Clean Water Strategy
for Addressing Bacteria Pollution in Dungeness Bay and Watershed

and

Water Cleanup Detailed Implementation Plan

October 2004
Publication Number 04-10-059


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for Addressing Bacteria Pollution in Dungeness Bay and Watershed
and
Water Cleanup Detailed Implementation Plan

Developed by Clallam County's Clean Water Workgroup

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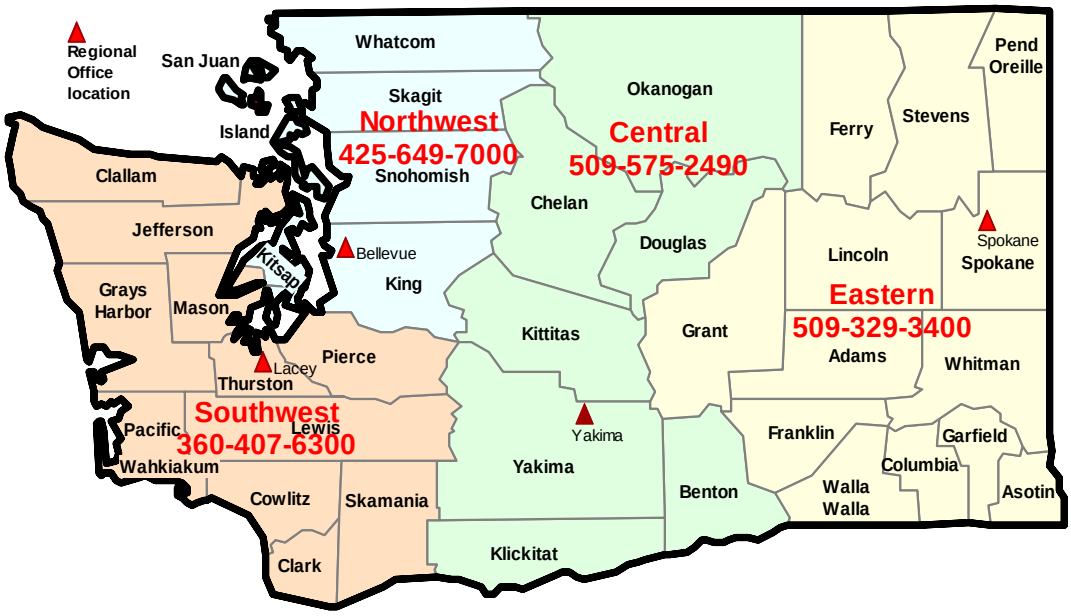

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CONTENTS

This document has two important parts, Clallam County's *Clean Water Strategy*, and the *Detailed Implementation Plan for the Lower Dungeness Watershed and Dungeness Bay Total Maximum Daily Loads (TMDLs).*

The body of the document is Clallam County's *Clean Water Strategy (Strategy)*. This Strategy guides efforts to restore and protect the water quality in the Clean Water District, which encompasses most of Sequim Prairie. It describes the who, what, when, where, and how of cleanup. The strategy was originally developed in 2001 as part of Clallam County's adoption, by ordinance, of the Clean Water District. It was developed by the Clean Water Workgroup, comprised of citizens and agency representatives who are involved in water quality issues in the area.

The *Clean Water Strategy* has been updated on the basis of studies released by the Washington State Department of Ecology (Ecology). These studies, called total maximum daily loads (TMDL), are part of a process required by the federal Clean Water Act. A TMDL study evaluates sources and concentrations of fecal coliform bacteria, and calculates how much bacteria must be reduced to restore healthy water quality and commercial shellfish harvest. The Clean Water Act requires a TMDL study for waterbodies that don't meet water quality standards, and a cleanup plan based on the results of the study. The *Detailed Implementation Plan*, together with the *Clean Water Strategy*, meets requirements of the Clean Water Act.

The *Dungeness River and Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study* (Sargeant, 2002) and *Dungeness Bay Fecal Coliform Bacteria Daily Load Study* (Sargeant 2004), are available on line at:
http://www.ecy.wa.gov/programs/wq/tmdl/watershed/dungeness/index.html
Ecology's analysis for the Dungeness Bay TMDL was based on a study conducted by Jack Rensel and Associates. That study is available online at:
www.jamestowntribe.org/natural_resources.htm

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Clean Water Strategy
For Addressing Bacterial Pollution in Dungeness Bay and Watershed

Introduction

The purpose of the *Clean Water Strategy* is to coordinate and guide actions that will ensure improvement and long-term protection of water quality in Dungeness Bay and the lower Dungeness River (See Figure 1). The Strategy is a part of the Detailed Implementation Plan (DIP), required as a part of the U.S. Environmental Protection Agency's Water Clean-up Process. Required elements, which are not in the strategy, are included in the Detailed Implementation Plan.

The goals of the Strategy are:

- To protect public health.
- To identify and correct sources of bacterial contamination associated with human activities in order to restore and maintain water quality in the freshwater ditches, streams and river; and in marine waters within Dungeness Bay.
- To re-open closed shellfish beds to continue to harvest shellfish for commercial, subsistence and recreational purposes and to protect habitat for shellfish and other wildlife species.
- To encourage water clean-up actions through public outreach that emphasizes innovative ways to reach new audiences and energizes existing audiences to reduce pollution in the watershed.

Background

The Sequim-Dungeness Clean Water District was formed by the Board of Clallam County Commissioners in June 2001, by ordinance CCC. 27.16. The legal boundaries of the Clean Water District include the following areas within Clallam County: the Dungeness Watershed and those waters influenced by it through the irrigation system, and other independent tributaries to the Strait of Juan de Fuca, from Bagley Creek east to, and including, the Sequim Bay Watershed (See Figure 2).

The district was formed in response to water quality violations of bacteria standards in the lower Dungeness River, its tributary Matriotti Creek, Meadowbrook Creek, Cooper Creek, Golden Sands, several irrigation ditches, and Dungeness Bay. As a result, Washington Department of Ecology has conducted two Total Maximum Daily Load (TMDL) studies in the Dungeness area: Dungeness River and Matriotti Creek Fecal Coliform Bacteria TMDL Study, (Sargeant 2002), and Dungeness Bay Fecal Coliform Bacteria TMDL Study (Sargeant 2004). These studies established water quality goals that must be met to restore water quality in these waters.

Water quality violations in freshwater (Meadowbrook Creek, Golden Sands and Cooper Creek) are based on Washington State Water Quality Standards. Violations in marine water (Dungeness Bay) are based on National Shellfish Sanitation Program requirements for water quality in

commercial shellfish harvesting areas (see Appendix A for the Chronology of Water Pollution in Dungeness Bay since 1995). For the lower Dungeness River, its tributary Matriotti Creek and irrigation ditches associated with these drainages and Dungeness Bay, water quality goals were set based on National Shellfish Sanitation Program requirements for water quality in commercial shellfish harvesting to meet the goal to re-open closed shellfish harvest areas in Dungeness Bay.

Bacterial pollution presents an increased health risk to residents and visitors to the area. Fecal coliforms are used as an indicator of bacterial waste and are types of bacterium found in the feces of warm-blooded animals (e.g., humans, birds, pets, and livestock). Most fecal coliform bacteria are not harmful, but their presence indicates the potential for a variety of disease-carrying microorganisms, known as pathogens. Pathogens are transported in human and animal feces and can cause illnesses in humans ranging from stomach upset to more serious diseases, like hepatitis and typhoid. Increased amounts of fecal coliform in surface water indicate an increased chance that pathogens are in the water.

Humans are exposed to pathogens when wading or swimming in water and when contaminated shellfish is eaten. People are exposed to pathogens when water is swallowed (via splashing or hand to mouth contact) or when water comes into contact with open cuts or wounds. Pathogens enter into the shellfish (oysters, clams and mussels) as they filter the water for food.

Humans, livestock, pets, birds, and marine mammals all contribute some amount of bacteria to the streams, ditches, and Bay. Examples of fecal coliform sources include:

- Septic systems failing near ditches, streams, rivers, and along the edge of the Bay;
- Livestock and pets defecating in and near ditches, streams, rivers, and along the edge of the Bay;
- Wildlife in the freshwater and marine environment;
- Uncontrolled untreated storm water from farms, lawns, and impervious surfaces (*e.g.*, pavement) that carry feces into ditches, streams, rivers, and along the edge of the Bay.

Although not considered a pollution source, the lack of vegetation along ditches and stream banks limits the landscape's ability to filter contaminated run-off.

Clean-Up Strategy

The actions described in Table 1 of this section were discussed and developed by the Clean Water Workgroup. This workgroup is comprised of federal, state, and local organizations, which include: U.S. Fish & Wildlife Service (USFWS), Jamestown S'Klallam Tribe (JS'KT), Washington Department of Ecology (DOE), Washington Department of Health (DOH), Puget Sound Action Team (PSAT), Clallam County, Clallam Conservation District, and the Sequim-Dungeness Agricultural Water Users Association (WUA). This workgroup coordinates actions, with the Dungeness River Management Team (DRMT) acting as its water quality subcommittee. A description of these organizations and their roles are included in the Detailed Implementation Plan under the section entitled, Pollution Sources and Organizational Responsibilities.

Since the bacterial pollution is coming from many different areas of the watershed and from a variety of sources, improvement in water quality will depend on the actions of many watershed residents. The core function of the Strategy will be to involve landowners in the clean-up process through incentives, technical assistance, and education. If these efforts fail, the strategy includes enforcement actions when needed.

The most effective approach to reducing fecal coliform contamination in Dungeness Bay and its watershed is to focus resources on priority areas with water quality problems. Due to the public health risk from eating contaminated shellfish, Dungeness Bay and the freshwaters that flow into it are the highest priority areas. High priority watersheds include the lower Dungeness River (below Woodcock Road), Matriotti Creek, and the irrigation ditches that flow into the Bay in the Marine Drive area. Cleaning up these freshwaters will restore them back to compliance with water quality standards and improve the water quality of Dungeness Bay. The second priority areas do not directly influence inner Dungeness Bay but violate water quality standards that protect public health. These watersheds are Meadowbrook Slough, Meadowbrook Creek, Cooper Creek, and Golden Sands.

Table 1 outlines the detailed Clean Water Strategy Action Plan. These actions are focused on human-influenced sources of bacterial waste, such as septics, pets, horses, and cows. Although wildlife inputs were considered in assessing the sources of bacterial waste, state and local entities assisting remediation are focusing their efforts on land-based activities that can be addressed through education, cost-share incentives, best management practices, policy, regulation, and enforcement. A recommended action listed in Table 1 is to conduct further Bay research (including basic ecological studies, nutrients and fecal coliform assessments, and wildlife usage) in order to better understand wildlife contributions and marine ecosystem influences. Actions prioritized as high will be addressed by 2007; medium priority will be addressed by 2009; and low will be addressed by 2012.

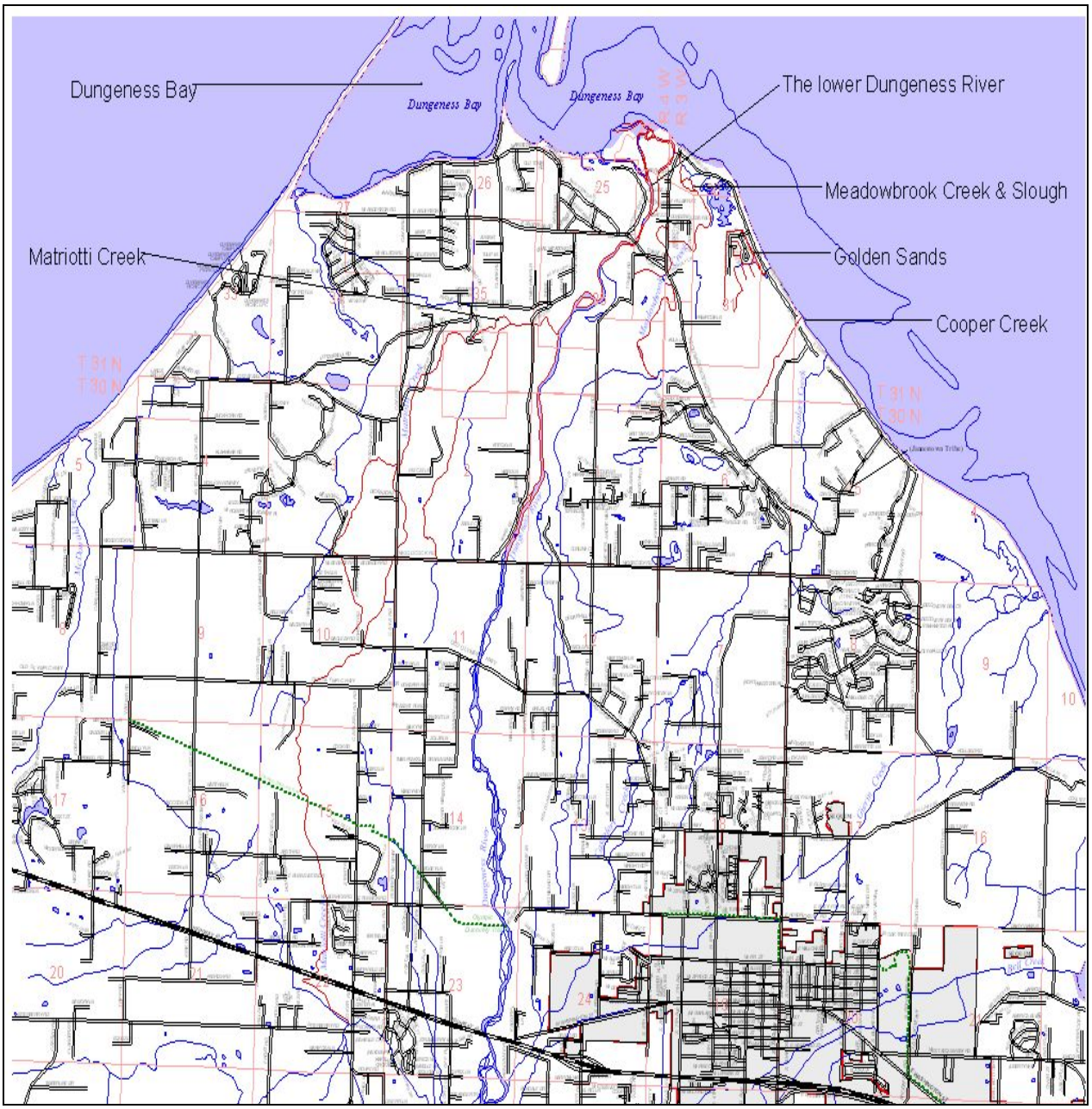

Figure 1: Surface Waters with Bacterial Pollution

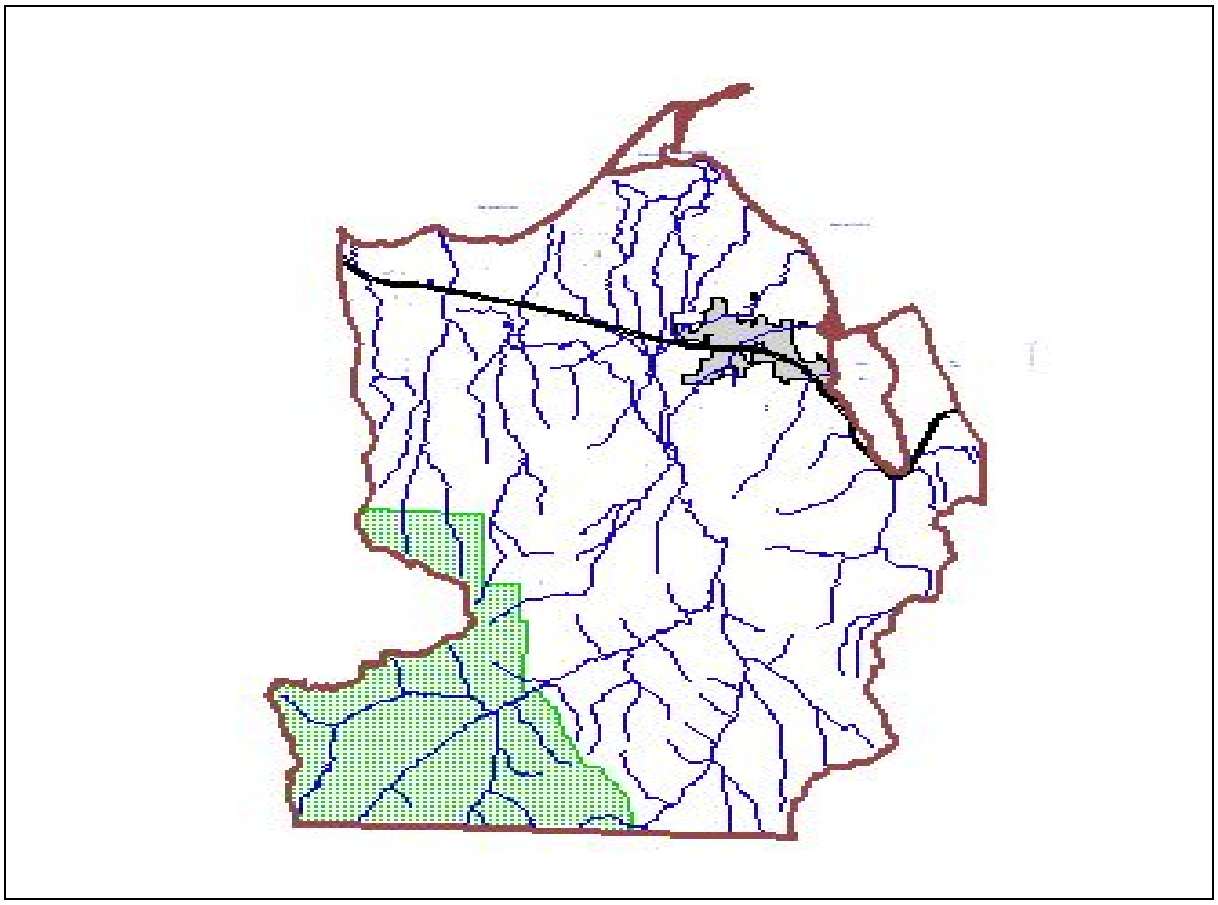

Figure 2: Clean Water District Boundaries

Table 1: Clean Water Strategy Action Plan

Recommended action	**Priority and performance measure**	**Current status/ barriers to implementation**	**Lead agency**	**Cost estimate and funding sources** * already funded
Human Waste / Septic Systems				
Expand the septic Operations and Maintenance (O&M) program to include more types of systems and a risk-based management plan.	High 2007	Program has been developed, but is not funded.	Clallam County	1 FTE Permit Fee incr. Conservation Assessment fee
Implement an assessment and monitoring program that includes inspections of identified Septics of Concern (SOC) with dye testing as necessary and tracks the follow-up actions for SOCs.	High 2007	Funding and public approval	Clallam County	1 FTE Conservation Assessment fee
Establish stable funding sources for the O&M program, described above	High 2007	Public Approval	Clallam County	$85,000-100,000/year Fund Sources: Permit Fee incr. Conservation Assessment fee
Identify (and distribute) funding to provide cost-share incentives for SOC inspections / corrections	High 2007	Need to investigate Oyster Reserve Program	Clallam County	$25,000 Inspections (@ 50% reimbursement) $75,000 Repair (@ 25% reimbursement) Conservation Assessment fee Or grants
Continue River's End buy-out and conservation easements	High 2007	Landowner willingness County legal support Partner Coordination	Clallam County	*SRFB grant: $1.2 million *WDFW grant: $967,500 *Jobs in Woods: $75,000
Convert on-site to sewer or community systems where appropriate (3 Crab/Golden Sands area, Carlsborg)	Med 2009	Growth Management Act and/or funding, depending on specific area	City of Sequim Clallam County	Sequim requested funding from Norm Dicks
Outreach and Education Septic 101 (basic septic maintenance class) & individual owner education	High 2007	Septics 101 were conducted 41 times, reaching 1100 owners	Clallam County	$225 per Septics 101 class

Table 1: Clean Water Strategy Action Plan (continued)

Recommended action	**Priority and performance measure**	**Current status/ barriers to implementation**	**Lead agency**	**Cost estimate and funding sources** * already funded
Storm Water *Other actions related to storm water are listed in regulatory/policy and monitoring/research sections*				
Signs on street drains and ditches about pollution effects	Low 2012	Student Volunteers	Not determined	Cost for paint and gloves
Provide treatment for ditch tailwaters	High 2007	Constructed wetlands/biofiltration appear to be the best option	Clallam Conservation District (CCD)	Estimate for Marine Drive: Approximately $80,000 for wetland construction, design /engineering and land purchase.
Continue piping of irrigation ditches, using CCD's prioritization of ditches based on bacterial monitoring	High 2007	Almost finished piping feasible ditches	CCD	Existing funds will address all but one of the high-priority ditches that can be piped.
Outreach to Ditch Residents 1. Revise, print and distribute brochure: "Living on an Irrigation Ditch" 2. Webpage for Water Users Assoc.	Med. 2009	Need funding	Sequim-Dungeness Water Users Association	1. $6,000 2. $8,000
Develop/implement a Sub-Basin Stormwater Management Plan for the Marine Drive and Three Crabs area that includes recommendations for capital facilities, retrofits, standards for new development, and basic BMPs based on soil characteristics, topography, and development patterns	High 2007	Need funding (for Marine Dr. can use Clallam Conservation District's analysis of storm water and ditches as basis for the monitoring plan)	CCD Clallam County	Development: $25,000 - $75,000 Implementation costs can't be figured until after development of the sub-basin plan.
Investigate BMPs for stormwater management specific to local conditions; compile them in a publication.	High 2007	Need funding	CCD/ Clallam County/JS'KT	Cost not determined Conservation Assessment Fee or grant finding
Consider comprehensive stormwater planning for sub-areas within the Clean Water District	Low 2012	Need funding and staff time	Clallam County/JS'KT/ CCD	$25,000 - $50,000

Table 1: Clean Water Strategy Action Plan (continued)

Recommended action	**Priority and performance measure**	**Current status/ barriers to implementation**	**Lead agency**	**Cost Estimate and Funding Sources** * already funded
Domestic Animals/Pet Waste				
Distribute information about proper pet waste management, through written (brochures, advertisements, etc) and verbal (*i.e.*, presentations, workshops) means.	High 2007	Need funding	CCD/JS'KT/ Dungeness River Audubon Center (River Center)	$7,000
Establish Pet Waste Stations in areas with high pet use next to surface water.	High 2007	Need funding	Depending on jurisdiction; needed at County Parks	$3,500 for set-up $800/year for supplies
Livestock Waste				
Outreach regarding livestock and water quality impacts, (through newsletters, workshops, presentations, etc.)	High 2007	Ongoing, but more funding would be needed for future projects	Clallam Conservation District	Workshops/presentations/quarterly newsletter and informational booths funded through 2005. Future funding needed approx. $8,000/year
Develop individual conservation plans and implement best management practices	High 2007	Ongoing successful effort by CCD. Priority farms identified	Clallam Conservation District	*1 FTE, funded through Dec. '05
Ecology enforcement	High 2007	New staff hired by Ecology; memorandum of understanding (MOU) established between CCD, DOE and County	Department of Ecology (DOE)	*0.05 FTE
Monitoring				
Develop overall freshwater monitoring strategy that includes wet season/ storm events/ditches (modify based on research) and continues source identification as well as initiates effectiveness monitoring	High 2007	Completed	JS'KT/ DOE/ Clallam County	

Table 1: Clean Water Strategy Action Plan (continued)

Recommended action	**Priority and performance measure**	**Current status/ barriers to implementation**	**Lead agency**	**Cost estimate and funding sources** * already funded
Monitoring (continued)				
Implement freshwater quality monitoring and BMP effectiveness monitoring	High 2007	Will follow the overall monitoring strategy	Clallam County/ JS'KT/CCD	*$30,000/year funded by Ecology Grant and EPA Grant
Continue marine monitoring in Dungeness Bay	High 2007	Ongoing	DOH/JS'KT	*$700/per trip, covers travel, boat and DOH staff time
Perform data analysis of Dungeness area freshwater monitoring on a semi-annual or annual basis.	High 2007	An analysis was completed in July 2004.	JS'KT/DOE/ Clallam County	$1,500
Continue Streamkeeper monitoring of bacteria and baseline monitoring of streams	Med 2009	Dependant on grant funding	Clallam County	$50,000 Conservation Assessment Fee could be used.
Research				
Conduct Microbial Source Tracking study in both fresh and marine water	High 2007	Pre-study complete; ready for full study	JS'KT/Clallam County	$150,000 needed for freshwater (*140,000 rec'd through EPA Grant) $200,000 needed for marine
Conduct further Bay research (including basic ecological studies, nutrients and fecal coliform assessments, and wildlife usage)	Med. 2009	Need funding	US Fish & Wildlife Service; JS'KT	$200,000+ needed
Conduct analysis of impervious surfaces using fieldwork/LIDAR/aerial photos/remote sensing.	Med. 2009	Need staff and funding	Clallam County/JS'KT	$100,000
Conduct GIS analysis to map fecal nutrient spatial and temporal trends	Med. 2009	Ongoing	CCD/JS'KT	$10,000 for CCD $10,000 for JS'KT

Table 1: Clean Water Strategy Action Plan (continued)

Recommended action	**Priority and performance measure**	**Current status/ barriers to implementation**	**Lead agency**	**Cost estimate and funding sources** * already funded
Research (continued)				
Conduct comprehensive water quality studies to determine feasible remediation measures in the Meadowbrook/Cooper sub-basins and other targeted sub-basins	High 2007	Need funding	CCD	$120,000 needed for Meadowbrook/Cooper sub-basin
Regulatory and Policy				
Approve and implement a comprehensive stormwater ordinance **OR** request stormwater sensitive area	High 2007	Stormwater ordinance drafted. Planning commission received public testimony. Discussion started regarding stormwater sensitive areas.	Clallam County	Depends on how program is organized Estimate: 1 FTE
Provide maps and information on sensitive areas (shellfish beds, ESA listed critical area) to county decision-makers	Med. 2009	Maps and information need to be compiled	Clallam County/ Marine Resources Committee	$5,000
Provide information on low impact approaches to stormwater management in the permitting information packet.	Med. 2009	Funding/political will	Clallam County	$10,000
Conduct a comprehensive review of ordinances and make changes to encourage low impact development, and also look for disincentives in the county's permits and associated fees	Med. 2009	Need staff time	Clallam County/CCD/ JS'KT	$3,000 - $5,000 for staff time per partner

Table 1: Clean Water Strategy Action Plan (continued)

Recommended action	**Priority and performance measure**	**Current status/ barriers to implementation**	**Lead agency**	**Cost estimate and funding sources** * already funded
General Outreach				
Public workshops	High 2007	Need funding and staff time, 5 per year	River Center CCD/Clallam County/JS'KT/	For each workshop: $100-150 for room rental; $500-750 for display ads; $300 supplies; $25,000 for staff time (County, JS'KT, CCD, Ecology, River Center)
Clean Water Herald or newspaper alternative	Med. 2009	Need funding	Clallam County	For newsletter: $6,000/issue For newspaper ad: $1197 for black/white; add +$190 for full color; Need $2000 for art/editing per issue
Sequim 7th grade field trip	High 2007	Need funding	River Center	$12,000
Presentations to local community groups	Med. 2009	Need staff time	Variety	Variable
Booths, fairs and festivals	Med. 2009	Need funding for supplies and staff time	Variety	$5,000
Permanent Displays at River Center	Med. 2009	Need funding for supplies for displays	River Center	$10,000

River Center: Dungeness River Audubon Center CCD: Clallam Conservation District
JS'KT: Jamestown S'Klallam Tribe DOH: Washington Dept. of Health DOE: Washington Dept. of Ecology

Dungeness Bay and Lower Dungeness Watershed
Detailed Implementation Plan
for Fecal Coliform Bacteria

Prepared by:

The Clallam County's Clean Water Workgroup and
Christine Hempleman, Washington State Department of Ecology, Water Quality Program

July 2004

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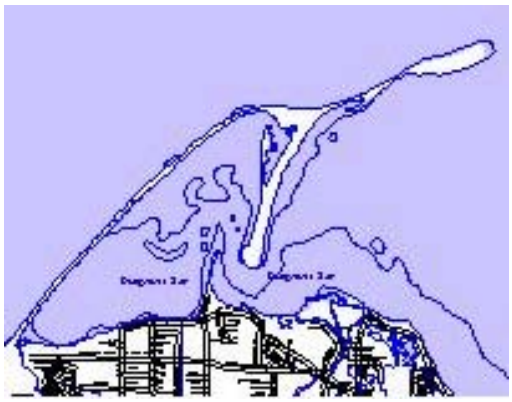
Introduction

This document is the Detailed Implementation Plan for both the *Water Cleanup Plan for Bacteria in the Lower Dungeness Watershed* (Hempleman, Sargeant 2002) and the *Water Cleanup Plan for Bacteria in Dungeness Bay* (Hempleman, Sargeant 2004). It provides the information required, in addition to the cleanup activities described in the *Clean Water Strategy*, to meet total minimum daily load (TMDL) requirements.

The Area

Dungeness Bay (Bay) is located in Clallam County near Sequim, Washington, on the northeast coast of the Olympic Peninsula. The outer edge of the Bay is defined by Dungeness spit, extending in a narrow five-and-a-half-mile curve into the Straits of Juan de Fuca. The Bay is nearly divided by Graveyard Spit, which extends south from Dungeness Spit, and Cline Spit, which extends north from the mainland. A relatively narrow opening between these two spits allows tidal waters to flow between the inner bay and outer bay.



The Dungeness River flows north into the outer bay just east of the opening between Graveyard and Cline Spits. Seven ditches drain to the inner bay west of Cline Spit; at least six of these ditches carry irrigation water during the irrigation season, April through October. They also carry storm water at times outside of irrigation season, during the rainy season. There is also an irrigation ditch and several minor tributaries to the outer bay east of Cline Spit.

The Dungeness River, these ditches, and small tributaries drain most of the area sometimes called the Sequim Prairie. A portion of the city of Sequim is in the Dungeness River drainage; the rest of the lower Dungeness drainage basin is characterized by residential and small commercial developments, many small and a few large farms. There are five active dairies. Irrigation water is provided by a network of ditches, operated by a group of seven water districts and companies. They are all members of the Sequim Dungeness Valley Agricultural Water Users Association (WUA). Between 1990 and 2000, Clallam County experienced approximately 16 percent growth, mostly concentrated in the unincorporated eastern portion of the county, including the Dungeness watershed. There is continued substantial growth.

A major portion of the 631-acre Dungeness National Wildlife Refuge lies within Dungeness Bay, including Graveyard Spit and portions of the inner and outer bays. The refuge provides important habitat to a variety of resident and migratory waterfowl and shorebirds, and is also frequented by seals.

Dungeness Bay has traditionally been rich in littleneck clams. Native people have harvested shellfish here throughout tribal memory. In more recent times, the Bay has been a profitable source of commercial farmed oyster harvest, and popular for recreational harvest. Commercial

shellfish harvest is a source of income to the community and provides local jobs. Recreational harvest is popular with residents and tourists, and contributes to the image of the Dungeness as a beautiful, pristine area.

The Problem

Washington State Department of Health (DOH) monitors and regulates commercial shellfish harvest in Washington. In 1997, DOH reported increasing levels of fecal coliform bacteria in Dungeness Bay near the mouth of the Dungeness River. Since then, bacteria levels have continued to increase and affect a larger and larger area in the inner Dungeness Bay as well.

Recreational shellfish harvest is not regulated by DOH. However, DOH does map and identify all recreational beaches as Approved, Prohibited, or Unclassified for shellfish harvest activity. Clallam County also discourages recreational harvest in areas that are closed to commercial harvest, pointing out that the same health risks apply to recreational and commercial shellfish.

In 2000, DOH closed 300 intertidal acres near the river mouth to commercial harvest. In 2001, they added 100 acres to the closure area, just inside the inner bay. In 2003, DOH classified the entire inner bay as "conditionally approved." meaning harvest is open from February through October but is closed from November through January. The closure area near the mouth of the river was expanded a little, and remains closed to shellfish harvest year-round.

Fecal coliform bacteria are found in the feces of warm blooded animals like humans, pets, livestock, and wildlife.

The presence of these bacteria indicates that feces are present. Other viruses and bacteria that occur in feces are also likely present.

That means a greater health risk to people who swim or play in the water, or who eat shellfish from the water. This could mean a rash or an earache – it could also mean much more serious illness such as hepatitis.

Bacteria problems are not confined to the Bay. Higher levels of bacteria have been found in freshwater in the area as well. Matriotti Creek was added to the state list of polluted water bodies in 1996, and bacteria concentrations that might be potential health risks have been measured in other areas of the watershed.

As of the writing of this document, the Dungeness watershed water bodies, or sections of water bodies, listed below in Tables 1 and 2 appear on the state's list of impaired water bodies (Water Quality Assessment, or 303(d) List:

Table 1. Water bodies and locations not meeting water quality standards for Fecal Coliform (FC) bacteria, from *Dungeness River and Matriotti Creek Fecal Coliform Bacteria TMDL Study*.

Water Body	Township, Range, Section	New Waterbody ID Number	Old Waterbody ID Number
Water bodies on the 1996 and 1998 303(d) list			
Matriotti Creek	30N 04W 03	AZ071Y	WA-18-1012
Matriotti Creek	31N 04W 35	AZ071Y	WA-18-1012
Impaired waterbodies addressed in this TMDL but not currently on the 303(d) list			
Matriotti Creek	30N 04W 22	AZ071Y	WA-18-1012
Matriotti Creek	30N 04W 10	AZ071Y	WA-18-1012
Matriotti Creek	30N 04W 02	AZ071Y	WA-18-1012
Matriotti Creek	31N 04W 35	AZ071Y	WA-18-1012
Matriotti Creek	31N 04W 36	AZ071Y	WA-18-1012
Meadowbrook Creek	31N 03W 31	No ID number available	
Meadowbrook Creek	31N 03W 30	No ID number available	
Meadowbrook Creek	31N 04W 41	No ID number available	
Golden Sands Slough	31N 03W 31	No ID number available	
Cooper Creek	31N 03W 32	No ID number available	
Dungeness River RM 0.1	31N 04W 41	No ID number available	
Irrigation Ditch 1	31N 04W 38	No ID number available	
Irrigation Ditch 2	31N 04W 02	No ID number available	

Table 2. Water bodies and locations not meeting water quality standards for FC bacteria in Dungeness Bay and tributary ditches to the Inner Bay, from *Dungeness Bay Fecal Coliform Bacteria TMDL Study.*

Water body	Parameter	Watercourse ID	Location	1998 303(d) List	Proposed for 2004 303(d) List
Dungeness Bay	Fecal coliform	390KRD	31N 04W 23, 24, 39, 41	No	Yes
Ditch 1	Fecal coliform	None	Inner Bay at 48.1501499 N, 123.1560474 W	No	Yes
Ditch 2	Fecal coliform	None	Inner Bay at 48.1501379 N, 123.1615627 W	No	Yes
Ditch 3	Fecal coliform	None	Inner Bay at 48.1498313 N, 123.1640600 W	No	Yes
Ditch 4	Fecal coliform	None	Inner Bay at 48.1493384 N, 123.1652547 W	No	Yes
Ditch 5	Fecal coliform	None	Inner Bay at 48.1490078 N, 123.1668986 W	No	Yes
Ditch 7	Fecal coliform	None	Inner Bay at 48.1482684 N, 123.1696922 W	No	Yes

Addressing Problem

A coordinated local effort to address the bacteria pollution started with the first awareness of elevated bacteria levels in 1997. That effort eventually led to the formation of a Clean Water

District by the county in 2001. It also led to the development of the Clean Water Workgroup, and the *Clean Water Strategy* (Streeter, 2002; updated 2004) which has since guided cleanup efforts.

One part of the cleanup effort has been a process called a Total Maximum Daily Load (TMDL), also called a water cleanup plan. This process, required by the federal Clean Water Act for water bodies that fail to meet water quality standards, starts with a study designed to evaluate sources and amounts of pollution. The level of pollution the water body can tolerate and still be considered healthy (that's the total maximum daily load) is then calculated. Following the study and using the information from the study, a Detailed Implementation Plan is developed to guide the clean up of the pollution.

Two TMDL studies have been conducted in the Dungeness area: *Dungeness River and Matriotti Creek Fecal Coliform Bacteria TMDL Study,* (Sargeant 2002), and *Dungeness Bay Fecal Coliform Bacteria TMDL Study* (Sargeant 2004). Based on the information from those studies, the Clean Water Workgroup has updated the *Clean Water Strategy* (Streeter 2004). That update, comprising the body of this document, describes the actions the Clean Water Workgroup will take to clean up bacteria in the Dungeness area.

The *Clean Water Strategy* together with this *Detailed Implementation Plan*, provide the information needed to meet requirements for the Dungeness Bay and Lower Dungeness Watershed TMDLs. The goal of the Clean Water Workgroup is to achieve water quality standards in the lower water watershed by 2007, and in the Bay by 2012.

Purpose

The purpose of this plan is to protect human health and economic vitality in Clallam County. Fecal coliform bacteria occur in freshwater at levels that pose a health risk to recreational users.

Bacteria levels in marine water pose a risk to people who eat shellfish harvested from the area, resulting in commercial harvest restrictions. This *Clean Water Strategy/Detailed Implementation Plan* describes the measures which will correct these problems.

Cleanup activities identified in the *Clean Water Strategy/Detailed Implementation Plan* bring together the analyses and recommendations developed in the *Dungeness River and Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study* (Sargeant, 2002), and the *Dungeness Bay Fecal Coliform Bacteria Daily Load Study* (Sargeant, 2004). They consider data from the Jamestown S'Klallam Tribe, DOH's on-going water quality monitoring, and evaluation by the Clean Water Workgroup of cleanup work performed to date.

As stated above, the federal Clean Water Act requires states to develop TMDLs for "impaired" waters. Following the TMDL water quality study, an implementation plan is developed to guide cleanup.

In addition, a lawsuit on behalf of Northwest Environmental Advocates and Northwest Environmental Defense Center requires the Department of Ecology to complete TMDLs for more than 650 water bodies by 2013.

The Approach

There are many small sources of fecal coliform pollution throughout the Dungeness area. There are no end-of-pipe, permitted, point source discharges (for instance a wastewater treatment plant or industrial discharge). Bacteria is entering the waterways from non-point sources such as poorly maintained septic systems, inadequate management of livestock and pet waste, waste dumped in ditches and creeks, wildlife, and rain water carrying bacteria into ditches and creeks.

The approach to cleanup will be varied, flexible, and adaptive. Cleanup will first address those activities and geographic areas identified as high priority in the *Clean Water Strategy*, where the Clean Water Workgroup believes the most controllable bacterial sources are, and will progress to medium and low priority actions as needed.

The *Clean Water Strategy* describes specific proposed cleanup actions, priorities, and potential funding sources in detail. Generally, they include:

- Continued investigation of pollution sources, including source-tracking through water quality monitoring, microbial source tracking, land use surveys, and effectiveness monitoring.
- On-site septic system investigation, incentives, and outreach, as well as programmatic changes including developing stable funding mechanisms.
- Farm planning and installing agricultural best management practices.
- Stormwater management through demonstration sites for low impact development techniques, development, adoption, and enforcement of ordinances and regulations; and identifying critical management areas.
- Outreach and infrastructure to encourage pet owners to pick up and dispose of pet waste properly.
- Piping of irrigation ditches, and construction of re-regulation reservoirs and wetlands to eliminate or filter irrigation tailwater return flows.
- Outreach and education throughout the area to help residents do a better job of protecting water quality.

The Clean Water Workgroup will continue to meet quarterly to evaluate water quality data and progress of cleanup activities. Based on that evaluation, they will identify next steps and look at ways to coordinate resources and activities to assure water quality improvement. If activities do not seem to be effective, or improvement is not adequate, the workgroup will reevaluate and adjust cleanup strategies.

Pollution Sources and Organizational Responsibilities

This section describes general responsibilities of organization entities involved in bacteria cleanup. See the *Clean Water Strategy* for commitments to specific cleanup activities, including priorities, potential funding sources, and lead entity.

Citizens of the Clean Water District

Improvement in water quality depends on the citizens of the Dungeness watershed. Bacteria pollution comes from many small sources throughout the watershed – individual yards, pastures, and on-site septic systems. This is called non-point source pollution. Healthy water quality and shellfish will ultimately be achieved because citizens throughout the watershed improve practices on their land.

Clallam Conservation District

Clallam Conservation District, under the authority of Ch. 89.08 RCW (Conservation Districts), works cooperatively with land users to conserve renewable natural resources. The Conservation District is a non-regulatory subdivision of state government.

The Conservation District works with dairy farmers to develop and implement nutrient management plans for individual facilities under Ch. 90.64 RCW (Dairy Nutrient Management). The Conservation District and dairy farmers certify that dairy nutrient management plans are implemented. The Conservation District works with other land users to help them develop conservation plans that address varied natural resource issues, including fish and wildlife habitat, woodland management, and stormwater management. Best management practices follow guidance and specifications from the USDA Natural Resources Conservation Service. They are often able to provide cost-share financial assistance for implementation of best management practices. Landowners receiving a notice of correction from Ecology will normally be referred to the Conservation District for assistance.

In addition to one-on-one assistance to farm operators, the Conservation District provides more general education and technical assistance to residents, including a newsletter, and workshops on such topics as land management for horse owners, natural landscaping, and residential stormwater management.

The Conservation District receives $10,000 in base funding annually from the Washington Conservation Commission. The remainder of their work, and the cost-share funds they are able to provide to landowners is funded by grants from sources including the Washington Conservation Commission, the Centennial Clean Water Fund, the Salmon Recovery Funding Board, and others.

Clallam County

Clallam County is lead for the Clean Water District. The Clean Water Workgroup coordinates planning and implementation of water quality related activities within the Clean Water District. It is also the water quality subcommittee of the Dungeness River Management Team, a watershed council for which the county is the co-lead. The Clean Water Workgroup meets quarterly to oversee and coordinate water quality activities in the Clean Water District. It includes representatives of all the groups described here, and will oversee implementation of the TMDL.

Clallam County Environmental Health Division has staff responsibility for the Clean Water Work Group. Environmental Health's purpose is to protect public health by insuring, among other things, that septic systems are functioning properly and that sewage is not being discharged onto the ground or into surface or groundwater sources. That requirement is met by insuring that septic systems are being designed and installed to meet the state required standards, by regulating and certifying installers, pumpers, operations and maintenance specialists; and by enforcing county and state regulations regarding proper sewage disposal. An Operations and Maintenance (O&M) program emphasizes the need for septic system monitoring and maintenance.

Clallam County Environmental Health regulates on-site sewage systems in accordance with Ch. 246-272 WAC (On-site sewage systems). The Clallam County Environmental Health onsite program is responsible for soil and site evaluations for septic systems, septic permit plan review and installation inspections, certification of onsite professionals (*i.e.*, installers, pumpers, operations and maintenance specialists), tracking septic tank pumper activities with pumping and disposal reports required monthly, investigating septic complaints, and providing educational material and information to the general public regarding safe wastewater sanitation practices.

The O&M program duties include updating Clallam County Health Regulations and Policies to include O&M requirements on proprietary devices for septic systems, O&M certification of onsite professionals, and new requirements for O&M on more complex systems such as mounds and sand filters. There is a strong educational component of the program, offering technical assistance to onsite professionals and homeowners, septic care classes for homeowners and specialized septic classes for groups and businesses.

Environmental Health has developed an educational septic care brochure, stickers, postcards, and business placards to notify the public of the need for septic pumping and maintenance. It sponsors a very successful "Septic 101" workshop on septic system management approximately six times per year.

In response to the TMDL study results, Clallam County has identified and mapped high-risk on-site septic systems in areas of water quality concerns, septics of concern (SOC). These systems were identified by a records search on the basis of location near a water body of concern, and then by age, type, and repair record. Through grant funding the county offered an incentive for pumping, inspecting, and minor repairs of these systems in 2003. Owners were notified by letter of the program and several systems were inspected and pumped. There are still many owners of

those high risk systems who have not volunteered for inspections. If voluntary compliance continues to be inadequate, the county will consider a more enforcement-oriented approach. The county is seeking other funding sources for the incentive program. In addition, SOC property owners have been individually notified about Septic 101 classes being offered this fall and winter.

Clallam County's critical areas ordinance (CAO) has buffer (setback) requirements to streams, creeks, wetlands, and Bays. Those requirements of 50 feet buffers apply to both building and septic system locations. The Dungeness River is a listed exception in the CAO and has a minimum requirement of 75 feet. Further, because of listed species, Clallam County adopted "Guidance for Threatened Species of Salmonids in Clallam County" in April 2000. The adopted ESA guidance promotes a setback of at least one site potential tree-height (152' for most of Dungeness River) and recommends planting the setback area with native vegetation, if possible. The entire area draining to the Dungeness Bay is mapped as a Critical Aquifer Recharge Area (CARA). In this area, the CAO requires all new (since CAO adoption; 2001) agriculture and hobby farms to use best management practices for animal waste disposal and stream corridor management.

The critical area buffer requirements are most often addressed and applied prior to a new building activity or septic system installation. Older septic systems are exempt from critical area code buffer requirements, except in geological hazard areas. In these areas a geotechnical evaluation is required prior to repair.

A Stormwater Ordinance has been developed by the Clallam County Planning Commission. This ordinance contains standards that are the same, or of similar intent, to those standards found in Washington Department of Ecology's 2001 Stormwater Manual. Best management practices (BMPs) must be used to comply with the minimum requirements of the recommended ordinance. In addition, the planning commission developed findings and identified additional issue areas for further action, which include:

1) Direct staff to develop a minor project stormwater design guidebook.
2) Finalize code compliance rules for storm water;.
3) Prepare cost estimates for single-family home construction.
4) Designate the responsible county official.
5) Seek further expert testimony in relation to the major project flow control and runoff treatment requirements.
6) Consider the ability of existing staff to effectively administer (including compliance) new stormwater rules.
7) Continue communication with cities for working towards complementary stormwater regulations in the county.

This ordinance has not yet been adopted by the county.

For all new construction on lots that abut irrigation ditches, an educational brochure is available informing new residents of the responsibilities of living along the ditch system. This brochure is being revised by the Water Users Association and will be available at the Clallam County Department of Community Development.

Dungeness River Management Team

The Dungeness River Management Team (DRMT) is a partnership of individuals and stakeholders in the Dungeness River Watershed who are working together to develop and implement locally based, long-term solutions to watershed management issues. Some of these include degraded fish habitat, especially related to endangered/threatened stocks of salmon (under the Endangered Species Act), flooding, bank erosion and property damage, excessive sedimentation, water conservation, and water quality and quantity problems. The DRMT meets monthly to discuss these issues and others, to describe problems in the watershed, and to define possible solutions and opportunities, using past and current data and scientific information, along with a cooperative exchange of ideas. The Clean Water Workgroup serves as the water quality subcommittee for the DRMT.

Jamestown S'Klallam Tribe (the Tribe)

It is a tribal saying that "Every River Has Its People" and the Dungeness Watershed has been the home of the Jamestown S'Klallam people and their ancestors for thousands of years. The Jamestown S'Klallam Tribe jointly chartered the Dungeness River Management Team with Clallam County. The Tribe participates on the Dungeness River Restoration Work Group (technical advisory team to the Dungeness River Management Team) and the Clean Water Work Group.

The Tribe operates a commercial shellfish farm in Dungeness Bay on beds that have now been prohibited for harvest by Washington Department of Health because of elevated fecal coliform levels. Since 1997 the Jamestown S'Klallam Tribe has conducted water quality monitoring of the lower Dungeness River and tributaries adjacent to the Bay. The Tribe participated in both the TMDL studies, and sponsored (under a grant from EPA) the Rensel study that is the basis of the current Dungeness Bay TMDL to identify the sources of bacterial pollution.

The Tribe has been active in planning, studies, restoration, and monitoring activities in the Clean Water District and its upland sources for a number of years and is especially concerned about water quality. They take the lead in communicating with other tribes that have treaty rights to harvest shellfish in the Bay (Lower Elwha Klallam and Port Gamble S'Klallam Tribes.) The Tribe sponsors many public outreach efforts to educate the community about water quality and other natural resource issues in the watershed. These include publications, displays, presentations, and school curricula. The Dungeness River Audubon Center, a partnership between the Tribe, the River Center Foundation and the Audubon Society, provides a location on the River for much of this outreach.

Puget Sound Action Team

The Puget Sound Water Quality Action Team, under authority of Chapter 90.71 RCW, works with tribal and local governments, community groups, citizens and businesses, and state and federal agencies to develop and carry out two-year work plans that guide protection of water quality and biological resources in the sound. The biennial work plans are based on the Puget Sound Water Quality Management Plan, Washington's strategy for protecting Puget Sound. Members include a governor-appointed chair, the directors of ten state agencies, a city and a county representative, and a representative of federally recognized tribes, each appointed by the governor; and non-voting representatives of three federal agencies. A representative of the Action Team participates in the Clean Water Work Group.

Washington Department of Ecology

Ecology has been delegated authority under the federal Clean Water Act by the U.S. Environmental Protection Agency (EPA) to establish water quality standards and enforce water quality regulations under Chapter 90.48 RCW (Water Pollution Control). Ecology has responsibility to track water bodies that fail to meet water quality standards and, in most cases, to conduct a TMDL process for impaired waters. Ecology provides financial assistance to local governments, tribes, and conservation districts for water quality projects.

Ecology's regulatory responsibility includes a role in overseeing agricultural practices. Ecology, the Conservation Commission, and local conservation districts entered into the Agricultural Compliance Memorandum of Agreement (MOA) in 1988. The agreement defines a consistent series of steps that coordinate Ecology's water pollution control responsibilities with the conservation district programs that provide technical assistance to landowners and farm operators. The steps are:

1) Ecology receives an agricultural complaint, then verifies whether the complaint is valid or not.
2) If a pollution problem is verified, the farm is referred to the local conservation district for assistance. If the problem is an immediate or substantial threat, Ecology is committed to require immediate corrective action.
3) Usually, the landowner, working with the conservation district, has up to six months to develop a farm plan and an additional 18 months to implement the plan.
4) If the landowner chooses not to work cooperatively with Ecology or the conservation district, Ecology will take appropriate action, which may include formal enforcement.

In some situations, Ecology may initiate the investigation/enforcement process rather than respond to a complaint. This would typically be in situations where the environmental concern is heightened, such as when shellfish beds are threatened, other public health or economic resources are at risk, or where water quality violations are being addressed through a TMDL.

As part of its ambient monitoring program, Ecology monitors near the mouth of the Dungeness River monthly for parameters including flow, fecal coliform bacteria, dissolved oxygen, temperature, and turbidity. Ecology will also be responsible for post-TMDL effectiveness monitoring.

Washington Department of Health

The Department of Health (DOH), under authority of Ch. 43.70 RCW (Department of Health), monitors marine water quality in commercial shellfish growing areas of the state, including Dungeness Bay. DOH has restricted commercial shellfish harvest in areas of the Bay due to fecal coliform levels in excess of public health-based water quality standards. DOH continues to monitor water quality in the Bay six times per year.

Sequim-Dungeness Agricultural Water Users Association (WUA)

The Dungeness watershed is webbed with irrigation ditches. The WUA comprises the irrigation districts and companies that deliver the irrigation water.

The WUA is a member of the Dungeness River Management Team and the Clean Water Workgroup, and has been an active partner in water cleanup activities accomplished to date. They are developing the first Comprehensive Irrigation District Management Plan in Washington State. This plan spells out WUA management practices that meet Endangered Species Act and Clean Water Act requirements. The WUA has a long term plan to replace open irrigation ditches with pipes and eliminate tailwaters, conserving water and protecting water quality. They also have policies in place to prohibit water users from practices that allow pollution of the ditches.

U.S. Fish and Wildlife Service (USFWS)

The USFWS is the principal federal agency responsible for conserving, protecting, and enhancing fish, wildlife, plants, and their habitats for the continuing benefit of the American people. The service manages the 95-million acre National Wildlife Refuge System, which encompasses 540 National Wildlife Refuges, thousands of small wetlands and other special management areas. It also operates 69 national fish hatcheries, 64 fishery resource offices, and 81 ecological services field stations. The agency enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts.

As a unit of the National Wildlife Refuge System, USFWS manages the Dungeness National Wildlife Refuge, which includes Dungeness and Graveyard Spits, and a portion of Dungeness Bay (Executive Order 2123). Dungeness National Wildlife Refuge is managed from the Washington Maritime National Wildlife Refuge Complex office in Port Angeles, Washington.

The USFWS works cooperatively with Washington Department of Fish and Wildlife to monitor and conserve Dungeness Bay wildlife populations, including their coastal habitats, and enforce applicable wildlife laws. USFWS management of Dungeness Bay wildlife populations is directed by a number of applicable federal laws and regulations including: Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712), National Wildlife Refuge System Administration Act of 1966 (U.S.C. 668dd-668ee), Marine Mammal Protection Act (16 U.S.C. 1361-1407), Endangered Species Act (16 U.S.C. 1531-1543), and National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57).

Clean, uncontaminated water is essential for the long-term survival of marine wildlife. The USFSW is an active participant on the Clean Water Workgroup and the Dungeness River Management Team. The USFWS recognizes that to keep Dungeness National Wildlife Refuge healthy, it must be managed in concert with adjacent lands within its surrounding watershed. Also, with more than 100,000 visitors annually and the efforts of more than 100 community volunteers, Dungeness National Wildlife Refuge offers a significant site for public outreach and education on water quality issues.

Performance Measures and Targets

The ultimate performance measure of this plan is achieving healthy water quality in the freshwater areas of the Dungeness watershed and re-opening shellfish harvest in Dungeness Bay. Water quality is considered "healthy" when it meets state water quality standards. The Clean Water Workgroup has set a target date of 2007 for achieving water quality standards in freshwater, and a target date of 2012 for the Bay. Interim targets are discussed below, in Measuring Progress Toward Goals.

The following tables contain bacteria loads and reductions for freshwater, calculated in the *Dungeness River and Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study* (Sargeant, 2002). These reductions are necessary to restore healthy freshwater quality in the lower Dungeness watershed and protect shellfish harvest in the Bay

Table 3. Fecal coliform target reductions and concentrations for tributaries to Dungeness Bay.

Site	Study FC GMV*	Study 90th %tile	Target FC GMV*	Target 90th %tile	Required Change %
Dungeness River RM0.1	15	47	13	43	-9
Meadowbrook Creek CM0.2	33	243	14	100	-59
Cooper Creek	49	140	35	100	-28
Golden Sands Slough	109	565	19	100	-82
Irrigation Ditch 1	150	273	100	182	-33
Irrigation Ditch 2	153	1281	24	200	-84

***** Geometric Mean Value

Table 4. Fecal coliform target reductions and concentrations for Dungeness River and tributaries.

Site	Study FC GMV* (#fc/100mL)	Study FC 90th Percentile (#fc/100mL)	Target FC GMV* (#fc/100mL)	Target FC 90th Percentile (#fc/100mL)	Required Change %
Dungeness RM 0.1	15	47	13	43	-9%
Residual – Reach RM 0.1 to 0.3			0	0	
Dungeness RM 0.3	13	61	9	43	-29%
Dungeness RM 0.8	17	81	9	43	-47%
Irrigation Ditch at Dungeness RM 1.0	83	239	60	170	-29%
Matriotti Creek	279	783	60	170	-78%
Hurd Creek	12	100	12	100	0%
Dungeness RM 3.2	6	28	6	28	0%

GMV=geometric mean value

Bacteria reductions needed in Dungeness Bay and tributaries to the Bay, in order to restore shellfish harvest, calculated in the *Dungeness Bay Fecal Coliform Bacteria Daily Load Study* (Sargeant, 2004), are:

Table 5. Fecal coliform loading reductions necessary to meet water quality standards for Dungeness Bay marine sites and the Dungeness River during the critical period.

Sub-area	Critical period or season	# of sample events in season	# of samples in season	Geo-mean	90th %tile	FC reduction needed to meet standards	Limiting criterion	Target value fc/100 mL
3.2 – Convergence zone	November-February	5	17	16	122	65%	90th percentile	43
4.1 – West inner bay	November-February	5	35	24	64	41%	Geometric mean	14
2 – River mouth	March-July	8	58	20	107	60%	90th percentile	43
Dungeness RM 0.1	March-July	9	33	13	80	46%	90th percentile	43

Table 6. Fecal coliform reductions to meet Class AA freshwater standards for the ditches to the inner bay, October 2001 – September 2002.

Ditch Number	Number of sample events	Geometric Mean	90th percentile	FC reduction necessary to meet standards	Limiting criterion	Target value fc/100 mL
1	16	69	702	86%	90th %tile	100
2	7	111	805	88%	90th %tile	100
3	5	80	622	84%	90th %tile	100
4	14	78	2879	97%	90th %tile	100
5	8	18	149	33%	90th %tile	100
7	13	98	1874	95%	90th %tile	100

Measuring Progress Toward Goals

The approach to cleanup will be varied, flexible, and adaptive. Cleanup will first address those activities and geographic areas where the Clean Water Workgroup believes the most progress can be made (those activities identified as high priority in the *Clean Water Strategy*), then will shift to medium and low priority actions. The *Clean Water Strategy* describes specific proposed cleanup actions, priorities, and potential funding sources in detail.

The Clean Water Workgroup will continue to meet quarterly to evaluate water quality data and progress of cleanup activities. If activities do not seem to be effective, or improvement is not adequate, the workgroup will reevaluate the cleanup strategies and adjust them appropriately.

To track progress on water quality, and to continue to identify sources, the Jamestown S'Klallam Tribe, in cooperation with the county, conducts an on-going, grant-funded water quality monitoring program throughout the area of freshwater addressed by the TMDL. DOH continues to monitor water quality in Dungeness Bay six times a year as part of regulating commercial shellfish harvest.

The Clean Water Workgroup has set a target date of 2007 for achieving the bacteria reductions identified in the *Dungeness River and Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study* (Sargeant, 2002). By December 2005, the Clean Water Workgroup expects to have achieved 65 percent of the required bacteria reductions for this TMDL (Tables 3 and 4 above). Bacteria reduction will not happen evenly throughout the watershed. The Workgroup will evaluate progress at all locations specified in the tables, and consider overall progress in concentration reductions.

For *Dungeness Bay Fecal Coliform Bacteria Daily Load Study* (Sargeant, 2004), 2012 is the goal for achieving the required bacteria reductions and restoring shellfish harvest. For the sites in Dungeness Bay (Table 5 above), the interim targets are:

- Approximately 50 percent of required reduction by 2007
- Approximately 80 percent of required reduction by 2010

Reductions in bacteria concentrations will likely not be evenly dispersed within the Bay. The target will be for *overall* reduction, not within each individual area.
For the ditches to the inner bay (Table 6 above) the Clean Water Workgroup's goal is to achieve water quality at the point where ditch water enters the Bay, by 2007.

In addition to tracking progress through actual reduction of bacteria levels, performance will be measured in terms of implementing activities according to commitments described in the *Clean Water Strategy*. The Clean Water Workgroup will continue meeting several times a year. A primary goal of these meetings will be to check progress against those commitments and to revise the strategy as needed. It is ultimately Ecology's responsibility to assure that bacteria are reduced to protective levels.

Restoring water quality is always challenging. In the face of growth pressures on Clallam County, as well as the current political and economic conditions, these goals will be particularly challenging. Accountability and follow-through on this plan will be essential.

Monitoring Plan

There are still a number of unanswered questions about the complexities of the bacteria pollution in the freshwater and the Bay, and the relationship between the two. *The Clean Water Strategy* identifies several areas where additional information is needed. The Clean Water Workgroup will pursue these additional monitoring efforts as funding can be identified.

"Implementation monitoring" refers to the on-going monitoring by the Jamestown S'Klallam Tribe and county that shows where progress has been made, or where more work is needed. The DOH monitoring in Dungeness Bay will track the progress. The Clean Water Workgroup will use these data to evaluate improvements and make adaptive management decisions.

"Effectiveness monitoring" refers to conducting a rigorous monitoring effort to confirm that TMDL goals have been achieved. Effectiveness of restoration of salt water quality to the point of reopening commercial shellfish harvest will be determined by DOH through their monitoring and regulatory program. The water will meet state marine water quality standards before harvest is restored. Restoration of fresh water quality will be tracked through the Tribe's monitoring program.

When it appears that TMDL allocation levels have been achieved, an effectiveness monitoring program will begin. Ecology is ultimately responsible for effectiveness monitoring, and must oversee the process. However, actual data collection may be accomplished in several ways, including:

- As part of tribal monitoring;
- As part of county or other local monitoring efforts, or
- As a special project through Ecology's Environmental Assessment Program.

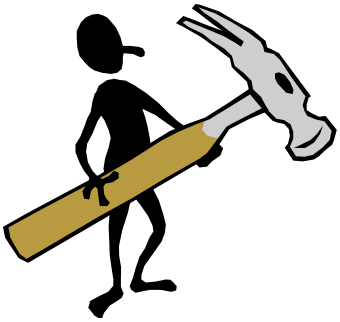
Effectiveness monitoring will begin when the Clean Water Workgroup believes TMDL reductions have been achieved, and will confirm those reductions. The choice of which of the monitoring options to use will be determined by resources available at the time that effectiveness monitoring is needed. Once TMDL reductions are achieved, Ecology will continue to monitor every five years.

In order to be thorough in accomplishing this task, monitoring personnel will consult with the original TMDL modeler to determine critical parts of the implementation plan and to verify critical locations, and coordinate with local agencies and Ecology's regional office TMDL coordinator. All monitoring will be in accordance with approved quality assurance methods. Data will be evaluated to determine water quality status, and an advisory memorandum will be followed by a technical report.

Adaptive Management

The Clean Water Workgroup will continue to meet several times a year. The workgroup will be tracking progress on water quality data from the tribe, county, and DOH, as well as progress on commitments to cleanup activities. This information will be used to target cleanup activities geographically and to prioritize activities. If cleanup strategies do not reflect improvements in water quality, the Clean Water Workgroup will evaluate necessary adaptations to the approach.

Enforcement



Reduction and elimination of pollution sources will be achieved through voluntary means whenever possible. However, voluntary compliance isn't always possible.

The Water Pollution Control Act (Chapter 90.48 RCW) defines "waters of the state" and "pollution" and authorizes the Department of Ecology to control and prevent pollution, and to make and enforce rules, including water quality standards.

The act also designates Ecology as the state water pollution control agency for all the purposes of the federal Clean Water Act. It provides broad authority to issue permits and regulations, and prohibits all discharges to water. The act openly declares that it is the policy of the state to maintain the highest possible standards to ensure the purity of all waters of the state and to require the use of all known, available, and reasonable means to prevent and control water pollution.

Reasonable Assurances

Commitment to addressing the bacteria problems in Dungeness Bay has been well demonstrated over the last few years. Interested and responsible organizations have worked together to reduce bacteria sources:

- Agricultural sources have been addressed by on-going education, technical assistance, and cost-share programs. Clallam Conservation District has worked with two irrigation companies and one irrigation district to eliminate tailwater returns from three ditches to Matriotti Creek (the area that the technical study for the lower Dungeness watershed TMDL identified as the most significant source of fecal coliform bacteria). Ecology is currently revisiting several landowners who were previously referred to the conservation district, but did not follow through on improving their land-use. Enforcement orders and penalties are a possibility.

- The county is currently evaluating options for funding their on-site program on a more permanent basis. In addition, the county and the tribe have partnered to fund and conduct the On-site Septic of Concern incentive program. If this approach does not get a good voluntary response, the county will consider a more enforcement-oriented approach.

- The Water Users Association continues, as funding allows, installing pipes to replace open ditches. This activity, in addition to cutting off sources of bacteria to ditches, is also eliminating tailwater returns to water bodies.

- Education and outreach continue to be a major element of the approach. The Conservation District works with land managers on best management practices and conducts water quality related workshops. The county provides workshops to advise homeowners on proper maintenance of on-site septic systems. The Tribe and its partners sponsor the Dungeness River Audubon Center, which provides classes, workshops, lectures, and permanent exhibits on water quality issues in the watershed.

- In addition, state laws and local ordinances are in place to prevent pollution from entering waterways: 90.48 RCW, the Water Pollution Control Act; Ch. 246-272 WAC which regulates on-site systems and Clallam County Health Regulation Chapter 4, On-site Sewage Systems, as well as the county's Critical Areas Ordinance; and the Water Users Association's policies which prohibit water users from practices that introduce pollution into the irrigation ditches.

With the creation of the Sequim-Dungeness Clean Water District in 2001, Clallam County formalized its commitment to improving water quality. The members of the Clean Water Workgroup will continue to evaluate progress and priorities, and coordinate activities. Agencies will pursue cleanup activities under the regulatory authorities identified above. And, as funding allows, activities from the *Clean Water Strategy* will be implemented.

Public Involvement

The lower Dungeness watershed and Dungeness Bay TMDLs have been only a part of an ongoing local process to deal with the bacteria problems in this and other watersheds.

In 1997, DOH notified Clallam County that part of Dungeness Bay was threatened with restrictions on commercial shellfish harvest. The Tribe and Clallam County convened a workgroup to identify sources of contamination and coordinate a response to reduce or eliminate those sources. The workgroup included representatives of:

- Government agencies: the Jamestown S'Klallam Tribe; Clallam Conservation District, Port of Port Angeles, Puget Sound Water Quality Action Team, Washington State Department of Health, Washington State Department of Ecology, Washington State Department of Fish and Wildlife, U.S. Fish and Wildlife Service

- Shellfish growers: Jamestown S'Klallam Tribe, NW Corner Oyster Company

- Scientific entities: Battelle Marine Lab

- Members of local watershed planning groups: Dungeness River Management Team, Marine Resources Committee

- Private Citizens including tideland owners affected by the closure.

In April of 2000, when DOH restricted commercial shellfish harvesting in an area of Dungeness Bay, the workgroup became the required shellfish response team. When the county decided to take a broader approach to water quality issues and form a Clean Water District, the shellfish response team became the Clean Water Workgroup. Creation of the district and workgroup were subject to pubic review.

The workgroup has been meeting several times a year since October 1999 to coordinate response to water quality issues. The workgroup also functions as the water quality technical subcommittee of the Dungeness River Management Team, and reports to the DRMT on technical matters and for policy review. DRMT meetings are open to the public. Members of the Clean Water Workgroup were involved in all phases of the Lower Dungeness Watershed and Dungeness Bay TMDLs.

Ecology has coordinated with the Clean Water Workgroup on outreach for both TMDLs. Outreach has included public and neighborhood meetings, distribution of fact sheets, display ads in the two primary local newspapers, press releases, and briefings to key policy groups. Prior to public comment periods, key stakeholders have had the opportunity to review and comment on all key documents.

Outreach for this detailed implementation plan will include two public meetings, an open house, a direct mailing to persons living in areas with higher concerns, factsheet distribution, display ad public notice, and a press release. Comments received during the month-long public comment period will be carefully considered. A response to comments discussing how comments are addressed will be included in the final document.

Funding Opportunities

Potential funding sources:

Centennial/State Revolving Fund (SRF)/319 – These three funding sources are managed by Ecology through one combined application program. Funds are available to public entities as grants or low-interest loans. Grants require a 25 percent match. They may be used to provide education/outreach, technical assistance for specific water quality projects, or as seed money to establish various kinds of water quality related programs or program components. Grant funds may not be used for capital improvements to private property. However, riparian fencing, riparian re-vegetation, and alternative stock watering are grant-eligible, providing a landowner easement is given.

Low-interest loans are available to public entities for all of the above uses, and have also been used as "pass-through" to provide low-interest loans to homeowners for septic system repair or agricultural best management practices (loan money can be used for a wider range of improvements on private property).

Special Assessments for Natural Resource Conservation - Special assessments may be imposed for conservation districts by the county legislative body. The purpose of the assessments is to fund activities and programs to conserve natural resources, including soil and water. The assessments are for conservation districts. A conservation district can negotiate with other entities, such as the county, to fund activities and programs they administer or deliver conserving natural resources. An annual assessment rate can be either an annual per acre amount, or an annual flat rate per parcel plus a per acre amount. The maximum annual rate is 10 cents per acre; the maximum annual per parcel rate is $5.00.

Conservation Reserve Enhancement Program (CREP) – This program provides incentives to restore and improve salmon and steelhead habitat on private land. This is a voluntary program to establish forested buffers along streams where streamside habitat is a significant limiting factor for salmonids. In addition to providing habitat, the buffers improve water quality and increase stream stability. Land enrolled in CREP is removed from production and grazing, under 10-15-year contracts. In return, landowners receive annual rental, incentive, maintenance and cost share payments. The annual payments can

equal twice the weighted average soil rental rate (incentive is 110 percent in areas designated by Growth Management Act). CREP is administered by the Natural Resources Conservation Service (NRCS).

Conservation Reserve Program (CRP) – A voluntary program that offers annual rental payments, incentive payments for certain activities, and cost-share assistance to establish approved cover on eligible cropland. Assistance is available in an amount equal to not more than 50 percent of the participant's costs in establishing approved practices; contract duration between 10-15 years. Administered through the Clallam Conservation District.

Environmental Protection Agency (EPA) – The Tribe regularly directs EPA funding available to tribes toward water quality related actions in the Dungeness watershed. In addition, other funds are available from EPA for other governmental entities and non-profit organizations. They have supported a number of projects in the past, and will likely be used in the future as well. To date, these other EPA grants have been small. However, the partners in the Clean Water Workgroup have applied twice for a Watershed Initiative Grant which, if awarded, would provide substantial funding for many of the activities in this cleanup plan.

Environmental Quality Incentives Program (EQIP) - This federally funded program is also managed by Natural Resources Conservation Service:

- Provides technical assistance, cost share payments and incentive payments to assist crop and livestock producers with environmental and conservation improvements on the farm.
- $5.8 billon over next six years (nationally).
- 75% cost sharing but allows 90% if producer is a limited resource or beginning farmer or rancher.
- Program funding divided 60% for livestock-related practices, 40% for crop land.
- Contracts are one to ten years.
- NO annual payment limitation; sum not to exceed $450,000 per individual/entity.

Clallam County Fee increases to support County Operation and Operations and Management (O&M) Program - Could include septic permit fees, a surcharge on pumping, technical assistance fees, etc.

2514 Planning Unit for WRIA 18 – Through this planning process, citizens and agencies are evaluating and making recommendations for the water resources in watersheds around the state (which have an administrative designation as Water Resource Inventory Areas, or WRIAs).

Shellfish Protection District - The legislative body of any county can establish a shellfish protection district to include areas that threaten water quality. Among other things, the legislation allows the collection of fees and charges, but does not give the general authority to tax.

The Public Involvement and Education (PIE) program is administered by the Puget Sound Action Team. PIE dollars help citizens, schools, businesses, nonprofits, local and tribal governments to:

- Create solutions to local pollution problems
- Protect, preserve, and restore habitat
- Motivate people to be environmental stewards
- Partner with others for lasting results

PIE is not a grant program. Instead, through personal services contracts, the Puget Sound Water Quality Action Team obtains the services of individuals and organizations to educate and involve residents of Puget Sound as they carry out the Puget Sound Water Quality Work Plan. The Action Team staff provides guidance on fulfilling a state contract as well as technical assistance related to the project.

Salmon Recovery Fund - the Dungeness watershed has several salmon species listed as Threatened on the Endangered Species List, and recovery of salmon stocks is a high priority. The state's Salmon Recovery Fund can be used for projects that also reduce bacterial contamination in the watershed.

United States Department of Agriculture (USDA) - Rural Housing Repair and Rehabilitation Loans are loans funded directly by the federal government. These loans are available to very low-income rural residents who own and occupy a dwelling in need of repairs. Funds are available for repairs to improve or modernize a home, or to remove health and safety hazards. This loan is a one percent loan that may be repaid over a 20 year period.

To obtain a loan, homeowner-occupants must be unable to obtain affordable credit elsewhere and must have very low incomes, defined as below 50 percent of the area median income. They must need to make repairs and improvements to make the dwelling more safe and sanitary or to remove health and safety hazards. Grants are only available to homeowners who are 62 years old or older and cannot repay a Section 504 loan.

Wetland Reserve Program (WRP) – A voluntary program to restore and protect wetlands on private property (including farmland that has become a wetland as a result of flooding). Landowners can receive financial incentives to enhance wetlands in exchange for retiring marginal agricultural land. Landowner limits future use of the land, but retains ownership, controls access, and may lease the land for undeveloped recreational activities and possibly other compatible uses. This is a USDA program administered by the Natural Resources Conservation Service.

Various other state, federal and private funding sources have been used for such activities as acquisition of residential properties with failing septic systems from willing sellers in order to restore and protect critical wildlife habitat.

References Cited

Hempleman, C. and D Sargeant, 2002. *Water Cleanup Plan for Bacteria in the Lower Dungeness Watershed, Total Maximum Daily Load Submittal Report*. Southwest Regional Office, Washington State Department of Ecology, Olympia, WA.

Hempleman, C. and D Sargeant, 2004. *Water Cleanup Plan for Bacteria in Dungeness Bay, Total Maximum Daily Load Submittal Report*. Southwest Regional Office, Washington State Department of Ecology, Olympia, WA.

Sargeant, D., 2002. *Dungeness River and Matriotti Creek Fecal Coliform Bacteria Total Maximum Daily Load Study*, Environmental Assessment Program, Washington State Department of Ecology, Olympia, WA.

Sargeant, D., 2004. *Dungeness Bay Fecal Coliform Bacteria Daily Load Study* (Sargeant 2004), Environmental Assessment Program, Washington State Department of Ecology, Olympia, WA.

Streeter, V., 2001. *Clean Water Strategy for Addressing Bacterial Pollution in Dungeness Bay and Watershed,* Division of Natural Resources, Clallam County, Port Angeles, WA.

Appendix A
Chronology of Water Pollution Since 1997

Below is a chronology of pollution events in Dungeness Bay since 1995. Please refer to the Dungeness Bay Base map (Figure A-1) for identification of monitoring stations.

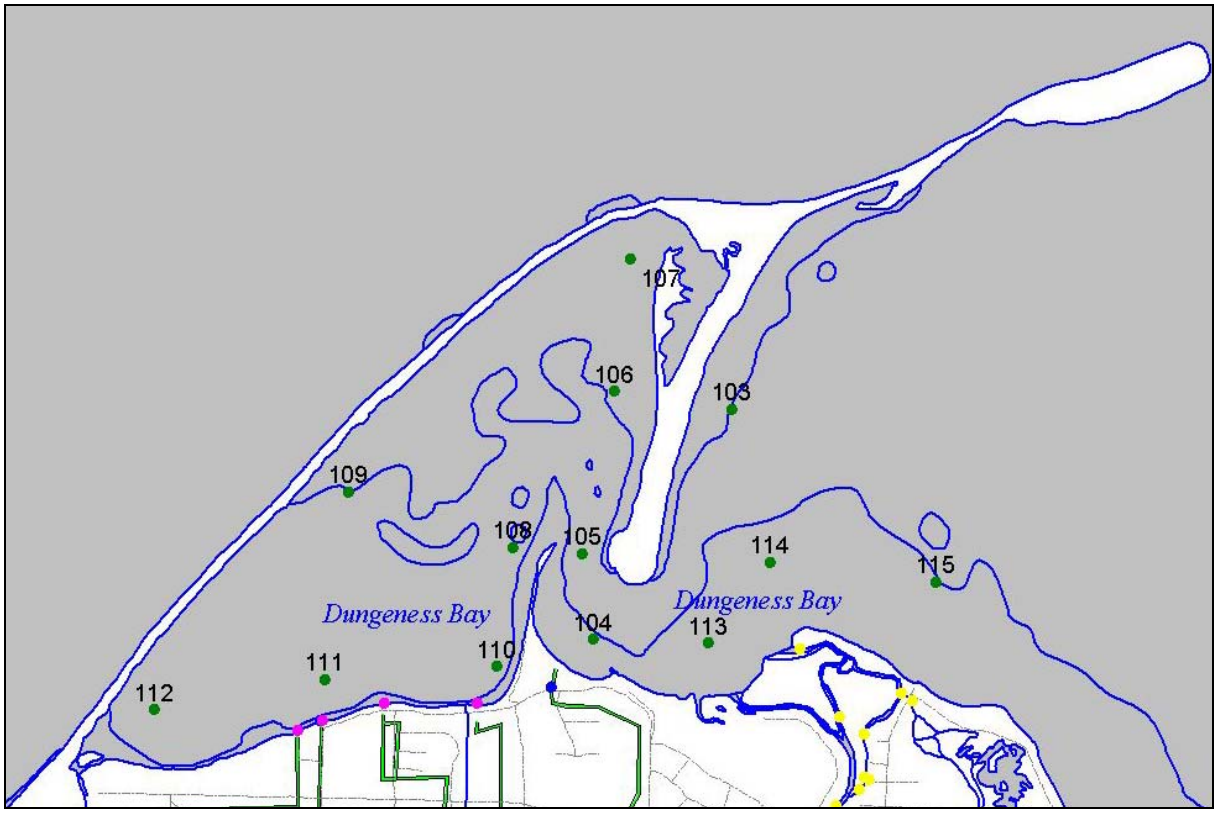


Figure A-1: Dungeness Bay Base Map

- In 1995, one monitoring station at the mouth of Dungeness River, station #113, exceeded the federal limit for fecal coliform. Local and state entities determined that the highest counts of fecal coliform occurred in 1990. Since 1990, a major dairy on the Dungeness River had closed down. After more recent monitoring, sampling data indicated that the station met federal requirements.

- In the winter of 1996/1997, fecal coliform counts at Station #113 began to rise again. By the fall of 1997, Station #113 again exceeded the federal limit for fecal coliform. Since 1997, the Jamestown S'Klallam Tribe and the Washington Department of Health joined together to increase monitoring of the Bay's marine waters to every month.

- Starting in November 1999, Washington Department. of Ecology (Ecology) conducted a series of water quality and flow surveys as a part of the Water Clean-Up (TMDL) study. The study area included the lower Dungeness River, Hurd Creek, Matriotti Creek, Meadowbrook Creek and Slough.

- Effective May 2000, Washington Department of Health (DOH)prohibited commercial shellfish harvest in approximately 300 acres of Dungeness Bay. Three stations, #104, #105, and #113, failed federal standards for fecal coliform based on the past 30 water samples.

- October, 2000, the Dungeness River Management Team (DRMT) sent a letter to the Board of Clallam County Commissioners (BOCCC) with three recommendations about the scope, boundaries, and funding for the required shellfish protection district.

- November, 2000, the Clean Water Strategy for addressing Fecal Coliform in Dungeness Bay and Watershed was finalized by the Clean Water Advisory Committee.

- Effective May 2001, DOH added another 100 acres of Dungeness Bay to the existing closure area.

- Effective May 2001, BOCCC signs Ordinance (CCC 27.16) to form the Sequim-Dungeness Clean Water District and adopt the Clean Water Strategy for Addressing Fecal Coliform in Dungeness Bay and Watershed.

- Effective July 2004, DOH changed the classification of the inner bay to "conditionally approved" for shellfish harvest. This classification requires that inner Dungeness Bay be closed to shellfish harvest each year from November 1 through January 31. Four stations near the mouth of the river are closed to shellfish harvest all year round (see Figure B-2).

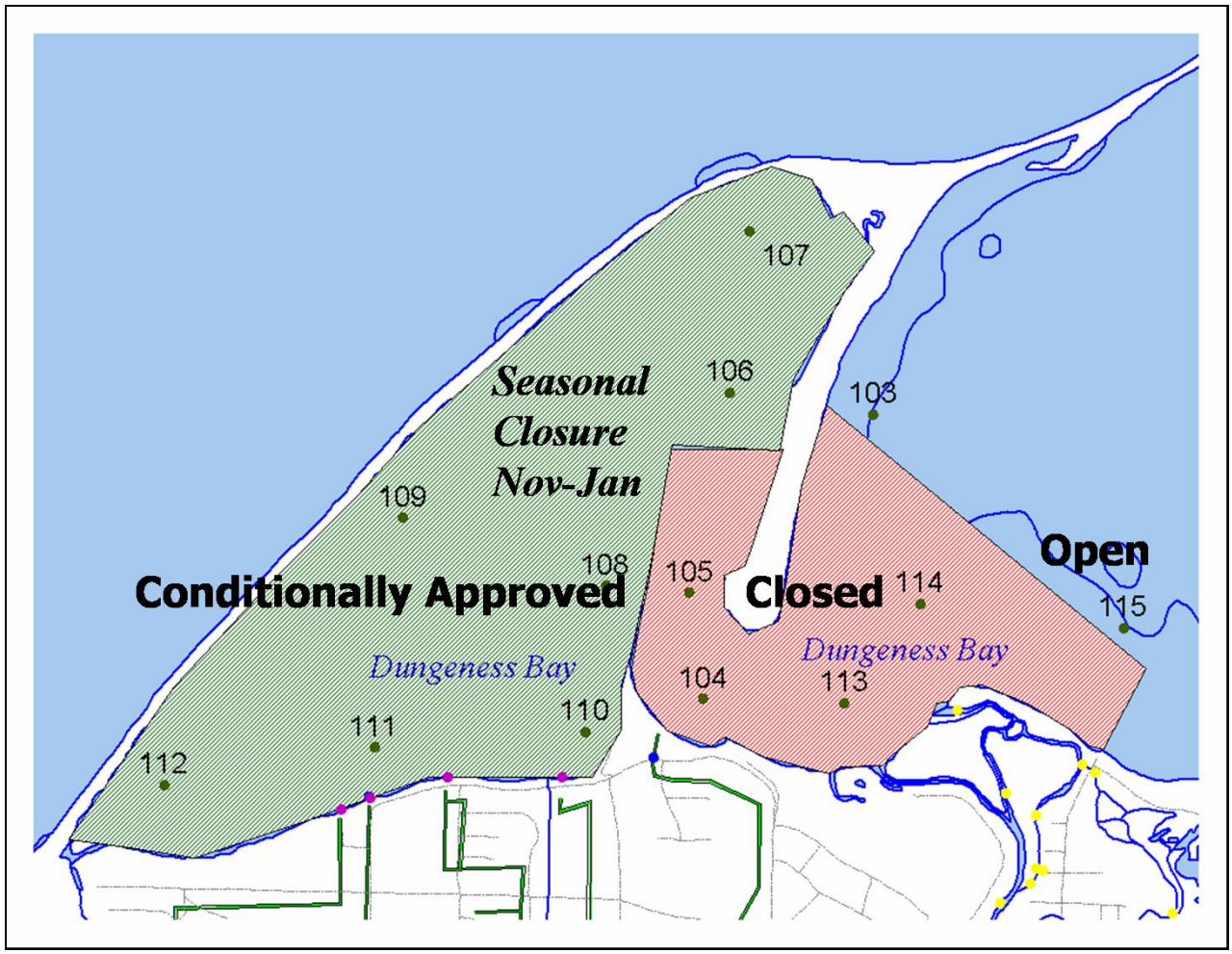


Figure A-2: Current Shellfish Closure in Dungeness Bay

Appendix B
Letters of Commitment

Appendix C
Response to Comments

Response to Comments

Ecology held a public comment period on the draft Clean Water Strategy/Detailed Implementation Plan from August 9 through September 10, 2004. Formal public comments were accepted by mail and by email. The Clean Water Workgroup has considered the comments received. Comments are documented below, followed by a response (in italics) regarding how the comment was/will be addressed.

Comment #1

From: Margaret Swingle
Sent: Tuesday, August 03, 2004 5:33 PM

Here are my comments concerning water purity or lack thereof in the Dungeness Bay and throughout the Sequim-Dungeness Valley.

We need a sewage system as they have in town. All our septic systems contribute to creating impurities. If suggested, there will be a great hue and cry because of cost. But we need to be realistic and brave and move forward.

Sincerely,
Margaret Swingle
240 Vista View Drive
Sequim, WA 98382

Jim Bay, Director of Public Works at the City of Sequim, has started discussion on a Dungeness Regional Wastewater Improvement Project, that included Representative Norm Dicks, Clallam County, the Jamestown S'Klallam Tribe, Washington State Parks, and SunLand. This project proposes to extend sewer service to several areas outside of the City of Sequim. Jim Bay should be contacted for more information on this project.

Despite plans to extend sewer service to areas outside of the City of Sequim, a properly designed, installed, and functioning septic system is the best method for treating wastewater in rural areas. These systems present very little adverse impact to the environment. The level of treatment amounts to tertiary treatment, which is equivalent to the level treatment achieved by the City of Sequim in its water reuse facility. If a resident is on a well, an estimated seventy percent of the water used in the house is returned back to the aquifer through the septic system. Although effluent from wastewater treatment plant from the City of Sequim would be returned to the aquifer by its water reuse facility, the water returned would be concentrated in one area rather than in many areas throughout the watershed as treated septic system wastewater would do.

Comment #2

From: Dick Gritman [mailto:rgritman@olypen.com]
Sent: Sunday, August 15, 2004 4:18 PM

These are my thoughts on the septic system problems (clean water district.)

Add $50 / year to property taxes in the form of a Septic surcharge. This would be added to all addresses in the county (or State for that matter) that are not currently paying a sewer bill. This would include associations where they have private septic tanks but a common drain field. These funds would be set up so that $5 would go for administrative overhead, $25 to fund a full time testing position and $25 to go into an assistance fund. This assistance fund would help those whose systems fail and they can not afford to do the repairs. This could be in the form of a low or no interest loan. Any property owner who has their system inspected or pumped, would send a copy of the receipt and inspection report to the county and they would be forgiven the $50 surcharge for two years.

This surcharge would help the county/State to identify the number of septic systems in use, their location and provide information from which to build a data base on the condition of those systems. Dropping the surcharge for two years following the inspection and or pumping of the system would be an incentive to have at least the inspections done as the cost of the inspection would be about the same as two years of surcharges.

Anyway, there you have it. I really appreciate the time and effort you folks have put into this water cleanup project. We moved here because of the quality of the environment, and will do what ever we have to retain that quality.

Again, thanks.

Dick Gritman

Clallam County Environmental Health Division is currently looking at options for developing a comprehensive Operation and Maintenance (O&M) Program for septic systems. Options for generating revenue to fund this O&M program are being explored. Your proposal will be considered as a possible funding option that will be presented to Clallam County's Board of Health.

Comment #3

Comments on
Clean Water Strategy/Detailed Implementation Plan Draft of July 2004
C.S. Weller
8/25/2004

1. **I appreciated the presentation on the Plan at the Dungeness Schoolhouse on August 11. Certainly all proposed actions are well intended.**

2. **Efforts to deal with failing septics and livestock/pet waste, the presumed sources of bacteria in the Dungeness River, are worthwhile public health measures regardless of the Dungeness Bay problem. It is quite important, though, to implement source tracking as proposed in the Plan to positively identify the sources as either human, livestock/pets, or wild birds.**

   The Dungeness watershed recently received an EPA watershed grant of almost a million dollars. One of the items in the grant is a microbial source tracking study. Preliminary evaluation of potential methods for the Dungeness area was conducted by Battelle (Potential Applications of Microbial Source Tracking Methods to the Dungeness Watershed and Bay, Clallam County, WA, Woodruff and Evans, 2003). Local entities are ready to move forward with study design, and expect results within three years.

3. **However, I continue to be concerned that the majority of contamination is not being addressed. The Dungeness River contributes only 14% of the coliform bacteria in the Bay according to the scientific study of Dungeness Bay, the "Rensel Report". The overwhelming majority of the contamination is from "marine water" and wild birds.**

   Wildlife sources, unless enhanced by human activities such as a landfill, are considered natural background. Management activities in the Plan are focused on human caused sources that can be controlled, like septic systems and animal waste.

4. **We must determine the nature of the "marine water" which is identified in the Rensel Report as the origin of more than 60% of the coliform bacteria in Dungeness Bay. Otherwise, we may be meeting again in a few years wondering why the actions proposed in this plan addressing primarily septic tanks and livestock/pet waste have not succeeded in achieving a satisfactory reduction in bacteria levels.**

   Since the resources (i.e., money) available for cleaning up polluted water bodies is very limited, we have tried to focus and prioritize the Clean Water Strategy/Detailed Implementation Plan on actions that have the most potential for improvement for the cost. As you noted in previous comments, sources to the inner bay include marine water (63%), wild birds (21%) Dungeness River (14%) and irrigation ditches and harbor seals (about 1% each). Since the marine water contains a large amount of "reflux" or returning inner bay water, we believe that reduction of a controllable source to the river and ditches is essentially reducing two sources: the primary source to freshwater, and the secondary source from the reflux in marine water.

   We have not begun detailed planning or scoping of the DNA source tracking study. Again, we will likely prioritize the freshwater sources. But if funds are adequate, we will consider other marine sources as well.

Regarding bathymetry of the Bay near the mouth of the Dungeness River, a number of questions are outstanding regarding the Bay and additional research has been identified as an action. The effect of/change in the bathymetry would be considered as an element of such a study. We are actively seeking additional funding for this purpose.

And, of course, adaptive management is a big part of any cleanup plan. We will continue monitoring. If the high priority actions we have identified are not producing the needed results we will examine the next tier of possibilities.

5. **Although not proposed in the Plan, it would seem reasonable to reexamine the minimum lot size for new septic systems, in view of the suspected contribution of failing septics and the subsequent concern about proper operation.**

   Lot size can be an issue when siting septic systems particularly in sensitive areas, such as marine shorelines, rivers and streams. Following the Washington State Heath Code, Clallam County uses soil type to determine the siting of septic systems on a case-by-case basis.

   Washington State, through its State Board of Health, will be issuing revised regulations for septic systems in December 2004 or January 2005. Some of the proposed changes specifically address marine shorelines and their associated watersheds. The proposed changes will require Counties to develop a risk-based management plan to identify problem areas, to define maintenance practices, and to determine associated costs. We expect that these changes in the State Health Code will provide improvements when siting septic systems in sensitive areas.

Comment #4

Olympic Peninsula Audubon Society

Thank you for giving our organization, representing approximately 500 members in Clallam County, the opportunity to comment on the Clean Water Strategy for Addressing Bacteria Pollution in Dungeness Bay and Watershed and Water Cleanup Detailed Implementation Plan.

We are grateful for the efforts all the entities have made towards improving water quality in the Dungeness Watershed area. The plan is a good step in the right direction; however, we believe the governing entities need to do more. The plan is meaningless if it is not implemented.

As a part of an overall strategy, here are a few recommendations we believe would further improve water quality and, consequently, people's lives:

- **Clallam County needs to implement a strong stormwater ordinance;**

- **Clallam County should implement the recommended changes to the county comprehensive plan made by its Planning Commission;**
- **Clallam County needs to implement a sustainable funding source for septic systems of concern for inspections and financial help for repairs. One-quarter of one percent ($.0025) excise tax on real estate sales is an equitable source for that funding.**

We encourage and support your immediate attention to the cleanup of Dungeness Bay.

Sincerely,
Sue Chickman, Conservation Chair

Clallam County's Department of Community Development is developing a proposal for the Board of Clallam County Commissioners (BOCCC) that will describe the implementation of a County-wide stormwater ordinance. This proposal is expected to be presented to the BOCCC in November 2004.

Clallam County's Planning Commission recommendations on the County Comprehensive Plan have been forwarded to the Board of Clallam County Commissioners for their consideration.

The Board of Clallam County Commissioners passed the excise tax on real estate sales on September 28, 2004. This tax will be effective on October 8, 2004.

Comment #5

Clean Water Strategy for addressing Bacteria Pollution in Dungeness Bay and Watershed
And
Water Cleanup Detailed Implementation Plan

Review Draft Comments
Prepared by Lyn Muench and Hansi Hals, Jamestown S'Klallam Tribe discussed with Dana Woodruff, Battelle; Val Streeter, Clallam County; and Joe Holtrop, CCD

Pg 3 Introduction: goals revised a bit so that they read:

- **To protect public health**
- **To identify and correct sources of bacterial contamination associated with human activities that are impacting water quality of Dungeness Bay; and to restore and maintain water quality in the freshwater ditches, streams and river, and in marine waters within the Bay.**
- **To re-open areas closed to commercial shellfish harvest and prevent future closures; and to continue to harvest shellfish for commercial, subsistence and recreational purposes; and to protect habitat for shellfish and other wildlife species;**
- **To encourage water cleanup actions through public outreach; and to create innovative ways to reach new audiences and energize existing audiences to reduce pollution in the watershed.**

These changes reduce the number of goals, and match better with actual plans we are making to clean up the watershed.

Pg 4 Clean up strategy section – 1st para. Dungeness Agricultural Water Users Assoc. is the correct name.

Pg 5 3rd para. Add another sentence after the "Although wildlife" sentence. "A recommended action listed in Table 1 is to conduct further Bay research (including basic ecological studies, nutrients and fecal coliform assessments, and wildlife usage) in order to better understand wildlife contributions and marine ecosystem influences."

Table 1:
Stormwater section fifth recommended action – add the Three Crabs area so it reads "for the Marine Drive and Three Crabs area. Add CCD as an agency.

Insert as sixth recommendation the final recommendation in regulatory and policy section with a slight change so it reads "Consider comprehensive stormwater planning for sub-areas within the Clean Water District." priority etc. stay the same.

Final recommended action – delete "and" so it reads "specific to local conditions; compile them in a publication" – this way the actions are separated into two distinct actions. Add Jamestown S'Klallam Tribe as an agency.

Domestic Animals/ Pet Waste section – both recommended actions should be High priority and performance measure by 2007. Add Jamestown S'Klallam Tribe and CCD as agencies to first action (distribute information).

Livestock Waste section – condense the first recommended action in the cost estimate section so that it says "workshops/ presentations/ quarterly newsletter and informational booths" This action is funded through 2005. Future funding needed is approximately $8,000 per year.

The last recommendation is ecology enforcement; looks like a typo on the cost estimate – should that say ¼ FTE?

Monitoring section –
The first recommendation has been completed. No cost estimate is needed and current status should say "completed."

The second recommendation is the implementation of the freshwater monitoring and BMP effectiveness monitoring. The cost estimate should be presented as a cost/ period of time because it is ongoing for 8 years. Could also acknowledge WI funding here (AND throughout as appropriate)

The third recommendation – marine monitoring: add Jamestown S'Klallam Tribe as an agency.

The fourth recommendation should read "Perform data analysis of Dungeness area freshwater monitoring on a semi-annual or annual basis". Current status – an analysis completed July 04. Cost estimate should be clarified. If this is this $5,000 per analysis it seems high.

Research section –
The MST recommendation must refer to both freshwater and marine. Both are high priority, and 2007 completion. Cost estimate would be $150,000 for freshwater and $200,000 for marine with $140k currently funded by the Watershed Initiative.

The second recommendation should read "conduct further Bay research (including basic ecological studies, nutrients and fecal coliform assessments, and wildlife usage)" and increase the cost estimate to $200,000 plus.

The third recommendation: delete nitrogen and soc part and add clarification so it reads "conduct GIS analysis of impervious surfaces using fieldwork/ LiDAR/ aerial photos/ remote sensing", add Jamestown S'Klallam Tribe as an agency and the increase cost estimate to $100,000

The fourth recommendation: change so it reads "conduct GIS analysis to map fecal and nutrient spatial and temporal trends", add Jamestown S'Klallam Tribe as an agency and show the cost estimate as $10,000 for CCD and $10,000 for JKT

Regulatory Section –
The fourth recommendation: add CCD and JKT as agencies and for cost estimate say "$3000 - $5000 for staff time per partner".

Remove the last recommendation because has been moved to the stormwater section.

Public Outreach Section: remove details in the cost estimate and replace with "River Center $4,000 per year and presenters $2,500 per year"

Pg 17 very bottom line should read "farmed oyster harvest, and being popular for shellfish harvest."

Table 2. Proposed for 2002 303(d) list looks like a typo. Should have some clarification as to why proposing for a list dated 2 years ago ---- Joe, Val, Lyn advise take off the 2002 date.

Pg 20 top para. reference Clean Water Strategy (Streeter, 2002; update 2004) or do we need to call the 2004 update Revised Clean Water Strategy? Confusing to have same title referenced within the same page as two dates, even with the explanatory text.

Pg 20 last para. delete "to develop or TMDLs"

Pg 24 second para. The site potential tree height is 152' for most soil types along the Dungeness.

Pg 25 first line, typo – abut irrigation ditches

Pg 29 3rd line, typo - is considered

ADDITIONAL COMMENTS FROM CLALLAM CONSERVATION DISTRICT

In the Research section, add the following:
Conduct comprehensive water quality studies to determine feasible remediation measures in the Meadowbrook/Cooper sub basin and other targeted sub basins.

Pg 37 first paragraph
CREP pays twice the weighted average soil rental rate

Second paragraph
CRP is administered by the Natural Resources Conservation Service (NRCS), not CCD.

Fourth paragraph
EQIP is administered by the Natural Resources Conservation Service (NRCS), not CCD.

Last paragraph
It states that "…funding is made available… through the planning unit…" It also states that "This has been an important source of funding for projects to date." Clallam Conservation District is a member of the planning unit and has not had an opportunity to participate in any decision-making regarding this source of funds, thus it is somewhat misleading to say that these funds are made available through the planning unit. Also, it would be informative to know what "projects" or types of projects have been funded.

Pg 38 last three paragraphs
CREP, EQIP and WRP are all USDA programs administered by the NRCS.

All of the above comments have been incorporated into the final document.

Appendix D
Tracking Tables

Tracking Tables

The Clean Water Workgroup will use the following tables as part of future evaluations of implementation progress. Priority categories relate to Table 1: Clean Water Strategy Action Plan. "NA" indicates that entity has no commitments in that priority category.

Clallam County

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			

City of Sequim

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005		NA	NA
2006		NA	NA
2007		NA	NA
2008		NA	NA
2009		NA	NA
2010		NA	NA
2011		NA	NA
2012		NA	NA

Clallam Conservation District

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005		NA	NA
2006		NA	NA
2007		NA	NA
2008		NA	NA
2009		NA	NA
2010		NA	NA
2011		NA	NA
2012		NA	NA

Sequim Dungeness Water Users

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005	NA		NA
2006	NA		NA
2007	NA		NA
2008	NA		NA
2009	NA		NA
2010	NA		NA
2011	NA		NA
2012	NA		NA

River Center

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005			NA
2006			NA
2007			NA
2008			NA
2009			NA
2010			NA
2011			NA
2012			NA

Department of Ecology

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005		NA	NA
2006		NA	NA
2007		NA	NA
2008		NA	NA
2009		NA	NA
2010		NA	NA
2011		NA	NA
2012		NA	NA

Jamestown S'Klallam

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			

U.S. Fish and Wildlife Service

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			

Marine Resources Committee

Year	% complete High Priority	% complete Medium Priority	% complete Low Priority
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			