APPENDIX A: PROJECT LEAD CURRICULUM VITAE

STEVE R. HINTON, Restoration Program Director

1516 East Victor St.
360-466-7243 Bellingham, Washington 98225
shinton@skagitcoop.org 360-715-1276

Education

1990 M.S. **Georgia Institute of Technology**
Science & Technology Policy program
1984 B.S. **Washington State University**
Biology Department, Genetics program
1980 H.D. **Snohomish High School**
Science & Agriculture Concentration

Restoration Ecology Employment

- **8/00-Present Skagit System Cooperative: DIRECTOR OF RESTORATION**

LaConner, Washington. Director of the Salmonid Habitat Restoration program for tribal natural resource agency representing the sovereign native communities of the Sauk-Suiattle, Upper Skagit and Swinomish people. Responsible for planning, budgeting, implementing, coordinating and supervising restoration projects and strategies with a staff of 3 professional ecologists with seasonal technician support. From 2003 to 2006 was acting program director for entire organization. Responsible for planning, budgeting, implementing, coordinating and supervising 5 departments with 32 employees. Oversee a yearly operating budget of over 3 million.

- 5/99-8/00 Snohomish County: SENIOR HABITAT BIOLOGIST

Everett, Washington. Provided technical support and policy input to salmonid protection and recovery strategies defined in Snohomish County's early action plan for ESA response. Providing supervision to survey crews, field leadership, data collection, policy, and publication review, committee support, landowner negotiations, project planning, monitoring habitat inventory and evaluation.

- **11/95-5/99 Oregon Trout: FIELD COORDINATOR**

Portland, Oregon. Stewardship coordinator for non – profit wild fish conservation organization with over 4000 members. Duties include conducting workshops, protection and recovery projects, advocacy training, and logistical support. Significant milestones include.

- ✓ Coordinator of volunteer monitoring program for the Lower Columbia Estuary Program. Duties are shared with CREST of Astoria and include groups in Washington & Oregon.
- ✓ Member of technical teams charged with developing long term monitoring plans for several watersheds.
- ✓ Collected biotic samples from over 100 monitoring locations in watersheds through out Oregon in 1998 alone.
- ✓ Developed and directed volunteer network of over 500 "Riverkeepers" in the State of Oregon.
- ✓ Member of technical committees for 7 different watershed councils.
- ✓ Member of several technical teams conducting watershed analysis & assessments.
- ✓ Planned and implemented site specific recovery projects.
- ✓ Member of negotiation team for Pacific Corp north Umpqua FERC relicensing.
- ✓ Conducted and coordinated numerous physical and biotic surveys.
- ✓ Work in consensus meetings monthly with representatives from numerous agencies, corporations and citizen groups.

90-95 R.S. Hinton & Associates: OWNER

Portland, Oregon. Organized, maintained, and administered a consortium of resource professionals for the purpose of providing research, planning and coordination to conservation projects.

- ✓ Implementation of salmon habitat projects. Including riparian plantings, slope stabilization, and habitat evaluation and assessment.
- ✓ Formation, and coordination of Watershed Councils. Active in the Clackamas and Nestucca Basins.
- ✓ Policy analysis for conservation strategies under the USFS "Option 9" plan. Including role at defining watershed analysis protocols.

Implemented & Ongoing Project Involvement

Wiley Slough estuarine Restoration
Fornsby Creek/Smokehouse Floodplain SRT Project
Milltown Island Restoration
Edgewater Park Off Channel Construction
Hansen Creek Tributary 272 Channel Development
Lyle Creek Restoration
Tin Shack Restoration and Riparian Enhancement
Lone Tree Tidal Marsh Restoration
Illabot Feasibility Study
Crescent Harbor Design Implementation
Sauk Roads Upgrade and Decommissioning
Fisher Slough Tidal marsh Restoration
Beaver Slough Channel Restoration
Sandy Creek Alluvial fan
Thomas Creek District Plan Implementation
Island County Pocket Estuary Assessment

Research Skills/Technical Expertise

- STATISTICAL ANALYSIS: SPSSX, Biometric, & Rick Analysis.
- WATER QUALITY SAMPLING: Biotic and chemical analysis.
- GIS ANALYSIS: ArcInfo, Arcview
- ATP SPECTROPHOTOMETRY:
- MICROECONOMIC ANALYSIS: Cost/Benefit, R.O.I. ,& consumer surplus.
- POLICY ANALYSIS: Qualitative and quantitative techniques.
- ELECTROPHORESIS TECHNIQUES: Agarose Gel & Western Blot.

Computer Skills

- Software: WORD, EXCEL, ACCESS, ACT, EUDORA, SPSS, ARC VIEW, POWER POINT
- Operating Systems: DOS, LINUX, WINDOWS 98,NT, NOVELL

Publications & Reports

WDFW "Wiley Slough Estuarine Restoration Design Report" 2005 Editor and primary author for the Wiley Slough Design Team.

Shared Strategy for Puget Sound "Skagit Chinook Recovery Plan" 2005 Contributing Author for Skagit River System Cooperative & WDFW

Hinton, Steve "Edgewater Restoration Project Fish Use Analysis" 2003 for City of Mount Vernon.

Skagit Watershed Council "Fir Island Pathways Analysis" Lead technical writer. Co-authored with Greg Hood and Phillip Williams & Associates.

Skagit County "Hansen Creek Watershed Management Plan" 2001 Contributing Author.

Hafele, Rick & Steve Hinton "Field Guide to Northwest Aquatic Invertebrates" 1996 Oregon Trout & Oregon DEQ

Professional Memberships/Certification

American Benthological Society, American Fisheries Society, Society for Ecological Restoration, NAUI Open water diver certification.

DEVIN M. SMITH, Senior Restoration Ecologist

3060 Peabody Street, Bellingham, WA 98225
360-303-5768 devin.smith@comcast.net

EDUCATION

Masters of Environmental Science, 1996. *The Evergreen State College*, Olympia, WA.

- Extensive coursework in geomorphology, hydrology, salmonid ecology, and forest ecology
- Thesis project: Assessed erosion patterns and historical channel migration on the Nisqually River using aerial photographs, field data, and computer mapping software

Advanced Bachelor of Arts in Psychology, 1993. *Occidental College*, Los Angeles, CA.

RESOURCE MANAGEMENT EXPERIENCE

- Extensive experience in managing all aspects of salmonid habitat restoration project development, including feasibility and habitat assessment, grant writing, environmental permits, development of project designs, supervision of field crews, contract negotiation, and construction management.
- Development of regional strategies for habitat restoration in Skagit River basin and review and prioritization of Salmon Recovery Funding Board proposals.
- Provide review and oversight for Forest Service activities, WSDOT road protections, and County FEMA and ACOE emergency actions that affect salmonid habitat, including timber harvest, road construction and repair, and dike and bank armoring installation.
- Development of mitigation proposals for a variety of management activities related to the Skagit River basin, including acquisition of 47 acres of floodplain on Sauk River, removal of fish passage barriers, and installation of large woody debris.
- Provide consulting and contracting services for restoration planning and implementation related to mitigation from hydropower facilities managed by Seattle City Light and Puget Sound Energy.
- Provided technical assistance to southern Puget Sound Tribes in developing habitat restoration strategies and in prioritizing and implementing restoration projects.

- Managed a GIS-based database and assessment tool to evaluate salmonid habitat conditions in the southern Puget Sound region and coordinate the GIS efforts for the Salmon and Steelhead Habitat Inventory and Assessment Project (SSHIAP).
- Developed methods and provided training and technical support for Tribes and other Timber/Fish/Wildlife (TFW) cooperators in developing fish habitat monitoring projects on forested lands.

RESEARCH AND FEASIBILITY PROJECTS

- Evaluated effectiveness of all constructed floodplain groundwater channels in the upper Skagit River as part of Skagit hydroelectric project mitigation program through a comparison of habitat area and natural floodplain channel density in unregulated floodplain reaches.
- Managed historic photo analysis to evaluate channel migration and rip-rap bank protection as part of the Sauk River Management Plan.
- Completed feasibility study, habitat assessment, and preliminary design work for restoration of Illabot Creek. Includes the removal of approximately 4,000 linear feet of dikes and bank armoring, relocation of 3,000 feet of Illabot Creek to its historic channel, and construction of a new bridge on county highway.
- Assessed impacts of floodplain modifications on off-channel habitats, analyzed gaps in off-channel habitat, and developed and evaluated conceptual restoration alternatives for all degraded reaches in the Chinook zone of the Skagit River basin as part of the Skagit Chinook Recovery Plan.
- Completed assessment of mainstem and floodplain habitat conditions for several alternatives related to dike removal and mainstem channel relocation at Cockreham Island on the Skagit River
- Completed GIS-based habitat assessment and prioritization for over 100 fish passage barriers in the Skagit River basin.
- Involvement in feasibility development of alluvial fan restoration on Hansen Creek, Wiseman Creek, and Downey Creek.
- Completed inventory and assessment of natural barriers and riparian conditions in Samish River watershed.
- Developed effectiveness monitoring protocols for restoration projects for the Skagit Watershed Council.
- Designed and implemented a collaborative project to evaluate the effectiveness of Washington riparian forest practice prescriptions and to establish long-term research plots in numerous riparian stands.
- Managed the riparian component for a Habitat Conservation Plan monitoring project in old growth and managed forest stands in the Taneum Creek watershed.
- Managed a pilot project examining the relative influences of regional geology, stream gradient and sediment supply in determining the quality of salmonid spawning habitat on forested lands.

RESTORATION PROJECTS

- Riparian planting work at Lyle Creek, Skiyou Slough, McCleod crossing.
- Installed 40-foot bridge over a slough on the Suiattle River at McCleod crossing.
- Riparian silvicultural treatments and planting work in Finney Creek to restore a natural distribution of conifer species.
- Forest road assessment, decommissioning, and upgrading work to reduce sediment risks in Dan Creek and Sauk Prairie watersheds and in the Suiattle River basin.
- Restored floodplain processes in Bacon Creek by removing over 1,000 linear feet of rip-rap bank protection and relocating almost a mile of road to the adjacent hillslope.

- Removed aging fishway to provide fish passage and restored natural channel conditions in Suiattle Slough
- Repaired extensive flood damage at two constructed groundwater channels along Skagit River.
- Installed and monitored experimental beaver management structure that provides fish passage to Powerline channel.
- Extensive restoration of Lone Tree Creek on Swinomish reservation, which included installing 40-foot bridge and four culverts to restore fish passage and natural tidal flow, excavating ½ acre tidal wetland, removing floodplain fills, moving 400 feet of stream channel from ditch to natural channel, and installation of spawning gravel and woody debris.

ADDITIONAL SKILLS AND ACHIEVEMENTS

- Extensive experience with Geographic Information System (GIS) for data tracking, spatial analysis, and project development.
- Successfully applied for and received approximately $1 million in grants related to habitat restoration.

PUBLICATIONS

Smith, D. and K. Ramsden, 2006. Illabot Creek habitat restoration feasibility study. Skagit River System Cooperative, La Conner, WA.

Co-authored chapter "Restoration Actions in Freshwater Rearing Habitat" IN: SRSC and WDFW, 2005. Skagit Chinook Recovery Plan, La Conner, WA.

Smith, 2005. Off-channel habitat inventory and assessment for the upper Skagit River basin. Skagit River System Cooperative, La Conner, WA.

Smith, D. and T. Waldo, 2003. GIS-based assessment of salmonid habitat upstream of fish passage barriers in the Skagit and Samish river basins, IN: Salmon and Steelhead Habitat Limiting Factors WRIA 3 and 4: the Skagit and Samish basins. Report by the Washington State Conservation Commission, Lacey, WA.

Smith, D., D. Schuett-Hames, J. Grizzel, 1998. Pilot project to evaluate the effectiveness of riparian forest practices in the NW Cascades region. TFW Monitoring Program, Northwest Indian Fisheries Commission, Lacey, WA.

Smith, D. and D. Schuett-Hames, 1998. Guidelines for monitoring and evaluating effectiveness of forest practices and forest management systems: riparian LWD recruitment and shade. TFW Monitoring Program, Northwest Indian Fisheries Commission, Lacey, WA.

Morgan, A. and D. Smith, 1997. Trends in disturbance and recovery of selected salmonid habitat attributes related to forest practices: a literature review and monitoring recommendations. TFW Monitoring Program, Northwest Indian Fisheries Commission, Lacey, WA.

EMPLOYMENT HISTORY

2000-Present *Skagit River System Cooperative*, La Conner, WA. Senior Restoration Ecologist
1998-2000 *Northwest Indian Fisheries Commission*, Olympia, WA. Habitat Biologist for SSHIAP
1995-1998 *Northwest Indian Fisheries Commission*, Olympia, WA. Hired as Field Technician and promoted to Habitat Biologist in the TFW Monitoring Program

Skagit River System Cooperative
(360) 466-7282 ghood@skagitcoop.org

EDUCATION

2000 University of Washington, Seattle, WA. School of Aquatic & Fisheries Science; PhD.
1987 Florida State University, Tallahassee, FL. Dept. of Biological Sciences; MS.
1984 Rhodes College, Memphis, TN. Dept. of Biology; BS cum laude.

JOURNAL PUBLICATIONS

WG Hood. 2007. Large woody debris influences vegetation zonation in an oligohaline tidal marsh. *Estuaries & Coasts.* In press.

WG Hood. 2007. Scaling tidal channel geometry with marsh island area: a tool for habitat restoration, linked to channel formation process. *Water Resources Research.* 43, W03409, doi:10.1029/2006WR005083.

WG Hood. 2006. Comment on "Evolution of tidal creek networks in a high sedimentation environment: A 5-year experiment at Tijuana Estuary, California" by Wallace et al. 2005. Estuaries 28:795-811. *Estuaries and Coasts* 29:1265-1267.

WG Hood. 2006. A conceptual model of depositional, rather than erosional, tidal channel development in the rapidly prograding Skagit River Delta (Washington, USA). *Earth Surface Processes and Landforms* 31:1824-1838. doi: 10.1002/esp.1381.

WG Hood. 2004. Indirect environmental effects of dikes on estuarine tidal channels: thinking outside of the dike for habitat restoration and monitoring. *Estuaries* 27:273-282.

WG Hood. 2002. Landscape allometry: from tidal channel hydraulic geometry to benthic ecology. *Canadian Journal of Fisheries and Aquatic Sciences* 59:1418-27.

WG Hood. 2002. Application of landscape allometry to restoration ecology. *Restor. Ecol.* 10:213-22.

WG Hood & RJ Naiman. 2000. Vulnerability of riparian zones to invasion by exotic vascular plants. *Plant Ecology* 148:105-14.

WG Hood & WR Tschinkel. 1990. Desiccation resistance in arboreal and terrestrial ants. *Physiological Entomology* 15:23-35.

RJ Norby, EG O'Neill, *WG Hood*, & RJ Luxmoore. 1987. Carbon allocation, root exudation and mycorrhizal colonization of *Pinus echinata* seedlings grown under CO_2 enrichment. *Tree Physiology* 3:193-202.

Journal Manuscripts in Review

WG Hood. Landscape allometry and prediction in estuarine and coastal ecology: linking landform scaling to ecological patterns and processes. *Estuaries & Coasts*.

Journal Manuscripts in Preparation

WG Hood. Planning estuarine habitat restoration in the face of accelerated sea-level rise: an example from the Skagit River Delta (Washington, USA). Potential journal(s): *J. Coastal Research, Coastal Management, Ecological Engineering, Environ. Management, Restoration Ecology*.

WG Hood. Patterns in marsh tidal channel recovery following dike breaching. Potential journal(s): *Water Resources Research, Restor. Ecol., J. Coastal Research, Earth Surf. Process. Landforms.*

BOOK CHAPTERS

CA Rice, *WG Hood*, LM Tear, CA Simenstad, LL Johnson, GD Williams, P Roni, BE Feist. 2005. Monitoring rehabilitation in temperate North American estuaries. Pp. 165-204 *IN*: P. Roni (ed.), Monitoring River Restoration. American Fisheries Society, Bethesda, Maryland.

Simenstad, CA, *WG Hood*, RM Thom, DA Levy, & DL Bottom. 2000. Landscape structure and scale constraints on restoring estuarine wetlands for pacific coast juvenile fishes. *IN:* MP Weinstein & DA Kreeger (eds), Concepts and Controversies in Tidal Marsh Ecology. Kluwer Academic Publ., Dordrecht.

CONFERENCE PROCEEDINGS

WG Hood. 2007. Scaling tidal channel geometry with marsh island area: a tool for habitat restoration, linked to channel formation process. Proceedings of the 2007 Georgia Basin/Puget Sound Research Conference. In press.

WG Hood. 2004. Likely scaling of basin area with some marine riparian zone functions. Pp. 55-56 *IN:* J. P. Lemieux, J. S. Brennan, M. Farrell, C. D. Levings, and D. Myers (eds.), Proceedings of the DFO/PSAT Sponsored Marine Riparian Experts Workshop, Tsawwassen, BC, February 17-18, 2004. Can. Manuscr. Rep. Fish Aquat. Sci. 2680.

WG Hood and S Hinton. 2004. Baseline monitoring: planning, design, and prediction for estuarine habitat restoration. *In* T.W. Droscher and D.A. Fraser (eds). Proceedings of the 2003 Georgia Basin/Puget Sound Research Conference. Available: http://www.psat.wa.gov/03_proceedings/start.htm

WG Hood. 1994. Landscape allometry: a linkage of landscape form and process. pp. 42-47 *IN:* Proceedings of the International Workshop on the Ecology and Management of Aquatic-Terrestrial Ecotones. February 14-19, 1994. Seattle, USA.

TECHNICAL REPORTS

WG Hood. 2006. Status and Trends of Tidal Wetlands in the Skagit River Delta: Final Performance Report to the EPA Region 10 for grant agreement #CD-97051801-0. Skagit River System Cooperative, LaConner, WA.

Hinton S, Blank J, McKain A, *Hood WG*. 2005. Wiley Slough Estauarine Restoration Design Report. Prepared for the Washington Department of Fish and Wildlife. Skagit River System Cooperative, LaConner, WA.

Beamer E, A McBride, C Greene, R Henderson, *WG Hood*, K Wolf, K Larsen, C Rice, K Fresh. 2005. Delta and Nearshore Restoration for the Recovery of Wild Skagit River Chinook Salmon: Linking Estuary Restoration to Wild Chinook Salmon Populations. Skagit River System Cooperative, LaConner, WA.

Beamer E, R Bernard, R Hayman, W Hebner, S Hinton, *WG Hood*, C Kraemer, A McBride, J Musslewhite, D Smith, L Wasserman, K Wyman. 2005. Skagit Chinook Recovery Plan. Skagit River System Cooperative, LaConner, WA.

WG Hood. 2004. Analysis of the Restoration Potential of Former Tidelands in the Skagit Delta. A report to the Washington State HB1418 Task Force. Washington State Conservation Commission, Olympia, WA.

WG Hood. 2004. Wiley Slough Conceptual Restoration Design. Report prepared for the Washington State Department of Fish and Wildlife. LaConner, WA.

WG Hood. 2004. Deepwater Slough Restoration Monitoring Report: 2000-2003. Prepared for US Army Corps of Engineers-Seattle District. Skagit River System Cooperative, LaConner, WA.

Phillip Williams & Associates, S Hinton, and *WG Hood*. 2004. An Assessment of Potential Habitat Restoration Pathways for Fir Island, Washington. Prepared for The Skagit Watershed Council, Mount Vernon, Washington.

Simenstad, CA, JR Cordell, *WG Hood*, BE Feist & RM Thom. 1997. Ecological status of a created estuarine slough in the Chehalis River estuary: assessment of created and natural estuarine sloughs, January-December 1995. Univ. Washington, School of Fisheries, Fish. Res. Inst. FRI-UW-9621. Seattle.

Cordell, JR, LM Tear, CA Simenstad & *WG Hood*. 1996. Duwamish River Coastal America restoration and reference sites: results from 1995 monitoring studies. Univ. Washington, School of Fisheries, Fish. Res. Inst. FRI-UW-9612. Seattle.

Cordell, JR, LM Tear, CA Simenstad, SM Wenger & *WG Hood*. 1994. Duwamish River Coastal America restoration and reference sites: results and recommendations from year one pilot and monitoring studies. Univ. Washington, School of Fisheries, Fish. Res. Inst. FRI-UW-9416. Seattle.

Simenstad, CA, JR Cordell, JM Miller, *WG Hood*, and RM Thom. 1993. Ecological status of a created estuarine slough in the Chehalis River estuary: assessment of created and natural estuarine sloughs, January--December 1992. Fisheries Research Institute, University of Washington. FRI-UW-9305.

Simenstad, CA, JR Cordell, *WG Hood*, JM Miller, and RM Thom. 1992. Ecological status of a created estuarine slough in the Chehalis River estuary: report of monitoring in created and natural estuarine sloughs, January--December 1991. Fisheries Research Institute, University of Washington. FRI-UW-9206.

ARTICLES FOR LAY AUDIENCES

WG Hood. 2005. Sea Level Rise in the Skagit Delta. *Skagit River Tidings, 2005*. Skagit Watershed Council, Mount Vernon, Washington.

WG Hood. 2004. Distributary Channel Development Processes in the Skagit Delta. *Skagit River Tidings, 2004*. Skagit Watershed Council, Mount Vernon, Washington.

WG Hood, E. Beamer, and R. Henderson. 2003. Preliminary results from monitoring the Deepwater Slough restoration. *Skagit River Tidings, 2003*. Skagit Watershed Council, Mount Vernon, Washington.

WG Hood. 2002. Sweetgale, beaver, salmon, and large woody debris in the Skagit River tidal marshes: an overlooked ecological web. *Skagit River Tidings, 2002.* Skagit Watershed Council, Mount Vernon, Washington. http://www.skagitwatershed.org/rpapers_overlooked.html

WG Hood. 2002. Ecological impacts of dikes in the Skagit delta. *Skagit River Tidings, 2002*. Skagit Watershed Council, Mt Vernon, Washington. http://www.skagitwatershed.org/rpapers_dikes.html

PROFESSIONAL EXPERIENCE

2003-present	Senior restoration Ecologist, Skagit River System Cooperative, La Conner, WA.
2000-2003	Restoration Ecologist, Skagit River System Cooperative, La Conner, WA.
1993-2000	Biological Consultant. Self-employed.
1990-1993	Research Assistant, School of Fisheries, University of Washington. Assessment and evaluation of ecosystem functions for a variety of estuarine wetlands.
1989-1990	Biologist for David Evans and Associates, Inc. Bellevue, WA.
1988	Wetland biologist for the City of Auburn, WA.

TEACHING EXPERIENCE

2003-7	Winter Quarter	Instructor, Landscape Ecology of Wetlands, Professional Certification Program, University of Washington.
1998	Winter Quarter Colloquium,	Instructor for CEP 302, Environmental Response Department of Urban Design and Planning, Univ. of Washington
1997	Autumn & Spring	TA for FISH 312, Fisheries Ecology, School of Fisheries, UW.
1996	Autumn Quarter	TA for QSCI 381, Intro. to Probability & Stats., School of Fisheries, UW.
1994	Autumn Quarter	TA for BIO 201, General Biology Laboratory for majors, Biol. Dept.,UW.
1990	Autumn Quarter	TA for FISH 507, Wetland Ecology, School of Fisheries, UW.
1987	Summer Semester	Lecturer for Comparative Physiology, Florida State University.
1986	Summer Semester	Lecturer for General Biology for Majors, Florida State University

AWARDS & HONORS

Individual Achievement Award, Skagit Watershed Council, 2003
National Science Foundation (NSF) Dissertation Improvement Grant, 1994-7
W. F. Thompson Award, UW School of Fisheries, 1993-4
National Science Foundation (NSF) Graduate Fellowship, 1984-7

GRANTS

U.S. EPA STAR Grant, 2006, (co-PI) Sustainable coastal habitat restoration in the Pacific Northwest: modeling and managing the effects, feedbacks, and risks associated with climate change ($900,000)

U.S. EPA. 2006. Analysis of the ecosystem function of remnant tidal scrub-shrub communities in the Skagit Delta with application to local and regional habitat restoration planning and Chinook recovery ($30,000)

Washington Salmon Recovery Funds, 2005, Milltown Island Estuarine Restoration ($355,000)

Washington Salmon Recovery Funds, 2005, McGlinn Island Causeway Feasibility Study ($160,000)

Washington Salmon Recovery Funds, 2003, Wiley Slough Restoration Design Study ($145,000)

U.S. Bureau of Indian Affairs (BIA), 2005, Pocket estuary analysis and restoration ($160,000)

BIA, 2003, Restoration Feasibility-Skagit Estuarine Marshes ($149,000)

BIA, 2001, Greater Skagit Delta Restoration Feasibility ($160,000)

PROFESSIONAL AFFILIATIONS & ACTIVITIES

Estuarine Research Federation
Pacific Estuarine Research Society
American Association for the Advancement of Science

Peer-reviewer for [1] Estuaries & Coasts, [2] Restoration Ecology,[3] Trans. Am. Fisheries Soc., [4] N. Am. J. Fisheries Management, [5] J. Plant Ecology, and [6] Geophysical Research Letters.

OTHER SKILLS

Fluent Spanish, capable German; proficient with ArcView GIS; excellent plant, insect, estuarine invertebrate, and fish identification skills; strong background in experimental design /statistical analysis; small outboard boat handling proficiency.

APPENDIX B: LANDOWNER SUPPORT

A letter acknowledging awareness and support of this project is anticipated to be received from the NASWI Commanding Officer shortly.

APPENDIX C: PERMIT STATUS

The Crescent Harbor salt marsh restoration project is located entirely on land owned by the Navy, so it will not be necessary to acquire any state and local permits. The salt marsh currently has no fish passage, so most construction activities will have limited or no effect on fish, which will make the process of acquiring federal permits relatively easy.

The project will need to meet the requirements of the NEPA, which will take the form of a categorical exclusion written by the Commanding Officer. The Navy will also serve as the lead for other federal permits and is currently writing the Biological Assessment and the Biological Opinion, which will evaluate the effects of the project on fish and fish habitat. The site is currently inaccessible to fish, so a "Not Likely to Adversely Affect" conclusion is anticipated. If a Biological Opinion is necessary, other federal agencies (Army Corps of Engineers, NOAA Fisheries, US Fish and Wildlife Service) will need to concur with the Biological Opinion in order for the project to proceed. An Army Corps of Engineers Nationwide Permit 27: Aquatic Habitat Restoration Establishment and Enhancement Activities will also be written by the Navy.

It is anticipated that this permitting process will be completed by the time grant funds are secured.

APPENDIX D: MAPS AND DESIGN DRAWINGS

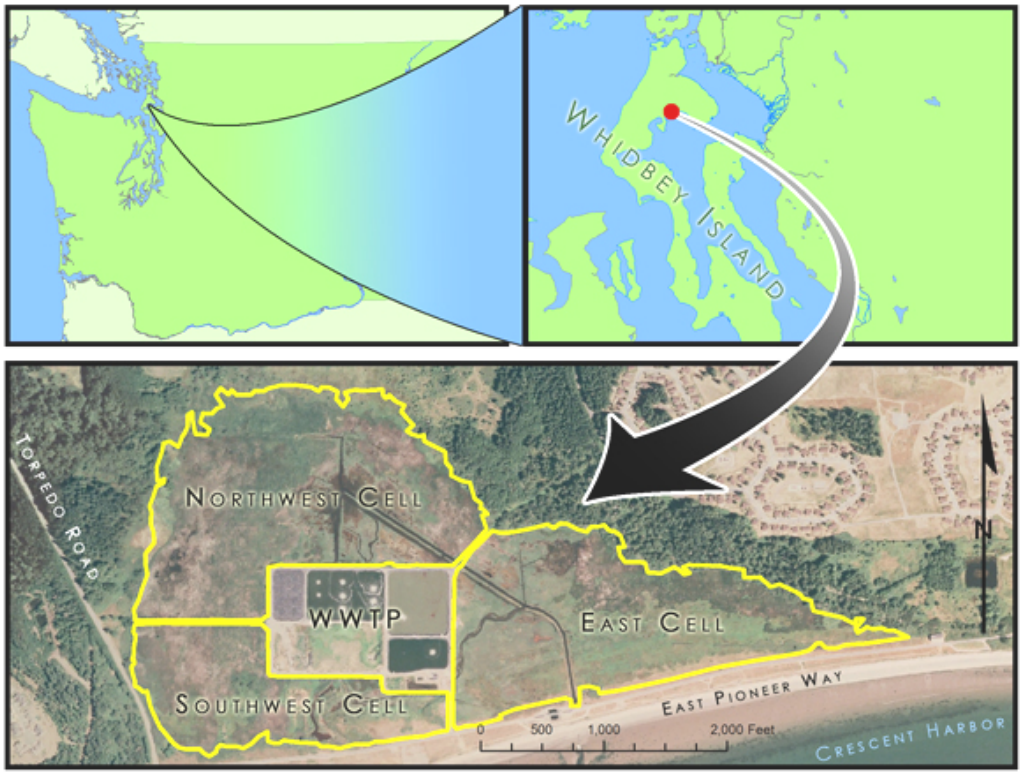

Figure 1: The Crescent Harbor Salt Marsh is located on Naval Air Station Whidbey Island, near Oak Harbor, Washington.

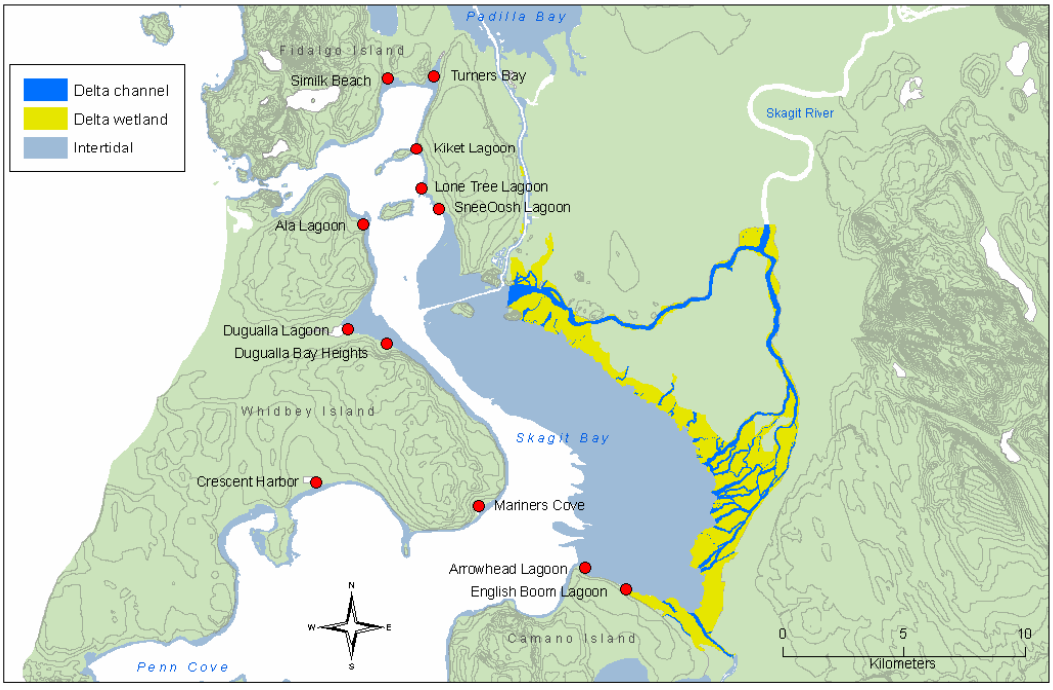

Figure 2: *Pocket estuary sites within one day's migration from the Skagit River delta by fry migrant Chinook salmon. Reproduced from Skagit Chinook Recovery Plan (WDFW and SRSC 2005).*

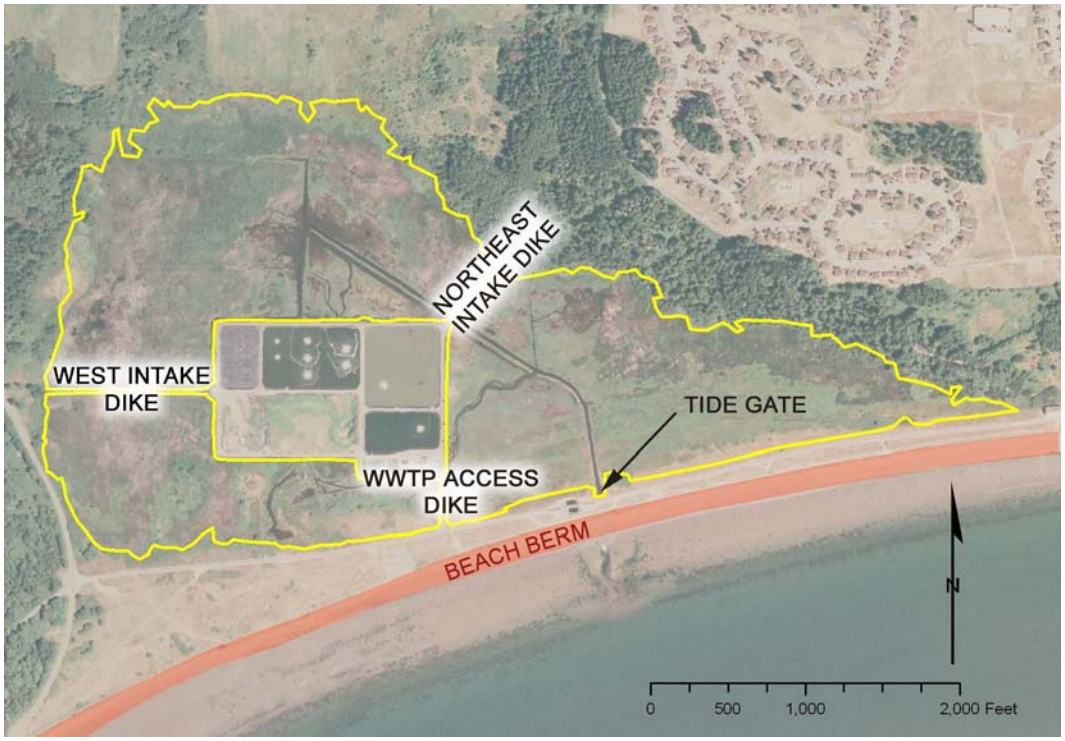

Figure 3: The historic marsh plain is divided by a series of dikes surrounding a wastewater treatment pond (WWTP). Limited tidal exchange takes place through a tide gate in the beach berm.

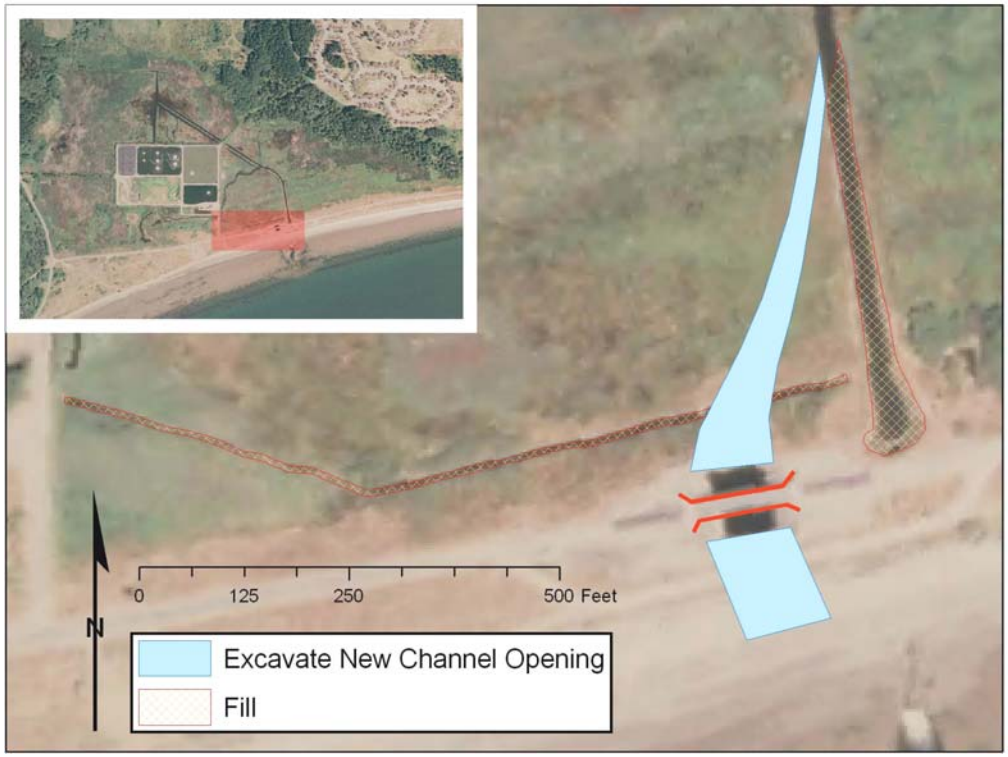

Figure 4: A new channel through the beach berm will be excavated beneath a bridge installed by NASWI SeaBees in 2006, and current channels and ditches will be filled.

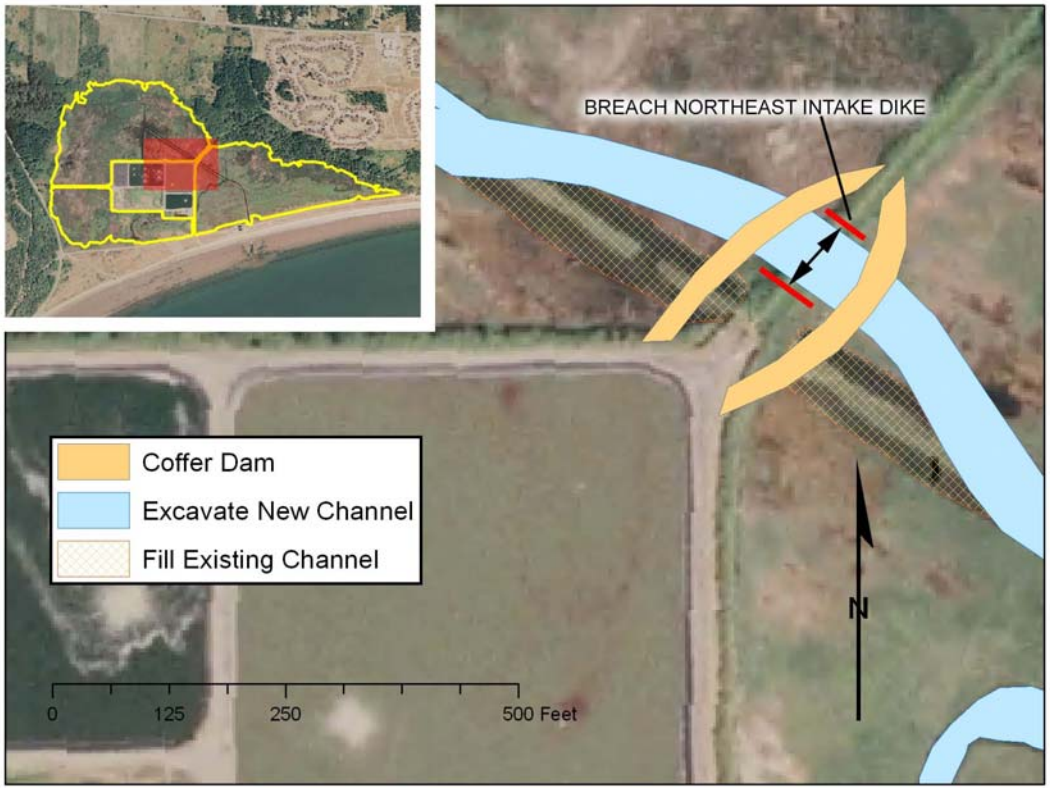

Figure 5: A coffer dam will be constructed to exclude water while the northeast sewer intake dike is breached. A new channel will be excavated to pass through this breach, and the existing channel will be filled. The sewer intake line buried within the dike will be replaced with a UV- and exposure-resistant pipe, and will be supported and protected from damage via an aluminum cage.

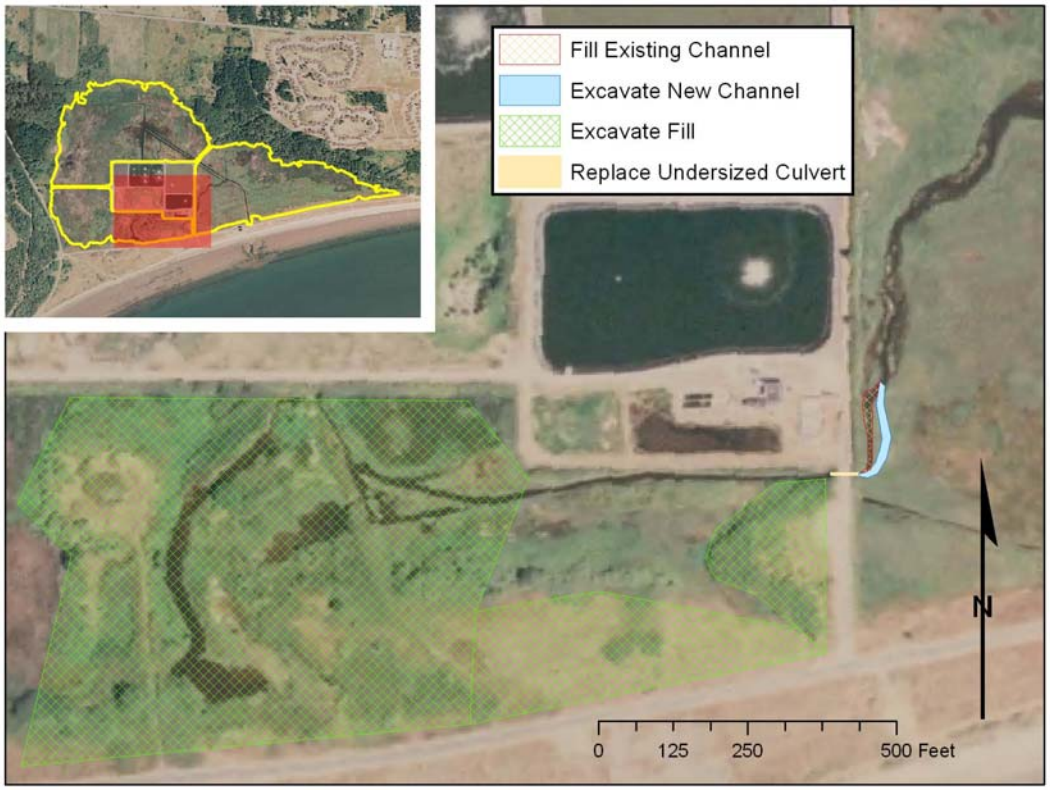

Figure 6: Fill remaining onsite from past construction will be removed. Portions will be used as fill in other areas of the site, and the remainder will be wasted elsewhere onsite. An undersized

culvert that passes through the south access dike will be replaced, and a new channel will be excavated further from the WWTP dike toe. The existing channel will be filled.

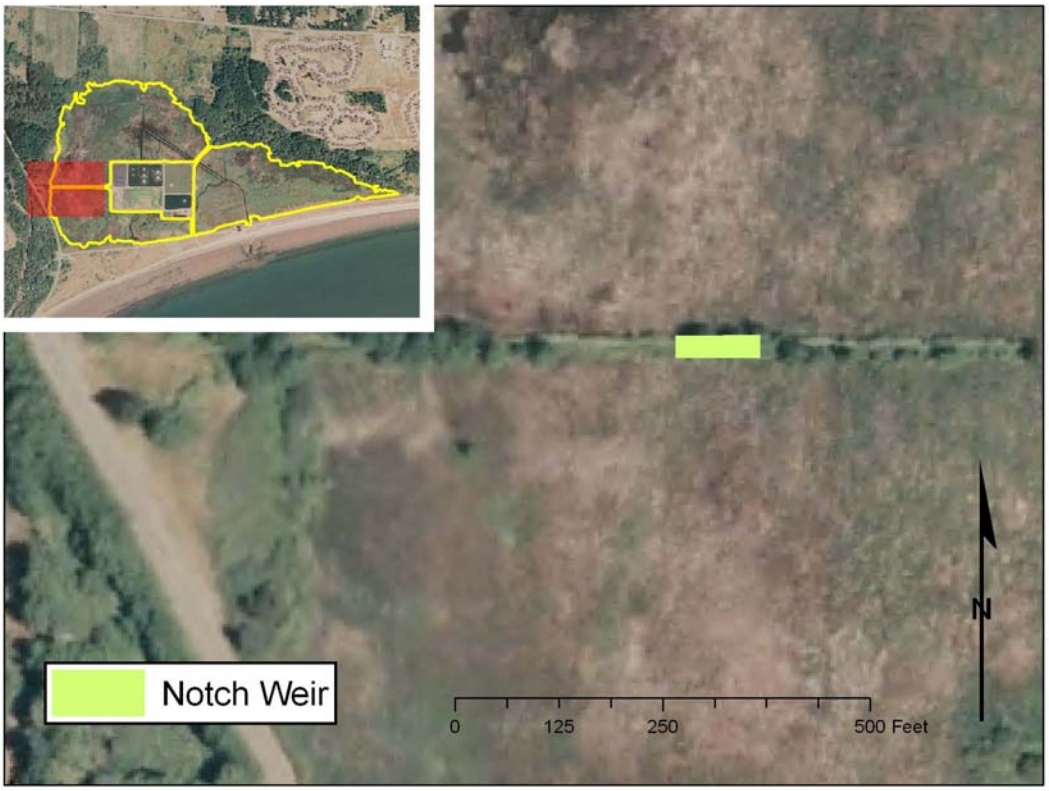

Figure 7: During the summer of 2007, City of Oak Harbor Public Works will armor the west intake dike and create a notch weir to allow water to flow over the top of the buried sewer intake pipe. They will also armor portions of the wastewater treatment plant dikes to protect from tidal scour.

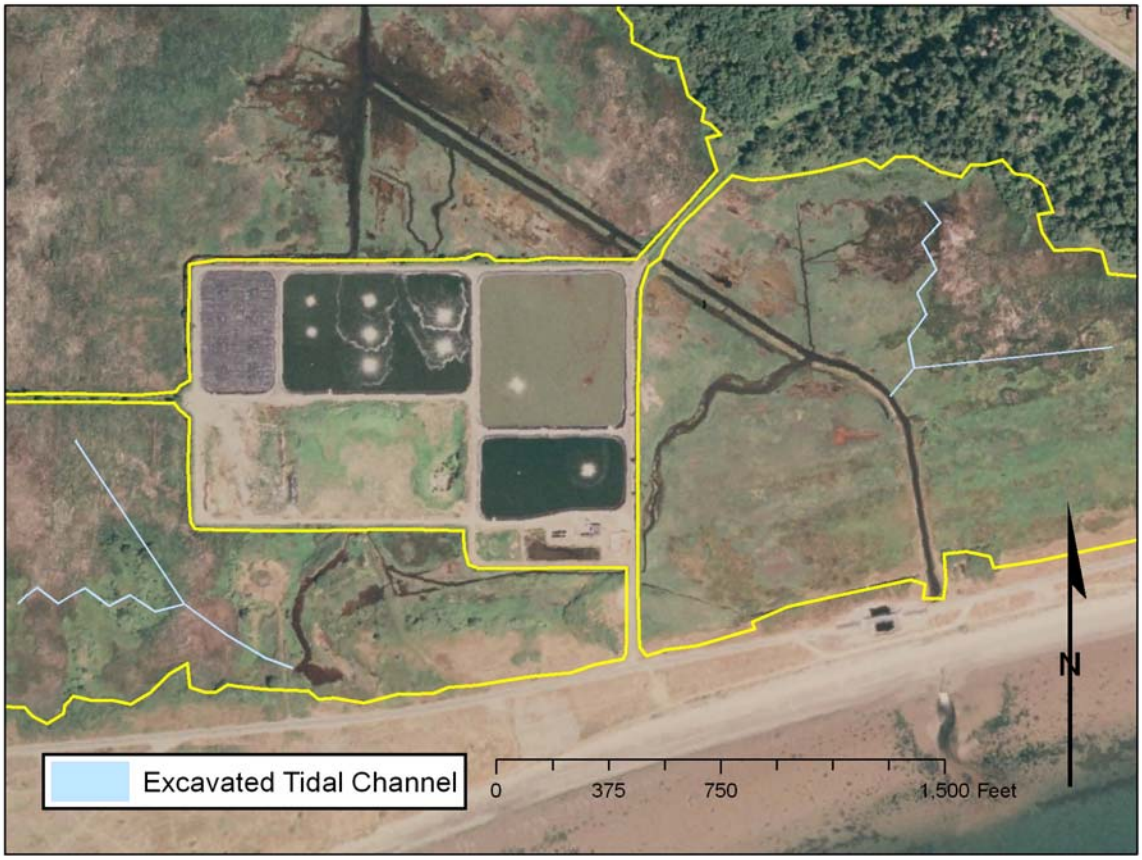

Figure 8: Additional tidal channels will be excavated to increase tidal circulation and allow comparison of fish habitat value and rates of tidal channel evolution between straight and sinuous channels.

APPENDIX E: EVIDENCE OF SECURED AND PENDING MATCH

See letter of support (Appendix C) from Naval Air Station Whidbey Island for secured match. A Scope Change Request has been submitted to the Salmon Recovery Funding Board (Island County, Lead Entity) for transfer of funds from the Arrowhead Lagoon Restoration Project to Crescent Harbor:

SRFB Scope Change Request

Project Name: **Arrowhead Lagoon Restoration**
Project Number: IAC #04-1217R

Project Sponsor: *Skagit River System Cooperative*
Lead Entity: Island County
Ranking: 1 of 2 in 4th Round,
SRFB Funds: $ 221,127 (85%)
Sponsor Match: $ 39,203 (15%)
Total: $ 260,150 (100%)

Request:

SRSC requests to change the scope for these funds earmarked for Arrowhead Lagoon to a large scale marsh restoration project located at Crescent Harbor. SRSC has been working with the US Navy to address project concerns that had stalled completion of the Crescent Harbor project. We believe those project concerns have been addressed and the project is now ready to proceed.

A detailed project proposal accompanies this request.

Original Project Description:

Arrowhead Lagoon (AL) is a nearshore pocket estuary located along the north shore of Camano Island. The lagoon is located along the path of currents from the Skagit and Stillaguamish Rivers, thereby providing refuge, foraging, and rearing opportunity for fry migrant Chinook, as well as a nursery and nearshore habitat for other estuarine/marine fish species. Skagit River System Cooperative (SRSC), in cooperation with local landowners, proposes to restore approximately 2.0 acres of intertidal habitat within the eastern portion of AL. Currently natural ecosystem function is impaired due to manmade constrictions within the inner lagoon. Actions will include removal of trail fill, a failing culvert, and a short bridge; construction of a new bridge; removal of fill along the northern interior shoreline; and revegetation in selected areas. This restoration proposal is timely because local landowners, represented by the Eagle Tree Estates Property Owners' Association (ETEPOA), have requested assistance for a failing culvert in the existing beach access trail fill. Removal of fill and construction of a spanning bridge would result in significant ecological improvement compared to the proposed culvert replacement alone. SRSC will work closely with the property owners to address beach access concerns and maximize restoration

Figure2

Figure1

Background: After considerable time and effort the Arrowhead Lagoon Restoration project was unable to go to construction due to our inability to gain final landowner consent from the Local Community. The vast majority of the Eagle Tree Estates Homeowners Association was in favor, or at least supportive, of our project proposal. However, in the final analysis one homeowner chose not to support the project. Repeated efforts to discuss or to meet the Casne's concerns were met with a firm answer of no. Without the consent of the Casne's we were unable to identify a means by which the

interests of the majority of the community could be addressed. Therefore the project had to be abandoned.

Staff Recommendation:

Enclosures:
PWA Cresent Harbor Report
SRSC project proposal

SRFB Director Decision: