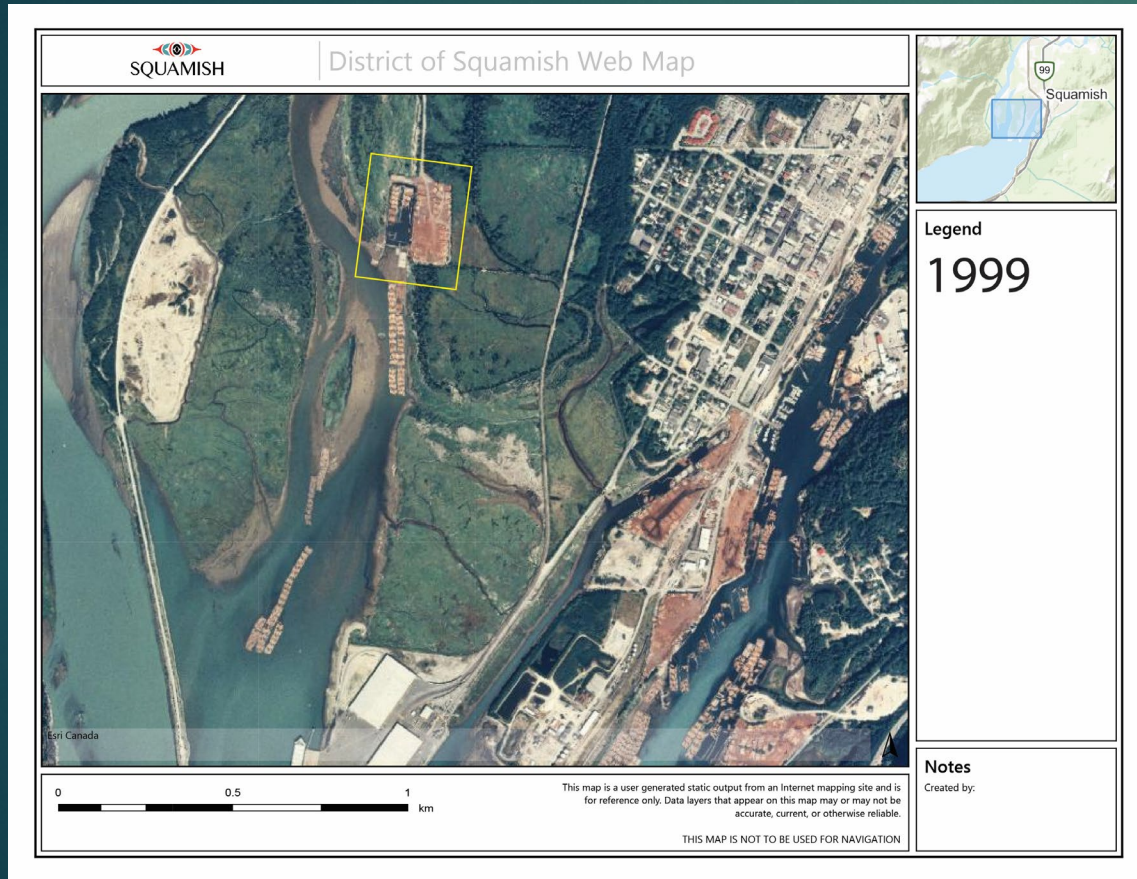
Creation of Skwelwil'em Squamish Estuary Wildlife Management Area 2007



House Pole Raising at former Dredge Spoils Site. 2008



West Wind Restoration of Former Brownfield 2015 – 2017



West Wind Restoration of Former Brownfield 2015 – 2017

- ▶ Restoring 6.3 hectares of log sort and log storage back to estuary
- ▶ Four new tidal connections and 4 new bridges
- ▶ Removal of 40,000 cubic metres of hog fuel / woody debris
- ▶ Over 5,000 native trees, shrubs, and sedge plugs planted
- ▶ Over 1,000 volunteers / over 500 volunteer hours
- ▶ Deactivation of 1,500 m access road
- ▶ Outdoor living classroom as part of hands-on experiential educational program



West Wind Restoration of Former Brownfield 2015 – 2017



West Wind Restoration of Former Brownfield 2015 – 2017



Central Estuary Restoration Project



- Legend
- Culvert
 - WMA/Site A
 - TNT

miles 2 4
km

CERP Project Partners

- Squamish Nation
- Fisheries & Oceans Canada

Project Stakeholders

- Province of BC
- District of Squamish
- Squamish Terminals



CERP Project Proposal

- Phase 1: Replace culverts at Location #3 & #4 with fish friendly box culverts (respectively completed 2019 and 2020)
- Phase 2: Modify 850 m opening along Training Berm / Spit (2021 – 2023)
- Phase 3: Rewater Cattermole Slough/Petty Slough in Site A (TBA)

Central Estuary Restoration Project

► Training Berm



Central Estuary Restoration Project Phases 1 & 2

- ▶ Training Berm
- ▶ Phase 1: Culvert #3 (2019)
- ▶ Phase 1: Culvert #4 (2020)
- ▶ Phase 2: 300m opening 2021 - 2022

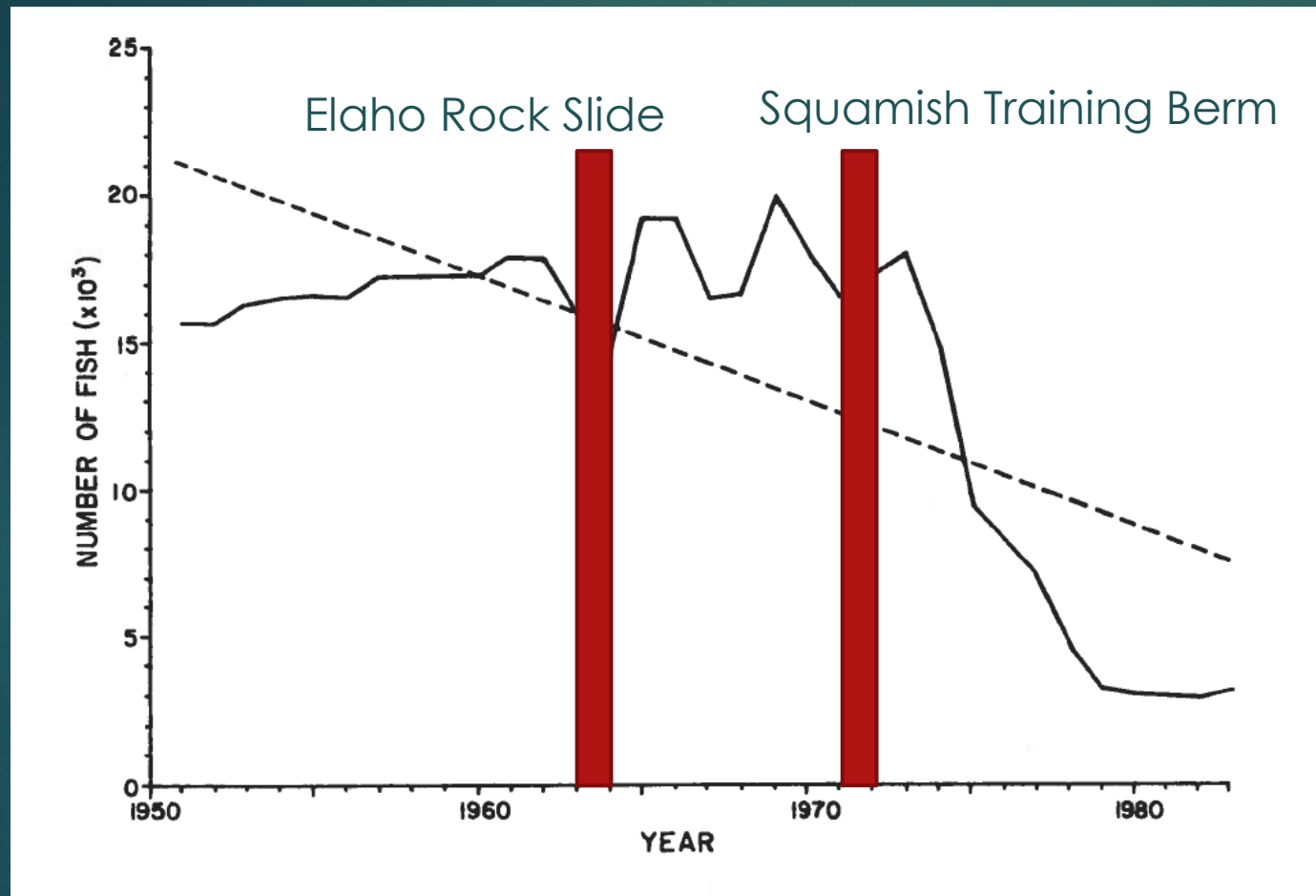


Central Estuary Restoration Project Phases 1 & 2

- ▶ Training Berm
- ▶ Phase 1: Culvert #3 (2019)
- ▶ Phase 1: Culvert #4 (2020)
- ▶ Phase 2: 300m opening 2021 – 2022
- ▶ Phase 2: 850 m opening 2023 (underway)



Squamish River Chinook Returns



Central Estuary Restoration Project

Phase 1: Culvert #3 Upgrade



Central Estuary Restoration Project

Phase 1: Culvert #4 Upgrade



Central Estuary Restoration Project

Phase 2: Spit Removal



July 2020

Central Estuary Restoration Project Phase 2: Spit Removal



July 2020

Central Estuary Restoration Project

Phase 2: Spit Removal



March 2022

Photo credit: J. Buchanan

Central Estuary Restoration Project

Phase 2: Spit Removal

July 2022

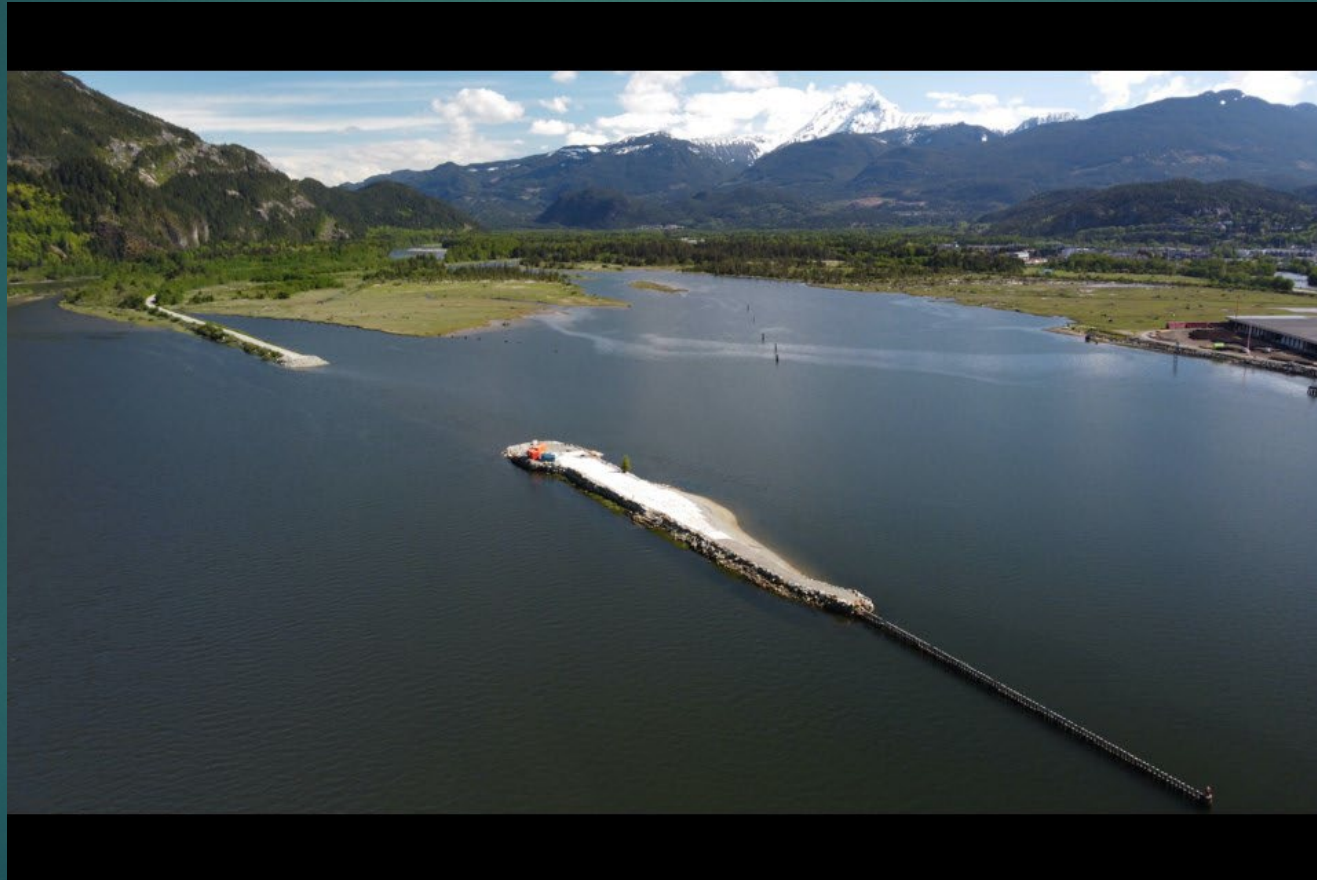


Photo credit: J. Buchanan

Central Estuary Restoration Project

Phase 2: Spit Removal



February 2023

Photo credit: J. Buchanan

Central Estuary Restoration Project

Phase 3: Rewatering Bridge Pond

- ▶ Culverts across CN Spur Line proposed for next stage of the project
- ▶ Date: TBA



Educational Outreach Program



- ▶ Established in 2005 to engage elementary school students in hands-on experiential learning opportunities in the estuary and other restoration sites
- ▶ Average 600 students per year involved in outdoor learning
- ▶ Developing interest in the natural environment and better understanding of the role nature plays ensuring healthy and biodiverse communities



Thank You!

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