

EPA Comments on 2012 Puget Sound Action Agenda Update

REGARDING PROPOSED CHANGES TO THE DEFINITION OF NTA TO INCLUDE ONGOING PROGRAMS

Many of the NTAs are dependent upon ongoing programs to move forward; however, these interdependencies are not clearly identified in the draft Action Agenda Update. The prioritization of NTAs must consider ongoing priority program needs to ensure that the NTA list can be integrated into effective implementation strategies. EPA does not think that it is appropriate to redefine ongoing program needs as Near Term Actions. While some of the same prioritization criteria used for NTAs may be appropriate for ranking ongoing programs, the process must reflect the difference in scale (programmatic level vs. individual NTA project level) other important factors. For example, many of these ongoing programs are required by statute, regulation or the specific mandate and mission of an agency. Prioritization processes of ongoing and new activities to restore and protect Puget Sound should consider both ongoing programs and NTAs separately and appropriately. The results (priority lists for NTAs, ongoing program needs, science needs, geographic needs) should then be integrated into complementary implementation strategies that are more closely directed at specific environmental outcomes.

MANY OF THE NTAS ARE NOT CURRENTLY ACTIONABLE AS PRESENTED

In many cases, either the description, intent, outcome, approach or lead entity is not adequately described to position the proposed NTA as being ready to fund or initiate. This problem could be relieved if under-developed NTAs were to be called out to be refined, more adequately scoped regarding intent, approach, or desired outcome rather than attempting to launch an unclear or under-developed action (actions that do not appear to be ready for implementation as currently described are noted in the following NTA-specific comments)

GENERAL COMMENTS

In multiple places throughout the document the “San Juan Initiative recommendations” are mentioned. It would be useful to provide a reference for those materials or identify them in the Action Agenda so that readers unfamiliar with this initiative and its recommendations can review them. This comment also applies across the Action Agenda, to the general need to reference documents mentioned.

The overall issue of how to get humans to collectively reduce their ecological footprints could be more explicitly acknowledged and addressed in the Puget Sound Action Agenda. Without addressing the current patterns and trends of human consumption, occupation, and growth, it will not difficult to achieve the overall goals of the Action Agenda. Adoption or reference to Mathis Wakernagel’s concepts might be useful. See <http://footprintnetwork.org/en/index.php/GFN/>

Local NTAs have been included in some places within the draft Action Agenda, but it isn’t clear if all of the local NTAs will be integrated into the main body of the document and intermingled with the basin-wide NTAs. The Action Agenda should be clear on how local NTAs are going to be included in association with the basin-wide NTAs in the prioritization process.

CLIMATE CHANGE

Increased awareness of climate change in the Action Agenda:

It is very heartening to see an upfront section on climate change (CC) pressures in Puget Sound. This information will bring the awareness of CC projection scenarios to all the strategies. The section appropriately prioritizes changes by confidence and refers to all the adaptation work conducted so far by the Department of Ecology (Preparing for a changing climate).

Likewise, involving the Climate Impacts Group (CIG) is an outstanding move. The CIG is at the forefront of developing models and scenarios for Washington, especially downscaling models, and the CIG is closely involved with other climate change adaptation efforts in our region.

There are many scattered references to the Washington State Climate Response Strategy. We agree with that the recommendations therein should be included into the specific plans in the Action Agenda. The effort to incorporate the Washington Climate Response Strategy into the Action Agenda will likely be a key area of assistance by the CIG representative.

General Comments:

The document should discuss that the projection scenarios are on a longer timeframe than 2020. The document could point out that these projections are on a 40 year timeframe.

The Action Agenda discussion could be bolstered by including a short paragraph on the nexus of CC Adaptation and Mitigation to sustainability and the general concept of “no regrets” actions. The idea of “no regrets” (or equivalent) would fit nicely into the guiding principles inset on Page 17.

CC pressures could be included in Step 2 (Gathering of information on near-term actions) to insure that each of the 12 points are checked against the projection scenario changes.

Similarly (using the figure on page 120 for marine systems and nearshore armoring as an example), it would be helpful to add to all the summary figures (as appropriate) a box under the key that indicates CC as a concomitant pressure that needs to be factored in (e.g., for page 120, given sea level rise, shoreline actions must be resilient to potential future conditions; for page 133, indicate that pressure reduction is taken in recognition of CC pressures). A useful example to key off of is the Table on page 333 that shows CC and sea level rise as a local pressure to address invasive species. This approach could be used in the figures as well.

The Action Agenda could provide some specific examples showing how CC scenarios can be included. Some examples to choose from include sea level rise, habitat change, etc. (there is a good general list at the beginning of the Agenda and in the Washington State Climate Response Strategy)

Specific Suggestions (as examples; an exhaustive review of every likely connection with CC was not done):

A1.1 - It would be reasonable to plan to include CC into the classification tools. There are vegetation and hydrologic models that could be run with CC scenario outputs (e.g. on stream temperature). Several federal agencies are doing that currently.

There are logical connections with CC – floodplain function, shoreline planning, habitat, hydrology, etc.

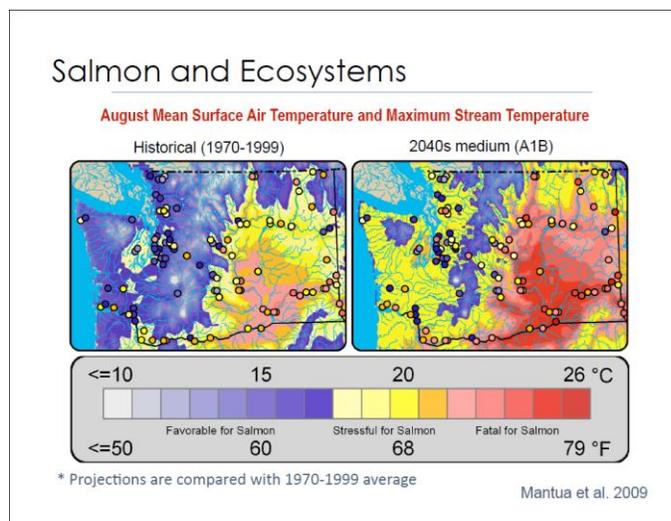
A5.6 NTA 1 will have a broad benefit across the entire Action Agenda. A CIG member on the Science Panel will be extremely valuable, not only for floodplain protection and restoration strategies, but for many other near-term actions (for example, consideration of the types of trees to plant in riparian zones that will be resilient to air temperature increases in 40 years).

Under A.6, it would be helpful to include language about climate change in the salmon recovery plans so that the recovery plan goals are/will be resilient to climate change. This comment also applies to restoration of forestlands, wildlife corridors and prairies (A6.2).

A.7 – The no net loss of ecosystem function section should evaluate the ecosystem changes that will come with climate change.

The Freshwater Protection section has a good description of climate change in the very first paragraph. This should consideration should be carried through into each action. Climate change could be mentioned in several places. For example in the third bullet at the bottom of page 88, climate change could be added to the list of emerging issues and future considerations regarding water. Summer Stream Flows is another logical place for CC consideration on restored flows (see below).

Protect and Recover Salmon. The challenge should acknowledge work already done on temperature projections with respect to salmon habitat requirements and encourage recovery plans to include climate changes. A figure is included to illustrate this:



Habitat resiliency to climate change will be important in salmon recovery and should be considered in setting priorities.

It is very encouraging to see the inset on page 100 discussing the link between climate change and biodiversity; and to see a specific CC point (#6) included on page 102 for WDFW. Hopefully those familiar with Preparing Washington for a Changing Climate can evaluate how well the strategy is incorporated into the Action Agenda.

A11. Invasive species. It would help to explicitly discuss the role of future CC scenarios on changes, both positive and negative, in invasive species habitat. This would help with future planning (similar to other habitat-related evaluations, such as for salmonids).

In B2.4 and B2.5, SAV and MPAs should be protected from the effects associated with potential CC scenarios.

PRIORITIZATION OF NTAs

Comments already provided to Martha Neuman.

UPLAND AND TERRESTRIAL

Impact avoidance is critical to a no net loss of ecologically sensitive areas as restoration efforts are carried out in adjacent compromised areas. Protected status will preserve ecologically sensitive habitats in a well functioning ecosystem. In carrying out A1, to "Focus land development away from ecologically important and sensitive areas" the Partnership should engage the collective expertise of State and federal agencies, tribes and NGOs. We support the use of the Washington State Department of Ecology's Watershed Characterization Tools, the Washington Department of Natural Resources' Natural Heritage Program (NHP; using NatureServe, State listed rare species and species of concern, historic and current prairie and oak woodland, Natural Heritage Wetland, and other data bases and data layers they have developed as part their NHP), and Washington Department of Fish and Wildlife Priority Habitats Data definitions, databases and data layers for State listed species or species of concern.

A1.1 "Identify and prioritize areas that should be protected or restored and those that are best suited for (low impact) development." As the draft Action Agenda acknowledges, the Puget Sound Basin Characterization is a decision-support tool rather than decision-making tool. For this reason, it will be important to establish the criteria for identifying what those agreed upon "ecologically important and sensitive areas" are in order to focus these actions in the Agenda. The Action Agenda should address who will be engaged and involved in developing the criteria and those "ecologically important and sensitive areas."

A1.1 NTA 1 – PSP will convene an interagency workgroup by 2012 that, by 2013, will prepare regional ecosystem protection standards with a decision making framework." It is not clear what these standards would consist of in scope or effect or how they would work with or be connected to relevant ongoing programs and activities. The generic reference to a supporting decision making framework is not adequately described (e.g. Are these voluntary decisions? Would they work in concert with other statutes or regulations? Who would be responsible for overseeing these standards?). If this NTA is pursued, the action should be to scope and refine a proposal that could be then considered for adoption and implementation.

A.1.4 NTA 1 – "[Who?] will convene a workgroup, by 2012, that will, by 2013, conduct a cumulative [e]ffects assessment of the 'no net loss policy' in producing net gain toward the recovery targets and articulate how cumulative effects assessment could be integrated into existing programs." It is not clear what 'no net loss policy' is being referred to (i.e. the federal no net loss policy under the Clean Water Act section 404, a State policy directed at Critical Areas, wetlands or shoreline management, Action Agenda recovery targets or is this intended to provide a benchmark objective to local resource or land

management programs?) Any cumulative effects assessment would either need to be directed at a specific category of resource or at a specific program with a specific no net loss objective. A generic cumulative effects assessment that is not directed at any particular program, geographic area or resource is not ready to initiate. More direction regarding scope and objectives needs to be developed before the assessment itself is initiated.

A Sound-wide interagency team comprised of federal and State agencies such as the U.S. Army Corps of Engineers, U.S. EPA, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Department of Ecology, Washington Department of Natural Resources (DNR) - Aquatic Lands, Washington Department of Fish and Wildlife (WDFW), and Tribes will provide a forum to address activities that cumulatively contribute to losses of important ecological systems and their functions (like aquatic resources, including wetlands, streams, coastal and nearshore areas). Such a group could be modeled after the interagency working group that was convened by the Corps in 2010 for the 2012 Nationwide Permit Reauthorization process. Local jurisdictions could also be engaged as appropriate.

Identifying ways that both “strengthen” and “streamline” permitting processes may be challenging. Streamlining by eliminating public comment/review has the affect of weakening permits. To both “strengthen and streamline” existing local, state, and federal permitting programs will require ensuring greater consistency at all levels (between NEPA and SEPA, between local jurisdictions’ CAOs, between state and federal permitting requirements). To do so will require the creation of incentives that allow for greater protection (reduced ecological footprint) and simplify/streamline the permitting process at the same time.

A2.1 NTA 2 - Protection through acquisition is a sound approach but the performance measure for this NTA is weak. Some tangible measure of task force success is needed.

Page 43 Local Action: replace “conversation” with “conversion”

A2.1 NTA 3: Given the past success of attempts to pass a similar bill (the 109th, 110th (2), and the 111th (2) Congress killed this bill), this NTA may not be the best use of agency resources.

A2.1 NTA 5 and 6 – It is not clear why these are presented as distinct NTAs or how they would interact.

A2.2 – Using special designations to protect intact areas is an important action objective. In addition to the federal Acts referenced (Wilderness Act & Wild & Scenic Rivers Act), the State DNR and WDFW lists of high priority targets for acquisition can also be used. DNR identifies Natural Heritage sites (wetlands, prairies/oak woodlands, riverine, mature forested areas, coastal areas, critical headwaters, etc.) and WDFW Priority Habitat Species areas could also be valuable in identifying areas to be designated. There are other types of designations like “Natural Heritage Site” or “Natural Resource Areas” that could be used.

A3.1 - For incentives to work, they must be well funded.

3rd paragraph, page 51: insert – “There *are* also a wide variety of ...”

A5.1, NTA 2 - The prospect of sea level rise must be part of this discussion.

A5.4 NTA 3 – “[Placeholder for an NTA on effectiveness monitoring related to status and trends of floodplains.] Performance standard TBD”. Before an effectiveness monitoring approach can be developed, ‘floodplains’ will need to be clearly defined, given that there are multiple possible definitions. Federal agencies, State programs, hydrologists and local communities use different definitions for ‘floodplains.’ Agreeing on the definition of floodplains in the context of the recovery target should be the initial NTA, with the effectiveness monitoring and tracking following this step.

A5.5 NTA 2 – “The conservation districts, agricultural community, watershed planning groups, and local jurisdictions will use the outputs from the characterization work (A 5.1 NTA 1) to identify potential land swaps and identify candidate areas available to expand for agriculture outside of priority floodplain areas by 2012.” – While the characterization work would be helpful in identifying sub-watersheds that are important for maintaining or restoring hydrological and flood buffering functions, the assessment products have not been developed to work at site-specific scales. Other local and site specific information and assessments would be needed to support potential parcel scale land swap opportunities, including land use designations, soil compatibility, ownerships interest etc. Floodplains have not yet been generally defined in a way to support this purpose. It is also not clear that all agriculture is incompatible with all areas within general floodplains. This NTA needs to be pursued in the context of local watersheds with specific problems and opportunities and needs a more carefully considered sequence of steps to effectively support the concept. The time frame for achieving the performance measure is also unrealistic, unless the effort is located in a particular locale with an interested and receptive group of stakeholders capable of pursuing this work.

A5.6 NTA 2 – “EPA with collaboration from the PSP will work with research study authors, floodplain managers, and other affected parties to distill the current state of knowledge of climate change impacts pertinent to floodplains; identify, assess and prioritize risk factors, and develop adaptation strategies by 2013. Findings will be documented in a published report.” While EPA agrees on the need for the work described, we are not the most appropriate entity to lead this effort and suggest that the Climate Impacts Group at the University of Washington, or USGS be recruited to lead this NTA.

Top of page 77: replace “conversation” with “conservation”

Page 79, 2nd line: “... retrofitting existing *the* stormwater...” - rearrange or delete.

A7 -- This section could be populated with relatively easily accomplished NTAs that could produce more effective use of mitigation tools; for example, helping to achieve no net loss of aquatic resources through permitting processes in local areas (e.g. King County, Hood Canal, etc.).

Page 82, 3rd line: delete repeated word “mitigation”.

FRESHWATER PROTECTION

Pages 83-89, Freshwater Protection. A quantitative estimate of how much each basic approach (adoption or updating of instream flow rules; demand management and conservation; etc.) could contribute to summer stream flow goals would be very helpful in evaluating whether the near-term actions are appropriate. For example, is demand and use increasing at such a rate that even a high degree of conservation could not offset increased demand? Climate change is likely to have very significant effects

on in-stream flows, so there should be specific language relating to incorporating potential climate change effects on the sub-strategies or actions in this section.

A8.2 (pages 87-88) - “Decrease the amount of water withdrawn or diverted and per capita water use.” This near-term action only involves municipal demand; however, it’s unclear whether municipal demand is the most significant threat to instream flow. If it is not, near-term actions for the other significant components (e.g., agricultural and industrial) of demand should be developed.

Page 88, 1st line: Performance measure: *dumber* of demand management...” change to number. 1st bullet, 2nd line: *currentl*y

A8.3 (page 88) - “Implement effective management programs for groundwater.” Consider a near-term action involving the development of a pilot/case study for effective groundwater management programs. One possible candidate would be the Abbotsford Aquifer.

A8.3 NTA 1 should address the recharge rate and ways in which it can be increased in the UGA. Infiltration provides for long term storage and helps maintain base flow in drier months. Climate change will disrupt moisture delivery to the Pacific Northwest. Reducing the generation of stormwater will prevent the removal of a significant portion of the water budget from the watershed. This can also be used to maximize infiltration in areas that depend heavily on ground water.

Page. 88, first bullet in Emerging Issues and Future Opportunities. To address the issue (“Ecology currently has no resources to update existing rules.”), may it may be possible for third parties to submit to Ecology proposals for updating existing rules, with Ecology retaining the authority to review and approve or disapprove the rules. This is the approach taken with “use attainability analyses” (UAAs) for proposed changes to water quality standards. Other parties can submit UAAs to Ecology. The Partnership could facilitate an exploration of such an approach.

Page 99, Target View: Wild Chinook Salmon. The second and third sentences in the first paragraph need more context. It may be more appropriate to put the second and third sentences of the second paragraph before the second and third sentences in the first paragraph to avoid creating a misleading impression regarding the status of Chinook salmon.

A10.1 NTA 2: “... implementation of *restration* projects...” replace with restoration.

In the neither the Upland and Terrestrial or Marine and Nearshore Sections is there explicitly identified targets/objectives for the protection and restoration of wetlands and streams. These aquatic ecosystem targets should be explicitly identified and addressed.

A11.2, NTA 1 (page 110) - This NTA involves performing a risk assessment to evaluate the environmental and economic impacts of invasive species, including consideration of climate change. The completion date for the risk assessment (June 2015, the same as the other NTAs in this section) should be accelerated. This information will inform how to prioritize all the strategies and actions for invasive species, including the other NTAs in this section.

MARINE AND NEARSHORE

The majority of local strategies come from the San Juan Islands; examples from other areas around the Sound should also be included.

Change “Shoreline Master Plans” to “Shoreline Master Programs” here and throughout the document.

B1.1 (page 116) - The opening paragraph indicates that there is a need to reconcile the PSNERP priorities with other rankings. The Action Agenda needs to identify an ongoing program or NTA that will accomplish this as it is a necessary next step and is referred to in subsequent strategies.

The “Ongoing Programs” section needs more detail to achieve the “goal” stated in the second sentence, or needs an NTA to achieve that goal.

There are several mentions of MPAs which are primarily limited to offshore areas here, but there is less content on protected nearshore habitat. There needs to be actions to focus on information and monitoring of those types of sites as well.

The strategies in this section do not appear to address marine and nearshore restoration priorities identified by PSNERP. These should either be called out under NTA 1 or a new NTA should be identified to address this need.

B1.3, LNTA 1 (page 118) – Specify which kinds of permit applicants will be eligible for on-site technical assistance.

B2.1 (page 121) -The analysis mentioned in the first paragraph as occurring in B1.1 is not actually listed under that NTA.

(page 122) - Mention here that Ecology also has review and approval authority, rather than just supporting locals.

B2.1, NTA 2 (page 123) - This NTA contains two very different goals. We suggest breaking this action apart into two NTAs or choosing one to focus on.

B2.1, LNTA3- It is unclear what value this action adds beyond listing ongoing efforts in the region. Describe the action more clearly to state what it is and integrate it with the performance measurement.

At the bottom of the page there is again a reference to restoration priorities identified in section B1.1 when that action is not specifically called out there.

B2.2 (page 124) - In the first sentence, the HC and SMA are the two principal *State* regulatory authorities for shoreline armoring...

B2.3 (page 125) – An NTA should be created to address permanent removal of armoring.

B2.4 (page 127) -This is a good suite of NTAs that address the issue from multiple perspectives.

B2.5 (page 128) -There is no mention of tribes under this strategy yet they are a key player in this issue and must be part of discussions.

B2.5 NTA 1 is incomplete.

B2.5, LNTA 2 & 3- Footnote 13 on Page 65 refers to the PSP Floodplain Management paper. Is that the work that was intended to be cited here? Re-cite on this page or add correct footnote.

It is unclear whether A1 will delve into offshore marine issues.

B2.6 (page 129) - The last sentence of the 2nd paragraph under “Ongoing programs” should read: “The objective of the guidebook is to further the goal,” not “The objective of the guidebook is further the goal”

B2.6 NTA 1 (page 130) – “[Who] in coordination with DNR, will create a coordinated permit review and decision making process for shoreline substantial development permits [other types of permits?] to provide additional efficiency and predictability for applicants and promote permitting agencies working together to ensure nearshore protection.” This NTA seems to overlap with both A4 NTA1 and with some existing permit coordination forums (e.g. CWA section 401/404 pre-notification meetings and the interagency nationwide permit team). These respective NTAs should be coordinated in order to better use existing interagency review forums and to determine how to fill specific gaps in specific types of permit reviews. The performance measure could involve providing recommendations for using or modifying existing permit review staff and procedures to address specific priority permit review coordination.

Substantial Development Permits are issued by local governments and can be reviewed by Ecology (not DNR). Both local government and Ecology need to be involved in this action, not necessarily DNR, unless other permits are being reviewed as well.

B 2.6, LNTA 2 (page 130) - Same note as above on Footnote 13.

In the page 133 logic model, there are no green ovals or squares – are these missing or color-coded incorrectly? If there are not supposed to be any green boxes, remove that part of the description and make this change to everywhere, to discuss only the boxes represented in the corresponding logic model.

B 3.3 (page 138) - There is again reference to restoration priorities being identified in B 1.1 when this activity does not exist there.

The activity referenced in the last bullet at the bottom of the page page 139 is not yet happening and should be captured in an NTA instead of an “ongoing” activity.

B3.3, NTA 1 (page 140) - This activity isn’t mentioned as a need in the preceding strategy.

B 3.4 (page 140) - In the first paragraph under this action there is again a reference to the prioritization developed under B1.1.

B4.1 (pages 141-144) – This section is lacking detail and doesn’t address promoting working waterfronts. This may be an area where the no-discharge zone petition could be discussed or referenced. B4.1 should be linked to C8 and its focus on controlling pollution from vessels.

B.5 (page 145) - This section could include a discussion of “ongoing programs” such as Ecology’s coastal atlas and public access plan portions of SMP updates. Connect these actions to outreach and education activities.

B5.1 – An NTA could involve asking restoration or acquisition project sponsors to add public access to their projects where appropriate and not environmentally damaging.

B5.2 – It is not clear how this action is substantially different from B5.1.

B6 Protect and Recover Eelgrass - It might be useful to acknowledge the importance of addressing and monitoring the effects of *Zostera japonica* (a Class C noxious weed) eradication using chemicals on *Zostera marina* communities. The Washington Dept of Ecology is addressing chemical spraying of *Z. japonica* through an NPDES permit. There is not scientific agreement, however, on it being a problem as an invasive species or on its habitat value in nearshore areas.

B7.1 (page 153) – Explain the existing biodiversity plans (i.e. who implements them, what their goals are, what actions they encompass) as well as who is charged with developing a more integrated planning approach and why it is necessary.

B7.2 (page 156) - Other strategies also relate to herring. It may be appropriate, given the herring target, to develop a specific action related to herring under this strategy? If all work is focusing on B3, maybe the Target View sheet should be moved there instead of following B7.

Other potential strategies that will contribute to orca recovery should be included in this diagram.

B8.1 (page 161) “Prevent and respond to the introduction of marine invasive species” – Some of these NTAs are the same as those in A11.1, so could potentially be consolidated if the entities that deal with marine/estuarine invasive species are not separate from those that deal with freshwater invasive species.

REDUCE AND CONTROL THE SOURCES OF POLLUTION TO PUGET SOUND

We suggest changing the title for this section to “Prevent, Reduce, and Control the Source of Pollution to Puget Sound”. Prevention is discussed as the main strategy yet it is not reflected in the title.

Include the science needs identified in the Biennial Science Work Plan for this section. On page 192 there is a brief discussion of the science needs for stormwater, but the identification of science needs is not consistent across the different strategies.

Consider a separate NTA for emerging contaminants (NTA in C.1. The NTA would be taken from the “Emerging Issues and Future Opportunities” on page 176, first bullet). The need to better understand these contaminants is referenced in several sections (e.g., pages 176, 178, 224, and 229). This is a large task, but it will continue to be raised as a need.

“Key Ongoing Program Activities” could be merged into the “Ongoing Programs”. It is also not clear how the “Key Ongoing Program Activities” were selected.

C.1 - A logic chain is needed for this strategy. This will help clarify how the sub-strategies fit into the overall strategy. For consistency and accountability, include a lead for each of the NTAs as in C.1.1 NTA 3, NTA5 and NTA 6. For example C1.1 NTA 1 could have a lead for “Chemical Action Plans” and C1.1 NTA could have a lead for “Non-agricultural Use of Copper-based Pesticides”.

On page164, change the title for strategy C1 to “Prevent, Reduce, and Control the Sources of Toxic Chemicals Entering Puget Sound”. We think it is important to have “Prevent” in the title.

In the first paragraph of page 167, include any specific actions Ecology has taken to help modify TSCA.

It is not clear how the Key Ongoing Program Activities on page 168 were selected. There are numerous other on-going activities (all the NEP funded projects, CAP related activities) that could be included. Consider integrating this section into the “Ongoing Programs”.

C1.1, NTA 2 (page 168) - Additional detail on the program would be helpful, including whether this an extension of an existing program and who Ecology will work with.

C1.1, NTA 3 (page 169) - Include revisions of standards based on updated toxicity and BAF information as well as fish consumption. This information may have also changed.

C1.1, NTA 4 (page 169) - Add a sentence on how this information will be used and whether this could lead to changes in labeling requirements or a public education program.

C1.1, NTA 5 (page 169) - Clarify whether this action applies only to residential use pesticides. The performance measure involves identification of options to limit the use of copper-based pesticides in residential use, but this effort should be for all applications not just residential uses.

C1.1, NTA 6 (page169) - Since the specific tasks (1-3) are still being discussed, the Partnership may not want to include them in this NTA yet. The action could mention that the monitoring program will build on existing programs (e.g. “PSP and the agencies involved in toxics source reduction programs....local jurisdictions – will build on the existing monitoring to develop a”).

C1.1, NTA 7 (suggested new NTA) - Transboundary Collaboration: PSP, Ecology and EPA will work with Environment Canada and the Province of British Columbia to increase transboundary collaboration on toxics.

C1.2, NTA 1(page171) - Separate this actions into two NTAs. The first one (Guidance on Alternative Assessments), to develop a guidance document and complete assessment of five chemicals, should also indicate how the five chemical will be identified. The second NTA (Roofing Materials) would be to establish a task force for the roofing materials. This NTA should address why roofing materials have been targeted (e.g. “Roofing materials were selected because they were shown to be a primary source of several toxics metals in the 2011 Toxic Loading Study”).

C.1.2 (page174) - In the Ongoing Programs, acknowledge that the performance objectives and activities are for the State and not Puget Sound specifically.

C1.4, NTA 2 (page 175) - First line – “Environmentally Preferable Purchasing”.

C1.4, NTA 3 (page 175) – Add a new NTA focusing on automobile leaks. It is important to have an NTA that addresses one of the main sources of pollution identified in the Toxics Loading Study. This project could be added to the Ecology Toxics/Nutrients Lead Organization grant workplan.

C1.4, NTA 4 (page 175) – Add a new NTA focusing on pharmaceuticals and personal care products). Concerns regarding pharmaceuticals and personal care products continually come up and this may be an opportunity to address this issue. This NTA could include increasing take-back programs and education.

C1.5 NTA 2 (page 176) – Add a new NTA focusing on PBT enforcement. This NTA can include the enforcement-related work for PBDEs and other PBTs that Josh Grice is conducting. This work is currently captured under the “Emerging Issues and Future Opportunities” section in bullet #3.

C2 “Use a comprehensive approach to manage urban stormwater runoff at the site and landscape scales” - The framework for this strategy is quite comprehensive and well thought out. The six sub-strategies cover the priority work that needs to be accomplished in order to protect Puget Sound. One emphasis that should be highlighted throughout is the greater need for incentives for stormwater work. The strategies included in C2 are comprehensive and critical to the health of our freshwater streams. The biological target of maintained and/or enhanced macroinvertebrate community diversity is a well selected integrated metric. However, it seems optimistic that benthic invertebrate communities will return in greater numbers to degraded habitat if we only act to remove the forcing factors that caused the degradation (i.e., reduced geomorphically significant flows and pollutants). The key issue here is the physical changes to the stream channel and subsequent sediment quality shifts to habitat that is likely to repel native species. It seems that there will be some need for restoration and time in this process. The NTAs are requisite for the long term health of basin freshwater streams. The approach outlined in C2 has 16 NTAs, four of which are local by definition (LNTA). Full or partial responsibility for NTAs falls to local governments in eight cases; and Ecology in six cases. Although all of these NTAs are important, C2.1 NTA1 Protect excellent streams, C2.5 NTA1 Training, C2.2 NTA4 Vesting, C2.4 NTA1 Inspections, and C2.6 NTA1 Monitoring are the most critical elements.

C2.1 “Manage urban runoff at the basin and watershed scale” - The emphasis on protection of native vegetation and proper siting for new development is useful; however, there seems to be no mechanism for promoting these smart growth concepts besides providing new information. Smart compact planning and restoration are typically at odds with other competing needs (financial, resistance to change, etc.). Strong incentivizing will be necessary to change the paradigm to sustainable growth.

C2.1, NTA 1 - This NTA seems to defer to King County to develop a NTA for protection of healthy streams, as it states they should “develop an overall strategy and tailored actions to protect these areas.” The strategies and actions are undefined in the current form.

C2.1, NTA 2 - There is currently no lead to lead the coordinated mapping effort. I suggest Ecology could be a good clearinghouse for such information but am hesitant to recommend them to take the lead on the protocol/methodology work; they have substantial responsibilities for the other C2 NTAs.

C2.2 – ‘Prevent problems from new development at the site and subdivision scale’ - Critical elements include the expansion of NPDES MS4 permit coverage, seek funding for local governments, and ordinance scrubbing/greening to accommodate/promote LID. EPA is charged with the responsibility to “...ensure permits for federal and tribal lands/facilities are consistent with state-issued permits...” however it is unclear what mechanism could be used to ensure new development outside of MS4 permitted areas also includes current stormwater management standards.

C2.2 Stormwater NPDES Permits (page 184) - The best way to improve NPDES permits is to make sure there is good communication with other programs. An NPDES permit must translate the waste load allocation from a TMDL. It is the waste load allocation from TMDL that helps control stormwater and it can also help in enforcement because it holds the permittees to a certain standard. Include LID outreach to consulting firms and professional associations because often the decision to use LID is in their hands.

C2.2, NTA 2 - The timing of this treatment standard evaluation ensures that it will not be adopted until the next permit cycle starting in 2017. It is doubtful that such changes will make meaningful progress for the 2020 targets in time.

C2.2, NTA3 – Specify how large these shellfish areas will be, how the shellfish areas be prioritized, and which agency will make the decision.

C2.2, NTA 4 - Vesting is a critical element for ensuring success for existing standards and management.

C2.2, LNTA 5 - A performance measure needs to be defined for this action.

C2.3 ‘Fix problems caused by existing development’ – This strategy includes retrofit prioritization and maintenance to address legacy contaminants.

C2.3, NTA 2 – This NTA has similar flaws to C2.1 NTA1 (i.e. charges King County with developing strategies and actions to improve stream health status as measured by macroinvertebrate diversity).

C2.4: “Control sources of pollutants” -Critical elements of this strategy include technical assistance, incentives, and enforcement to achieve compliance.

C2.4 TMDLs (page 189) - Consider including the language "ensure TMDLs containing monitoring recommendations". While a TMDL cannot directly require monitoring, they can make recommendations valuable to the NPDES program when permits are written. Monitoring is important because it can provide additional data on a site or area, which can then be used to designate and regulate non-point sources. Monitoring data can also be useful when revising TMDLs.

C2.4, NTA 1 -A target should be set for increased inspections and enforcement.

C2.4, NTA2 - The performance measure for this NTA should be a new program addressing drips and leaks, not simply a report on options for such a program.

C2.4, LNTA3 - A performance measure needs to be defined for this action.

C2.5 ‘Provide focused stormwater-related education and training’ - Critical elements in this strategy include Washington Stormwater Center training for LID review, inspections, and maintenance.

C2.5, NTA1- New certification for maintenance specialists could be made mandatory to ensure transfer of information.

C2.6 ‘Assess effectiveness of actions and effects on the environment’ – This strategy includes support for the Stormwater Work Group (SWG) and TAP-E program.

C2.6, LNTA1: A performance measure needs to be defined for this action.

C3 (page 195, second paragraph, first sentence) - Since the focus is on agricultural lands, the first sentence should be limited to agricultural areas and not include “rural” areas.

C3 (page 195, second paragraph, second sentence) - Need to add “and/or conservation practices” after “apply best management practices”. BMPs do not equal conservation practices, and conservation practices receive funding and should be mentioned.

C3 (page 195, third paragraph) - Replace the first sentence with the following: “Successful implementation and adaptive management of conservation plans and/or BMPs, combined with appropriate regulatory support, are critical to environmental protection”.

C3 (page 195, third paragraph) – Modify the second to last sentence to read, “These landowners can be difficult to reach through education and technical assistance outreach programs because they typically do not belong to any agricultural group or they are not represented by agricultural producer groups”.

C3.1 (page196) - Please clarify whether the NTA refers to Ecology’s BMP standards or the Conservation Districts practice standards. If referring to the conservation planning process, it is a rigorous method of conservation planning to protect natural resources based on NRCS conservation practice standards. The method is used by NRCS and conservation districts. Practice standards are not BMPs. The conservation plan is a collection, or system of practice standards specifically designed to protect natural resources on that particular farm.

C3.1 (page 196) - Modify the second sentence in the third paragraph to read, “CREP is a voluntary program, but once the producer receives funding they must implement the practices. The program helps farmers...”

C3.1 (page196) - Modify the first sentence in the fourth paragraph to read, “These incentive-based programs are currently implemented in a voluntary manner – that is, the landowner seeks out the conservation district, NRCS, or Farm Services Agency for information and assistance” We are not aware that WSU staff are providing direction on USDA programs. Delete second sentence in the fourth paragraph as it is covered in the comment above.

C3.1, NTA 1 (page197) - Modify the first sentence to read, “The State Conservation Commission and the State Department of Agriculture , USDA-NRCS Ecology and State Department of Health will create a team to identify....”

C3.1, NTA 2 (page197) - Modify the NTA to read, “[Placeholder: The Department of Ecology, in collaboration with the Department of Agriculture, the Conservation Commission, Conservation Districts and NRCS will identify an approach to ensure best...” NRCS and the Conservation Districts must be part of the team.

C3.1, NTA 3 (page197) - Modify the NTA to read, “.....the Conservation Commission, Conservation Districts, NRCS and other Federal agencies, and Tribes...”]

C3.1, NTA 3 (page198) - Modify the first sentence of the first paragraph to read, “In addition, actions associated with Ecology, Health, the Washington Department of Agriculture, the Conservation Commission, Washington Conservation Districts and NRCS identifying....hobby farms.”

C.5 Chart (page 213) - Repair/Replacement/Fix OSS is not specifically identified as an intermediate result. This would seem to fit into the "OSS Infrastructure" box, or possibly the "OSS O&M" box.

C.5 - The 2020 pressure reduction target isn't clear as to whether the first component (inventory/fix/95% inspections metric) is determined based on the current MRAs, or based on the larger MRA/Sensitive Areas (required by the second component).

C5.1, Ongoing Programs (page 215) - The sentence before "Near-Term Actions" should be corrected to state that *all* OSS will be inventoried and 95% will have current inspections. It currently states that 95% will be inventoried.

C5.3 (On-site Sewage Systems - Emerging Issues and Future Opportunities (page 217) - The first bullet (regional funding mechanism) does not represent a future opportunity. The lack of a program funding source is described as the single biggest obstacle to achieving these targets and should be addressed. This is essential and should be assigned more urgency, especially given that "implementing and funding effective state and local on-site sewage programs" is stated as an overarching strategy on page 212.

It is unclear what is meant by "fix all failures." An estimate of the scope of work to fix all failed systems and a comparison to available funding should be addressed. The target for Ecology-funded OSSS repairs/replacements is 78 systems/year. There are no specific goals for the other funding sources for repair/replacement. It is unclear whether existing efforts are sufficient or if greater efforts need to be made. There is an estimated 500,000 on-site septic systems in Puget Sound. The Action Agenda should provide an estimate of how many are in MRAs and subject to the 100% fixed target. Even if 1% of the septic systems in Puget sound are in MRAs and have failed, that would be 5,000 systems. Ecology's rate of repair would be insufficient. If it costs \$20,000 to repair a failed system, total repair costs would be \$100 million. It is unclear whether sufficient funding would be available over the next 7-8 years to complete such an effort.

C5.3 (page 217) - The second sentence asserts "the average cost" and "can be as high as." The amount of \$40,000 is probably on the high end, rather than the average cost, so "average" should be deleted.

C6.1, NTA 1 (page 224) - Modify this NTA to include a two step process: 1) identify the chemicals of highest concern, and 2) expand monitoring to include these chemicals in priority pollutant scans. A more systematic approach is needed.

C.9 Shellfish Health and Harvest (pages 241-247) - The shellfish sub-strategies and target relate to mitigating and preventing sources of pollution that cause problems with shellfish area harvest classification. The Biennial Science Workplan priorities for shellfish strategies also focus on pollution issues that affect shellfish area and human health concerns (page 6, Answering the Call to Action section). Some near-term actions and sub-strategies presented under strategy C9, as well as the tone of the narrative, seem more related to expanding the potential for commercial aquaculture in Puget Sound. It would therefore be useful for the Science Panel to review the assumptions, proposed sub-strategies, and NTAs in this section to ensure that they reflect the highest-priority actions needed to achieve the shellfish ecosystem target. Commercial aquaculture is economically important from many perspectives and there is strong interest in promoting and supporting it, but it is also important to ensure that where the interests of commercial shellfish aquaculture are not aligned with ecosystem recovery needs, the pressing driver of commercial shellfish aquaculture does not overcome the focus on achieving the ecosystem targets.

There are only three strategies listed to achieve the target of shellfish bed recovery (page 248), with very few NTAs identified: C9.1 (two NTAs but one is a forum, see comment below), C5.3 (only one NTA),

and C11.4 (ongoing program only). There should be more NTAs identified to push this important work toward the target.

C9.1, NTA 1 (page 243) “Replicate model programs, such as those in Henderson Inlet and Oakland Bay, which create coordinated, locally-driven efforts to protect and improve shellfish harvest areas. Create a best practices library or menu highlighting successful strategies...” - This NTA seeks to spotlight and support successful local examples of efforts that result in progress toward targets. This is an appropriate role for the Partnership (i.e. to identify, spotlight, and direct support to outstanding local efforts, pilots, and models).

C9.1, NTA 2 (page 244) - DOH, EPA, Ecology, and others are already working on many of these actions through the Pathogen and Toxics/Nutrients Lead Organizations’ grants and their Pollution Advisory Group. As such, it is unclear as to what isn’t being addressed and what will be accomplished by convening another forum. This NTA should be marked as "in process".

C9 Goals and sub-objectives, NTAs C9.1 – C9.3 are critically important, as is C9.4 “Resolve competing priorities between aquaculture and nearshore, habitat and upland uses.” Under C9.4, the issue of intensive shellfish aquaculture is addressed. Identification of geoduck aquaculture’s effects on aspects of aquatic and marine environments are critical to address. C9.4 references the Shellfish Aquaculture Regulatory Committee (SARC) established in 2007. C9.4 needs to be updated to reflect the current working group initiated under the Washington State Shellfish Initiative. The process currently underway involves a “Shellfish Interagency Permitting” workgroup that was convened by the Governor’s Office and Washington Department of Ecology. It is comprised of Tribal, Federal, and State agencies involved in the regulation and permitting of shellfish aquaculture. This group has been tasked with identifying streamlined approaches to permitting shellfish aquaculture projects (spanning the gamut of project types and intensities from Olympic Oyster restoration to intensive new and expansion geoduck shellfish aquaculture farms that extend beyond the natural range of geoduck and where invasive methods are used to plant and harvest clams). NTAs could be added to reflect the updated working group, its objectives and identify target actions for it to achieve. These targets could involve ensuring that any permit process streamlining uses the best available science and practices to ensure aquatic and marine ecosystems, including eelgrass beds, native shellfish communities, benthic communities, water quality and food chain support functions, etc. are not impaired further by expanding more intensive commercial shellfish aquaculture.

C10 Ongoing Programs (page 251) - Mention Ecology’s and EPA’s Spill Prevention Control and Countermeasures Programs under the Clean Water Act. These rules address the bulk storage of oil and the operator’s ability to prevent, prepare for and respond to oil spills that could reach navigable water. These are on-going programs that are important and should continue.

On page 255, “Address and Clean Up Cumulative Water Pollution Impacts in Puget Sound,” under “The Challenge” section, a brief overview of TMDLs in the Puget Sound basin would be helpful in providing an understanding of the scope of the water quality challenge. The description of “the challenge” in this section currently focuses on Ecology’s water quality index, which is helpful in that it is from a long-term, systematic monitoring program, but it does not reflect the full scope of water quality challenges (e.g., does not include toxics).

C11.1 (pages 257-259) - “Complete TMDL studies...to address water quality impairments.” There are no near-term actions for this sub-strategy; work will focus on completing TMDLs. It is important to remember that while TMDLs are highly valuable and important for strategizing on sources and remedies for water quality impairments, they are not enforceable (except for discharge limits included in NPDES permits for point sources). A possible near-term action might be for appropriate organizations (e.g., Ecology, EPA, local organizations) to confer on incentives/binding mechanisms for ensuring pollutant reductions strategies called for in TMDLs are actually implemented for high priority TMDLs.

C11.2 (page 260) – The second to last sentence in the second paragraph, “The number of cleanups that are completed each year has been declining over time, however”, needs to be clarified. It is unclear whether this statement means that the number of cleanups for sites within one half mile of Puget Sound has been declining, or that the number of sediment cleanups has declined.

C11.2 (page 260) -Delete the last sentence in the second paragraph, unless someone has actually assessed whether the two factors cited here have any bearing on the decline of cleanups. If not, then the factors should not be mentioned. It is also likely that the number of cleanups being completed each year is declining because the small sites and the multiple Operable Units in Commencement Bay have been addressed, and the only sites that remain are large, complex, and difficult.

D2 “Strategic Leadership and Collaboration - Partnerships” (pages 277-278) - No mention is made of how, and on what priority issues, coordination with Canada will occur. A sub-strategy for transboundary collaboration might include several elements, including seeking Canadian representation on one or more of the Partnership forums (Science Panel, ECB, etc.). We recommend adding an element on transboundary collaboration to this section.

D4.1.1 (pages 284-285) “Continue to build an accessible, peer-reviewed base of scientific knowledge about ecosystem status...” - The Partnership should indicate how it will learn from the experience of other ecosystem restoration programs around the country. The valuable knowledge of other programs could help inform the Partnership’s efforts. that the Action Agenda should include a commitment to engage with this practitioner community, for example, through professional associations such as the Society for Ecological Restoration, and through the biennial National Conference on Ecosystem Restoration.

D4.1.1 (pages 284-285) “Continue to build an accessible, peer-reviewed base of scientific knowledge about ecosystem status...” - As part of this sub-strategy, the Partnership’s Science Panel should oversee development of conceptual models for ecosystem indicators/targets (note: a conceptual model is different from a results chain in that the results chain graphically displays the logic by which the Action Agenda strategies, NTAs, and targets relate, but it does not attempt to display how an entire system works; whereas a conceptual model represents explicitly and graphically our best, most complete working scientific understanding of the system we are trying to affect). For examples of conceptual models for ecosystem restoration, see Doren et al.,2009¹. It would be appropriate for the Science Panel to develop conceptual models for each of the Puget Sound ecosystem recovery targets as these would transparently

¹ Doren, R., J. Trexler, M. Harwell, and R. Best (editors), 2009. Ecological Indicators: Integrating, Monitoring, Assessment, and Management. Volume 9, Supplement 6, November 2009. Special Issue: Indicators for Everglades Restoration.

illustrate our best working knowledge of how the system works relative to that target, independent of the existing framework of the Action Agenda. Conceptual models could then provide another tool for independently evaluating/filtering/prioritizing among the strategies, sub-strategies, and NTAs in the Action Agenda. This could provide a process by which the scientific community could systematically ensure that the strategies and actions were consistent with the best working scientific understanding of how the system functions and how to achieve the targets. At this point, it is not clear in the Action Agenda strategies and actions that the content has been systematically reviewed by the appropriate scientific communities. An incredible amount of work, discussion, and review has been accomplished, but strong conceptual models for each target could further the process. Perhaps this task could be done by the Science Panel on a rotating basis, beginning with highest-priority targets.

The Partnership, over time, should consider moving toward an orientation more consistently and clearly driven by the indicators and recovery targets (environmental outcomes). This currently does not seem to be the case. For example, in the introductory section for each strategy is a subsection called “Relationship to Recovery Targets.” It seems that in each of these sections, a target is sought that best aligns with the strategies and actions that follow. But it should be the other way around – strategies and actions should be driven by what is needed to achieve the targets. For instance, in introducing the “prevent and respond to the introduction of freshwater and terrestrial invasive species” strategy, the text states that the “recovery target most related to control of freshwater invasive species is insects in freshwater.” It almost sounds like the authors are looking for targets to fit the strategy, rather than the strategies driven by what is needed to achieve the targets. If the targets, and achievement of the targets, is driving the Action Agenda, the previous quote should be re-stated along the lines of “To achieve the recovery target of improving the ecological health of insects in freshwater, it is absolutely critical to control freshwater invasive species.” Conceptual models of the targets could help support such an orientation.

D4.2.1 (page 284) - Please clarify what is meant by the key program activity (of the monitoring program) in its function of “ensuring that there is a consistent approach for assessing priorities.” Perhaps reword this bullet to state, “Ensure that the monitoring program data is used in a consistent way for assessing priorities.”

D4.2.3 (page 285) - PSP should revise the language in this section and remove the term ‘Monitoring Accountability Application’ as this was removed and the description modified in a recent change to Task 2 in EPA’s grant.

D4 NTA 1 - The 3rd bullet should be changed to four watersheds, for consistency with the output that was modified in recent changes to Task 2 in the EPA grant.

LOCAL AREAS

The Action Agenda should establish and describe a clear, regular, predictable process by which LIOs can present the results of their local prioritization process and recommendations/requests for funding to the Management Conference. Reading through the different LIO profiles, it becomes apparent that even as each LIO endeavors to identify and align local priorities with Action Agenda regional priorities, there is no established mechanism by which local priority actions are presented and reviewed for funding. A funding strategy for implementation of local recovery efforts is called out on page 303; “All areas agree

that implementation of the funding strategy is needed to support local recovery efforts, and that common outreach messages are a key to understanding in all communities.” These two clauses should be separated. In addition, an affirmative statement should be added to the text, committing the PSP Management Conference to addressing the funding strategy implementation need. For example; ”The PSP Management Conference will explore options for, adopt and implement a funding strategy to support local recovery efforts.” The second clause about outreach messaging should be revised, so that the agreement among all areas on the need for common outreach messages is more clearly stated. (“...a key to understanding in all communities” as written is confusing).

The action area priorities could be represented more clearly as suggested in page 14 of the Action Agenda (Results Chains and Strategies). Some LIOs merely list threats and activities but don’t list linkages. Many LIOs mention ranking priorities in 2012. The Strait of Juan de Fuca action agenda, which includes clear linkages to funding sources along with proposed performance measures, should serve as a model.

Most LIOs need to identify leads for strategy implementation along with clear timelines.

It may be appropriate for some LIOs to convene in existing watershed forums rather than form a new committee. This would preserve scarce resources by avoiding yet another process.

Island LIO, Opportunities, Priorities and Near Term Actions (page 319) - This paragraph should be rewritten to present the process that the Island LIO is using to establish priorities and the steps they are/will be taking to sequence and prioritize activities. Since some important actions identified are slated for 2012, it might make sense to remove the reference to the year 2012 and just state these actions as current or ongoing so that the text isn’t dated immediately after Action Agenda publication.

North Central/West Puget Sound (page 326) - This area has made some progress, but it may need to meet more than four times per year. Addressing the near term actions with a results chain will help clarify the intended results. Clear, measurable outcomes need to be defined along with leads for actions and funding/ support strategies.

On Page 384, the third complete sentence near the top of the page should be revised to read, “...more local science needs exist, and the development of the full suite of local science needs is yet to be done.”

Page 384 – typo under Key Threats/ Pressures, 3rd line down - “treats” should be “threats”.

WRIA 1/Whatcom LIO (page 415) - The explanation following the Key Pressures table on page 415 is confusing in a number of aspects. First it references “the table below”, which presumably refers to the crosswalk table that the reader is directed to find on-line (website link URL provided at the bottom of the page). However the URL link isn’t provided until another section. The link to the crosswalk table should be provided immediately following the sentence about how the pressures are organized by the PSP categories and explanations. Secondly, the explanation in the next sentence on page 415 underneath the printed table states that “...the ‘key’ pressures are not inclusive of all the pressures in the watersheds. The intent of the table is to identify the pressures most directly associated with the ‘key threats and pressures’ in the watersheds”. Presumably the ‘key’ pressures are referring to those listed in the table above this text; (or below?). The text should be revised so that the statement about the ‘key pressures’ table (that is

visible on the printed page) is immediately before that table. The sentence that states, “The intent of the table is to identify the pressures most directly associated with the ‘key threats and pressures’ in the watersheds” should probably be deleted, because it is difficult to determine which table this statement is attached to. Alternately, this sentence should be moved to be part of the text associated with the URL link to the website table.

BIENNIAL SCIENCE WORKPLAN (BSWP)

In addition to the BSWP, the Action Agenda itself occasionally mentions science needs. When these are mentioned in the Agenda, these needs typically differ from, or are described in a different manner than the corresponding section of the BSWP. For example, Section A1.1, page 37 of the Action Agenda document specifically lists a science need: “Continue to collect, refine, analyze, integrate and overlay landscape characterization information and data using information from existing assessments, and local and regional work including Puget Sound Nearshore Ecosystem Restoration Project (PSNERP), salmon recovery plans, Aquatic Landscape Prioritization, local assessments and shoreline inventories, WDFW priority habitats and other sources.” This need is not mentioned in the relevant section of the BSWP. Other isolated descriptions of science needs in the Action Agenda are in Section C.2, page 192 and Section C.8, page 244. There needs to be a more consistent relationship between the description of science needs in the Agenda itself, and the manner in which they are described in the BSWP.

Where possible, there should also be stronger and clearer links between the BSWP and the science-related strategies contained in the logic models in the Action Agenda. For example, under A.5.1, the logic model states, “improve data and information to accelerate floodplain protection, restoration, and flood hazard management.” A.5.6 states, “Incorporate climate change forecasts into floodplain protection...” Page 17 of the BSWP restates the more general strategy of A.5: “Protect and restore floodplain function.” The priority actions in the BSWP generally support A.5.1, but do not appear to support A.5.6. Ideally, the BSWP would expand on the science-related strategies in the logic models to provide a clearer connection with their specific recommendations.

Where the BSWP provides context for a recommendation, it is more compelling. For example, page 16 provides a solid context for the recommendation to develop analytic tools in support of strategies A1,2 and 3. By comparison, page 17 has a recommendation that simply states, “Incorporate social science research to guide development of adaptive management structures that link restoration science to management decision-making.” This is more difficult to understand and act on.

Page 101 of the Agenda affirmatively states that: “Salmon recovery scientific needs are reflected in the Biennial Science Workplan.” It would be helpful to have similar statements, where warranted, for other sections of the Action Agenda in order to show more complete integration with the BSWP.

Upland, and Terrestrial Habitats

Strategies A1-A3 (page 16) – The BSWP describes analytic tools as a priority. This is consistent with those portions of the Agenda that describe basin characterization work. But there are opportunities to provide more specific recommendations. For example, page 36 of the Agenda states, “PSP will convene an interagency workgroup by 2012 that, by 2013, will prepare regional ecosystem protection standards with a decision-making framework.” What scientific investigations are necessary to support these standards?

The recommendation on page 17: “Incorporate social science research to guide development of adaptive management structures that link restoration science to management decision-making” should be more specific.

Freshwater Species and Food Webs

Strategy A11 (page 19) - The Agenda, on page 110, has as action A11.2: “Answer key invasive species research questions and fill information gaps.” The text of the BSWP recommendation on page 19 of the BSWP generally does a good job of addressing this specific issue. However, the connection of the last sentence with the rest of the paragraph’s recommendations is confusing.

Marine and Nearshore Habitats

Strategies B2 and B3 (page 19) - The BSWP does a good job providing context to its recommendation for additional analytic tools to identify priority areas for protection. However, the second bullet for this section, beginning with “As state and federal agencies...” is less clear. It would be helpful to have specific recommendations for analytic tools, indicators, or monitoring, rather than the general recommendation of “Developing a robust system of evolutionary learning...”

Strategy B8 (page 22) – The recommendations here are nearly identical to those for Strategy A11. They could be combined into a common set of recommendations for A11 and B8, as is done for other references to groupings of Agenda strategies in the BSWP.

Toxics

Strategy C1 (page 22) – The first bullet implies deficiencies in the scientific efforts behind water quality standards. There should be a reference to synthesizing available information (as is done in other recommendations in this section), particularly for seafood consumption rates, as there have been a variety of studies done to develop consumption factors, including consumption rates amongst Tribal members. This section could identify as a priority, the synthesis of information on less toxic alternatives to existing chemicals, in support of Agenda Action strategy C1.2 NTA 1 (page 171 in the Action Agenda).

Shellfish

Strategy C9 (page 24) - The first bullet discusses the importance of PIC programs, and discusses their use for strategies in addition to those focused on shellfish, such as recreational swimming. It then discusses more generally the role of shellfish and factors affecting them. It’s not clear how the rest of the paragraph is supporting the recommendation in the first sentence.

Oil Spills

Strategy C10 (page 25) – The recommendations here could include a call to synthesize information from current Area Contingency Plans as part of the risk analysis for sensitive areas.

Cumulative Water Pollution

Strategy C11 (page 25) - The recommendations here should address studies and research to improve the state of TMDL analyses in Puget Sound.

Additional BSWP Priorities

Below are actions identified in the Action Agenda that may generate additional science priorities in the BSWP:

Strategy A1.1, NTA 1 (page 36) – “PSP will convene an interagency workgroup by 2012 that, by 2013, will prepare regional ecosystem protection standards with a decision-making framework.”

Strategy A1.1, NTA 2 (page 37) – By 2012, “The Puget Sound Institute will work Ecology, Commerce, WDFW and other partners to develop a tool to improve and support spatial landscape data collection, sharing, and analysis to improve the ability of agencies to make land use decisions based on watershed assessments.”

Strategy A1.4, NTA 1 (page 39) – “[Who?] will convene a workgroup, by 2012, that will, by 2013, conduct a cumulative affects assessment of the ‘no net loss policy’ in producing net gain toward the recovery targets and articulate how cumulative effects assessment could be integrated into existing programs.”

Strategy A5.1, NTA 2 (page 65) - “PSP will gather data on public perception of flood risks, floodplain function, and the relationship between the two and will include the risks and costs of developing in floodplains and the economic and social benefits/services of preserving and restoring floodplain functions as a top messaging priority in its outreach efforts by 2012.”

Strategy A5.6 NTA 2 (page 73) - “EPA with collaboration from the PSP will work with research study authors, floodplain managers, and other affected parties to distill the current state of knowledge of climate change impacts pertinent to floodplains; identify, assess and prioritize risk factors, and develop adaptations strategies by 2013.”

Strategy B4 Emerging Issues and Opportunities (page 144) – “Fund research and innovation in lower impact methods of shoreline armoring in an urban industrial context.”

Strategy C2.1, NTA 2 (page 183) - “System mapping: A lead, to be determined, in cooperation with local governments, WSDOT, and Department of Natural Resources, helps improve understanding and management of the region’s stormwater infrastructure by developing protocols, methodology and definitions for stormwater system mapping, and developing geo-referenced databases that can be compiled into a regional geo-referenced database of the Sound’s regulated, municipal stormwater system.”