

**Dredged Material Management Program
Dioxin Project**

Analysis of Stakeholder Input

**Appendix E
Public Meeting Comments**

PUBLIC MEETING COMMENTS/QUESTIONS

The following comments were paraphrased by Floyd|Snider based on Floyd|Snider notes taken at each meeting.

September 26, 2007 2:30 to 5:00 pm Meeting, US Army Corps of Engineers, Seattle, WA

Comment	Comment Provided By
What are the studies that document tribal cancer rates/risk relative to dioxins? Make these accessible.	Port of Olympia, Jeff Lincoln
There are wide ranging data on dioxin uptake. Indicated could be through water and not just sediment.	Clay Patmont, Anchor Environmental
Need a relative risk assessment against everything else we eat— i.e. what is the risk increased risk related to dioxins of xx concentration going out to the DMMP sites?	Tad Deshler, Windward Environmental
Dioxins are focus of Puget Sound Initiative—is there a connection to greater representation, PCBs? (DMMP response: this is for dredged material and not for clean up, but similar issues are being explored in other forums)	Clay Patmont, Anchor Environmental
What is the net positive improvement in health of Puget Sound (and humans/wildlife?) if we make this change? Need to assess this aspect too, environmental benefit analysis. Might stymie clean ups if can't take sediments to disposal sites.	Clay Patmont, Anchor Environmental
Have responses to questionnaire been published? DMMP response: we can publish them.	Tad Deshler, Windward Environmental
Will attend technical workshops, need to be flushing out details of a proposal that is brought to the technical workshops	Tad Deshler, Windward Environmental
Use tissue concentrations instead of sediment. Dredgers would then be required to collect fish/animal samples and pay for tissue lab testing; bioaccumulative testing too. Would need to factor the effect of DMMUs at depth, since organisms living on the surface DMMU—they're not exposed to the buried materials/contamination.	Clay Patmont, Anchor Environmental
Conduct cost/benefit analysis of cost to dredger of doing tissue/bioaccum testing relative to not disposing of in open water	Clay Patmont, Anchor Environmental
Use scaling factors in the bioaccumulation equation (site use factor less than 1). Animals don't spend all their life in the DMMP disposal site because it's small—they'll move around outside the site too in the scope of a given day/week/month.	Tad Deshler, Windward Environmental

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If background levels are greater than acceptable risk assessment and that risk is OK, then need to evaluate the benefit of having criteria higher than background to allow dredging to continue but has increased risk. (Problem is what is that higher number based on? How and who to pick it, if it isn't based on risk assessment or background?)	John Herzog, GeoEngineers
Maintain reason to believe	John Herzog, GeoEngineers
Due to bioaccum properties of dioxin etc need to select most stringent dioxin levels as possible	Richard Ellison
Discussion after the meeting: need a policy group and a technical group, since both sets of issues are at play here.	

September 26, 2007 5:30 to 8:00 pm Meeting, US Army Corps of Engineers, Seattle, WA

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Don't have tribal consumption numbers for all tribes, so would use consumption rates for other tribes in different areas? (DMMP response: would have to look into this and explore options.)	
MTCA rule revisions with 10E-6 risk for dioxins, and DMMP risk of 10E-5 would be inconsistent, need to address	Priscilla Zieber, Integral Consulting
Dioxins are focus of Puget Sound Initiative—is there a connection to greater representation? (DMMP response: this is for dredged material and not for clean up, but similar issues are being explored in other forums)	Cliff Whitmus, Geomatrix
Next technical phase—need a table showing dioxin levels in sediment placed in sites over recent past and how the 'reason to believe' factor has been applied. What is the reality of the last 6 years? Which projects were asked to test and why, and which weren't asked.	Heather Trimm, People for Puget Sound
Integral sent comment previously and would like to keep them in play here.	Priscilla Zieber, Integral

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<p>Knowing what went out to the sites and what was the result at the sites—how compares to background. Should look at this to see what level of problem we've created by the way we've handled this in the past. Has what we've done impacted eg crab tissue in comparison to background. Multi-million dollar impact on the ports and economy and little understanding of how the way we're doing it now is affecting the fish etc. Must look at this in depth before making critical decision changes to the way we do this in the state. Also an impact to leaving this material in place because it's too expensive to deal with.</p>	<p>Doug Hotchkiss, Port of Seattle</p>
<p>Is there a document that lists where dredged material was dumped a long time ago—eg before sites were set up. (Baseline monitoring reports can be made available. These won't include dioxin.)</p>	<p>Heather Trimm, People for Puget Sound</p>
<p>How do you know sediment is discharged onsite? (USCG VTS confirmation; daily report GPS coordinates. SPI surveys. Modeling of in-water currents and how sediment plume behaves.)</p>	<p>Heather Trimm, People for Puget Sound</p>
<p>Risk assessment—most everything exceeds the risk based approach. (Would make everything on-disposable? John Wakefield clarifies that a screening risk assessment might be improved; improve risk assessment so not just a background type approach. Number of suggestions already. Don't want to throw out this risk assessment option.)</p>	<p>Cliff Whitmus, Geomatrix</p>
<p>Use risk assessment as a process before you go into the options. (Yes, this is the suggestion of a tiered approach.)</p>	<p>Cliff Whitmus, Geomatrix</p>
<p>Need to assess how options 4 and 5 can be used within existing regulations, option 4 and 5 would have potential risk greater than 10E-5...</p>	<p>Jeff Stern, King County</p>

October 2, 2007 6:00 to 8:30 pm Meeting, Ecology Headquarters, Lacey, WA

Comment	Comment Provided By
<p>Dredgation products of dioxins? (DMMP resp: resistant to degradation)</p>	
<p>Request for reference sites and background area dioxin data (DMMP resp: just received data, can send it to people who want it)</p>	
<p>Need work on chemical fate and transport, options based on exposure and not fate and transport of material</p>	<p>Budd Bay concerned citizen</p>

October 2, 2007 6:00 to 8:30 pm Meeting, Ecology Headquarters, Lacey, WA

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What do we know about circulation patterns and hot spots within Puget Sound? (DMMP resp: fstudies prior to location of disposal sites, at dispersive sites where materials goes is unknown, that is why more restrictive criteria)	
Would this apply to Columbia River? (DMMP resp: scope of this is grays harbor, willipa bay, and PS)	
Concerns with Budd Inlet and process (DMMP resp: interim framework in process)	Stanley Stahl, Budd Bay concerned citizen
Impacts on human health and biological param..... Has a cost analysis on the 5 alternatives been done yet? Would be willing to help develop costs for transportation etc for analysis	
Favors Option 3. We don't understand cumulative risk of all chemicals together on biology and dermal exposure.	Budd Bay concerned citizen
Why not addressing or concerned more with bioaccumulation, don't want to eat crabs farmed in that background. Suggest that background toxicity be cleaned rather than placing more material there.	Stanley Stahl, Budd Bay concerned citizen
Read pre-prepared statement. All 5 options are basically the same and none are expectable. Opts 1 and 2 are not implementable, why even being considered? Opts 4 and 5 are also flawed b/c why not permit new disposal sites in most contaminated areas of bay. The materials is already in the bay, bioavailable, and not new, so where is it least risky? Where it is now or at a disposal site? NAS report—we don't know impacts of dioxin at low levels. Possibly two risk assessments, one at disposal site and one at site where you are leaving material. Options 1 and 2 unlikely, need to wait for risk approach to catch up to analytical techniques. Need to separate cleanup vs. navigational projects.. Does not have a suggestion for an option at this time. Each option has enormous implications and impact to maritime economy.	Eric Johnson
Possibly bioremediation—treating sediments with dioxins (DMMP resp: very hard at low levels, maybe more applicable for cleanup site w/ high levels, possibly a separate option?)	Stanley Stahl, Budd Bay concerned citizen
Option 5 seems most implementable from management perspective, keeping simple.	
Options 4 and 5, difficult to tease out point sources from urban background (Elliot Bay) difficult to determine background	
Need to assess further info on dermal contact risk for dioxins (DMMP resp: limited by regs, have to do calc certain way)	Stanley Stahl, Budd Bay concerned citizen

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Will cost benefit analysis be done? (DMMP resp: would like input on what should be considered in analysis)	Brad Helland, Ecology
How is option 5 working now? (DMMP resp: only 1 project, screened out some material.)	

October 11, 2007 5:30 to 8:00 pm Meeting, Port of Bellingham, Bellingham, WA

Comment	Comment Provided By
Agency should consider the method used for placement of disposal material. Currently bottom dump barge, now maybe it is better to handle smaller units of material to control levels of placement of cleaner and less clean material. Engineering improvement of BMPs for placement of material. Possibly thin capping at disposal sites. Clarify that this is for dioxins, not re-doing all of PSDDA.	Greg Hartman, DOF
<p>Read pre-prepared statement. The DMMP guidance developed in the '80s was with sound science and regulatory application it is predictable and is an example of good policy and risk assessments. The DMMP risk assessments are straight forward and allows for the implementation of Port work. The disposal sites are located at deep remote locations relative to the harbors areas that are dredged that are shallower, more biologically active areas.</p> <p>Policy decisions need to have the appropriate science and toxicity knowledge, and an understanding of cost. They need to maintain the current workable disposal program. This process and framework needs to work within the policy and framework of the 80s, which is a great nationally known program.</p> <p>The Port is currently working internally with consultants to evaluate the options put forward by the DMMP now and possibly develop a new option. (Kate: encouraged them to do so and provide suggestions and feedback.)</p>	Brian D Gouran of Port of Bellingham
Likes the idea of different screening levels for dredged material disposed of at disposal sites. Sequencing of materials, but dredged materials at various 3 levels would have different monitoring requirements based on screening levels.	Leslie McKee, RETEC/ENSR

October 11, 2007 5:30 to 8:00 pm Meeting, Port of Bellingham, Bellingham, WA

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<p>If material was disposed of on land would it be easier to contain and less risk of disturbing it? (KS: Yes, that would be in a landfill, however, it is difficult to transfer material from dredge site to upland disposal facility. Different risks involved with uplands and very expensive. Using landfill space, challenges of transport, dewatering etc. EH: Here we not talking about cleanups with very dirty material, but these are low level materials, uncertain of risk associated with low levels dioxin. KS: Dioxin naturally occurring at levels that can be determined risky with risk assessment, i.e. background may potentially be most practicable level.)</p>	<p>Erin (reporter?) with Cascadia Weekly</p>
<p>This is a new program, researching and getting up to speed, but feels there is a gray area between cleanup sites and navigational waterways to be dredged. Not a lot of dioxin testing in waterways (Whatcom etc) that may historically have dioxin in the waterway, careful to not take high dioxin levels to disposal sites. Also – sequencing may be needed where clean fill is put on top of disposal site material because the tribes use the disposal site areas for shellfish harvesting and we should maintain natural resources and shellfish harvesting for tribes. Higher tribal consumption is important. (KS: If waterway levels above new framework, than material cannot go to the disposal site. Currently disposal sites not capped because the material meets the DMMP levels. EH: There is a formal process for cleanup sites and DMMP to communicate and DMMP can ask for more sampling and characterization. Elizabeth said she will have a written comment/info on process and submit to the website. Also submitted response to questionnaire....</p>	<p>Elizabeth Britt, People Against Open Water Disposal (New Program)</p>
<p>What is the NAS 2006 study, why is it an issue? What is the low level range? (EH: NAS paper is the review of the EPA 2003 dioxin risk assessment. EPA study used high doses, no low dose data so they had to extrapolate to low levels—issue is how do you extrapolate down to zero? EPA used models assuming linear effect. NAS criticize EPA for not looking at what several different assumptions would do to the results, produce different numbers or not? NAS highlighted uncertainty of low levels b/c hard to determine effects at low levels relative to other causes of cancer. Have to take into account uncertainty.</p>	<p>Brian D Gouran of Port of Bellingham</p>
<p>Where is the uncertainty of the science and what can change the decision made? (EH: see above response, but also that even if the dioxin cancer slope factors changed it wouldn't change the risk assessment outcome much b/c slope factor so low that risk would still be < background)</p>	<p>Jim O., RETEC/ENSR</p>

October 16, 2007 5:30 to 8:00 pm Meeting, Port of Port Angeles, Port Angeles, WA

Comment	Comment Provided By
How much material would be dumped at each of the disposal sites? (LI: depends on site, activity in area, permitted volume, etc.)	Darlene Schanfeld, Olympic Enviro Council
Where do other global fish tissue concentrations used in your presentation that you compare to the Sound values come from? (LI: numbers come from a search she did looking for global data, that data she accepted must have all congeners and have been collected within the past 15 years)	Larry Dunn, Lower Elwah
Proposals put forth see contrary to cleanup work currently being done in Puget Sound. If cleanup area such as Budd Inlet are cleaned up, this would affect the area background numbers used for comparison. Criteria would change over time as Puget Sound got cleaner. (CW: very stringent monitoring occurring at the sites and have found that the sites are actually getting cleaner over time. The disposal target zones are cleaner than the surrounding areas. LI: Not averaging in all the areas within the region to get a regional number for comparison—we would not use cleanup sites for our regional background standard.)	Larry Dunn, Lower Elwah
We don't know the complete life cycle of benthic organisms, are these disposal sites being tested for benthic organisms? (CW: Yes, LI: Compare benthic results to benchmark areas, also examine at benthic communities with camera)	Larry Dunn, Lower Elwah
What are your sentinel organisms that you are looking at? Should look at species that bioaccumulate similar to humans, such as harbor seals. These seals generally stay in one area.	Larry Dunn, Lower Elwah
These disposal sites may be degraded areas already—by placing similar material at these locations maybe not allowing these already degraded areas to recover. Realize you are looking at what benthic organisms are there, see not changing over time, but maybe still not getting back to what was originally at the site. You don't know historically conditions of benthic organisms there. (KS: Selecting areas for disposal that try to minimize effects on benthic community. DI: before dumping in an area, we examined the benthic community, then examined after dumping and found that is hasn't changed over time, recovered to what it was before dumping occurred, CW- we do abundance testing looking at before and after disposal, found no benthic degradation).	Darlene Schanfeld, Olympic Enviro Council

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Need to look at different levels for dioxin at different locations (regions) of Puget Sound—use lowest level in each area to compare for disposal in that area. Commencement Bay would have higher concentrations than non-urban areas. Use lowest local levels so you don't have to do the cleanup again for that area as the areas become more cleaned up in the future.	Larry Dunn, Lower Elwah
Sentinel species maybe should vary by location being tested in the Sound as species vary throughout the sound. (CW: different monitoring criteria for different sites, we do use different sentinel species)	John Cambalik, PSP
Show on your chart during the presentation of intake of dioxins by different types of food that water intake is negligible. What about if coming from a contaminated site? (LI: dioxins not water soluble, like to attach to sediment. Also, what is given in chart is a typical human diet).	Eugene Voight
How close are the disposal sites to being full? (KS: Commencement Bay site is almost full. CW: Site not actually almost full, but almost to trigger point where it would trigger a SEPA review, probably will occur within a couple of years. LI: Bathymetric surveys completed to monitor depths of disposal sites)	Darlene Schanfeld, Olympic Enviro Council
Other sites in Commencement Bay that could be used in the future? (CW: can't really address at this time. Still evaluating, draft form of document only, public will be able to comment in future on future disposal sites during the public comment period.)	Larry Dunn, Lower Elwah
There are more chemicals than just dioxins in dredged material to be considered. (LI: Yes, criteria for these constituents have already gone through the public review process, focus is on dioxins. KS: these constituents are already being tested for in dredged material).	Darlene Schanfeld, Olympic Enviro Council
Will this criteria apply to Navy or Bangor? Do they dispose of their dredge material at these disposal sites? (KS: Yes, they can dispose at these sites, unless it is a cleanup site. Navy has to follow the same guidelines. CW: Bremerton's contaminated sediments go to Navy CAD facility).	John Cambalik, PSP

E-MAILED COMMENTS

Several e-mails sent referenced or included statements from the recommendations made by the People of Puget Sound, included below:

We believe that the most protective levels of dioxins should be required for material that is disposed in Puget Sound. Dioxins are extremely toxic and we should not be moving them around in the Sound - we should get them out. At this time, risk-based levels are more protective than background-based levels because the disposal sites have already been contaminated by dioxins due to past dumping. In addition, much of the area around the disposal sites are also contaminated by dioxin pollution from past and ongoing activities. The most restrictive known tribal consumption rates should be used for all of Puget Sound (not a local rate for each site) because at this point, individual tribal consumption rates have not been well determined using culturally appropriate methods. The most important missing element of the whole process is a determination of bioaccumulation of dioxin in aquatic life and in shellfish—i.e., in the entire food web. This should be a high priority.

Comment	Comment Provided By
Background based criteria not protective if background is above risk. Risk assessment is the only way to go and to consider up the food chain (Orcas etc)	Bob Jacobs
Supports most protective criteria, dioxin material should be removed from Sound entirely. Most restrictive tribal consumption levels should be used	L. Livingston
Although dioxins are naturally occurring, more so from anthropogenic sources. Support of EPA 2003 dioxin studies with linear extrapolation to low levels and indication of low level toxicity, disagrees with NAS 2006 evaluation Impacts from carrying hundreds of dioxin congeners and dioxin like chemicals including PCBs in our body burden are going to be difficult to prove with conventional scientific methods. A better approach would be to attempt to determine if predictable impacts on humans exist. Cancers of the fatty tissue such as the brain and breast, damage to nerves manifested in Parkinson's and damage to endocrine systems manifested in diabetes should all be considered suspect because cause effect relationships have been established. Damage to the ecosystem is irrefutable. We mix samples, we average samples and we average dredge spoils in an attempt to keep mean concentrations in line with those of previously contaminated disposal areas. Although much of this volume is for the time being physically below the reach of living things, the overall outcome is a greater volume of more evenly contaminated material. Option 3 , using least impacted background levels as a target, is the best way to achieve this goal.	Harry Branch

Comment	Comment Provided By
<p>I agree with People for Puget Sound that the most protective levels of dioxins should be required for material that is disposed in Puget Sound. At this time, risk-based levels are more protective than background-based levels because the disposal sites have already been contaminated by dioxins due to past dumping. The most important missing element of the whole process is a determination of bioaccumulation of dioxin in aquatic life and in shellfish—i.e., in the entire food web. This should be a high priority.</p>	<p>Chris Stay</p>
<p>I feel this is a very important issue and I fully agree with People For Puget Sound's stand on this matter.</p>	<p>Shary Bozied</p>
<p>Please remove dioxin-infused materials out of Puget Sound.</p>	<p>Susan Kraber</p>
<p>Sent People for Puget Sound's recommendations.</p>	<p>Ravi Grover</p>
<p>Please do not dump any more toxins into Puget Sound. If there is no option, then please use the most restrictive rules possible. We have been contaminating the Sound for long enough. It is an environmentally active environment necessary for life. Please do not destroy it any further by dumping.</p>	<p>Dolores Braun</p>
<p>People for Puget Sound's recommendations.</p>	<p>Mark Wahl</p>
<p>I grew up playing in, along side and with Puget Sound. Just today I learned of another cancer case. I want my children, grandchildren and all children to safely be able to play in Puget Sound. Dioxin disposal must be very low. We must save the sound and our children.</p>	<p>Phyllis H. Oshikawa</p>
<p>At Olympia public meeting. There is nonetheless a ton of excellent science on dioxins, most of it indicating that they're very biologically damaging. As someone mentioned at the meeting tonight we may have already surpassed the acceptable risk level. I have read the NAS report that came up several times in tonight's meeting and I didn't find it particularly compelling. I'd describe it as an opinion piece. Thank you again for opening this process up to the public. I believe that if we set strict standards (option 3) the practitioners of dredging will in their infinite cleverness come up with a system that targets concentrations of contaminants with great accuracy. This would be the best and most affordable solution.</p>	<p>Harry Branch</p>
<p>Clearly, the goal should be to halt the contamination at the sources, and clean up what's already in the sound to as low a level as presently possible.</p>	<p>E. Hueneke</p>

Comment	Comment Provided By
I can't attend the upcoming meetings. I prefer 'doing'. I'm sure those with knowledge and funds will come up with super plans. thanks for caring about our planet.	Sue Fox