Supplement to

Department of Ecology Publication No. 13-03-016

https://fortress.wa.gov/ecy/publications/SummaryPages/1303016.html

March 2013

Review and Synthesis of Available Information to Estimate Human Impacts to Dissolved Oxygen in Hood Canal

by

Ben Cope
Office of Environmental Assessment
Environmental Protection Agency, Region 10
Seattle, Washington

Mindy Roberts
Environmental Assessment Program
Washington State Department of Ecology
Olympia, Washington

This pdf file contains the following documents which supplement the report listed above.

1. Cover letter for EPA and Department of Ecology review of science and regulatory options.

2. Hood Canal Coordinating Council (HCCC) letter requesting science review and regulatory options.

3. Water quality regulations applicable in Hood Canal.

This page is purposely left blank

March 28, 2013

Scott Brewer, Director
Hood Canal Coordinating Council
17791 Fjord Drive NE
Suite 130
Poulsbo, Washington 98370

Re: Review of Available Science for Dissolved Oxygen Impacts in Hood Canal

Dear Mr. Brewer:

In response to your March 10, 2011, request for a summary of available scientific information about human impacts to dissolved oxygen in Hood Canal, we are pleased to deliver our final report. This joint report by EPA and Ecology summarizes and interprets studies of Hood Canal by several departments at the University of Washington, U.S. Geological Survey, Pacific Northwest National Laboratory, Kitsap County, and Mason County. Recognizing the importance, complexity, and interdisciplinary aspects of the scientific questions under review, we have subjected drafts of this report to a rigorous peer-review process. First, we engaged the lead authors of recent studies in multiple meetings and rounds of review. After this process, we requested that the Puget Sound Institute conduct a paid review from an independent panel of experts. After responding to the comments of the independent panel, we released a public draft of the report for public comment in September 2012.

The final report summarizes findings from a 2008 peer-reviewed study of sediment cores from Hood Canal. This study found that dissolved oxygen conditions in Hood Canal were better in the 20th century than in the 19th century despite the increase in human activity over that period. The sediment cores also indicated that oxygen conditions have varied in a long-term pattern similar to decadal climate oscillations. In addition, we report that human releases of nitrogen are not significantly contributing to the low dissolved oxygen levels in the main arm of Hood Canal, where the influx of oceanic nitrogen greatly exceeds the nitrogen inputs from surrounding watersheds. The report also summarizes a compelling finding by the Hood Canal Dissolved Oxygen Program (HCDOP) that periodic fish kills are caused by a cascade of natural processes that include the influx of nitrogen-rich ocean water, low river flows in late summer, and strong southwesterly winds.

A consistent finding in the available information is that the greatest human impacts to dissolved oxygen likely occur at the head of Hood Canal (Lynch Cove). We find that the current impact from human-caused nitrogen releases may be cause for concern, but there is a high degree of uncertainty in the available estimates of human impact. We hope that by pulling the available information together and identifying the uncertainties, this report helps inform the planning of future studies and guides the development of plans to restore and protect water quality in Hood Canal.

This document is a companion to our Hood Canal Regulatory Options document which summarizes the regulatory framework that supports pollution-control activities in Hood Canal. Since conveying this to you last August, we added one additional listing and consequently it is included in this transmittal. We suggest the next steps for you in using this information would be to incorporate local government rules into the matrix. Dissolved oxygen is a major concern in Hood Canal, but bacterial contamination of shellfish beds is an equally significant concern, and ongoing governmental activities in the basin are focused primarily on preventing shellfish contamination. These activities include Pollution Identification and Correction (PIC) programs and construction of centralized wastewater treatment plants in higher population zones such as Belfair.

We appreciate your patience as we worked through the peer review process for our science report. We look forward to continuing the efforts to restore and protect Hood Canal in partnership with the Hood Canal Coordinating Council.

Sincerely,

Thomas Eaton, Director
Washington Operations Office
EPA Region 10

Sally Toteff, Director
Southwest Regional Office
Washington Department of Ecology

Hood Canal Coordinating Council

JEFFERSON, KITSAP & MASON COUNTIES;
PORT GAMBLE S'KLALLAM & SKOKOMISH TRIBES
STATE & FEDERAL AGENCIES

10 March 2011

Tom Eaton
U.S. EPA Region 10
1200 Sixth Avenue
Suite 900
Seattle, WA 98101

Josh Baldi
Washington State Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mr. Eaton and Mr. Baldi:

The Hood Canal Aquatic Rehabilitation Program was created in 2005 by the Hood Canal Management Bill (ESHB 2097/RCW 90.88), designating the Hood Canal Coordinating Council (HCCC) as the Local Management Board for Hood Canal. The HCCC and the Puget Sound Partnership are developing this program to address the human contributions to the low dissolved oxygen problem in Hood Canal, using all available scientific findings. The HCCC established a Technical Advisory Committee to advise decision-makers on the corrective and management actions that will address low dissolved oxygen in Hood Canal. The Technical Advisory Committee, which includes representatives from United States Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology), is developing an Aquatic Rehabilitation Action Plan with this purpose. The first phase of this Aquatic Rehabilitation Action Plan will be presented in June 2011 to the HCCC Board for their consideration and adoption.

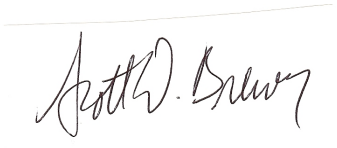
The HCCC Technical Advisory Committee is committed to presenting the Board the Aquatic Rehabilitation Action Plan, including management and policy recommendations based on the available scientific information, by the June 2011 timeline. We would like to request that the Ecology and the EPA provide the HCCC with a review of technical and regulatory information relevant to this plan. Because this information is needed in advance of the June 2011 board meeting, we would appreciate this review before the end of April to benefit planning efforts.

On the technical front, there have been several studies of nitrogen and dissolved oxygen conducted regarding Hood Canal, but the studies vary in scope and stage of completion. It would be extremely helpful and HCCC requests that Ecology and EPA produce a brief summary on the current available scientific knowledge about human impacts on low dissolved oxygen. In addition, as the Aquatic Rehabilitation Action Plan intends to

recommend management and policy actions to address low dissolved oxygen in Hood Canal, the HCCC also requests that Ecology and EPA provide to HCCC a description of the relevant state and federal regulations that apply to the Hood Canal situation based on the summary of current, available scientific information.

Thank you in advance for your assistance with this request. Please contact me if you have any questions or would like to discuss this matter further. We look forward to your response.

Sincerely,



Scott Brewer

Hood Canal Regulatory Options – corrected final

This compilation was developed in response to a March 10, 2011 request from Scott Brewer, Hood Canal Coordinating Council, and reflects current options. The response is directed at nitrogen control options for Hood Canal.

Approach	Analysis of approach
Water Pollution Control Chapter RCW 90.48	The Water Pollution Control Act. RCW 90.48 is the primary water quality statute dealing with the discharge of pollutants to rivers, lakes, streams, and underground waters and aquifers. RCW 90.48.080 states that "It shall be unlawful for any person to throw, drain, run, or otherwise discharge into any of the waters of this state, or to cause, permit or suffer to be thrown, run, drained, allowed to seep or otherwise discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination of the department, as provided for in this chapter." In addition to municipal, industrial and commercial sources, RCW 90.48 applies to pollutants generated from residential properties and hobby farms. The Washington State Legislature identified Ecology as the designated agency responsible for implementing RCW 90.48. Ecology currently provides technical assistance and determines compliance and necessary follow-up associated with RCW 90.48. • Is independent of findings on extent of pollution (>0.2 or <0.2 mg/l allowances). • Allows for a response to specific pollution discharge. • Includes enforcement provisions built into statute. • Contains general language and applying it to a specific situation can pose a challenge in some circumstances. • Requires evidence of discharge before regulatory action can occur. • Is used in limited fashion outside of National Permit Discharge Elimination System (NPDES) permits.

	• May duplicate local ordinances and/or existing County regulations. • Practices involving discharge of nitrogen to Hood Canal may be difficult to identify as pollution under Chapter 90.48.

Approach	Analysis of approach
Direct Implementation	This strategy builds upon existing information and results from the lessons learned through a large variety of planning and implementation efforts including watershed plans, grant and loan funded projects, site-specific correction efforts, and TMDLs. Solutions for many pollution problems are reflected in standard best management practices (BMPs) that have already been proven and are universally accepted. Rather than starting a new planning effort, direct implementation focuses on getting BMPs in place based upon the existing body of knowledge. The pollution identification and correction (PIC) concept developed and used by Kitsap County to correct bacterial pollution is one example of a direct implementation approach. The PIC projects are effective tools to identify and correct pollution sources and are conducted by the county's Water Quality Program to determine the causes and sources of bacterial water pollution in a specific geographical area. Common sources of bacterial pollution include failing on-site sewage systems and animal waste. The County's Water Quality Program has developed a prioritized list of areas in need of PIC attention. Projects are generally funded by the county's Surface and Stormwater Management Program and grants provided by regulatory agencies. Critical to the success of this program is access to private property - supported and reinforced by the county's legal department. • Can be employed by all Hood Canal entities (Tribal, state, local) regardless of their statutory or regulatory authority • Works well when BMPs are known and need to be used extensively. • Can implement best management practices (BMPs) and other known practices that address the pollution parameter without the need for scientific study. • Eliminates delay in addressing problems. • Works well for surface water bacteria because sources can be clearly identified through water quality sampling. • Hood Canal pollution sources such as heavy use livestock areas, failing onsite systems, and

	areas of excess fertilizer use can be identified and corrected. • May not work well where natural sources are involved. • Success/effectiveness with nitrogen sources is yet to be determined. • Nitrogen sources more challenging to identify because significant loading may occur during storms. • Focuses directly on solutions and can limit opportunities for broader educational efforts to raise problem awareness. • Requires staff expertise and experience to identify problems and solutions. • Requires a “field” vs. “office” presence. • May require the ability to directly access private property to investigate issues or sources that are not directly visible from public locations. (i.e., septic issues, livestock, timber harvest). • Relationship may need to be established between ‘X’ amount of nitrogen and “Y” dissolved oxygen concentrations which result in Hood Canal waters.

Approach	Analysis of approach
Outstanding Resource Waters	An Outstanding Resource Water (ORW) designation is an element of the state's water quality standards (Chapter 173-201A WAC). ORW can be nominated by petition and formally designated through a rule-making process. Eligibility requirements for ORW are specified in the water quality standards, and state that Ecology "will carefully weigh the level of support from the public and affected governments in assessing whether or not to designate the water as ORW." When a water body is designated, it receives additional protections against any new degradation. Ecology is responsible for implementing Chapter 173-201A WAC. • The exceptional statewide ecological significance and unique habitats of Hood Canal can be highlighted through an ORW designation. • Designation could provide the highest level of protection available in water quality standards. • Formal designation of Hood Canal may increase public support for protecting it. • Designation could provide opportunity to describe vulnerability of Hood Canal waters and educate people on how to control their nitrogen inputs. • Calls attention to the unique and valuable resources of Hood Canal. • Can be used to prevent future problems from occurring. • HCCC could petition for this designation to elevate awareness and the need for local actions. • Is an administrative designation, which by itself and without other actions will not improve water quality. • Initiatives to identify and correct pollution sources should accompany designation. • Requires a change to the water quality standards, WAC 173-201. • Changes to the standards have historically taken a considerable amount of time. • May have little or no overall effect if pollution from human activities is small.

Approach	Analysis of approach
Municipal Stormwater	The Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) is a permit-based approach to address discharges to Washington waters from municipal stormwater. Enacted through the federal Clean Water Act, NPDES discharge permits are required in some municipal jurisdictions with separate storm sewer systems. Kitsap County is currently the only entity within the Hood Canal watershed covered by a NPDES stormwater permit. A petition can be made to Ecology to include other local governments currently not required to have NPDES stormwater permit coverage. • Stormwater may be significant source of nitrogen to Hood Canal. • The Municipal Stormwater General Permit can be used to help control nitrogen inputs to Hood Canal. • May provide opportunity to target certain stormwater-related pollution controls based on waterbody impairments. For example, golf courses or other landscapes which drain to MS4s may be required to improve fertilizer management. • Can be used to addresses stormwater issues equally in all upland areas to the canal. • Incorporates elements of low impact development and illicit discharge, detection, and elimination programs. • Can be used to address future development impacts. • Spreads responsibility for stormwater controls across geographic and political boundaries. • Not all Hood Canal jurisdictions are covered under the Municipal Stormwater General Permit. • A petition to Ecology is required to add new permittees. • HCCC could petition for Mason and Jefferson Counties to be included in the municipal stormwater permit rather than waiting for each to develop and implement a comparable approach.

	• Permit compliance includes development of a public education/outreach component which may eliminate the need for a stand-along PIE program. • The Municipal Stormwater Permit is a general permit and may have limitations on how requirements can be specifically customized for local conditions. • May be difficult to gather support for a petition. • Increases governmental costs as requires those without stormwater programs to develop them. • Solutions may be based upon technology where siting requirements may be not available.

Approach	Analysis of approach
Total Maximum Daily Load	Water Quality Improvement Projects or TMDLs (Total Maximum Daily Loads) are used to determine the amount of pollutant loading that a given water body (river, marine water, wetland, stream, or lake) can receive and still meet water quality standards, then allocates that loading capacity to the various pollutant sources. There are two types of TMDLs: Traditional and preventive. Where water bodies do not meet water quality standards for a particular pollutant, traditional TMDLs are implemented. TMDLs include technical studies of the pollution (usually including monitoring and computer modeling) and recommendations on how to reduce or eliminate the pollution from its sources. From these recommendations, a Water Quality Implementation Plan is developed which outlines what activities will be needed to reduce the pollution. Once this strategy is put in place, the success of the activities is evaluated through effectiveness monitoring. Preventive TMDLs can be employed where water bodies are meeting water quality standards for a particular pollutant. Although water quality standards have not been violated, the TMDLs set pollution allocation limits to serve as targets for entities to meet. Preventive TMDLs can allow for future growth and development to occur while still meeting water quality standards. • Provides regulatory framework for water quality improvement. • Scientific base results in cause/effect relationships to be shown. • Specifies load and waste load reductions necessary for meeting water quality standards. • Aids in the issuance of NPDES permit limits. • Includes implementation plan and assurances for action. • Ecology reviews WRIA needs for TMDL efforts on an annual basis.\ • A nutrient TMDL in Hood Canal could set limits on sources of nitrogen to the canal. • TMDLs are process-heavy regulatory tools designed to address pollution sources that can be regulated. In Hood Canal, there are very few of these sources.

	• May be difficult to maintain a sufficient pace and quantity of implementation in large and diverse watersheds. • TMDL process requires additional time and money and may not add any new knowledge to the Hood Canal issue. • Effectiveness of implementation actions may be difficult to measure where natural conditions are encountered. • May duplicate recommendations of already existing TMDLs (Skokomish River and Union River bacteria TMDLs). • Implementation could be challenging since N inputs to the canal are probably runoff-related rather than continuous sources. • Regional Ecology staff is continuing to consider smaller, sub-watershed scale TMDLs in Hood Canal sub-basins. • A canal-wide TMDL effort may be logistically too large to adequately manage given current approaches.

Approach	Analysis of approach
On-site Sewage Systems **State Board of Health** **Chapter 43.20 RCW** **Department of Health** **Chapter 43.70 RCW** **Local Health Departments** **Chapter 70.05 RCW** **Combined City-County Health Departments** **Chapter 70.08 RCW** **Health Districts** **Chapter 70.46 RCW** **On-Site Sewage Disposal Systems** **Chapter 70.118 RCW** **On-site Sewage Systems** **Chapter 246-272AWAC**	This State Board of Health rule is implemented jointly by the Department of Health (DOH) and local health jurisdictions (LHJs) to regulate small on-site sewage systems (OSS) with peak design flows below 3,500 gallons per day. DOH administers the state rule and LHJs adopt and implement the rule to regulate and permit OSS at the local level. The rule governs all aspects of OSS management from siting and design to operation and maintenance. The rule sets minimum statewide standards. LHJs can adopt more restrictive standards. Under the rule, Puget Sound LHJs are required to develop and carry out comprehensive plans to help ensure OSS are properly managed, with emphasis on operation and maintenance (O&M) activities and geographic areas where OSS pose an increased public health risk. The local O&M programs are designed and implemented differently in each county and are applied strategically to different types of systems, sensitive areas, and other situations (e.g., time-of-sale inspections) on the basis of public health risk and other criteria. Homeowners are responsible for operating, monitoring, and maintaining their systems to make sure they function properly. The rule sets minimum inspection frequencies at every three years for systems consisting solely of a septic tank and gravity drainfield, and annually for other systems. • The rule aims to effectively treat sewage and minimize public health risks and impacts to ground and surface waters from OSS. • The management plan requirements in WAC 246-272A-0015 place added emphasis on areas of increased public health risk, including areas where nitrogen has been identified as a contaminant of concern. • These requirements dovetail with chapter 70.118A RCW (marine recovery areas). • Where nitrogen is identified as a contaminant of concern in a local management plan, WAC 246-272A-0230(2)(e)(i)(D) says it should be addressed through lot size and/or treatment. Such action should be supported by documentation of the problem and appropriate control strategies. • WAC 246-272A-110 requires nitrogen-reducing technologies to demonstrate treatment

	performance in a product testing setting using an appropriate protocol and meeting a treatment level of 20 mg/L total nitrogen (TN). • The technologies must be reviewed and registered by DOH before LHJs can permit their use. • The 20 mg/L TN treatment level is not intended to be applied as a field compliance standard. • In practice it is appropriate to match nitrogen reduction strategies to actual receiving environment risk factors on a regional or site-specific scale. As such, some counties may require more protective water quality based standards than the technology based 20 mg/L TN treatment level in the state rule.

Approach	Analysis of approach
Large On-site Sewage Disposal Systems **Chapter 70.118B RCW** **Large On-site Sewage Systems** **Chapter 246-272B WAC**	The statute and rule direct DOH to regulate and permit large on-site sewage systems (LOSS) with peak design flows between 3,500 and 100,000 gallons per day. DOH adopted a revised LOSS rule in 201l that consolidates all LOSS permitting at DOH, requires annual operating permits for all LOSS, and requires protection of public health and the environment. The rule is structured to regulate LOSS in different situations ranging from newly constructed LOSS to existing LOSS that have never been documented or permitted. The comprehensive rule covers all aspects of LOSS management, including permitting, siting, design, construction, operation, monitoring, and repair. • The dual focus on public health and environmental protection is an integral feature of the rule. • For new systems, the department requires site risk surveys to screen and evaluate potential impacts (including nitrate screening), and may require more thorough hydrogeology reports when needed to fully evaluate and mitigate potential impacts. • For existing systems, these requirements will be applied on a case-by-case basis. • The rule's flexible framework allows DOH to deal with LOSS in different situations and locations and use the operating permit to apply individual special requirements as needed. • All LOSS will be inventoried, evaluated, permitted, and required to report at least annually to help ensure adequate treatment. • Repair of failures and other modification of LOSS in Hood Canal will present opportunities to improve treatment to protect shellfish areas and reduce nitrogen discharges. • DOH's initial implementation of the revised rule is focusing on locating and permitting LOSS with emphasis on Puget Sound. DOH has inventoried 277 LOSS in Puget Sound and 18 in the Hood Canal watershed. • Existing systems will not be required to upgrade to meet all current standards, but owners must demonstrate that the systems are working effectively.

	• Failures and other performance and design problems will be addressed as they are documented in monitoring reports, engineering evaluations, and site visits.

Approach	Analysis of approach
Marine Recovery Areas **Chapter 70.118A RCW**	The statute directs local health jurisdictions (LHJs) to designate marine recovery areas (MRAs) in coastal areas where on-site sewage systems are a significant factor contributing to (1) threatened or downgraded shellfish areas, (2) marine waters listed under section 303(d) of the federal clean water act for low dissolved oxygen or fecal coliform bacteria, or (3) marine waters where the local health officer has identified nitrogen as a contaminant of concern. LHJs must adopt a strategy for enhanced operation and maintenance (O&M) as part of their local management plan describing how they will inventory, inspect, and fix all systems in these areas. The statute lists 7/1/12 as an initial reporting deadline for this work, although the work is unending and additional MRAs are expected to be established. Approximately 20 MRAs have been designated in 9 Puget Sound counties, including the Hood Canal shoreline in Mason County and east Jefferson County. • The term "enhanced O&M" now used by DOH and the Puget Sound Partnership (PSP) is based on the requirements in RCW 70.118A.050 to inventory, inspect and fix all on-site sewage systems in these designated areas. • The statute specifically authorizes LHJs to regulate on-site sewage systems for the purpose of controlling nitrogen pollution and restoring impaired marine waters. As such, LHJs should consider designating MRAs in areas where they need to regulate on-site sewage systems to address nitrogen pollution of marine waters. • The statute emphasizes the impact of existing on-site sewage systems on marine waters. • The statute focuses on restoring impaired waters and not on preventing pollution and protecting marine waters from these impacts. As such use of the term "recovery" in this statute (adopted 2006) is different from the term's meaning in PSP's statute (adopted 2007) which embraces restoration and protection. • DOH published guidance in 2006 to help LHJs designate MRAs and develop strategies for their implementation. The guidance was written as a supplement to the On-Site Sewage

	System Management Plan Guidance. The document is available at www.doh.wa.gov/ehp/ts/WW/lom/mra-guidance.pdf.

Approach	Analysis of approach
Shellfish Protection Districts Chapter 90.72 RCW	The statute encourages counties with tidelands where shellfish are grown or harvested to establish shellfish protection districts to control and prevent nonpoint pollution and protect water quality. The statute authorizes counties to establish and fund a range of nonpoint-related activities and services. Counties are required to create districts and programs within 180 days after shellfish beds have been downgraded by DOH. The statute authorizes counties to assess fees, rates, or charges to pay for the programs. Currently, 16 districts have been created in 10 Puget Sound counties, including Lower Hood Canal and Annas Bay in Mason County and east Jefferson County. • Shellfish protection districts provide counties with a relatively simple and flexible tool to establish and fund nonpoint pollution programs. • Because of the broad benefits associated with clean water some districts have been called clean water districts and others have been set up using a combination of local funding authorities. • The statute focuses on controlling nonpoint pollution sources that threaten water quality for shellfish harvesting. This suggests that pathogen pollution is the focus of this authority and tool, and may not extend and apply to nitrogen pollution unless the case can be made that it harms or threatens shellfish harvesting. This doesn't mean that the tool shouldn't be used to control nonpoint pollution for the purpose of controlling or preventing nitrogen pollution but simply that nitrogen pollution probably should not be the main focus. • The statute requires counties to adopt programs but does not explicitly require counties to assess fees to implement the programs. In many cases counties have set up fee-free districts and have relied on other means to do the work or have implemented limited programs.

Approach	Analysis of approach
RCW 90.88 Aquatic Rehabilitation Zones	The Puget Sound Partnership is designated as the responsible agency for enactment of this law. RCW 90.88 designated Hood Canal as the first "Aquatic Rehabilitation Zone" under the Aquatic Rehabilitation Zone (ARZ) legislation. The legislation establishes all the marine waters of the canal from a line drawn at Tala Point to Foulweather bluff at the north, to Belfair in the south. It recognizes Hood Canal as marine water at significant risk requiring special attention and actions. The "ARZ One" sets up co-management and approval mechanism for the Hood Canal Coordinating Council (HCCC) as the local management agency and the Puget Sound Partnership (PSP) as the state agency lead for 'projects' that will address Hood Canal's low dissolved oxygen situation, in addition to summer chum recovery. With regard to marine water quality and dissolved oxygen specifically, the ARZ allows for special appropriations for needed work. An initial appropriation of about one million dollars was conferred by the State Legislature to accomplish corrective actions mostly related to wastewater improvements. Legislation also called for establishing funding criteria for consideration by the management board (i.e. the HCCC Board of Directors.) The board was allowed to: • receive and disperse funds for projects and studies related to dissolved oxygen, • the HCCC and the PSP would review and prioritize projects, studies and actions for likely effectiveness in correcting the low dissolved oxygen situation; HCCC and PSP would independently consent on the projects that would be carried out, and report on execution of the projects and report on performance to the local board (HCCC) quarterly and to the Legislature annually. • The HCCC as local management board may use appropriated funds to hire staff necessary to carry out the program.
Shoreline Management Act RCW 90.48	The Shoreline Management Act (SMA) requires all local governments with "shorelines of the state" (all marine waters, larger rivers and lakes) to adopt Shoreline Master Programs (SMPs) based on state rules but tailored to the community. The SMA also applies to "shorelands" – areas 200 feet waterward of the ordinary high water mark. The SMP is essentially a shoreline-specific combined comprehensive plan, zoning ordinance, and development permit system. Ecology must

	approve changes to local SMPs and has ongoing oversight of permits. • All counties and cities are on a legislatively-mandated schedule to update SMPs. A central element of the updates is meeting Ecology rules that require as development is authorized, the SMP assures "no net loss of ecological functions." • On Hood Canal, Jefferson County has locally adopted a new SMP, Kitsap and Mason County are expected to finish their updates in 2013. • All marine waters (below extreme low tide) are designated by the SMA as "shorelines of statewide significance." Hood Canal "shoreland" areas (200 feet upland from the water) are also specifically identified as shorelines of statewide significance. • SMPs can help reduce Nitrogen inputs into marine waters through use of buffers and setbacks that are designed to protect ecological functions. • Many local SMPs are making use of existing critical area protections and water quality regulations, with some refinements in shoreline jurisdiction. The updated SMPs may bring extra emphasis to those regulations through Ecology's involvement in the permit system (e.g., Ecology must approve all Conditional Use Permits and Variances). • SMPs regulate many common types of development, including residences, but they do not regulate existing and ongoing agriculture or most timber management practices.