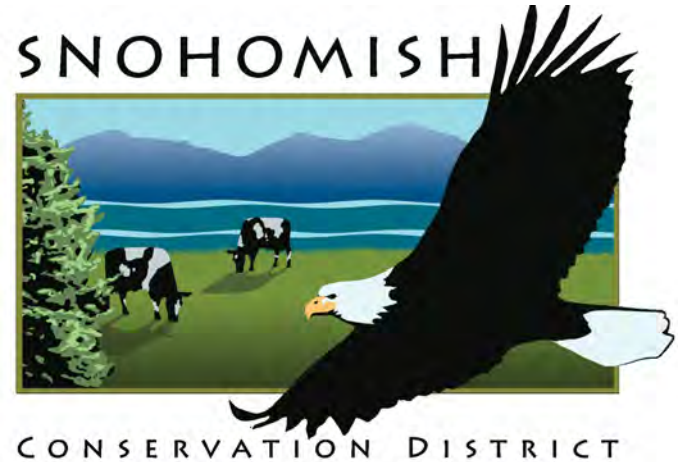


# Virtual Tour of Snohomish Conservation District

*Snohomish County and  
Camano Island*

Presenters: Linda Lyshall, Carrie  
Brausieck, and Kristin Marshall





# Multi-functional Working Buffers

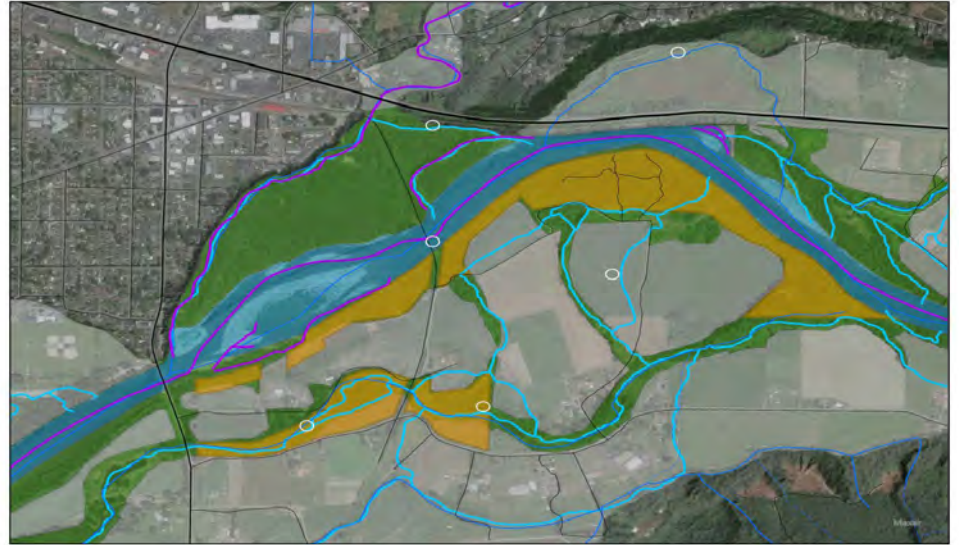
## WSDA Specialty Crop Block Grant





# Agroforestry Restoration

Proposed project with NOAA & Tulalip Tribes



# Pilchuck Julia Landing

## Multi-functional Riparian Forest Buffer





# Seed to Fork

## Community Food Forest and Stormwater Bioswale





# Integrating Agriculture Resilience Projects into Farm/Fish/Flood Multi- Benefit Packages



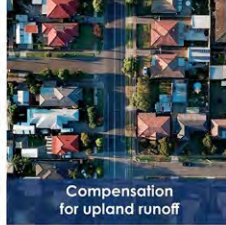
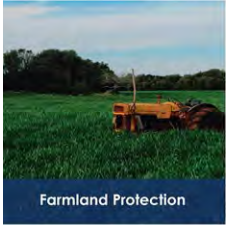


*“The Agriculture Resilience Plan is an effort to help all of us farmers weather the changes that are coming in the future. It’s a way for farmers to raise their voices together and create change to benefit agriculture.”*

*- Libby Reed*

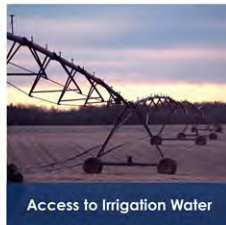
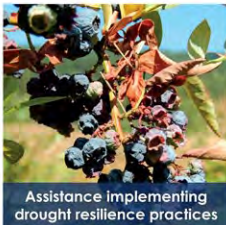
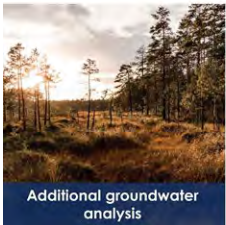
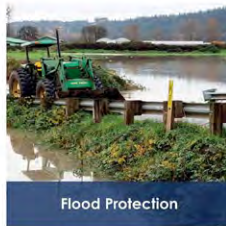
# Farmer Dialogue – County Wide Priority Needs

## AGRICULTURAL RESILIENCE PLAN



### Priority Resilience Needs

With increased development and a changing climate, the agricultural community in Snohomish County is facing several future challenges. These are the top priorities that local farmers have raised to our attention. These needs will require a lot of partnership building, innovation, creative thinking and funding in order to be met.



- Drainage Infrastructure and Maintenance
- Compensation for Upland Runoff
- Flood Protection
- Farmland Conservation
- Access to Irrigation Water
- Drought Resilience Practices
- Additional Groundwater Analysis

[www.snohomishcd.org/ag](http://www.snohomishcd.org/ag) -resilience -priorities





# The groundwork was complete for meaningful action

- Science-based plan with hundreds of hours of input from agriculture
- Reach-scale and County - wide priority needs
- A project list generated by farmers, for farmers
- Partners
- A mandate – get (back) to work



# Considering the floodplain agroecosystem

- Populations
  - Farmers
  - Homeowners
  - Tribes
- Habitat functions
  - Birds
  - Fish
  - Amphibians
  - Soil health
- Ecosystem services
  - Water and air quality
  - Flood storage
  - Green/open space





*Farm, fish, and flood interests are all essential to the floodplain, the question is how to find common ground*





Floodplains face:

Increasing  
development

Degraded/  
decreasing habitat

Rising groundwater

Increased  
precipitation and  
flooding







The floodplain sits  
in a crux of  
competing needs

Collaborative  
planning is the best  
way to address  
shared concerns

New funding has  
played a critical role in  
collaborative planning

Bringing farmers' and  
landowners' voices to the  
table

Supporting SLS and the  
Integration Teams







# Sustainable Lands Strategy

[www.farmfishflood.org](http://www.farmfishflood.org)



## Project Packages





## Community Floodplain Solutions

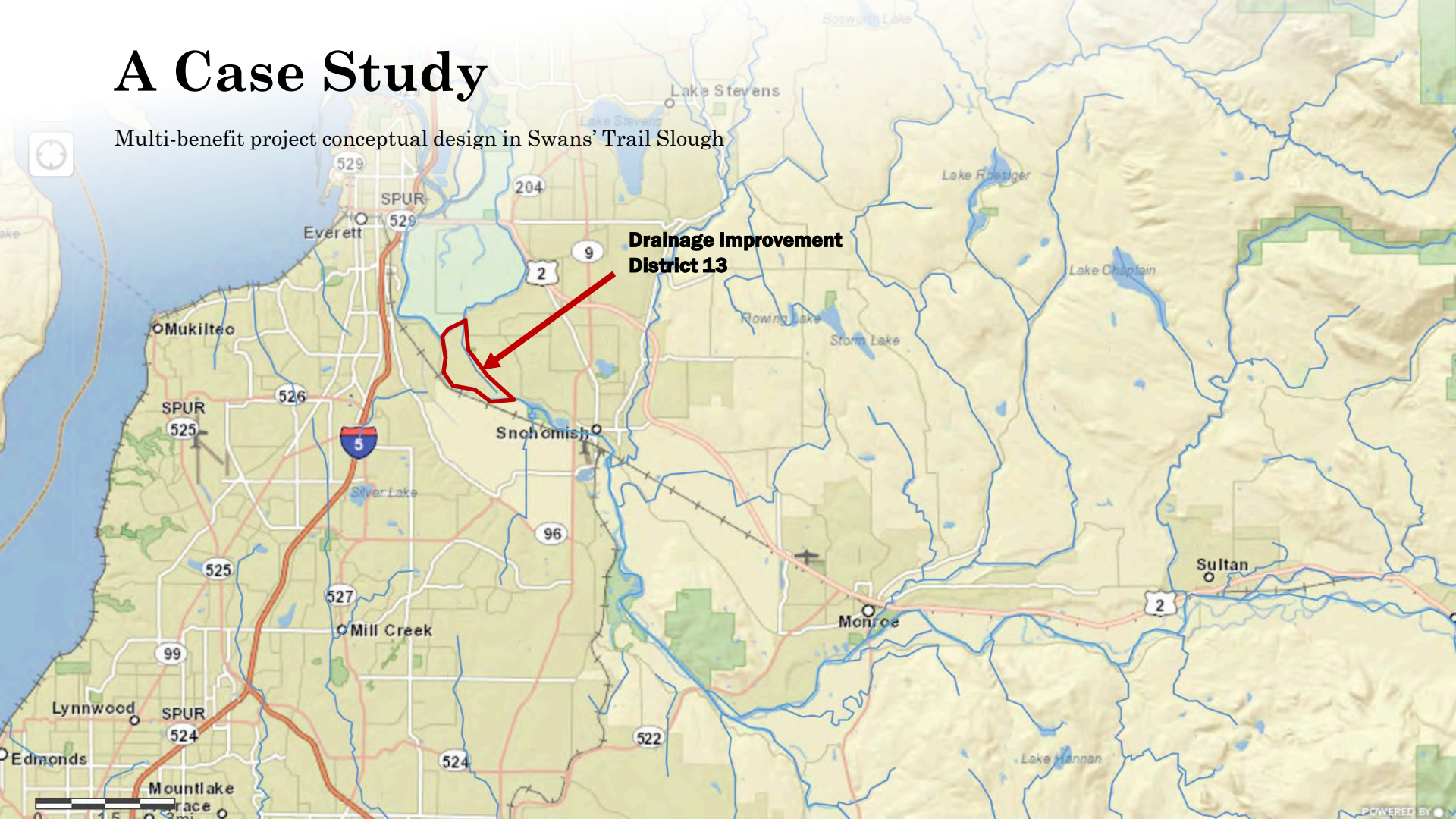
Together we can keep local farms  
viable, restore habitat for fish and  
wildlife, and reduce flood impacts.

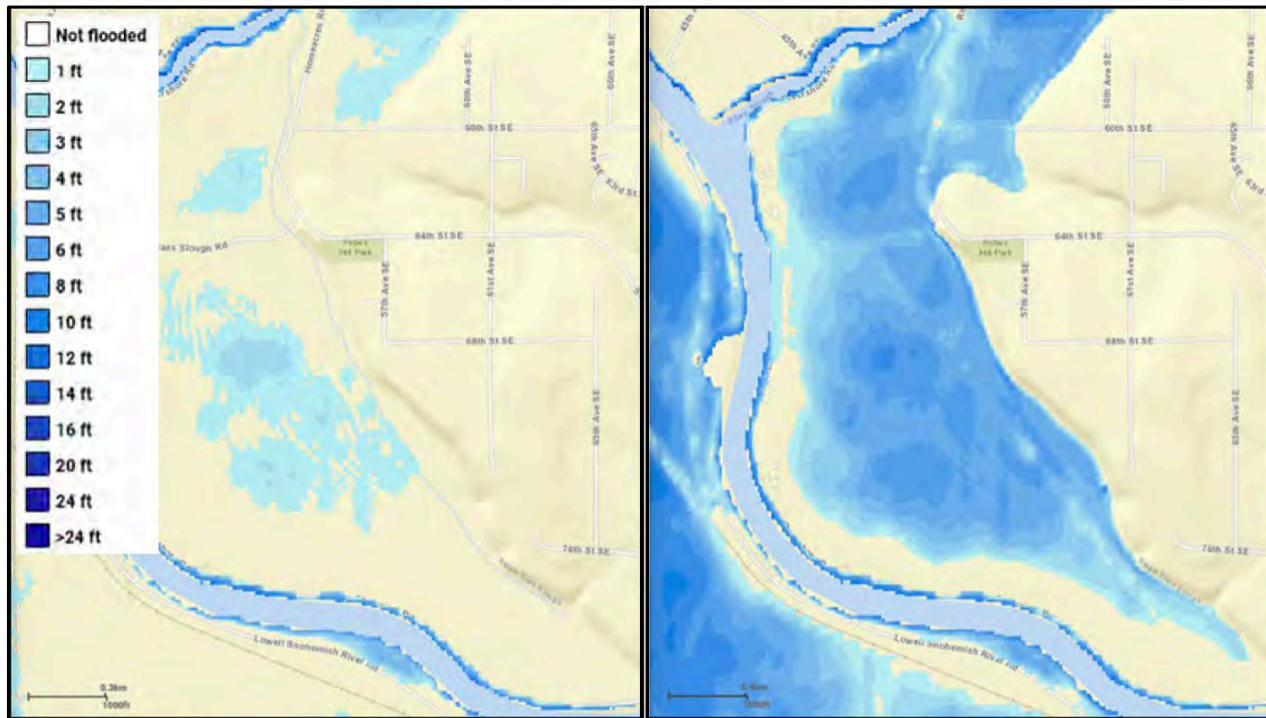




# A Case Study

Multi-benefit project conceptual design in Swans' Trail Slough





SOURCE: Mauger et al. 2018, with flood and sea level rise mapping available at <https://maps.coastalresilience.org/washington>, Coastal Resilience 2020

# Snohomish Swans Trail Slough Concept Report

Historical (1980s) 10-year Flood Inundation Depths (left) and Future 2050 10-year Flood Inundation Depths for RCP 8.5 High Emissions Scenario with 50% Likelihood (right). – *Cardno/ESA 2021*



# Alternatives

Explore different ways to split habitat and agriculture drainage systems

Could include:

- Levee improvements, ditch plugging, culvert upgrades, pump relocation, and changes to outlets to Snohomish river

Ag system

Fish systems

**Proposed Design:**

- New fish passage
- DD6 connection option A
- DD6 connection option B
- Alternative 4 south connection
- Levee upgrades
- New primary drainage
- Plug ditch

**Existing Conditions:**

- Existing pump location
- Beaver dam
- House
- Pipelines
- Waterline
- Roads
- Levees
- Drainage districts
- 2019 parcels

**Watercourses**

- DD13 maintained – intermittent flow
- DD13 maintained – perennial flow
- Private – intermittent flow
- Private – tiled drainage

Alternative 4: Install self-regulated flood gate

## Alternative 3 & 4

Multi-Benefit Projects  
in DD13 and  
Swan's Trail Slough

Snohomish Conservation District  
Everett/Snohomish/Washington

### Existing Conditions:

- Existing pump location
- Beaver dam
- House
- Pipelines
- Waterline
- Roads
- Levees
- Drainage districts
- 2019 parcels

### Watercourses

- DD13 maintained – intermittent flow
- DD13 maintained – perennial flow
- Private – intermittent flow
- Private – tiled drainage



Prepared By Cardno  
Date: 11/5/2020  
Imagery Source: Maxar 7/22/2018



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NAD\_1983\_StatePlane\_Washington\_North\_FIPS\_4601\_Feet

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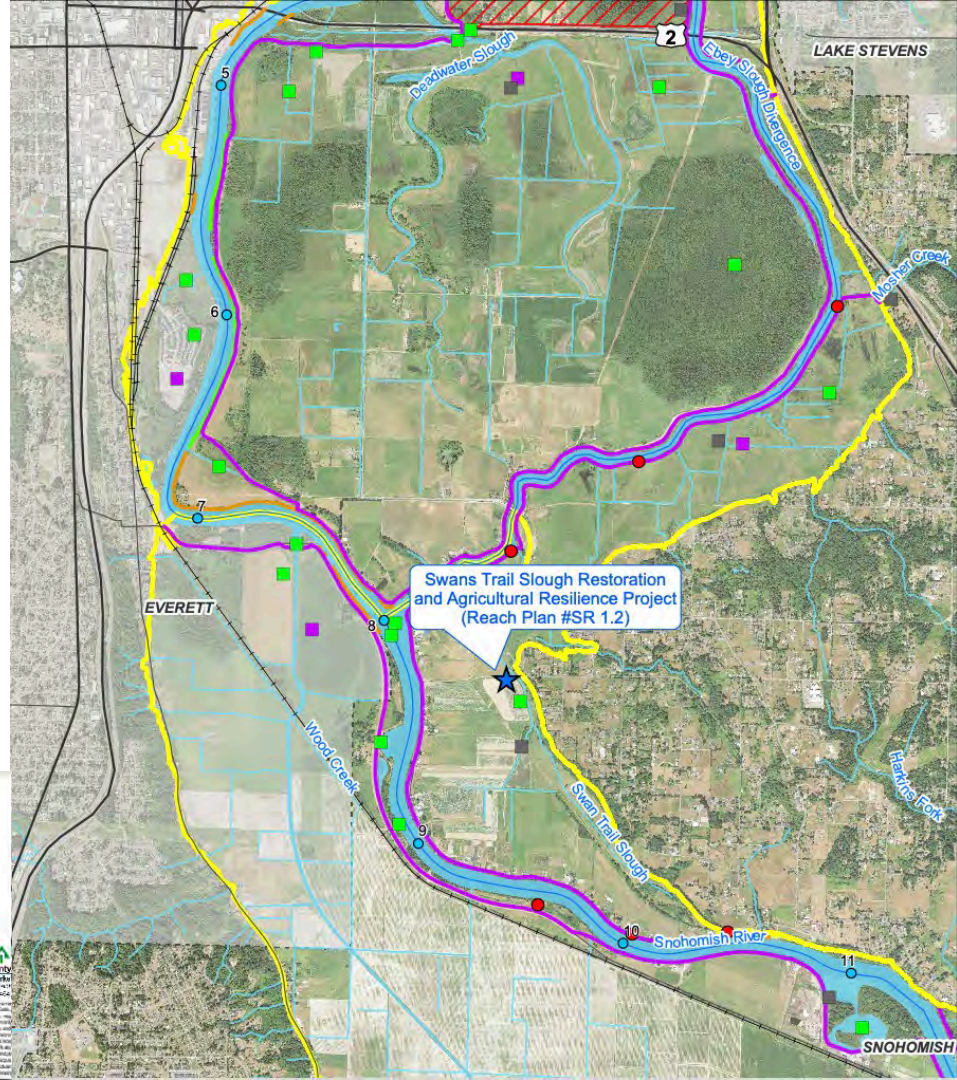
0 500 1,000 2,000 3,000 4,000 Feet




The Snohomish Integration Team groups include:

- Flood management planners
- Fish habitat specialists
- Tribes
- Farmer interest groups

CFS DD13 project mapping for Floodplains by Design 21-23





A man wearing a black jacket, blue jeans, and a white baseball cap stands on a grassy bank, looking down a narrow ditch. The ditch is filled with water and surrounded by tall, dry grasses and reeds. In the background, there is a line of trees with some autumn-colored foliage under a clear blue sky. A circular text overlay is in the top left corner.

SCD farm planner  
Eric Schuh surveys  
a full ditch on  
Douglas Creek in  
Diking District 7,  
Stanwood, WA



FFF Option: Farm, Fish & Flood benefit

Loss of 4.5 acres prime farmland

Loss of 1.3 acres seasonal pasture

relocated creek w/ 150' buffer

fill this section of creek

Remaining 14.5 acres prime farmland

convert creek to ag ditch, include repair of damage caused by install of culvert & sediment berms piled up at that time.

existing creek

existing ag ditch

2018 July background  
21.04.09 Sketch

Google

0' 0" pond water

**Option #3**

- Footprint - Land
- Logen Farm
- NOT Marlene
- Douglas Creek outlet moved to northern culvert under RR
- Lots of channels & side channels
- Adjacent bank full benches
- Scrub-shrub wetland
- Emergent wetland
- Coniferous trees on hummocks
- MSM could be added in ag areas
- Maximum berm

**Legend:**

- Roads
- Digitized Watercourses
- Streets
- Parcels - Snohomish
- DTM - Elevations

**Elevation Legend:**

- <4
- 4-5
- 5-6
- 6-7
- 7-8
- 8-9
- 9-10
- 10-12
- 12-14
- 14-16
- 16-18
- 18-20
- 20-22
- >24

**Map Labels:**

- Native scrub-shrub veg
- Native emergent veg
- Box channels w/ bank full benches
- \* - coniferous trees
- Ag.
- Marlene
- Berm
- Extend culvert upstream under berm

**Scale:** 0 150 300 600 Feet

**DD7 Project Concepts**

**Cartographer:** rshelton@pacnet.com

**Date:** 2/20/2011



# Coordinated fish passage and flood risk projects





**Working toward a common goal: creating a resilient floodplain**





# Acknowledge Funders



- Washington State Conservation Commission
- Floodplains by Design
- EPA National Estuary Program, Puget Sound Partnership NTAs
- NOAA
- USDA
- Department of Ecology
- ESRP Learning Program

# Partners





# Questions?

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