

APPENDIX A:

DUNGENESS WATERSHED RESTORATION PLANS AND ACTIVITIES (1989 – 2006)¹

[Note: References cited in the 2009 Comprehensive Flood Management Plan are in bold type.]

I. Plans and Studies

A. Major Plans and Documents

- *Clean Water Strategy For Addressing Bacterial Pollution in Dungeness Bay and Watershed and Water Cleanup Detailed Implementation Plan.* 2004. Streeter and Hempleman for the Clean Water Workgroup. Clallam County and WA Dept. of Ecology.
- *Comprehensive Irrigation District Management Plan.* 2006. HDR Engineering, Inc., Olympia, WA. Prepared for the Dungeness River Agricultural Water Users Association.
- *Comprehensive Water Conservation Management Plan.* 1999. Montgomery Water Group. Prepared for Dungeness River Agricultural Water Users Association, WA Department of Ecology.
- *Dungeness Area Watershed Analysis including Gray Wolf River and McDonald, Siebert and Johnson Creeks.* Dungeness Area Watershed Cooperative Team. 1995. Prepared for US Forest Service, Olympic National Forest.
- *Dungeness River Area Watershed Management Plan.* 1993. Dungeness Watershed Committee coordinated by Clallam County.
- *Dungeness River Area Watershed Characterization.* 1991. Puget Sound Cooperative River Basin Team for Clallam County.
- ***Dungeness River Comprehensive Flood Control Management Plan. 1990. Kramer, Chin & Mayo for Clallam County***
- *Dungeness River Greenway Plan.* 1994. CZM, by Clallam County.
- *Dungeness-Quilcene Water Resources Management Plan.* 1994. Regional Planning Group, Jamestown S'Klallam Tribe Coordinating Entity.
- *Dungeness Watershed Analysis Update.* 2002. USDA Forest Service, Olympic National Forest. Dungeness watershed analysis - assessment modules for sedimentation and stream channels. Olympia, Washington.
- ***Dungeness Watershed Salmonid Recovery Planning Notebook: A Response to the Six Questions from the Development Committee of the Shared Strategy for Puget Sound. 2005. Submitted by Dungeness River Management Team. [Incorporated into the Puget Sound Salmon Recovery Plan. 2005. Submitted by the Shared Strategy Development Committee. Adopted by National Marine Fisheries Service January 19, 2007.]***
- ***Elwha-Dungeness Watershed Plan for Water Resource Inventory Area 18 and Sequim Bay in West WRIA 17. May, 2005. Entrix, Inc. and the Clallam***

¹ Updated April, 2007 by the Jamestown S'Klallam Tribe

County Dept. of Community Development for the Elwha-Dungeness Planning Unit. Clallam County, Port Angeles, WA.

- ***Historical Geomorphology and ecology of the Dungeness River delta and nearshore environments from the Dungeness Spit to Washington Harbor.*** 2005. Collins, B. Department of Earth and Space Sciences, University of Washington. Prepared for the Jamestown S’Klallam Tribe.
- *Hydrogeologic Assessment of the Sequim-Dungeness Area, Clallam County, Washington.* 1999. Thomas, B.E., L.A. Goodman and Theresa D. Olsen. US Geological Survey Water-Resources Investigations Report 99-4048.
- ***Numerical Modeling Study of Levee Setback Alternatives for Lower Dungeness River, Washington.*** May, 2007. Lai, Y.G. and J.A. Bountry. U.S. Bureau of Reclamation. Denver, CO.
- ***Physical Processes, Human Impacts and Restoration Issues of the Lower Dungeness River.*** 2002. Bountry, J., T. Randle, L. Piety and R.A. Link. US Bureau of Reclamation. Prepared for Jamestown S’Klallam Tribe.
- ***Recommended Land Protection Strategies for the Dungeness River Riparian Area.*** 2003. Hals, H. and Dungeness River Restoration Workgroup. Prepared for the Jamestown S’Klallam Tribe.
- *Recommended Restoration Projects for the Dungeness River, (Habitat Plan/Blue Book).* Dungeness River Restoration Work Group (DRRWG). 1997. Prepared for the Dungeness River Management Team.
- *Relationship Between the Upper Dungeness River and the Bedrock Aquifer, Clallam County.* December 2001. Garrigues, R. and J. Shedd. WA Department of Ecology.
- *Restoring the Dungeness: An Overview of the Dungeness River Restoration Strategy.* 2003. Newberry, L. Prepared for the Jamestown S’Klallam Tribe.
- *Salmon and Steelhead Habitat Limiting Factors, WRIA 18, Final Report.* Haring. 1999. WA State Conservation Commission with Dungeness River Restoration Workgroup.
- *Sequim-Dungeness Groundwater Protection Project (and “Strategy”).* 1992-1994. Clallam County and Groundwater Committee.
- *Shoreline Master Program/Inventories.* Ongoing. Preparation for future amendments to integrate GMA/CAO/Watershed Planning.
- *Water Cleanup Plan for Bacteria in the Lower Dungeness Watershed.* Total Maximum Daily Load (TMDL) Submittal Report. June 2002. Hempleton, C. and D. Sargeant. WA Department of Ecology Southwest Regional Office.

B. Habitat Assessment

- *An Aquatic Resource Assessment of the Dungeness River Basin System: Phase I.* 1992. Orsborn and Ralph. Prepared for the Jamestown S’Klallam Tribe.
- *An Aquatic Resource Assessment of the Dungeness River Basin System: Phase II - Physical Channel Analysis, Hydrology, and Hydraulics, & Phase III - Fisheries Habitat Survey.* 1994. Orsborn and Ralph. Prepared for the Jamestown S’Klallam Tribe and USFS.
- *Dungeness Bay Bathymetry, Circulation and Fecal Coliform Studies, Phase I.* 2001. Rensel and Smayda. Prepared for Jamestown S’Klallam Tribe.
- *Dungeness Bay Bathymetry, Circulation and Fecal Coliform Studies, Phase II.* 2003. Rensel. Prepared for Jamestown S’Klallam Tribe.

- *Dungeness River Engineered Logjam Restoration Project Geomorphic Hazard Assessment*. 2006. Herrera Environmental Consultants. Prepared for the Jamestown S'Klallam Tribe.
- *A Fire-Year Report on Constructed Log Jams Built by the Jamestown S'Klallam Tribe on the Dungeness River*. September 2002. Hagen, M. Prepared for the Jamestown S'Klallam Tribe.
- ***Kinkade Island Geomorphic Assessment, Dungeness River, Washington*. 2003. US Bureau of Reclamation. Prepared for Clallam County.**
- ***Review of Clallam County Critical Areas Ordinance, 2001 in Protecting Riparian Areas – Using the Dungeness River as a Case Study*. 2004. Hals, H. Jamestown S'Klallam Tribe.**
- *Review of the Influence Exerted by Environmental Factors on Spring Chinook Salmon in the Dungeness River*. 1993. Lichatowich. Prepared for the Jamestown S'Klallam Tribe.
- *Seepage and Mainstem Aquifer Characterization*. 2001. USGS, WA Department of Ecology.
- *Siebert Creek Watershed Assessment*. 2003. US Fish and Wildlife Service, Pacific Woodrush, Clallam Conservation District, Jamestown S'Klallam Tribe, Clallam County.
- *Upper Dungeness Aquifer Study – Final Report: Relationship Between the Upper Dungeness River and the Bedrock Aquifer, Clallam County*. 2001. Gibbons. WA Department of Ecology.

C. Stock Analysis / Rebuilding / Recovery

- *Draft Recovery Plan for the Coastal Puget Sound Distinct Population Segment of Bull Trout (*Salvelinus confluentus*), Volumes I and II*. May 2004. Olympic Peninsula Management Unit, Region 1. United States Fish and Wildlife Service.
- *Dungeness Bull Trout Telemetry Project*. 2003-2007. U.S. Forest Service, U.S. Fish and Wildlife, WA Department of Fish and Wildlife, Olympic National Park, Washington conservation Corps, Dungeness Farms.
- *Dungeness Chinook Ecosystem Diagnostic Treatment Analysis and Reach Analysis Overview*. 2003. Mobernd Biometrics, Inc.
- *Dungeness Dungeness Chinook Acclimation Ponds / Chinook Broodstock Program*. 1996-present. Jobs in the Woods (BIA), Jamestown S'Klallam Tribe.
- *Dungeness Chinook Captive Broodstock Program*. 1992-present. WA Department of Fish and Wildlife, Jamestown S'Klallam Tribe, USFWS, volunteers.
- *Chinook Redd Mapping Study*. On-going. 1992-present. Jamestown S'Klallam Tribe.
- *Dungeness Chinook Salmon Rebuilding Project Progress Report, 1992-1993*. 1995. Smith, WDFW and Wampler, USFWS.
- *Dungeness Fall Pink Captive Broodstock Program and Tagging*. 1995-present. WDFW, Jamestown S'Klallam Tribe, USFWS.
- *Dungeness Pink Outmigration*. 1994. USFWS.
- *Dungeness River Pink and Chinook Salmon Historical Abundance, Current Status and Restoration*. 1993. Lichatowich. Prepared for the Jamestown S'Klallam Tribe.
- *Dungeness Salmonid Life History Study*. 1998. Hirschi and Reed. Prepared for Jamestown S'Klallam Tribe. Life History Assessment continues by the Jamestown S'Klallam Tribe (2002).

- *The Evolving Dungeness River: juvenile salmon and their use of side channel habitat - A comparison of data collected 1997/1998 vs. 1999/2000.* May 2003. Rot, B. Jamestown S'Klallam Tribe.
- *Key Points in Understanding EDT Action Analysis for Dungeness Chinook.* 2004. Lestelle, L. Mobernd Biometrics, Inc.
- *Smolt Trapping on Siebert, Matriotti (and Jimmycomelately) Creeks.* On-going. Northwest Indian Fisheries Commission, Jamestown S'Klallam Tribe, WDFW, volunteers.
- *Summer Chum Recovery Project.* On-going. WDFW, North Olympic Salmon Coalition, Jamestown S'Klallam Tribe, volunteers.
- *Toward Recovery: Clallam County Response to the Endangered Species Act Listing of and Proposed Listing of Salmonids Species in Puget Sound, the Strait of Juan de Fuca and the Pacific Coast.* Date Unknown. Clallam County Department of Community Development.
- *1992 Washington State Salmon and Steelhead Stock Inventory (SASSI).* 1993. WDFW and Washington Tribes.

D. Instream Flow / Water Conservation / Water Quality / Water Resources Studies

- *Aquifer Storage and Recovery Evaluation Report.* 2003. Tetra Tech FW, Inc. Prepared for Clallam County.
- *Dungeness Bay Fecal Coliform Bacteria Total Maximum Daily Load Study.* March 2004. Sargeant, D. WA Department of Ecology.
- *Dungeness River and Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study.* May 2002. Sargeant, D. WA Department of Ecology Environmental Assessment Program.
- *Dungeness River and Matriotti Creek Post Total Maximum Daily Load Data Review.* December 2004. Sargeant, D. WA Department of Ecology.
- *Dungeness River /Matriotti Creek Total Maximum Daily Load Study Preliminary Data Results for November 1999-October 2000.* January 2001. Sargeant, D. WA Department of Ecology.
- *Dungeness River Instream Flow Side Channel Study.* 2003. Daraio, J. J. Bountry and T. Randle. US Bureau of Reclamation. Denver, CO. Investigates relationship flows in the mainstem with flows in the side channels, and the impacts from irrigation withdrawals. Prepared for Jamestown S'Klallam Tribe.
- *Dungeness River Irrigation Ditch Leakage Assessment.* 1993. Montgomery Water Group. Prepared for WA Department of Ecology and Dungeness River Agricultural Water Users Association.
- *Dungeness Sediment Reduction for Fish/Shellfish Project.* 1999-2002. Sediment / temperature monitoring instream and extensive bay / small tributaries monitoring. In cooperation with WA Department of Ecology, Clallam County, WA Department of Health, CCWF funds.
- *EIS for Comprehensive Water Conservation Management Plan.* 2003. Foster Wheeler, Inc. Prepared for WA Department of Ecology.
- *Fish Habitat Analysis for the Dungeness River Using the Instream Flow Incremental Methodology.* 1991. Wampler and Hiss, USFWS.
- *Groundwater Flow Model of the Sequim-Dungeness Area.* 2003. Tetra Tech FW. Prepared for Clallam County.

- *Groundwater Quality in the Agnew and Carlsborg Area, Clallam County (December 2000-December 2002)*. 2003. Department of Ecology. Clallam County.
- *Instream Flow Recommendations for Dungeness-Quilcene Area Salmon and Steelhead Streams, 1993*. Hiss, USFWS, Dungeness River Restoration Work Group, with WA Department of Ecology review of Dungeness watershed streams. Updated 2000.
- *Irrigation Tailwater Quality Assessment*. 2003. Clallam Conservation District.
- *Irrigation and Stormwater Feasibility Study*. 2003. Cline Irrigation District, Clallam County Road Department, Washington Conservation Commission, Clallam Conservation District, Department of Ecology.
- *Potential Application of Microbial Source Tracking Methods to The Dungeness Watershed and Bay*. 2003. Battelle Pacific Northwest Division. Prepared for Clallam County and WA Department of Ecology.
- *Potential Stormwater Impacts on Sediment Quality in Urbanizing Clallam County Streams*. 2003. Prepared by Battelle Pacific Northwest Division for Clallam County. Johnson, A., B. Carey, and S. Golding. WA Department of Ecology.
- *Recommended Instream Flows for the Lower Dungeness River, 1993*. Hiss, USFWS, Dungeness River Restoration Work Group, with WA Department of Ecology review of Dungeness watershed streams. Updated 2000.
- *Results of a Screening Analysis for Pharmaceuticals in Wastewater Treatment Plant Effluents, Wells, and Creeks in the Sequim-Dungeness Area*. November 2004.
- *SNOTEL Gauges (2)*. 1998-1999. Installation in upper Dungeness to predict instream flows, drought, flooding. NRCS, for Jamestown S'Klallam Tribe.
- *Stream flow measurements* (on river, tributaries, irrigation ditches), Dungeness River. 1924-present / ongoing. USGS. Also flow measurements are collected by WA Department of Ecology (real-time monitoring on five irrigation outtakes), Jamestown S'Klallam Tribe, Sequim-Dungeness Agricultural Water Users Association, Streamkeepers.
- *Surface Water-Ground Water Interactions Along the Dungeness River and Vertical Hydraulic Conductivity of Streambed Sediments, Clallam County, Washington, September 1999-July 2001*. August 2002. Simonds, F.W. and K. Sinclair. WA Department of Ecology and US Geological Survey.
- *Potential Stormwater Impacts on Sediment Quality in Urbanizing Clallam County Streams*. 2003. Brandenberger, J.M., C.W. My, N.P. Kohn and L.S. Bingler. Prepared for Clallam County Department of Community Development by Battelle Marine Sciences Laboratory. Sequim, WA.
- *Water Cleanup Plan for Bacteria in Dungeness Bay: Total Maximum Daily Load (TMDL) Submittal Report*. April 2004. Hempleman, C. and D. Sargeant. WA Department of Ecology.
- *Water Storage and Site Feasibility Study*. 2003. Montgomery Water Group, Inc. Prepared for Clallam County and WA Department of Ecology.

II. Restoration and Education Projects and Programs

A. Restoration Projects and Programs

- *Burlingame Bridge Widening and Habitat Restoration*. 2001. Clallam County.

- *Clallam County Noxious Weed Removal / Survey*. 2003. Surveyed 130 miles and treated 37 miles in upper watershed. U.S. Forest Service, Clallam County, Department of Ecology's WCC Program.
- *Conservation Reserve Enhancement Program (CREP)*. Ongoing. Washington Conservation Commission, NRCS.
- *Derelict Fishing Gear Removal Pilot Project*. 2003. Northwest Straits Commission, NOAA, Clallam County Marine Resource Committee, Puget Sound Action Team, WDFW.
- *Dungeness Irrigation System Improvements* – Implementation of projects recommended in the Comprehensive Water Conservation Plan to improve water conveyance efficiency/fisheries survival (fish screens, ditch pipe lining, siphon replacement). Jamestown S'Klallam Tribe/WDFW, JFE-DNR, 1994-1998, IAC 1999-2001, WA SRFB 1999-2001. Clallam Conservation District/CCWF, 1999-2001. Sequim-Dungeness Agricultural Water Users Association, NRCS.
- *Dungeness Large Woody Debris Placement*. 1996-2001. JFE-DNR, JIW-BIA & IAC, Jamestown S'Klallam Tribe.
- *Dungeness Refuge Noxious Weed Removal*. 2001-2003. Dungeness National Wildlife Refuge, volunteers.
- *Dungeness Riparian Habitat Restoration Program*. 1997-2001. Purchase of conservation easements from willing sellers. North Olympic Land Trust, Clallam County.
- *Dungeness River Bank Stabilization* - Bioengineering projects to stabilize eroding banks in lower river. Clallam County/EPA, WDFW, JFW-DNR, and County roads/bridges projects. 1994.
- *Dungeness USFS Roads Sediment Reduction Project*. 2000-2003. Road stabilization and decommissioning, road drainage improvements. USFS, in partnership with Clallam Conservation District, Pacific Coast Watershed Project, WA Conservation Corps, Olympic National Forest.
- *Phase II Lower Dungeness River Restoration Project*. 2003-2007. U.S. Fish and Wildlife, Jamestown S'Klallam Tribe, willing landowners.
- *Sequim Prairie Irrigation Channel/Fish Screens/By-Pass/Habitat Restoration Project*. 1999-2001. Joint Funding WACERT, Sustainable Solutions, Jamestown S'Klallam Tribe. Completed by Jamestown S'Klallam Tribe.
- *Stream Restoration Projects* (fencing/re-vegetation along rivers/creeks - Gray Wolf, Bell, Cassalery, Hurd, Matriotti, Meadowbrook, Siebert). 1994–present. JFE-DNR, Clallam County, Clallam Conservation District, Jamestown S'Klallam Tribe, Youth Conservation Corps, Pacific Woodrush.

B. Public Education Projects

- *"A Manual of Tools for Understanding the Natural History of the Dungeness River Watershed."* 1996. Clark, Clark and Newberry. Prepared for the Jamestown S'Klallam Tribe.
- *"Every River Has Its People" (The 1993 State of the Dungeness River Report)*. 1993. Jamestown S'Klallam Tribe, Public Involvement and Education (PIE) Grant, Puget Sound Water Quality Authority.
- *"Keys to an Understanding of the Natural History of the Dungeness River System."* 1996. Clark and Clark. Prepared for the Jamestown S'Klallam Tribe.
- Dungeness Bay Stewardship Initiative. 1999. Clallam County, CCWF.
- Dungeness Bay Tour. 1998. Clallam County.

- Dungeness Bay Watchers. 1999. Public Involvement and Education (PIE) Grant, Puget Sound Water Quality Authority, Clallam County.
- *Dungeness River Audubon Center at Railroad Bridge Park* – Public access, education, research, annual river festival. Ongoing. Rainshadow Foundation, Olympic Peninsula Audubon Society, Jamestown S'Klallam Tribe.
- *Dungeness River Riparian Landowners Education Project* – “Living on the River” booklet. 1998. Clallam County, CCWF.
- *Dungeness River Festival*. Biennial festival featuring booths from Dungeness River stakeholder groups, and including environmental stewardship activities and information for children and adults.
- *Groundwater Guardian Program*. 2001-present. Clean Water District, Clallam County, Groundwater Foundation.
- *Living by the Coast, Coastal Processes Workshops*. 1998-1999. CZM, Clallam County.
- Matriotti Creek Environmental Learning Area. 1992 – Ongoing. Clallam County.
- *Pollution Prevention Outreach Program* (Landowner Education). 1994-1995. Clallam and Jefferson Conservation Districts, WSU Cooperative Extension, funded by Jamestown S'Klallam Tribe/EPA grant.
- *Salmon in the Dungeness River: From Abundance to Emptiness, Parts 1 and 2*. McNulty, T. 2001. Prepared with the Jamestown S'Klallam Tribe.
- *Sequim Irrigation Festival – Increasing Awareness of the Dungeness River* - Parade entry and “River Gone Run” play. 1996-1998. Jamestown S'Klallam Tribe, Olympic Theatre Arts.
- Stream Keepers of Clallam County. 1999-present. Clallam County.

III. Studies / Projects in Progress 1998-2006

A. Projects / Plans / Studies / Programs in Progress

- *Dungeness Artificial Recharge Feasibility Study*. Due 2007. PGG. Prepared for Clallam County. Funded by WA Department of Ecology.
- *Conservation Reserve Enhancement Program*. On-going. Washington Conservation Commission, Clallam Conservation District.
- *Dungeness Bull Trout Telemetry Project*. 2003-2007. US Forest Service, US Fish and Wildlife Service, WDFW, Olympic National Park, Ecology’s Washington Conservation Corps, Dungeness Farms.
- *Dungeness Estuary Restoration* – Purchase of estuarine land from willing sellers (including appraisals, reviews and environmental assessments of estuarine parcels), relocation of dwellings, demolition and revegetation. 1999-present. Clallam County, Jamestown S'Klallam Tribe, WDFW, US Fish and Wildlife Service, landowners.
- *Dungeness In-stream Flow Rulemaking*. Executive and Technical Groups regularly meeting to develop Rule for in-stream flows and water management strategies. Discussions are based on recommendations in the Elwha-Dungeness Watershed Plan. Rule will guide future water right and water availability decision-making, and will protect existing water rights and water in streams for ESA-listed salmonids. Final Rule expected 2008,

- *Dungeness Irrigation System Improvements*. On-going. To improve water conveyance efficiency, water conservation, and fisheries survival. Sequim-Dungeness Agricultural Water Users Association, Clallam Conservation District, Jamestown S'Klallam Tribe, NRCS.
- *Dungeness Irrigation Water Leasing*. 2003-2005. Sequim-Dungeness Agricultural Water Users Association, WA Department of Ecology.
- *Dungeness Refuge Noxious Weed Removal*. 2001-ongoing. Dungeness National Wildlife Refuge, volunteers.
- *Dungeness Scour Chain Study of Bedload Scour and Deposition*. 1999-2002. (Data collection completed 2002.) BIA, Jamestown S'Klallam Tribe.
- *Dungeness USFS Roads Sediment Reduction Project*. 2002-ongoing. Stabilization / decommission and repair. USFS, in partnership with Clallam Conservation District, Pacific Coast Watershed Project, WA Conservation Corps and Olympic National Forest.
- *Microbial Source Tracking Study*. 2005-2008. Fresh and marine water sampling and source sampling to determine fecal coliform sources at select sites in watershed and bay. Report due 2008. Battelle Marine Sciences Laboratory preparing for Jamestown S'Klallam Tribe.
- *Phase II Lower Dungeness River Restoration Project* – historical characterization of Lower Dungeness River and floodplain, and native replanting of 90 acres of riparian/floodplain habitat. 2003-2007. US Fish and Wildlife Service, Jamestown S'Klallam Tribe, willing landowners.

B. Planning

- *State HB2496 North Olympic Peninsula Salmon Recovery Planning (WRIA's 17-20)*. 1998-present. Clallam County lead.
- *State HB2514 Watershed Planning (WRIA 18)*. 1998-present. WRIA 18 Initiating Governments (Clallam County, City of Port Angeles, Jamestown S'Klallam Tribe, Lower Elwha S'Klallam Tribe, Agnew Irrigation District, Washington State Department of Ecology), DRMT planning group. Project lead: Clallam County. Phase III completed 2004.
- *Clallam County Marine Resource Committee*. 2001-present/ongoing.
- *Agricultural Conservation Planning and Implementation*. On-going technical assistance for: agricultural conservation and Best Management Practices, farm conservation plans, dairy nutrient management plans, restoration planning. Clallam Conservation District.