

ATTACHMENT 2 – Pictures, Diagrams and References

- a. Photos of existing conditions
- b. Haystack with pictures map
- c. Flow chart
- d. Implementation team diagram
- e. Table of references
- f. Citations and Reference

Agriculture in the Sultan Reach



Farmland for sale – Sultan Reach



Future Beachers cheesemakers



Flooded farm in Sultan Reach (looking south, towards intersection of 311th and Mann Rd.) Note the blackberry “hedge” that is serving as a riparian buffer.

Current Conditions



South (Tychman) Slough at flood. Notice invasive species in foreground, lack of riparian buffer, proximity of building

Current Conditions



Residence on 2/26/2016 on the Skykomish River, looking upstream. The owner did participate in the Voluntary Floodplain Home Buyout Program. Side channel was created from avulsion hazard and continues to widen and laterally migrate.



Same residence, looking downstream,

Current Conditions



Upstream end of South Slough, looking downstream, photo shows significant deposition and channel widening



Results of sedimentation and channel migration into agriculture fields on South Slough, looking downstream and left

Current Conditions



Bank erosion of agricultural land on 3/2/2018 along South Slough, looking stream left



One of several bank erosion locations on 3/2/2018 along Mann Road on South Slough, looking stream left

Current Conditions



Residence along Skykomish River in Sultan lost 50% of their backyard to lateral channel migration in 2017, photo looking downstream from right bank November 2017



From residence, looking at river



Same residence, photo looking upstream from right bank on 12/7/2017

Current Conditions



Flooding hotspot at Mann Rd (Devil's Elbow)



Flooding hotspot at Ben Howard Rd.



Flooding hotspot at Ben Howard Rd. near 311th intersection



Floodwaters backing up from South Slough towards Ben Howard Rd.

Progress in the making: Re-envisioning a resilient integrated floodway



Historic acquisitions: Skyview Tracts, future site of Steelhead County Park

<https://snohomishcountywa.gov/DocumentCenter/View/42632/PSI-Case-Studies-8-Skyview-Tracts?bidId=>



Planting along Tychman (South)Slough.

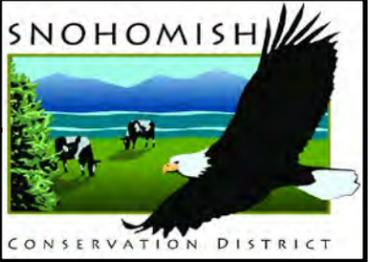
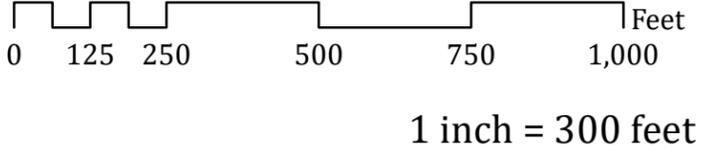
<http://snohomishcd.org/tychman-slough>



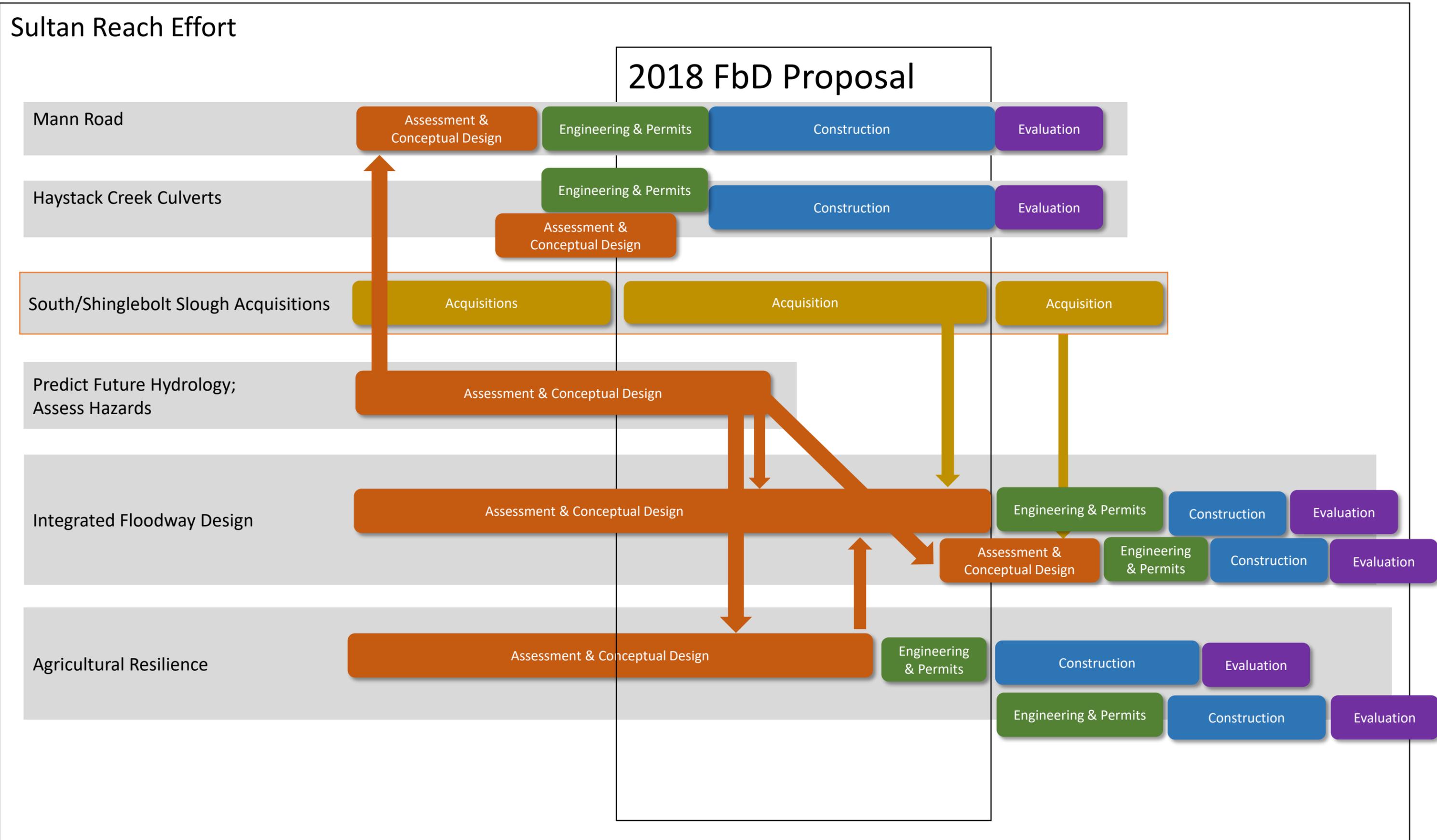
Lower Haystack Creek
Fish Passage Map
Sultan, WA

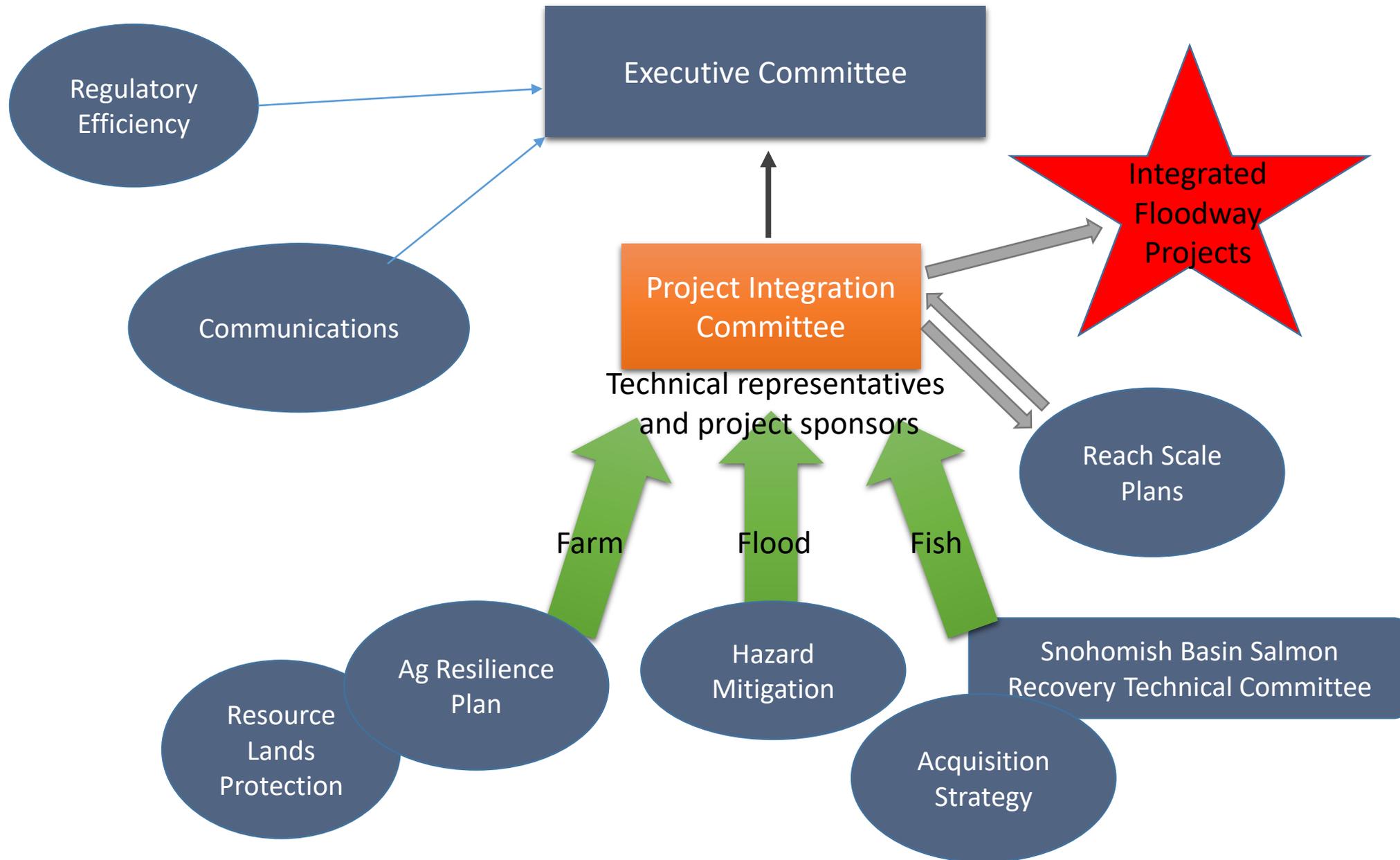
Legend

- Haystack Creek Crossings



Schematic diagram of FbD 2018 proposal in the context of the Sultan Reach Effort





Proposal Consistency With Existing Management and Recovery Plans

Plan Title & Date/Version:	Lower Skykomish River Reach-scale Plan, 2017	Snohomish River Basin Salmon Conservation Plan, June 2005	Snohomish County Hazard Mitigation Plan, September 2015 update	Snohomish Basin Protection Plan, December 2015	Snohomish County Shoreline Management Program: Shoreline Environment Designations, Policies and Regulations, July 2012	Snohomish-Stillaguamish Local Integrating Organization Final Ecosystem Recovery Plan, May 2017
Plan Category	reach-scale plan	multi-species salmon recovery plan	County hazard mitigation plan	supporting strategy to salmon recovery plan	SMP	LIO 5-year ecosystem recovery plan
Weblink:	https://snohomishcountywa.gov/DocumentCenter/View/45061	https://snohomishcountywa.gov/ArchiveCenter/ViewFile/Item/2153	https://snohomishcountywa.gov/2429/Hazard-Mitigation-Plan	https://snohomishcountywa.gov/Archive/ViewFile/Item/4402	https://snohomishcountywa.gov/DocumentCenter/View/7612/Shoreline-	https://snohomishcountywa.gov/DocumentCenter/View/44939
Author(s):	Snohomish County Surface Water Management and the SLS Executive Committee	Snohomish Basin Salmon Recovery Forum	Institute for Hazards Mitigation Planning and Research Department of Urban Design and Planning University of Washington	Snohomish County Surface Water Management, King County Snoqualmie Watershed Forum, Staff Tulalip Tribes Natural Resources Department	Snohomish County Planning and Development Services	Snohomish County Surface Water Mangement
Entities involved:	Snohomish County, The Nature Conservancy, Snohomish Conservation District, Tulalip Tribes, NOAA Restoration Center, Ducks Unlimited, SLS Executive Committee	Snohomish Basin Salmon Recovery Forum Members and Snohomish Basin Salmonid Recovery Technical Committee Members. Includes: Snohomish and King counties, Tulalip Tribes, cities within Snohomish Basin watershed, agricultural, recreational, salmon interests, state and federal agencies	Snohomish County Dept. of Emergency Management and Dept. of Public Works, University of Washington	Snohomish Basin Salmon Recovery Forum Members and Snohomish Basin Salmonid Recovery Technical Committee Members. Includes: Snohomish and King counties, Tulalip Tribes, cities within Snohomish Basin watershed, agricultural, recreational, salmon interests, state and federal agency	Snohomish County Planning and Development Services; Department of Ecology	LIO Executive Committee, LIO Implementation Committee. Includes: representatives from Snohomish and King counties, cities, tribes, nonprofits
Other Comments/Description:	Provides an assessment of the relevant factors that influence that ecosystem and proposes a coordinated package of strategies, actions, and projects that will provide benefit to local agricultural operations, fish habitat, and flood storage.	Serves as the Snohomish basin chapter of the Puget Sound Chinook Recovery Plan	Identifies and prioritizes actions to reduce or alleviate risks from natural hazards, which reduces loss of life, personal injury, and property damage to residents and businesses within the county.	Identifies protection strategies that prevent the degradation of hydrologic processes that support salmon or salmon habitat	Sets County SMP Shoreline Environment Designations, Policies and Regulations; identifies restoration opportunities	Ensures that recovery planning, actions and funding are focused on the highest priority ecosystem recovery needs. There is great potential to leverage NEP funding.

Citations & Resources:

- (1) Beechie et al. *Restoring Salmon Habitat for a Changing Climate*. River Research and Application 29: 939-960. 2013.
 - (2) Biron et al. *Freedom Space for Rivers: A Sustainable Management Approach to Enhance River Resilience*. Environmental Management. 54. 10.1007/s00267-014-0366-z. 2014
 - (3) Earth Economics, 2010. *The Whole Economy of the Snohomish Basin: The Essential Economics of Ecosystem Services*. Schmidt, R., Batker, D., Harrison-Cox, J., Lovell, B. Earth Economics. Tacoma, WA. Produced for Snohomish County, Snohomish Basin Salmon Recovery Forum. November 2010.
 - (4) Earth Economics, 2011. *Nature's Value in the Skykomish Watershed: A Rapid Ecosystem Service Valuation*. Schmidt, R., Batker, D., Harrison-Cox, J. Earth Economics, Tacoma, WA. December 2011.
 - (5) Ecology #G0400041. Washington Department of Ecology Report: *Snohomish River Pollutant Diagnosis and Implementation Project - Centennial Clean Water Fund Grant Report*. Snohomish County, Surface Water Management, Everett, WA. December 2007.
 - (6) Snohomish County Surface Water Management and the SLS Executive Committee, 2017. *Lower Skykomish River Reach-scale Plan*. Snohomish County Department of Public Works and the Executive Committee of the Sustainable Lands Strategy. Everett, Washington.
 - (7) NMFS-BiOp - National Marine Fisheries Service Biological Opinion (Endangered Species Act Section 7) Consultation Final Biological Opinion And Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation, Implementation of the National Flood Insurance Program in the State of Washington Phase One Document – Puget Sound Region. NMFS Tracking No.: 2006-00472. September 22, 2008.
 - (8) *Puget Sound Floodplains Implementation Strategy*, Appendix G: Advancing Integrated Floodplain Management at the Local Level. Prepared by Floodplains by Design. Discussion Draft. June 2016.
 - (9) *Puget Sound Salmon Recovery Plan*, adopted by the National Marine Fisheries Service (NMFS). Submitted by the Shared Strategy Development Committee, for Puget Sound, Seattle, WA. January 19, 2007.
 - (10) *Snohomish Basin Protection Plan* – Snohomish County Surface Water Management, King County Snoqualmie Watershed Forum Staff, and Tulalip Tribes Natural Resources Department. Snohomish Basin Salmon Recovery Forum. Everett, WA. 2015.
 - (11) *Snohomish County Natural Hazard Mitigation Plan Update*. Prepared for Snohomish County. Prepared by the Institute for Hazards Mitigation Planning and Research, Dept. of Urban Planning and Design, University of Washington. September 2015.
 - (12) *Snohomish River Basin Salmon Conservation Plan*, Snohomish Basin Salmon Recovery Forum. Snohomish County Department of Public Works, Surface Water Management Division. Everett, WA. June 2005.
 - (13) Snohomish River Comprehensive Flood Control Management Plan, 1999.
 - (14) WA State Conservation Commission in partnership with Snohomish County Conservation District- Regional Conservation Partnership Program – Precision Conservation for Salmon and Water Quality in Puget Sound. 2016.
 - (15) The 2016 Action Agenda for Puget Sound. June 2016. <http://psp.wa.gov/action-agenda-document.php>
 - (16) IN DEVELOPMENT – Agricultural Resilience Plan, Snohomish Conservation District
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