

**Dredged Material Management Program  
Dioxin Project**

**Analysis of Stakeholder Input**

**Appendix A  
Fact Sheet and Questionnaire**

## Request for Stakeholder Input Regarding A Framework for Evaluating Dioxins in Dredged Material Proposed for Open-water Disposal

**PLEASE GIVE US YOUR INPUT BY MAY 31<sup>ST</sup>. CLICK HERE FOR QUESTIONNAIRE!**

### INVITATION TO PARTICIPATE

The Dredged Material Management Program (DMMP) for Washington State would like your input. The DMMP agencies manage testing and disposal of sediments from dredging projects. The agencies are updating their procedures for addressing dioxin contamination in dredged material. To ensure that your input is heard, the following information is accompanied by a questionnaire that the DMMP would like you to complete by **May 31, 2007**.

Your questionnaire responses will help the DMMP arrange public meetings to talk with the full range of interested people who work and live in Puget Sound and coastal harbors. Input will be used to develop a new draft evaluation framework, which will be released for public comment.

*The following information is intended to provide a basic understanding of the issue at hand to help you complete the questionnaire.*

#### What is the Dredged Material Management Program?

The Dredged Material Management Program (DMMP) consists of four agencies that work collaboratively to manage and regulate the disposal of dredged material from dredging projects in Washington State. These agencies include the U.S. Army Corps of Engineers, Seattle District (USACE); the U.S. Environmental Protection Agency, Region 10 (USEPA); the Washington Department of Ecology (Ecology); and the Washington State Department of Natural Resources (DNR). The DMMP website is at: <http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=dmmp&pagename=home>

The DMMP manages material dredged to maintain navigational waterways and berth depths when those areas are filled in by natural sediment deposition. The DMMP agencies determine what material can be disposed of at open-water disposal sites. The state-owned sites are managed by DNR. The DMMP does not manage contaminated sediment cleanups — those are managed by cleanup programs within Ecology and the USEPA.

#### How Much Maintenance Dredging is Done and Why is it Important?

Dredging affects the lives of nearly every Washington State citizen and visitor. Maintenance and navigation dredging is done frequently in harbor areas, ports and marinas. These areas naturally silt in. Dredging is performed to maintain the depths needed for boats to operate, and to develop new areas or achieve increased depths for boat access. A significant component of Washington's economy depends on navigation and commerce, which in turn depends on dredging the state's waterways. Between 2000 and 2006, approximately 20 million cubic yards of dredged material were dredged and disposed of at the open-water disposal sites.

#### Where is Dredged Material Disposed?

The DMMP agencies went through an extensive public process to define open-water sites for dredged material disposal, and to define the guidelines for dredged material that can be disposed at these sites. There are two types of sites, dispersive and nondispersive. Dispersive sites are located in areas with strong tidal currents. Dredged material placed at these sites disperses quickly.

Dredged material placed at nondispersive sites remains on-site and is the subject of long-term monitoring. Nondispersive sites are managed such that minor adverse effects are allowed, such as sub-lethal effects to some species after long-term exposure. Adverse effects are not allowed at dispersive sites, so dredged material must meet more stringent evaluation guidelines to be eligible for disposal at these sites.

There are eight dredged material disposal sites around Puget Sound (three dispersive and five nondispersive) and two dispersive estuarine sites each in Grays Harbor and Willapa Bay. Additionally, Grays Harbor has one 3.9-mile Ocean disposal site. The DMMP agencies collectively evaluate the suitability of dredged material for disposal at these sites. As owner of the state's aquatic lands, DNR manages the disposal sites and is responsible for environmental monitoring of all nondispersive disposal sites.

## What are Dioxins, What are their Sources, and Why are they Important?

Polychlorinated dibenzo-dioxins (PCDDs) and polychlorinated dibenzo-furans (PCDFs) are commonly referred to together as “dioxins.” Dioxins are a group of chlorinated organic compounds with similar chemical structures, called congeners. The most studied and most toxic dioxin congener is 2,3,7,8- tetrachlorodibenzo-*p*-dioxin (2,3,7,8-TCDD). 2,3,7,8-TCDD has been identified as a “known human carcinogen” (IARC 1997) and a probable human carcinogen by USEPA (Group B2 carcinogen). Other dioxins may cause cancer, disrupt the endocrine system, and cause reproduction and developmental effects (USEPA 2003; <http://www.epa.gov/ncea/pdfs/dioxin/nas-review/>). Dioxins are toxic to humans and other mammals at very low concentrations.

Dioxins are unintentionally produced by natural and industrial activities. Natural activities include forest fires or volcanic activity. Industrial processes include incomplete combustion of materials in the presence of chloride, such as burning of fuels, municipal and domestic waste incineration, as well as chlorine bleaching of pulp and paper, and chlorinated pesticide manufacturing.

Although dioxins are produced at very low levels (e.g., parts per trillion or parts per quadrillion), the compounds exist throughout the environment. Due to their chemical and physical properties, they persist and have the potential to bioaccumulate in the tissue of humans and wildlife.

## How Does the DMMP Currently Address Dredged Material Containing Dioxins?

The existing DMMP framework for evaluating dredged material’s suitability for disposal at open-water sites includes sediment testing for dioxins when there is a “reason to believe” that dioxins may be of concern based on site history or proximity to possible sources. In the past, the DMMP agencies have applied best professional judgment on a case-by-case basis in determining the suitability of dioxin-containing dredged material for open-water disposal.

This case-by-case evaluation has relied in part on a risk assessment done in Grays Harbor in 1991. A risk assessment uses local conditions, contaminant sources, fish consumption rates, and other factors to approximate the risk to humans of eating seafood caught in the area. But as we come to understand more about dioxin in the environment, about the amount of seafood consumed by subsistence (tribal) fishers, and about how to evaluate risk, it is clear that the approach derived from Grays Harbor should not be applied to DMMP projects in Puget Sound.

In 2006, the detection of elevated levels of dioxins in sediment proposed for dredging from Olympia Harbor triggered a site-specific determination related to the conditions at the Anderson/Ketron open-water disposal site. A risk-based approach was attempted for the Anderson/Ketron open-water disposal site, but ultimately a background-based interim framework was adopted. The Supplemental Suitability Determination Memorandum (SDM) for the Port of Olympia project includes a technical appendix detailing the basis for this site-specific interim dioxin approach. It is available at: [http://www.nws.usace.army.mil/PublicMenu/documents/DMMO/060912\\_FINAL\\_AK\\_Dioxin\\_Evaluation.pdf](http://www.nws.usace.army.mil/PublicMenu/documents/DMMO/060912_FINAL_AK_Dioxin_Evaluation.pdf).

## What is being Considered as an Updated Approach?

The DMMP agencies are beginning the process to develop an updated framework for evaluating the suitability of dredged material containing dioxins for disposal at the existing DMMP open-water disposal sites. The DMMP agencies are doing this in coordination with the Puget Sound Initiative, which is evaluating the quality of Puget Sound as a whole. The goals of the Puget Sound Initiative include cleaning up polluted sites in and near Puget Sound; preventing oil spills and toxic contamination; and restoring nearshore, estuarine, and salmon habitats.

Because dioxins are ubiquitous in Puget Sound and have natural and industrial sources, the DMMP agencies are considering a variety of options for the updated dioxin evaluation framework.

One potential option is to set acceptable dioxin sediment levels based on disposal-site-specific background levels. If the dioxin concentrations in dredged material are shown to be less than the background levels at the intended disposal site, then the material can be disposed of there. This approach was selected for use at for the recent Port of Olympia project and is described in further detail in the technical document referenced above.

An alternative potential background-based approach involves a comparison to regional background concentrations rather than disposal-site-specific background concentrations. One means of determining regional background dioxin could be from monitoring dioxin at the Puget Sound Ambient Monitoring Program’s reference sites.

A third potential approach could be to perform a disposal-site-specific risk assessment using the most sensitive human population (generally, tribal fish and shellfish consumers), as well as wildlife and endangered species. The agencies are considering refinement of the risk assessment approach attempted in the recent Anderson-Ketron suitability

determination to more accurately reflect observed levels of dioxins in tissues from organisms at the disposal sites. However, depending upon the outcome of this effort, risk assessment may result in risk-protective sediment values that are below analytical detection limits and area background, as was the case in the 2006 Anderson-Ketron risk assessment.

There certainly may be other options to consider that are either background-based or risk-based methodologies, and different options may apply to the dispersive vs. nondispersive disposal sites. The DMMP is requesting stakeholder input to refine and broaden the range of options considered.

### What is the Process and How does this Questionnaire Fit in?

The DMMP agencies want to begin developing the new framework for evaluating dioxins. The DMMP agencies determined that a series of workshops would best support this effort. Ecology has agreed to fund the facilitation and documentation of these meetings.

The first step in the process is to receive your input through response to the questionnaire that you can complete by following the links at the top and bottom of this web page. The link to this page is being sent to Ports, Navy, Coast Guard, marine businesses, agencies, Tribes, environmental organizations, and previous attendees of the DMMP's Sediment Management Annual Review Meeting (SMARM).

Following receipt of input from the questionnaires, a set of public meetings will be held to further discuss the issues. The DMMP agencies will then use the received input to develop a draft evaluation framework for decision-making relative to dioxins in dredged material. The draft evaluation framework will be issued for public review and comment under the SMARM public process (in 2008 or earlier).

Dredging suitability determinations regarding dioxins will be made in the interim on a case-by-case basis, using a disposal-site-specific, background-based evaluation method, similar to that used in 2006 at the Anderson/Ketron disposal site.

Please assist the DMMP to move this process forward with your input, by submitting the questionnaire by **May 31, 2007**. Your input is valuable, and we very much appreciate you taking the time to respond.

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# REQUEST FOR STAKEHOLDER INPUT REGARDING A FRAMEWORK FOR EVALUATING DIOXINS IN DREDGED MATERIAL PROPOSED FOR OPEN-WATER DISPOSAL

The Dredged Material Management Program (DMMP) for Washington State manages testing and disposal of sediments from navigation dredging projects. The DMMP agencies are updating their procedures for addressing dioxin contamination in dredged material. Your completion of this questionnaire will provide initial input to assist the DMMP in this process.

**Please complete the questionnaire by May 31, 2007.**

Questionnaire responses will help the DMMP arrange public meetings to talk with the full range of interested people who work and live in Puget Sound and the coastal harbors. Input will be used to develop a new draft dioxin evaluation framework, which will be released for public comment. **Your input is valuable, and we very much appreciate you taking the time to respond.**

## Instructions:

- Please answer the following questions using this on-line form. Push "Submit by Email" when you are complete and follow the instructions to email the form.
- Be advised that Acrobat Reader will not allow you to save your answers electronically, and you will need to print a copy of the form if you wish to retain your responses.
- If you do not have enough room for your responses or would like to provide additional reference materials, you can send them to: [dioxin.project@floydsnider.com](mailto:dioxin.project@floydsnider.com).
- If you would rather not answer the questionnaire on-line, you can print out the form, write your answers, and send a hard copy to:

Attn: DMMP Dioxin Project  
Floyd|Snider  
601 Union Street, Suite 600  
Seattle, WA 98101

## QUESTIONNAIRE

Print Form

Submit by Email

First Name:

Last Name:

Organization:

Email Address:

- 1) What do you think are the key issues that the DMMP agencies should consider when developing a new framework for evaluating dioxin in dredged materials?

2) How do you recommend those issues be addressed?

3) What type of dioxin evaluation framework do you recommend for DMMP to use to determine the suitability of material for disposal at the designated open-water disposal sites?

4) Are you interested in attending workshops to provide additional input and learn more about this DMMP decision process?

5) If you are interested in attending workshops, what key topics would you most like to focus on?

6) Are you interested in being on a mailing list to receive further information about this process?

7) Any other comments?

Print Form

Submit by Email