

**Comments on Dec 9, 2011 Draft Puget Sound Action Agenda
Submitted by Washington State Department of Health
February 3, 2012**

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| | 6, Table 1 | Shellfish section, add: Research to better define collateral environmental benefits of shellfish aquaculture for nutrient removal. |
| X | 15 | Potential Legislative Action, State Level, bullet 3: This item (collecting OSS rates and charges via county property tax statements) may have been accidentally deleted from the wastewater section. It should be listed as an NTA in Strategy C5.3. |
| | C1/C2 | Reduce and Control the Sources of Pollution to Puget Sound |
| | 164 C. General, | The strategies to control the sources of pollution (bulleted list) could include the "Use Outreach and Education to promote behavioral changes to reduce pollution inputs to Puget Sound." Similar to B1.3, page 118. This identifies DOH's ongoing program to educate the public on shellfish protection and onsite sewage system maintenance. |
| | 168 | Some overlap with C2.4 (control sources of pollutants), specifically with dissolved metals from brake friction material. 'Legislation recently signed into law in Washington prohibits brake friction material containing asbestiform fibers, cadmium and its compounds, chromium (VI) salts, lead and its compounds, and mercury and its compounds, from being sold in state by 2014. By 2021, no brake friction material will be sold or offered for sale which contains more than 5 percent copper and its compounds by weight. While Washington State does not provide a specific deadline, the state also bans the sale of brake friction material exceeding 0.5 percent copper by weight once a proven and safe alternative replacement material is identified.' Maybe put in NTA for 2014 requirement, either here or in C2.4? |
| | 168-169 | General Comment - put deadlines in performance measures – only NTA 4 has one. |
| | 169 C1.1 NTA 3 | DOH Office of Environmental Health, Safety and Toxicology (OEHS) should be included in the revision of water quality standards to reflect up-to-date information about fish and shellfish consumption rates. |
| | 176, C1.5 NTA 1 | Don't some localities have hazmat compliance work? Shouldn't they be mentioned as well as Ecology? Description in 'Ongoing Programs' section should be moved here. For example: NTA 1 – in FY2012 conduct 345 compliance inspections... NTA 2 – in FY 2013 conduct 410 compliance inspections... NTA 3 – Respond to and close out... Except parse out 'PS only' targets (statewide targets listed in ongoing |

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| | | programs) |
| | 176 | Emerging Issues and Future opportunities. Combine both sets of bullets into one laundry list of stuff that was discussed but not ready for implementation. |
| | C2 | Use a comprehensive approach to manage urban stormwater runoff at the site and landscape scales |
| | 185 C2.2 NTA 1 | What is target for financial assistance? |
| | 185 C2.2 NTA 2 | In performance measure, 'evaluation' should be replaced with 'draft treatment criteria' |
| X | 185 C2.2 NTA 3 | There are few marine areas having both urban stormwater problems <u>outside permitted areas</u> and priority shellfish growing areas. The performance measure is unclear, but it's not possible to document reduced impacts by September 2012. Move deadline for initiation of work to 2013. Suggested language for performance measure: Identify sites and initiate assistance to local governments in non-permitted areas by September 2013. Assess reduced impacts at conclusion of project. |
| | 185 C2.2 LNTA 5 | General comment – noted a disproportionate number of NTAs geared towards San Juan County – is this a 'squeaky wheel' artifact or statement of actual need? (see also C2.4 NTA 3, C2.6 NTA 1, C5.1 NTA 4, C10.1 NTA 3). Shouldn't there be more balance in PS localities represented in NTAs? |
| | C3 | Agricultural Runoff |
| | 195 C3 | Delete last sentence in 1 st paragraph under "The Challenge." It's not true that nutrients close shellfish growing areas. |
| | C5 | Reducing Pressures on the Puget Sound Ecosystem from Wastewater |
| | General | The results chain diagrams aren't legible when printed and aren't labeled and referenced in the text. Use of multiple, overlapping diagrams in some sections (e.g., wastewater) seems inefficient. |
| X | General | The first part of the OSS pressure reduction target is challenging (95% current with inspections). The second part (90% coverage of unsewered shorelines) is very ambitious, arguably unrealistic. It's uncertain how this will be accomplished and uncertain if local health jurisdictions have authority to act on it given the limits of chapter 246-272A WAC and chapter 70.118A RCW. |
| | General | The plan should not include reporting results that are so time specific that they provide no meaningful context and are quickly dated, e.g., p 216, "In the third quarter of 2011 DOH identified 24 LOSS; of those 23 were not in compliance." |
| | 209 | The Challenge, Paragraph 3: Suggest editing the first sentence to say, "Wastewater treatment plants (WWTP) are centralized facilities that use sewer collection systems to serve densely developed areas." |
| | Diagram | Apply the following edits to all versions of the wastewater diagrams on pages 210, 213, and 220. |
| | 210 | Diagram: substitute LOSS for large OSS throughout the diagram. |

Deleted: a region's most populated and

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| | 210 | Diagram, Strategy C5.3: Rewrite to be consistent with strategy C5.3 on page 217. Suggest rewriting both to say “Improve and expand funding options for on-site sewage systems and local OSS programs.” This allows consideration of LOSS funding needs. (see same comment on strategy C5.3 on p. 217) |
| | 210 | Diagram, Intermediate Funding Result for C5.3: Edit second box to say “Funding available to repair, maintain, and replace OSS and LOSS.” |
| | 210 | Diagram, Intermediate LOSS Result for C5.2: Edit second box to say, “LOSS comply with rule requirements.” |
| | 210 | Diagram, Intermediate OSS O&M Result for C5.1 and C5.2: Given the connecting line from the two strategies, retitle this intermediate result as “OSS and LOSS O&M,” and change second box to say, “owners properly operate, maintain OSS and LOSS.” |
| | 210 | Diagram, OSS Pressure Reduction Result: Suggest editing this pressure reduction result to say “reduced pollution from OSS and LOSS.” |
| | 211 | C5, Paragraph 1: Edit sentence 4 to say “Small systems. . . typically serve single family residences or combined flows from fewer than a dozen homes.” |
| | 214 | DOH will provide an updated MRA map when mapping results from the 12/31/11 semi-annual reporting are available. |
| | 215 | Paragraph 1: Edit sentence 1 to say, “The state and local OSS programs are designed to regulate the safe and appropriate use of OSS to effectively treat sewage and to protect public health and water quality.” |
| | 215 | Paragraph 1: Edit sentence 4 to say, “The work includes the following DOH performance measures. . . .” |
| | 215 | Paragraph 2: Edit sentence 6 to say, “Second, the state tracks the status of OSS inventoried, inspected, and fixed in marine recovery areas and and other designated sensitive areas. The target, consistent with the Puget Sound recovery goal, is to inventory all OSS, fix all failures, and be current with inspections at 95 percent in marine recovery areas and other sensitive areas by 2020. The target also calls on local health jurisdictions to expand these areas and programs to cover 90 percent of Puget Sound’s unsewered marine shorelines by 2020.” |
| | 215 | C5.1 NTA1: Edit this NTA to reflect work with selected stakeholders and to clarify the target date: “DOH, in consultation with local health jurisdictions (LHJs), and other interests will evaluate the effectiveness of the state OSS rule, identify potential changes, and outline recommendations to the State Board of Health in 2013.” |
| | 215 | C5.1 NTA2: Edit this NTA to say, “LHJs will work . . . to make progress on the OSS ecosystem recovery target. DOH will work with LHJs to identify successes and best practices, develop common performance standards, and recommend approaches to improve this work.” |
| | 215 | C5.1 NTA 3: Edit this NTA to say, “DOH will evaluate public domain OSS treatment technologies for nitrogen reduction and develop standards |

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| | | and guidance for their use if testing results indicate the technologies are effective and reliable. The evaluation will be completed <u>in 2014</u> and <u>work on standards and guidance</u> , if needed, will begin after that.” |
| | 216 | Performance measures for C5.1 NTA3: Edit to say, This measure is outside the scope of the research project and this version of the Action Agenda. |
| | 216 | C5.1 LNTA4: Three comments. (1) San Juan county indicated to DOH that the 60% target for alternative systems is countywide, not sensitive areas. (2) What does footnote 13 reference? (3) Why try to determine a performance measure for an NTA that has built-in measures and targets? |
| | 216 | C 5.2 Ongoing Programs, Paragraph 1: Edit to say, “The work includes the following DOH performance measures . . .” |
| | 216 | C 5.2 Ongoing Programs, Paragraph 2: Suggest replacing the paragraph on the state GMAP performance measure for LOSS with the following, <u>“The state GMAP performance measure for LOSS is the percent of Puget Sound LOSS in compliance with state requirements. The measure has been updated to reflect the revised LOSS rule adopted by DOH in 2011. At a minimum, compliance means the LOSS has a current operating permit and does not have an active DOH compliance action or notice, especially with respect to a drainfield failure. By the end of 2011, DOH had identified 277 LOSS in the Puget Sound region, 263 of which were under permit. Compliance levels may drop as the new rule takes effect and all LOSS came under the program, including many previously undocumented LOSS and LOSS formerly permitted by Ecology or local health jurisdictions that are transferring to DOH.”</u> |
| | 217 | C5.3. Edit strategy to say, “Improve and expand funding options for on-site sewage systems and local OSS programs.” Without changing the focus of this strategy or the ensuing text, this edit broadens the scope to allow consideration of all on-site sewage system (OSS & LOSS) funding needs. |
| | 217 | C5.3, Para 1: Check figures and edit the second sentence. It’s confusing to say “the average cost . . . can be as high as \$40,000.” Seems you should either say the cost of replacing a system can be as high as \$40,000, or say the average cost of replacing a system is approximately \$_____. |
| | 217 | C5.3, Para 2: Change Enterprise Cascadia’s name to Craft3. I confirmed this name change with Terry Hull. |
| | 217 | C5.3, Para 2: Suggest editing sentence four to say, “. . . and Clallam Counties to <u>repair or replace on-site sewage systems</u> ” |
| | 217 | C5.3, Para 2: Suggest editing the final sentence to say, “Additional and more reliable sources of funding are needed to support <u>local O & M programs and to repair or replace failing on-site sewage systems.</u> ” |
| | 217 | C5.3 NTA1, Performance Measures: The action says the agencies will evaluate options and support proposals. As such, the performance measure should start with, “evaluation completed or not.” It may |

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Deleted: “number of OSS where nitrogen reduction technologies are deployed.”

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| | | make sense to leave in “coverage of loan program” and “capitalization of loan program,” assuming something actually emerges. Numbers of homeowners assisted and improvements in compliance rates are future measures and far outside the scope of this action. |
| X | 218 | Emerging Issues, Bullet 1: Recommend deleting this as an emerging issue, moving it to Strategy C5.3, and editing it to say, “Evaluate approaches and mechanisms (e.g., a <u>regional</u> flush tax or <u>sewer surcharge</u>)) to establish a regional funding source to support local OSS programs.” I deleted SRF as an example because I don’t understand how SRF could be used to fund local OSS programs. Such programs need dedicated revenues, not loans. SRF is a potential funding source for capitalizing a regional loan program (C5.3 NTA1) which is a related but separate action. The accompanying measure for this new NTA should say, “evaluation completed or not” and should not go so far as to say, “regional funding source created or not.” |
| | 218 | Emerging Issues, bullet 3: Edit sentence 3 to say, “It can be difficult . . . to fund conversions, utilities . . . do not have the resources to subsidize these efforts.” |
| | 218 | Other ideas, last bullet: Edit to say, Develop standards of practice for OSS O&M service providers in the Puget Sound region. |
| | 219 | Target View: Change title to, “Target View: On-Site Sewage System Management.” |
| | 220 | Target View, last paragraph: The text refers to green ovals (ecosystem change) and green squares (recovery targets) although there are none in the diagram. |
| | 224 | Strategy C6.1, Ongoing Programs: Edit sentence 1 to say, “. . . are not conveyed to wastewater treatment plants in amounts in excess of the plants’ treatment capacity or acceptance requirements.” |
| | 225 | Strategy C6.2, Ongoing Programs: At the end of paragraph 2, clarify if you mean Snohomish County of the City of Snohomish. |
| | 226 | Strategy C6.3, Ongoing Programs: Consider spelling out SSO again in this section to help the reader. |
| | 226 | Strategy C6.3, Ongoing Programs, Bullet 1: Suggest spelling out MRA given that people may read C6 as stand-alone section. |
| | 226 | Add a section about DNR’s role in managing aquatic lands and tidelands. <i>DNR manages all 1.9 million acres of Puget Sound’s submerged lands and about 33 percent of nearshore tidelands on behalf of the public trust and the citizens of Washington State. Municipal and industrial wastewater treatment plant outfall discharges into Puget Sound prevent harvest from shellfish growing areas on state-owned lands, depriving the state of badly needed revenue, half of which is used to restore and protect the state’s aquatic lands through the Aquatic Lands Enhancement Grant program. Closures on private tidelands also reduce income for private shellfish business and also deprive the citizens of the state of the opportunity of harvesting shellfish at recreational sites, which in turn affect the local</i> |

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Deleted: By date. These standards will focus on providing standard criteria and guidance for successful O & M activities.

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| | | <i>economy. Therefore, it is in the state's interest to reduce the impacts of these outfalls where practical.</i> |
| X | 226, C6.4 | There is a dearth of NTAs in the centralized wastewater section. Perhaps Ecology could build on this strategy and list some planned priority upgrades as NTAs. |
| X | 226, C6.4-- new | <p>DNR, Ecology, DOH, and DFW will work with state, tribal and local agencies to develop and implement a cooperative strategy to reduce impacts from point sources of pollution that keep shellfish areas closed.</p> <ul style="list-style-type: none"> • Update the 'Inter-Agency Permit Streamlining Document' to map out how state agencies will use existing regulatory authority with respect to wastewater outfalls to maintain and enhance shellfish harvest areas. • Develop a priority list for wastewater outfall upgrades or elimination, either through improved design, consolidation, or diversion to land application. • Explore a sustainable funding source for implementation of the outfall strategy. <p>Performance measures: Updated 'Inter-Agency Permit Streamlining Document', priority list developed, number of priority projects implemented, number of acres opened to shellfish harvest due to implemented projects.</p> |
| | 227 | Strategy C6.4, Ongoing Programs: Suggest editing sentence 5 to say, "These studies also will identify areas where nonpoint sources, <u>including</u> contamination from on-site <u>sewage</u> systems and polluted runoff, <u>may</u> need to be reduced." |
| | 235 | Strategy C7.1, Paragraph 1: There's no standard spelling for "gray water" as you refer to it here. We spell it "greywater" in our new state regulation (WAC 246-274) and related material and recommend that spelling. |
| X | 235 | Strategy C7.1 NTA 1: We recommend removing DOH as an owner of this action. The intent and meaning of this action are unclear, and we don't have a direct role or resources to participate at a significant level in community/watershed planning processes. |
| X | 235 | Strategy C7.1 NTA 2: We recommend removing DOH as an owner of this action due to limited resources and the purpose of this action. As written, this action seems to work from the premise that existing legislative policy limiting sewerage outside UGAs is wrong and should be tested in the form of a pilot project. If there are concerns with the policy it seems it would be more appropriate to design an action to evaluate the policy, areas affected by it, and potential implications associated with changing it. This could then lead to a pilot project or |

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| | | other actions. |
| | 237 | If the NDZ petition is successful, on-going outreach and enforcement will be needed to implement it. Consider adding an NTA. |
| | 238 | Science Needs: The wastewater science needs listed here should match the priority wastewater science needs listed in the biennial science work plan and in the PSAA executive summary. They don't. If you keep this list, consider editing item three to say, "Effect of wastewater plant designs on micropollutant and virus removal." |
| | C9 | Shellfish Health and Harvest |
| | 238 | At end of vessel discharge section is a bulleted list of 'Science Needs' that includes: 'Support for DOH's ongoing work on technologies for nutrient reduction from OSS.' What is this doing in this section? |
| | 241—243 C9. Narrative | See attachment 1: narrative updated with more current information and significant edits. In opening paragraph, no mention of water quality and its relationship to shellfish harvest. |
| X | 242, Paragraph above section titled, 'Ongoing programs' | This paragraph infers that coordinated effort can increase the trend of upgrading acreage for shellfish harvest, but ignores the fact that we have netted most of the 'low hanging fruit'. Continued progress may require more effort and resources (including additional OSWP staff to classify and monitor areas) than in the past. |
| | 243 | Generic comment for NTAs: Performance measures need to be SMART (Specific, Measurable, Achievable, Realistic and Time Bound). |
| X | 243/244 C9.1 NTA 1 and C9.1 NTA2 | Combine into one NTA worded as follows. Convene a forum of stakeholders and regulatory agencies to evaluate shellfish growing area restoration projects to: <ul style="list-style-type: none"> • Create a best practices library or menu highlighting successful strategies to assist in the development of shellfish protection districts, shellfish protection programs, and shellfish growing area restoration activities. • Assess how state and federal agencies can enhance local governments' efforts to respond to threatened and downgraded shellfish areas. • Develop an agreement between state agencies regarding roles and responsibilities in responding to shellfish downgrades. • Identify methods and tools that help identify and correct nonpoint pollution problems. • Work with Ecology and other state and federal agencies to provide incentives for local governments for the long-term protection of shellfish growing areas. |

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| | 244, C9.1 NTA 2 | This is way too generic and duplicates existing duties of shellfish protection districts and LIOs. Look at ways to empower SPDs and LIOs to do this work. |
| | 244, C9.2 | Add DOH to the list of agencies that WDFW will collaborate with to restore native shellfish populations. |
| | 244, C9.3 | Interesting here for two groups that aren't mentioned: The Pacific Coast Shellfish Growers Association and World Wildlife Fund. PCSGA members had input into global sustainability standards: http://www.worldwildlife.org/what/globalmarkets/aquaculture/bivalvestandards.html . Perhaps PCSGA can be responsible for a NTA to disseminate these standards. |
| X | 245, C9.3 NTA 1 new | This NTA does not appear to be consistent with the overarching objective of the section. It applies to nitrogen removal using shellfish, not environmentally responsible shellfish aquaculture for food. We have revised this NTA and included it in a proposed new section which describe a variety of shellfish research projects and needs. See attachment 2 for new section narrative and NTAs. |
| | 245, C9.3 NTA 1 | The project they are mentioning can be found here: http://www.restorationfund.org/projects/mitigation . |
| | 245, C9.4 NTA 1 | Why have a NTA if you don't know who will do it or how it will be measured? It sounds like spatial planning is a component of the shoreline master programs that local governments are already responsible for. |
| | 247, C9.5 | Shellfish Initiative—Pollution Action Team <i>NTA (Ecology is Owner):</i> Departments of Ecology, Health, and Agriculture will form a Pollution Control Action Team (PCAT) designed to identify and address pollution from a variety of point and nonpoint sources, including on-site sewage systems, farm animals, pets, and stormwater runoff that are affecting shellfish beds. Due to persistent and growing concerns over vulnerable shellfish resources in Portage Bay and Drayton Harbor, Whatcom County has been identified as the initial focus area for a PCAT. <i>Performance Measure:</i> Develop and implement the Pollution Control Action Team. |
| | 247, new | Add new section: Emerging Issues and Future Opportunities Specific longer-term activities to ensure that Washington's shellfish are healthy and safe for harvest were identified during the Action Agenda update process and include the following: <ul style="list-style-type: none"> • Continue to characterize the extent of diarrhetic shellfish poisoning (DSP) in Puget Sound. This will include characterizing the species of <i>Dinophysis</i> that produce toxins and developing rapid screening for |

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| | | <p>toxin detection in shellfish.</p> <ul style="list-style-type: none"> • Evaluate and manage “Other” lipophilic shellfish toxins in Puget Sound, including efforts to identify and characterize the distribution of phytoplankton species that produce azaspiracids, gymnodinimines, and yessotoxins; determine concentrations of these toxins in shellfish; investigate links to anthropogenic nutrient sources; and establish protocols for quantifying these biotoxins. • Determine whether anthropogenic nutrients exacerbate harmful algal blooms in Puget Sound. Recent evidence, in particular from Sequim Bay, indicate that the first domoic acid closure was preceded by a pulse of high levels of ammonium, likely from heavy boating traffic over Labor Day weekend. • Develop an early warning system for paralytic shellfish toxins (PSP events) by evaluating environmental factors promoting toxic bloom events. This will include a retrospective analysis of the most toxic events and, in conjunction with weather forecasters, a forecast for PSP-causing harmful algal blooms in Puget Sound. • Develop a predictive model for <i>Vibrio parahaemolyticus</i> using the “window of opportunity” approach that incorporates DOH environmental data collected over the past decade, including information from the DOH oyster-based environmental surveillance program. |
| | 248, 1 st para, last sentence | “into the water and contaminates the oysters, clams and mussels so they are not safe to consume.” |
| | 248, 2 nd sentence in explanation next to graph | The net increase is the upgraded acres in shellfish growing areas that allow for increased harvest opportunities minus any... |
| | Page 248, below the graph. | <p>Could add the following Action Agenda strategies;</p> <ul style="list-style-type: none"> • C6.2 “Reduce pollution loading to Puget Sound by preventing and reducing Combined Sewer Overflows. • C6.4 “Implement priority upgrades of municipa and industrial wastewater facilities in urban and urbanizing areas to increase the effectiveness of treatment and reduce pollution loads to Puget Sound. • C3.2 Ensure compliance with regulatory programs designed to reduce, control or eliminate pollution from working farms. |
| | C10 | Effectively plan, prepare for and prevent oil spills. |
| | 253 C10.2 | <p>http://news.opb.org/article/nw-readiness-oil-spills-drops-risks-increase/</p> <p>How are current budget cuts going to be addressed in PSAA update? Are we going to continually ignore economic reality in this document?</p> |

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Deleted: or the restoration of unclassified acreage to allow harvest,

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| | C11 | Address and Clean Up Cumulative Water Pollution Impacts in Puget Sound. |
| X | 263, C11.3 new | We suggest creating two subsections in the swimming beaches write up: One for <u>freshwater swimming beaches</u> , and one for <u>marine swimming beaches</u> . Suggest new text for freshwater beaches follows: Freshwater Swimming Beaches <u>Additional funding is needed to create and implement a freshwater swimming beach monitoring and notification program in the Puget Sound region. Today, only 6 of 39 counties throughout the state monitor bacteria at freshwater swimming beaches. These locally funded programs provide information to the public regarding health at public swimming beaches. Over the past few years, cities and counties have discontinued these programs due to lack of funding.</u> |
| | C11.3 NTA 1 | Suggest modifying NTA as follows: <u>By 2014, the Departments of Ecology and Health will develop a proposal for a coordinated monitoring and notification freshwater swimming beach program for the Puget Sound region. Performance measures: Develop a proposal for a freshwater beach assessment and monitoring program</u> |
| | 263, C11.3 NTA 1 | Revise NTA: By 2014, the Departments of Ecology and Health will develop a proposal for a coordinated monitoring and notification freshwater swimming beach program for the Puget Sound region. <i>Performance measures: Develop a proposal for a freshwater beach assessment and monitoring program</i> |
| | 263, C11.3, NTA 2 | Remove this NTA. The BEACH Program is already structured to address all recreational users of Puget Sound. Participating counties works with the BEACH Program to select highly used beaches for all recreational activities. The list is available year round for public comment. |
| | New C11.3 NTA 2: new | Suggest a new NTA as follows: <u>Ecology and DOH will develop a plan to conduct pollution source surveys and correct pollution problems at marine beaches used for swimming, surfing, diving and other recreational uses. Ecology and DOH will coordinate with local, state and tribal programs that address point source and nonpoint source pollution to assure that activities are not duplicative. Performance measures: Development and adoption of a plan for source corrective actions at marine swimming beaches by 2013</u> |
| | C11.4 – PIC programs Page 263 | Add “nonpoint” to first sentence. “. . . to determine the causes and sources of <u>nonpoint</u> water pollution . . .” |
| | Page 264 under “Ongoing Programs” | In 1 st sentence, add “and” between DOH <u>and</u> Ecology. |
| | C11.5 NTA 1: | The Governor’s budget cuts the position that evaluates DOH |

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| | Page 265 | monitoring data for status and trends of fecal coliform bacteria in shellfish areas. |
| | 277, D2, new | <p>Section is focused on the Puget Sound Partnership. Add a section about the Lead Organizations and NEP/EPA funded programs.</p> <hr/> <p>In 2010, the Environmental Protection Agency issued a Request for Proposals to carry out priority work consistent with the 2020 Action Agenda for the protection and restoration of Puget Sound. EPA selected Lead Organizations (LOs) to coordinate six-year efforts to develop and implement strategies in the four areas of emphasis:</p> <ul style="list-style-type: none"> • Marine and nearshore protection and restoration (Departments of Fish & Wildlife and Natural Resources). • Watershed protection and restoration (Departments of Ecology and Commerce). • Toxics and nutrients prevention, reduction and control (Department of Ecology). • Pathogen prevention, reduction, and control (Departments of Health and Ecology). <p>For 2011 (Round 1), EPA allocated \$3.1 million and provided another \$5.5 million to fund projects in 2012 (Round 2), matched dollar-for-dollar by the states. LOs are working together to coordinate the grant programs and each LO is working with local communities to support projects to achieve the goals and targets in the Puget Sound Action Agenda.</p> |
| | 298 | <p>Funding Strategy section: Proposed Funding Actions: Recommend adding three NTAs to this list aimed at increasing funding for on-site sewage systems and local OSS programs:</p> <p>(1) authority for counties to use property tax statements to collect rates and charges for local on-site sewage programs (currently no NTA#);</p> <p>(2) evaluate options to fund a regional low-interest loan program to repair and replace on-site sewage systems (C5.3 NTA 1).</p> <p>(3) evaluate options to establish a regional funding source for local on-site sewage programs (currently no NTA#).</p> |
| | 513 | <p>Acronyms, Terms and Definitions: Suggest adding the following acronyms:</p> <ul style="list-style-type: none"> - OSS, On-site Sewage System - LOSS, Large On-site Sewage System - MRA, Marine Recovery Area - LHJ, Local Health Jurisdiction - WWTP, Wastewater Treatment Plant |

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| | | Reduce and Control Sources of Pollution to Puget Sound |
| | 165, para 2 | Ecology has evaluated 17 chemicals of concern (COC) as part of a toxic loading study. The paragraph makes a statement about additional emerging contaminants, which will be important to evaluate in terms of toxic threats to biota and to humans through seafood exposure. Note that there may be additional COC beyond those studied that may be of ecosystem and human health concern. |
| | 166., para 4. | This paragraph lists specific recovery targets, including ensuring that “endocrine-disrupting compounds are below threshold levels in fish tested in Puget Sound.” Change this sentence to read: “endocrine-disrupting compounds are below threshold levels in Puget and that fish are safe to eat.” Note that this recovery target raises the issue that we don’t know “safe” levels for many endocrine disruptors at this time. |
| | 168, para 2 | Add “in fish, the primary exposure route to humans through consumption” to the end of the second sentence, following “and reduced environmental levels of toxics...” |
| | 170, C1.2 | Nutrients and Water Quality. Recent legislation prohibits the sale of phosphates in fertilizers in Washington. Questions remain regarding effectiveness of this ban on water quality in Puget Sound freshwater systems, including impacts on individual watersheds to the effectiveness of area wide actions such as public education and outreach. |
| | 177 | Add the following bullets to the list of Emerging Issues and Future Opportunities: <ul style="list-style-type: none"> • Develop a Public Health response to oil spills. • Fund human health evaluations of Puget Sound contaminants of concern (PCBs, PBDEs, and mercury) in seafood – Phase 2 Evaluation of Trends, including information on data gaps such as seafood in certain locations and in untested species. • Evaluate success of toxics reduction and control efforts in Puget Sound biota at locations of historically high loading rates before, during, and after loading reductions. Changes in impacts to human health can only be measured by evaluating concentrations in fish and shellfish (seafood). This effort aligns with strategy C9 - Abundant, healthy shellfish for ecosystem health and for commercial, subsistence, and recreational harvest are consistent with ecosystems protection |
| | 200 | Freshwater Harmful Algal Blooms and Impacts to Marine Biota. Numerous western Washington lakes that discharge into Puget Sound produce microcystins, potent liver toxins, as documented in a Center for Disease Control and Prevention monitoring program. A recent study in |

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| | | <p>Monterey Bay, California, documented otter deaths due to consumption of shellfish contaminated with freshwater microcystins produced in upland lakes demonstrating the potential for this to occur in Puget Sound. A pilot project in a Thurston County lake demonstrated new methods to detect microcystins in flowing water. This ecosystem threat may be important to both environment and public health of Puget Sound.</p> |
| | 169, C1.1, NTA 3 | <p>Human Health and Toxics. Up-to-date information on contaminant concentrations in biota before and after implementation of Puget Sound cleanup efforts is critical to determine remediation effectiveness. The greatest area of uncertainty regarding impacts to humans through seafood consumption is the lack of contaminant data in fish people consume. Qualitatively, information we have to support our assessment of uncertainty is moderate. We are missing information on key species, some chemicals of concern, some locations, and information on changes of chemicals of concern in seafood over time. Data for the most recent Puget Sound human health assessment were collected from the 1990's – 2004. This information is becoming dated, particularly when the basic question for assessing numerous dashboard indicators is whether concentrations of chemicals in biota are decreasing.</p> |

Attachment 1: Update/edits to C9 Narrative, Shellfish Health and Harvest.

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Shellfish Health and Harvest

C9. Abundant, healthy shellfish for ecosystem health and for commercial, subsistence, and recreational harvest consistent with ecosystem protection.

Shellfish play a significant role in the biological, cultural and historical context of Puget Sound. Healthy shellfish beds are essential to Puget Sound's ecosystem diversity and complexity.

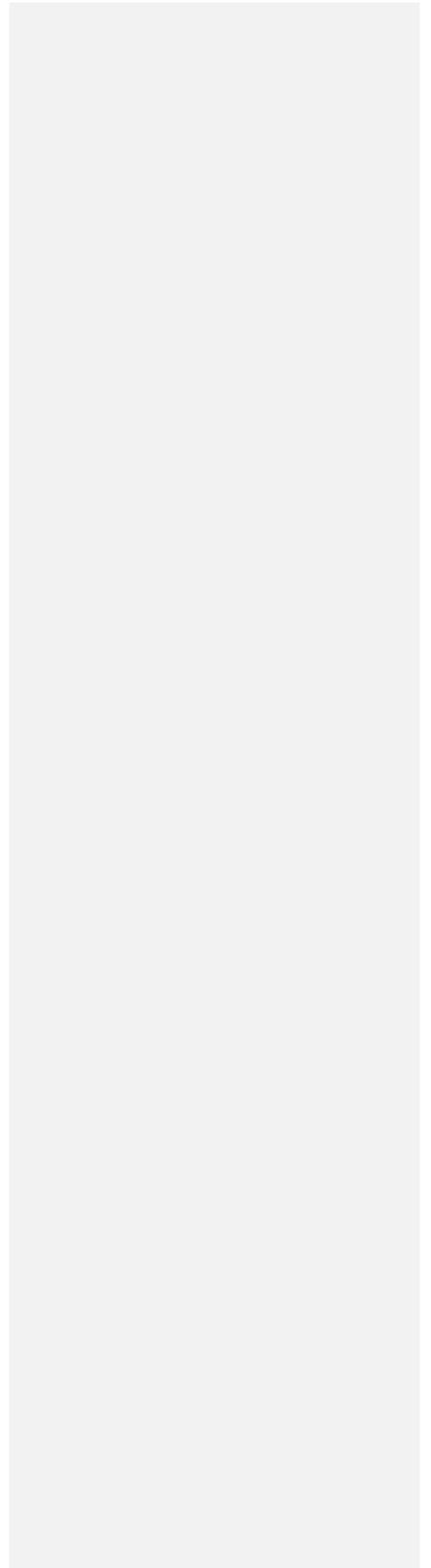
Pacific Northwest tribes have lived and harvested shellfish in Puget Sound for about 12,000 years, and archeologists have uncovered shell middens dating back as far as 5,000 years. Shellfish provide sustenance and figure prominently in tribal spiritual beliefs. In the 1850s tribal governments signed treaties with the US government relinquishing land but reserving rights to fish and harvest shellfish in usual and accustomed areas except for staked or cultivated shellfish beds. Commercial shellfish harvesting began during the California Gold Rush era and continues today providing a significant source of jobs and economic activity in Puget Sound.

Start new paragraph. In both Mason and Pacific counties, the commercial shellfish industry is the second largest private-sector employer, supporting more than 1,200 jobs and an estimated total annual payroll that exceeds \$27 million. Washington is the leading producer of farmed bivalve shellfish in the United States, generating an estimated \$77 million in sales and accounting for 86 percent of the West Coast's production in 2000. There are about 270 recreational shellfish beaches open to harvesting in Puget Sound. WDFW conservatively estimates that the 125,000 recreational shellfish harvesting trips are made each year to Puget Sound beaches, providing a net economic value of \$5.4 million to the region. Since 1987, the Puget Sound Action Agenda has focused on improving water quality to reopen shellfish beds closed because of pollution and has achieved considerable success, especially since 1995.

In addition to the cultural, recreational, and economic contributions shellfish make in Puget Sound, they also can play a role in improving the water quality of the Sound. Shellfish filtering can improve water clarity so sunlight can get through, which can improve eelgrass and macroalgae growth. Shellfish assimilate some of what they take in and pass on the rest as digested and undigested material that settles to the bottom sediments. These filtering and recycling processes can contribute to regulating the health of nearshore ecosystems and take on more importance as human activities and related pollution increase in shoreline areas. They also provide structure to the nearshore and refuge and forage opportunities and can help remove nitrogen from the water.

Expanding and promoting financial incentives and programs that protect, reopen, and enhance shellfish harvest areas and that restore and enhance the native Olympia Oyster and Pinto Abalone will contribute

to Puget Sound recovery. Strategies in this area focus on supporting working aquatic lands and on improving water quality to protect and restore shellfish beds for human consumption. Additional strategies and actions that will contribute to the health and recovery of shellfish harvesting areas also are addressed in Sections on wastewater, stormwater, and toxics.



Relationship to Recovery Targets

Reopening shellfish beds and avoiding closures are addressed directly with a specific recovery target of a net increase of 10,800 harvestable shellfish acres from 2007 to 2020, including at least 7,000 acres where harvest is currently prohibited. In addition, progress towards the recovery targets for management of on-site sewage systems and freshwater quality will improve conditions for shellfish.

C9.1 Improve water quality to prevent downgrade and achieve upgrades of important current tribal, commercial and recreational shellfish harvesting areas.

Protection and improvement of water quality and control of pollution will be critical to meeting the recovery target for shellfish harvesting areas for Puget Sound.

The Department of Health monitors shellfish harvesting areas and classifies them as safe or unsafe for harvest. As of the end of ~~2010~~ 2011, the Department of Health managed the classification of 326,000 commercial shellfish harvesting acres, approximately 190,000 in Puget Sound. There were ~~257,000~~ 252,000 acres with Approved classifications, ~~6,900~~ 12,000 acres with Conditionally Approved classifications, 300 acres with restricted classifications, and 61,000 acres with Prohibited classifications.

In ~~2010~~ 2011, Health upgraded the classification of ~~3066~~ 697 acres in ~~10~~ 5 commercial shellfish areas. Over the same time, ~~33~~ 4,960 acres were downgraded in ~~one~~ two areas. Poor water quality in the Samish Bay (Samish River) and Pacific Coast growing areas resulted in significant classification downgrades.

Over the past ~~29~~ 30 years, Health has downgraded the classification of about ~~51,000~~ 56,000 acres and upgraded the classification of about ~~42,000~~ 46,000 acres. Most of the downgrades took place between 1981 and 1995, when 45,000 acres were downgraded and 7,000 acres were upgraded. Since 1995, Health has downgraded ~~only~~ 6,000 about 11,000 acres while upgrading ~~38,000~~ 40,000 acres. In Puget Sound, approximately 36,000 acres – or about 19% of commercial and recreational shellfish beds – are closed due to pollution sources.

The Department of Health also lists shellfish beds that are threatened with downgrade each year. In ~~2010~~ 2011 seven areas within Puget Sound were “threatened” with a downgrade in classification: Mystery Bay, Port Townsend, Burley Lagoon, Dyes Inlet, Samish Bay, South Skagit Bay, and Drayton Harbor, Burley Lagoon, Dyes Inlet, Filucy Bay, Padilla Bay, Pickering Passage, Port Townsend Bay, and South Skagit Bay.

Even with the significant downgrades in 2011, in recent years, through efforts of state and local government, Tribes, private landowners, and shellfish growers, we have seen had a net increase of about 1,400 acres in the number of acres of shellfish areas reopen for harvest due to pollution control. Strategies and actions in this area are focused on capitalizing on the lessons learned from these experiences and increasing this trend.

Ongoing Programs

The Department of Health is responsible for assuring that marine water is monitored and all potential pollution sources are evaluated to ensure a safe shellfish harvest. ~~evaluating shellfish harvest areas to~~

ensure they are safe. To evaluate shellfish growing areas and protect public health, Health commonly collects over 10,000 marine water samples, evaluates about 125 miles of shoreline, and inspects numerous wastewater treatment plants and marinas each year.

Based on water quality and pollution source evaluations, DOH Health identifies specific locations where shellfish harvesting is "threatened" or "of concern" due to pollution. These areas meet the marine water quality standards; however, if pollution problems are not addressed, a downgrade is probable. Unless pollution problems are addressed, "threatened" areas still meet the standard for their current classification, but could soon be downgraded in classification because water quality is close to falling the standard, or because existing pollution sources may impact public health. Areas "of concern" are those where water quality is declining. Often times, these areas deserve require special attention to prevent a downgrade.

Health DOH, WDFW, Ecology, Agriculture, Tribes, local health departments, and many other stakeholders work together to take actions to prevent shellfish harvest when water quality conditions indicate that shellfish are unsafe to consume. to maintain and improve water quality. Local governments play a significant role in protecting and restoring water quality in shellfish harvest areas. Pollution Identification and Correction Programs (PIC programs) are locally driven processes focused on specific geographic areas to find determine the causes and sources of and fix nonpoint water pollution problems in specific geographic areas. PIC programs focus on consist of a complete survey of all individual properties to identify non-point pollution sources and use outreach, and education activities, incentives and technical assistance to encourage pollution reduction and control. They are widely believed to be one of the single best approaches to protecting and reopening shellfish beds, that resulted in the reopening of shellfish beds in including Henderson Inlet in Thurston County and several areas of Kitsap County. These programs are resource intensive, both for the initial survey and outreach work and to maintain the level of education and commitment to pollution control over time; but they produce positive results. Current funding for PIC programs comes from local sources and state and federal grants. In 2011/2012 over \$2 million in EPA funds will be distributed to counties and tribes to develop sustainable PIC programs; however, stable long-term funding and support for local governments also are needed so these programs can continue to protect and reopen shellfish harvest areas.

Counties are required to form Shellfish Protection Districts where areas are downgraded because of nonpoint pollution. but Counties can also create voluntary shellfish protection districts. The purpose of the Shellfish Protection District is to bring stakeholders together, develop a plan to address the nonpoint pollution problems and implement the plan. A district also provides a mechanism to generate local funds for water quality services to control sources of pollution to implement the plan and sustain the pollution control efforts. They also can serve as educational tools, calling attention to the pollution sources that threaten shellfish harvest areas. Shellfish Protection Districts can be used in concert with (or to create funding for) PIC programs; however, funding for district planning and start-up is needed.

Attachment 2: New section: C9.6, shellfish research projects/needs.

C9.6 Answer key shellfish safety research questions and fill information gaps.

Some obstacles to expanding shellfish harvest opportunities are lack of knowledge to better estimate risk and delineate where and when it is safe to harvest shellfish. Actions under this substrategy will assist implementing agencies in better evaluating shellfish safety risk and making better decisions on shellfish area classification and status. Research to better define collateral environmental benefits of shellfish aquaculture (like nutrient removal) are also included in this substrategy.

Near-Term Actions

C9.6 NTA 1: The Departments of Ecology and Health will work cooperatively under an existing EPA grant to evaluate use of Ecology environmental models for point source dilution analyses in Health's commercial shellfish area classification program.

Performance measure: Complete modeling study by December 2013.

C9.6 NTA 2: Purchase equipment and monitor the toxin causing Diarrhetic Shellfish Poisoning (DSP). In order to expand monitoring and ensure minimum turnaround times to protect public health from this emerging pathogen, the purchase and installation special testing equipment to analyze shellfish extracts for several biotoxins. Schedule permitting, the instrument will also be used to develop methods for Paralytic Shellfish Poisons detection (at present the method uses live animals).

Performance measure: Purchase equipment and initiate monitoring by May 2012.

C9.6 NTA 3: DOH, in cooperation with NOAA's Northwest Fisheries Center, will conduct water quality studies of selected shellfish wet storage areas in Puget Sound to better correlate environmental conditions with potential causes of illness that may restrict harvest.

Performance measure: Conduct initial water quality studies by October 31, 2012.

C9.6 NTA 4: Evaluate Uptake and Persistence of Viruses in Shellfish Tissue from Outfalls Under Normal and Upset Conditions (storms, illness outbreaks). To better evaluate shellfish growing area classification requests, clean shellfish will be placed near selected outfalls and analyzed to evaluate uptake and persistence of viruses from these sources. This supplements work by FDA to develop a reliable viral risk indicator and to evaluate if virus uptake and persistence are different in Puget Sound than other areas of the country. Work to increase capacity of the DOH Public Health Laboratory to perform virus testing of shellfish tissue is also included in this NTA.

Performance measure: Conduct at least one virus uptake and retention study near major outfalls of concern. Increase capacity of DOH PHL to perform virus testing of shellfish tissue.

C9.6 NTA 5 (formerly C9.3 NTA 1): [DNR] will work with stakeholders to create pilot projects testing the use of mussel culture or other suspended or beach culture to mitigate nitrogen pollution in sensitive areas, such as the project in Quartermaster Harbor. This aquaculture application may serve to

encourage public-private opportunities to reduce nitrogen impacts that are both efficient and cost effective and supplement advanced wastewater treatment technology.

Performance measure: Number of replicate projects, evaluation of treatment effectiveness, including cost-benefit analysis.