

ENVIRONMENTAL ASSESSMENT
FY 2007–2011 MAINTENANCE DREDGING
TURNING BASIN AND NAVIGATION CHANNEL
UPPER DUWAMISH WATERWAY

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July 13, 2006

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This document should be cited as:

Corps of Engineers, Seattle District. 2006. Environmental Assessment, FY 2007–2011
Maintenance Dredging, Turning Basin and Navigational Channel, Upper Duwamish Waterway.
August. Seattle, WA.

1.0 AUTHORITY AND BACKGROUND

The Seattle Harbor Federal Navigation Project and maintenance dredging is authorized by the Rivers and Harbors Acts of March 2, 1925 and July 3, 1930. Federal maintenance dredging is required within the lower Duwamish River (also known as the Duwamish Waterway) every 1 to 3 years to remove accumulations of shoaling river sediment. The area typically dredged is a settling basin that extends from the natural bend in the river at River Mile (RM) 5.5 (known as the Turning Basin and Channel) downriver approximately 2,100 feet. The authorized depth in the channel and Turning Basin is -15 feet Mean Lower Low Water (MLLW) with a 2-foot allowable over depth to -17 feet MLLW. The authorized dimension for the channel bottom width is 150 feet. The authorized dimensions for the Turning Basin are 250 feet wide by 500 feet long. The total area of the turning basin and channel to be dredged is approximately 8 acres. This EA addresses proposed dredging activities from FY 2007 through FY 2011 in the Turning Basin and the portion of the authorized project from stations 254+00 to 275+56. The Corps is authorized to remove up to 200,000 cubic yards of dredged material from this site during each dredge cycle.

2.0 PROJECT DESCRIPTION AND LOCATION

2.1 Introduction.

The project described by this environmental assessment (EA) is a component of the Seattle Harbor Federal Navigation Project, providing maintenance of a navigation channel in the upper Duwamish Waterway (Figure 1). Without routine maintenance dredging, shoaling would lead to a shallower channel that would reduce the ability of large ships to enter and leave safely. Dredging is accomplished using clamshell equipment, loading the dredged materials on to bottom dump barges.

Federal maintenance dredging is required on a one to three year frequency in the upper Duwamish Waterway to remove accumulations of shoaling river sediments.

2.2 PURPOSE AND NEED

Without routine maintenance dredging, shoaling would lead to a shallower channel that would reduce the ability of large ships to enter and leave safely. In addition, not conducting maintenance dredging in the Turning Basin (which acts as a settling basin for sediments moving downstream) would result in a buildup of sediment in the Turning Basin, which would eventually exceed the holding capacity of the basin. Once the capacity of the Turning Basin is exceeded, the sediment would continue to move downstream and settle in areas below the Turning Basin, where in some areas there is known sediment contamination. Eventually, as sediment accumulates in these downstream areas, dredging could be required in areas below the Turning Basin to maintain navigation. This project has been dredged on a one to three year cycle since approximately 1931 in order to maintain this navigation channel.

2.3 Proposed Action.

Public Notice CENWS-OD-TS-NS-26 dated July 28, 2006, describes the maintenance dredging by clamshell of an estimated 100,000 to 200,000 cubic yards (cy) of sand and silt from the navigation channel. The public notice covers a 5-year period (FY 2007 - 20011) of maintenance dredging. The proposed dredging in FY 2007 includes approximately 100,000 to 200,000 cy of silt and sand in the upper turning basin between stations 254+00 and 275+56 (Figure 1).

Disposal of dredged materials is proposed at the Washington Department of Natural Resources (DNR) managed Puget Sound Dredged Disposal Analysis (PSDDA) open water site in Elliott Bay. This site is located at 47 degrees 35.96 minutes' north latitude and 122 degrees 21.45 minutes' west longitude. Disposal activities will be conducted in accordance with established criteria for the site. Dredging and disposal activities are scheduled to be performed between December 1 and February 14, 2007. If beneficial disposal uses can be identified, the material will be made available. The actual dredging and disposal based on weather conditions should take no longer than 45 days to complete.

A suitability determination by the Dredged Material Management Program agencies (Corps, EPA, Ecology and DNR) indicated that the material in the turning basin was deemed suitable for open-water disposal at the Elliott Bay non-dispersive open water disposal site.

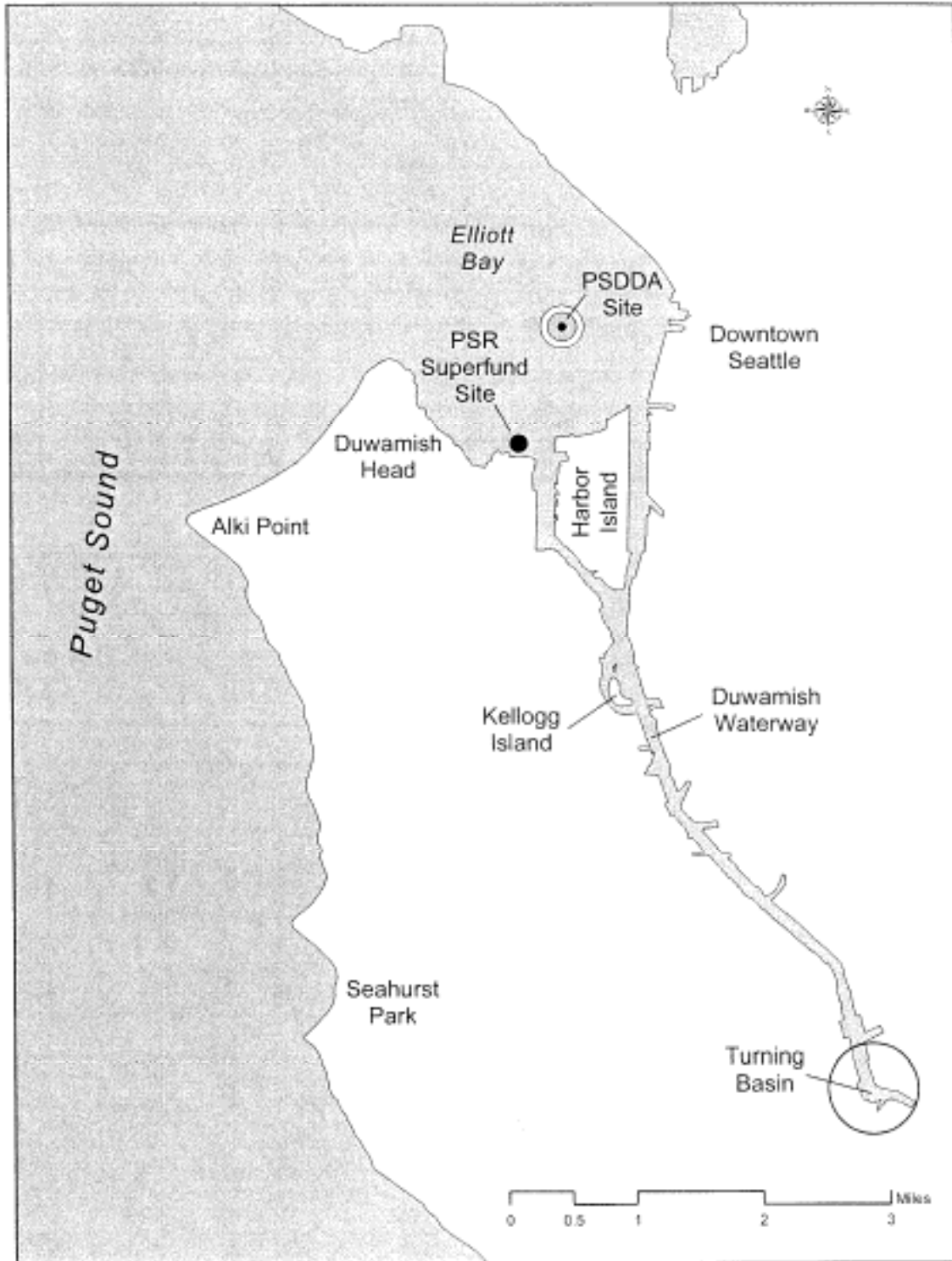


Figure 1. Location of the Dredging Area and PSDDA Open Water Disposal Site

2.3 Pertinent Documents.

Dredging practices and disposal options in the project area have been evaluated in the following documents:

- 1973 Environmental Impact Statement for the Seattle Harbor Federal Navigation Project (Corps 1973),
- EIS Supplement for the Seattle Harbor navigation project (Corps 1979),
- Final EIS on the East, West, and Duwamish Waterways (Corps 1983),
- EIS for the Elliott Bay PSDDA open-water disposal site - phase I (Corps 1988),
- Maintenance dredging Environmental Assessments for 1992, 1996, 1999, and 2002(Corps 1992, 1996, 1999, 2002), and
- Biological Assessment for FY 2007–2011 Maintenance Dredging, Turning Basin and Navigational Channel, Upper Duwamish Waterway (Corps 2005).

Copies of these documents are on file at the Seattle District office.

3.0 ALTERNATIVES

3.1 No Action.

One alternative is for the Corps of Engineers to not dredge the area during the maintenance cycle. This would have a potential significant impact on the local maritime economy. The Duwamish navigation channel would accumulate sediments over time which would greatly restrict the use by larger vessels. Shoaling would reduce the ability of ships to enter and leave safely under full load or during low tide conditions. This could warrant emergency action by the Corps of Engineers and/or by the Port of Seattle. This alternative would avoid impacts to the environment caused by dredging and disposal. Problems for marine traffic caused by current shoaling would continue and worsen as the shoaling continues.

3.2 Clamshell Dredging and Disposal at an Upland Site.

Under this alternative, dredged material would be stockpiled at one or more upland sites and eventually used for construction or other development purposes. The costs and benefits of rehandling/reuse depend on transportation fees, rehandling expenses, and the demand for this material. There are no upland disposal sites available near the project area—adjacent upland sites are fully occupied by commercial interests. Thus, transportation costs to a disposal site would be high. Rehandling of the material onto a barge for transport and then piping to the disposal site would also increase costs. In addition, upland resource areas would also be impacted by disposal activity. Therefore, due to the none availability of upland disposal sites, potential environmental impacts, costs of rehandling and in conjunction with the area being highly industrialized this option will not be considered further (Corps 1973).

3.3 Clamshell Dredging and Disposal at the Elliott Bay PSDDA Open-Water Site (proposed).

Clamshell dredged material would be disposed of at the Elliott Bay PSDDA disposal site. This alternative would avoid impacting upland resource areas and would remove material from the system so it would not contribute to future shoaling. This option is less costly than upland disposal because of closer proximity to the disposal site, and dredged material is not rehandled (Corps 1988). Disposal activities will be conducted in accordance with established criteria for the site. Dredging and disposal activities are scheduled to be performed between December 1 and February 14, 2007. If beneficial disposal uses can be identified, the material will be made available. The actual dredging and disposal based on weather conditions should take no longer than 45 days to complete.

4.0 DESCRIPTION OF THE ENVIRONMENT

For more information on the local environment the reader is referred to the pertinent environmental documents mentioned in Section 2.3.

4.1 General.

The Duwamish River originates at the Green River in the Cascade Mountain Range of western Washington. It flows northwesterly through heavily wooded conifer forests from the Cascade Crest to Eagle Gorge, where it is impounded by the Corps of Engineers' Howard A. Hanson Dam. The dam has controlled floods in the lower Green River valley, including Seattle's industrial district along the Duwamish Waterway, since November 1961.

After passing through the dam, the river continues to flow northwesterly through the Green River valley to Seattle, where it becomes the Duwamish River. The Duwamish River drains about 483 square miles with a high and low flow range of 12,000 cubic feet per second (c.f.s.) to 300 c.f.s.

The Duwamish River channels have been straightened and altered by people through the years, with only limited indication of its original meandering course. The Duwamish Waterway branches to form the East and West Waterways before entering Elliott Bay. Elliott Bay is located on the east shore of Puget Sound bounded by the Duwamish Head to the south and Magnolia Bluff to the north.

4.2 Sediment Quality.

The area proposed for maintenance dredging is in an area ranked by PSDDA as low likelihood of contamination (a PSSDA low-ranked area). As summarized in the suitability determination dated June 26, 2003, the PSDDA agencies have determined that all of the proposed material in the turning basin is suitable for open-water disposal at the Elliott Bay site or other beneficial uses.

As the sediment characterizations from the June 26, 2003 sampling have a “recency frequency” or sampling frequency of 5 to 7 years, additional sediment testing will be required again in 2008, 2009, or 2010.

If sediment sampling in 2008 to 2010 meets PSSDA standards, the dredged sediment would continue to be disposed of at the Elliott Bay PSSDA site, unless a beneficial use for the material became available. If samples from any individual dredge area were found unsuitable for unconfined open water disposal at the PSSDA site, sediment from that dredging area would not be dredged under this proposed action.

Disposal activities will be conducted in accordance with established criteria for the PSSDA sites. As noted earlier, effects of the transport and disposal actions were analyzed in a previous Biological Assessment prepared by the Corps (Corps 2005). Although the project area has clean sediments, the lower Duwamish downstream of the project area and located outside the Federal Navigation Channel is proposed for listing as a Superfund site.

4.3 Water Quality.

The Washington State Department of Ecology (Ecology) is responsible for setting water quality standards based on water use and water quality criteria.

The waters of the Duwamish River (RM 11 to 0) are designated Class B waters (good). Water quality within the lower Duwamish River can influence water quality conditions in the Duwamish River estuary. Pollutants within the Duwamish River are derived primarily from industrial point and non-point sources, storm water runoff, discharges from vessels, and resuspension of contaminated bottom sediments. Those areas of contaminants are located downstream of the project site and will have no impact on the proposed project at its current location.

Overall, water quality in the estuary was probably poorest in the early 1960s. Since then, enforcement of the Clean Water Act and subsequent State water quality standards and implementation of the National Pollutant Discharge Elimination System (NPDES) have spurred substantial improvement in water quality conditions in the Duwamish estuary.

Diversion of wastewater effluent discharges from the river to Puget Sound has significantly reduced the biological oxygen demand in the estuary. Of the parameters for which historic data are available, all contaminants have been controlled to the point where few exceedances of state chronic water quality criteria, or thresholds for effects on salmonids, have been reported in recent years. Since the mid-1980s, there have been no reports of direct mortality of salmon or other fish in the estuary; problems previously associated with delayed Chinook salmon upstream migrations due to low dissolved oxygen barriers likewise have not been reported since the diversion of the Renton Treatment Plant outfall.

Elliott Bay and the Duwamish Waterway remain on Ecology’s 303(d) list of threatened and impaired waters. The enforcement of total maximum daily load limitations for a number of parameters is expected to result in additional improvements in water quality. The trend for water quality in the action area is one of overall improvement.

Water quality sampling data from the U.S. Geological Survey (USGS) gauge located at the Foster Golf Links golf course in Tukwila Washington (Station No. 12113390) were reviewed for the 1995–2004 period. This data indicates that the Duwamish River reaches its maximum suspended sediment levels generally between December and March. Average suspended sediment levels recorded during the old window of the proposed dredging (October 1 through February 15) have been 72 mg/L, including the highest readings of 787 mg/L on February 9, 1996, 361 mg/L on February 12, 1996, and 196 mg/L recorded on January 3, 1997. Lowest readings during the proposed dredging period have been 4 mg/L in December 2000.

The Duwamish is also characterized by occasional high levels of suspended sediment occurring during the late spring and even well into the driest portions of the year (274 mg/L on March 19, 1997, 264 mg/L on August 7, 1997, and 101 mg/L on March 22, 1998), which are likely due to intense precipitation from seasonal storm events.

Dissolved oxygen levels in the lower Duwamish do not always meet State criteria. These excursions occur in mid- and late summer (Herrera Environmental Consultants 2005). The proposed maintenance dredging would occur in the winter months (December 1 through February 14) when dissolved oxygen ranges from 9.6 to 12.1 mg/l (USGS data for 1999 to 2004 collected at Station 12113390 at Foster Golf Links golf course in Tukwila, WA). The state dissolved oxygen criterion for Class B freshwater is 6.5 mg/l (WAC 173-201A).

In the lower Duwamish, the relative temperatures of the freshwater inflow and the saltwater intruded from Elliott Bay primarily influence water temperature (Warner and Fritz 1995). This saltwater intrusion profoundly influences water temperature at various depths in the Turning Basin (Muckleshoot Indian Tribe Fisheries Department, unpublished data). For example, in January, water temperatures measured at 1-meter depths (46.8° F) can be 10° F warmer than water at a depth of 8 meters (36.5° F). In May, temperatures measured at 1 meter were 11° F warmer (63.9° F) than at a depth of 4 meters (52.9° F). In September, temperatures are more uniform with difference in the 5° F range (61.9 to 56.8° F). The range of temperatures over depth is also influenced by the tidal stage. The variation in water temperature with depth provides adult and juvenile salmonids some refuge from the higher temperatures. However, in the late summer and early fall, the general range of temperatures offers no refuge from temperatures above 57°F, which is considered the upper end of the preferred range for salmonids species.

Lack of large vegetation in the riparian zone has also been cited as a significant cause of elevated temperature. Due to heavy industrialization, there is a near complete lack of riparian trees along the shoreline of the lower Duwamish River. Thus, the contribution of vegetation as an effective buffer against increasing water temperature from direct sun exposure is probably minimal for the action area and the lower Duwamish River on the whole.

4.4 Invertebrates, Fish and Wildlife.

The benthic ecosystem in the lower Duwamish is stressed from the amount of sediment load that collects in the lower Duwamish and from commercial and industrial activity, resulting in reduced diversity, with greater numbers of stress-tolerant invertebrate individuals. Salmonids that migrate through the lower Duwamish include coho (*Oncorhynchus kisutch*), chum (*O. keta*), fall

chinook (*O. tshawytscha*), sockeye (*O. nerka*), pink salmon (*O. gorbuscha*), and summer and winter steelhead (*O. mykiss*). The Duwamish/Green River system supports many different fish species. Abundant marine fishes in the area include Pacific staghorn sculpin (*Leptocottus armatus*), starry flounder (*Platichthys stellatus*), English sole (*Parophrys vetulus*), shiner perch (*Cymatogaster aggregata*), and Pacific herring (*Clupea harengus pallasii*). This area also provides important rearing habitat for herring, perch, sculpins and other fishes. A variety of water birds typical of western Washington are found within the project area. Mostly small mammals inhabit the uplands surrounding the lower Duwamish.

4.5 Endangered Species.

Several endangered, threatened, and candidate species may be found in the project area. These include:

- Chinook salmon (*Onchorhynchus tshawytscha*) - Threatened;
- Bull trout (*Salvelinus confluentus*) – Threatened;
- Steller sea lion (*Eumetopias jubatus*) - Threatened;
- Humpback whale (*Megaptera novaengliae*) - Endangered;
- Leatherback sea turtle (*Dermochelys coriacea*) - Endangered;
- Bald eagle (*Haliaeetus leucocephalus*) - Threatened;
- Puget Sound Southern Killer Whale (*Orcinus orca*) – Endangered;
- Puget Sound Steelhead – Proposed.

Coho salmon (*Oncorhynchus kisutch*) of the Puget Sound/Strait of Georgia ESU is a species of concern due to concerns over specific risk factors. Coastal cutthroat trout (*Oncorhynchus clarki clarki*) of the Puget Sound ESU is also a candidate species. These species occur in the Duwamish/Green River system. The bald eagle has been observed along the Duwamish River and may occur at the dredging area and disposal site. The sea lion, sea turtle, killer whale and humpback whale have not been observed near the Elliott Bay disposal site. The threatened and endangered species are addressed in the biological assessment dated November 10, 2005 (Corps 2005).

4.6 Indian Treaty Rights.

The Muckleshoot Indian Tribe has treaty-fishing rights along the Duwamish River and Elliott Bay under the Point Elliott Treaty (1855). They have been notified of this project, and have expressed no concerns.

4.7 Historic and Cultural Resources.

No National Register-eligible cultural resources are listed for the project area. A National Register Duwamish village site is located nearby on the left bank in the lower part of the project area; this site will not be affected by this project. All project-dredging sites have been dredged previously. The PSDDA Phase I EIS (Corps 1988) evaluated submerged historic shipwrecks for the Elliott Bay disposal site; significant cultural resources were mitigated under a Memorandum of Agreement with the Advisory Council on Historic Preservation in 1988. Dredging Guidance

Letter No. 89-01 (March 13, 1989) states that it is the policy of the Corps of Engineers that cultural resources surveys should not be conducted for maintenance dredging and disposal activities proposed within the boundaries of previously constructed navigation channels or previously used disposal areas. Accordingly, no new cultural resources surveys were conducted for this project.

4.8 Disposal Area Environment.

The proposed disposal site is the PSDDA designated Elliott Bay unconfined, open-water disposal site managed by the Washington State Department of Natural Resources (Figure 1). The center of the Elliott Bay disposal site is located about 3/4 mile north of Harbor Island in water 265 feet deep. Reference the PSDDA Phase I EIS (Corps 1988).

5.0 ENVIRONMENTAL IMPACTS.

Impacts are evaluated relative to the no-action alternative.

5.1 Air Quality and Noise.

Maintenance dredging at the Turning Basin will temporarily increase ambient noise levels as the dredge is working. Lights operating on the dredge will temporarily increase ambient lighting levels at night in the immediate vicinity of the dredge, but are not expected to adversely affect neighboring properties or adjacent habitats due to the short duration of their presence. Noise and activity during dredging operations could temporarily disturb some species from the adjacent shoreline areas and from the immediate area of the working dredge, but this effect is expected to be temporary. Once the dredge ceases to operate, there will be no long-term effects from the temporary increase in noise.

Temporary increases in noise and disturbance during dredging are expected to be insignificant and discountable and are not expected to significantly degrade existing conditions within the action area or to have adverse effects on listed species.

5.2 Navigation.

Minor, temporary disruption to navigation traffic is anticipated; however this action will keep the channel usable by deep draft navigation vessels transiting harbor waters. Work will be coordinated with the maritime community to allow affected parties to plan for the temporary closure of the turning basin.

5.3 Socioeconomic.

Overall, the maintenance dredging will benefit the economy in that normal commercial activities will continue as usual. A considerable percentage of those employed in the area are dependent on navigation oriented or related activities.

5.4 Water Quality.

Maintenance dredging in the Turning Basin and channel will result in the release of some sediment to the water column as the bucket contacts the bottom, closes, and is raised through the water column to load dredged material into the barges. Dredging results in pulsed and localized increases in suspended solids to the water column. Ecology sets limitations on the amount of sediment that is allowed to be re-suspended during dredging operations (and other in-water activities). Ecology's Section 401 requirements are discussed below.

The sediments to be dredged meet PSDDA criteria and State Sediment Management Standards (SMS) for open-water disposal. Although there will be a short-term resuspension of sediments into the water column, testing indicates that release of contaminants to the water column will be insignificant and discountable and is not expected to adversely degrade the existing water quality condition within the action area or have adverse effects on listed species or their prey.

It is also important to note that if maintenance dredging of the Turning Basin (which acts as a settling basin for sediments moving downstream) were not conducted, it is likely that eventually the sediment that would have accumulated in the Turning Basin would continue downstream and settle in areas with known sediment contamination. If the Corps or other entity were required to dredge sediments in areas downstream of Station 254+00 from the Turning Basin (rather than in the Turning Basin), the sediments (that would have been dredged from the Turning Basin) could settle and mix with previously contaminated sediments downstream, and dredging in those areas could potentially release contaminants from existing sediments downstream of the project area. Dissolved oxygen (DO) concentrations tend to decline in the vicinity of dredging operations when the suspension of anoxic sediments creates high chemical oxygen demand. Temporary decreases in DO associated with increased suspended sediments are possible in the immediate dredging plume area. However, DO in the Duwamish River during the winter months (when dredging would occur) would not be expected to be a limiting factor due to the cooler conditions and consequent higher DO concentrations expected in these waters (based on USGS data cited in Section 5.3, mean concentrations of DO between October and February are 9.4–12.1 mg/l). Further, it is not likely that sediments to be dredged are strongly anoxic because the bulk of the sediment to be dredged is expected to have a very low percentage of fine sediments (areas DA 4 and DA 5 contain 8.7 and 6.4 percent fines, respectively).

In the short term, temporary effects of decreases in DO could include avoidance of the dredging area by mobile aquatic organisms and reduced foraging during and immediately after dredging as fish avoid areas of temporarily depressed dissolved oxygen. The majority of juvenile salmonids will not be exposed to reduced dissolved oxygen conditions due to the timing of dredging between December 1 and February 14. However, some early out-migrating Chinook salmon juveniles (late January and February) could potentially be exposed to effects of the dredge plume if dredging were to extend beyond January 15.

5.5 Invertebrates, Fish and Wildlife.

No dredging will occur during the fish closure window for the Duwamish, February 15 to November 30. Benthic communities in the areas to be dredged have been influenced by previous dredging operations. These communities will be altered once again by this dredging cycle, but are expected to rapidly return to their present condition. Demersal fish are expected to be temporarily displaced by dredging, but little or no mortalities should occur. Waterbirds will be temporarily displaced, but impacts will be negligible as they have the entire Puget Sound with a greater source of food to relocate too during the construction of the project.

Placement of dredged material at the disposal site will also result in a physical impact that will reduce populations of sessile benthic infauna, thereby reducing, at least in the short-term, contributions of this community to the aquatic food web. However, the numbers of these infaunal organisms in these populations are relatively low at the disposal site, and recolonization is expected to begin soon after disposal operations are completed. Certain species of mobile epibenthic organisms will escape the immediate impact area of the disposal. Individual and cumulative physical effects on benthic infauna should not be significant.

5.6 Endangered and Threatened Species.

Biological Assessments (BAs) have been prepared for this project and the Elliott Bay disposal site. Impacts to these species are detailed in the BAs. A concurrence letter for the FY07-FY11 dredging was received from USFWS on January 12, 2006. The Corps is still in consultation with NMFS as of this draft environmental assessment. In general, dredging and disposal operations could disrupt feeding or migration behavior. However, these operations are temporary and limited to a small segment of the navigation channel (2100 feet) and to an approved disposal site. The BAs concluded that for each of the threatened and endangered species, the proposed dredging and disposal operations may affect but would not adversely affect the species or their critical habitats. Conservation measures to protect Chinook salmon and bull trout include avoiding operations between February 15 and November 30 and use of a clamshell dredge. In addition, dredging and disposal operations are to be in conformance with PSDDA management standards and water quality standards.

5.7 Indian Treaty Rights.

Project dredging operations will be performed at times that do not conflict with either treaty Indian fishing activities or major fish runs on the Duwamish River. There will be no impacts to Indian treaty fishing rights. The lower Duwamish River is within the usual and accustomed fishing areas for the Muckleshoot Tribe. The Corps is working closely with the Muckleshoot Tribe to ensure all concerns regarding the maintenance dredging in the navigation channel and turning basin are well coordinated..

5.8 Historic and Cultural Resources

The proposed maintenance dredging does not deepen, widen, or otherwise change the location or configuration of the established navigation channel, turning basin, or disposal sites.

Based on previous research by the Corps archaeologist and review of the dredging and disposal locations by the Muckleshoot Tribe, there does not appear to be any cultural resources located associated with the turning basin, the navigation channel, or the potential disposal sites. Similarly, there are no cultural resources listed for the project area that are eligible for the National Register. This information was previously coordinated with the State Historic Preservation Office in March 1988.

5.9 Disposal Area Environment.

Impacts from disposal of dredged material at the approved Elliott Bay disposal site have been evaluated in detail in the PSDDA Phase I EIS. No significant impacts on the disposal area benthos or water quality are anticipated.

5.10 Permit Requirements.

The proposed project complies with Section 404(b)(1) guidelines of the Clean Water Act. The Section 404 (b)(1) evaluation for the PSDDA program addresses the placement of dredged material. A copy of the Water Quality Certification and extension from the Washington Department of Ecology, will be attached to the Section 404 (b)(1) analysis. The certification is contingent upon conditions outlined in the 404 (b)(1) evaluation. The project is consistent with the Federal Coastal Zone Management Act of 1972 and the State of Washington Shoreline Management Act of 1971 (Chapter 90.58 RCW).

6.0 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects of the proposed projects include: 1) the disruption of local and tourist boat traffic by the dredging and disposal vessels; (2) noise disturbance to fish, wildlife, and recreational users in the vicinity of the dredging and disposal vessels; (3) mortality of sessile and mobile benthic and epibenthic fish and invertebrates within the sediments during dredging of the settling basins and navigation channel and during disposal at the PSSDA open water site. Given the temporary, localized, and discountable nature of these effects, they are not considered significant.

7.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed maintenance dredging and disposal project would not entail any significant irretrievable or irreversible commitments of resources. Dredging and disposal work would require use of existing machinery and use of existing, licensed and permitted disposal sites.

8.0 CUMULATIVE IMPACTS

Cumulative impacts result from the “individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). NEPA requires the evaluation of cumulative impacts of the proposed dredging and disposal operations in light of past, current,

and reasonably foreseeable future actions within the lower Duwamish River. Actions with the highest potential for cumulative impacts in this area are continuation of commercial and recreational vessels utilizing the lower Duwamish River via the navigation channel, coupled with repeated dredging of the navigation channel and turning basin, and disposal of dredged material generated by dredging operations.

The human community is positively affected by past, present, and future dredging actions through the safeguarding of navigation within the River and the continuation of commercial and recreational vessel use of the lower river. All dredging in the lower river removes shoaled sediments that would otherwise hinder safe navigation especially at adjacent industrial, commercial, and recreational piers. By removing potentially hazardous areas of shoaling and by maintaining the authorized depth of the navigation channel, the cumulative effects of dredging supports the present and future economic and recreational use of the area. These cumulative effects are not expected to increase due to the proposed maintenance dredging; rather they are a continuation of the current type and intensity of human use of the lower Duwamish River and its adjacent lands.

However, the repetition of dredging actions over time has contributed to degradation of the biological function of the navigation channel and turning basin from its historic condition. In combination with the extensive diking and draining of adjacent lands within the floodplain, the deepening of the main channel of the river has disconnected the river from its floodplain. This has limited the formation of habitats associated with intertidal salt marshes and large woody debris, and supported urban land uses along the river's edge by increasing the conveyance of floodwaters and sediment downstream and off of adjacent lands.

The cumulative effects of maintenance dredging projects on federally listed species as a measure of the capability of the river system to support imperiled species are expected to be minimal. Minimal effects on bull trout, Puget Sound Chinook salmon, Steller sea lions, bald eagles, and marbled Murrelet are expected because the dredging and disposal would occur within the fish window of December 1 to February 14, and so would largely avoid effects on juvenile salmonids. Cumulative effects would also be minimized on bald eagles, marbled Murrelet, and Steller sea lions by avoiding disturbance in and around local nests or haul out areas and by avoiding disruptions of the local prey base through appropriate timing of work windows.

The combination of mitigation measures to reduce negative effects reduces the cumulative, short-term impacts of this project (and likely other similar maintenance dredging projects conducted by other entities) to an insignificant level. These measures include: project timing to reduce impacts to salmonids and associated food web effects, BMPs during dredging and disposal to minimize water quality effects, and monitoring of water quality conditions during dredging and return of water to the river. In the context of past dredging activities and the general degree of industrialization of the floodplain lands along the lower river, the current rounds of maintenance dredging will cause only a small incremental impact to biological functions and floodplain connectivity. The impacts would likely be so small as to be immeasurable. The Corps therefore concluded there will be no significant contribution from past, present or future cumulative effects associated with the proposed maintenance dredging and disposal actions.

9.0 ENVIRONMENTAL COMPLIANCE

Table 3. Summary of Environmental Compliance

LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES	ISSUES ADDRESSED	CONSISTENCY OF PREFERRED ALTERNATIVE
National Environmental Policy Act (NEPA) 42 U.S.C. 4321 et seq.	Requires all federal agencies to consider the environmental effects of their actions and to seek to minimize negative impacts	Consistent per FONSI and EA document
State Environmental Policy Act (SEPA) RCW 43.21	Requires state agencies to consider the environmental effects of their actions and actions of permit applicants.	Not required of Federal Projects
Clean Water Act (CWA) 33 U.S.C. 1251 et seq.; Section 404	Requires federal agencies to protect waters of the United States. Disallows the placement of dredged or fill material into waters (and excavation) unless it can be demonstrated there are no reasonable alternatives.	Consistent per 404(b)(1) Evaluation; see Appendix A in final EA
Clean Water Act Section 401	Requires federal agencies to comply with state water quality standards.	Consistent with 401 permit requirements as issued by Washington Department of Ecology; see Appendix A in final EA
Fish and Wildlife Coordination Act 16 U.S.C. 661 et seq.	Requires federal agencies to consult with the US Fish & Wildlife Service on any activity that could affect fish or wildlife.	Not required for maintenance activities
Endangered Species Act 16 U.S.C. 1531 et seq.;	Requires federal agencies to protect listed species and consult with USFWS or NMFS regarding the proposed action.	Consistent based on concurrence of USFWS. Consultation with NOAA Fisheries is ongoing, and will be completed prior to any dredging activities.
National Historic Preservation Act 16 U.S.C. 461;	Requires federal agencies to identify and protect cultural and historic resources.	Consistent based on SHPO determination of no effect
Shoreline Management Act (SMA) and Shoreline Management Program (SMP) RCW 90.58, WAC 173-14	State law implementing the Coastal Zone Mgmt Act requiring local jurisdictions to plan and protect shorelines.	Consistent with King County Shoreline Management Program
Coastal Zone Management Act (CZMA) 16 U.S.C. 1451 et seq.; 15 CFR 923	Requires federal agencies to comply with state and local plans to protect and enhance coastal zone and shorelines.	Consistent to the maximum extent practicable
Washington Hydraulic Code	Requires proponents of developments, etc to protect state waters, wetlands and fish life.	Not required on federal dredging projects
Executive Order 11988: Floodplain Management Guidelines	Requires federal agencies to evaluate the potential effects of actions on floodplains and to avoid undertaking actions that directly or indirectly induce growth in the floodplain or adversely effect natural floodplain values	Consistent, project will not induce growth in floodplain or affect natural floodplain values compared to existing conditions
Executive Order 11990: Protection of Wetlands	Encourages federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands when undertaking federal activities and programs	Consistent, no destruction, loss, or long-term degradation of wetlands as a result of the maintenance dredging or disposal
Executive Order 12898: Environmental Justice	Requires federal agencies to consider and address environmental justice by identifying and assessing whether agency actions may have disproportionately high and adverse human health or environmental effects on minority or low-income populations	Consistent due to lack of adverse human health or environmental effects on minority or low-income populations in local area

10.0 COORDINATION.

The Public Notice covering the proposed project was issued on July 28, 2006. Seattle District has coordinated with federal and state agencies and tribes regarding maintenance dredging in the Duwamish River. Coordination activities will be continued during this FY-2007 maintenance-dredging year, and in future years. Based on the accompanying Section 404(b)(1) evaluation, dredging and disposal will be in accordance with Section 404 of the Clean Water Act (CWA). All comments will be addressed in the final EA.

11.0 REFERENCES

Corps of Engineers, Seattle District. 1973. Environmental Impact Statement. Seattle Harbor Federal Navigation Project.

Corps of Engineers, Seattle District. 1979. Supplemental Environmental Impact Statement. Seattle Harbor Federal Navigation Project.

Corps of Engineers, Seattle District. 1983. Final Environmental Impact Statement. Seattle Harbor Federal Navigation Project.

Corps of Engineers, Seattle District. 1988. Environmental Impact Statement. Elliott Bay PSDDA open-water disposal site – Phase I.

Corps of Engineers, Seattle District. 1992, 1996, 1999, and 2002. Environmental Assessments. Seattle Harbor Federal Navigation Project.

Corps of Engineers, Seattle District. 2005. Biological Assessment. FY 2007–2011 Maintenance Dredging, Turning Basin and Navigational Channel, Upper Duwamish Waterway. November.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

August 8, 2006

CENWS-PM-PL-ER

**Fiscal Years 2007–2011 Maintenance Dredging, Duwamish River
Navigation Channel and Turning Basin, Seattle Washington**

Draft Finding of No Significant Impact

Background.

The project described by this environmental assessment (EA) is a component of the Seattle Harbor Federal Navigation Project, providing maintenance of a navigation channel in the upper Duwamish Waterway (Figure 1). Without annual maintenance dredging, shoaling would lead to a shallower channel that would reduce the ability of large ships to enter and leave safely. Dredging is accomplished using clamshell equipment, loading the dredged materials on to bottom dump barges.

Federal maintenance dredging is required on a one to three year frequency in the upper Duwamish Waterway to remove annually shoaling river sediments. Over the next one to five years, the Corps of Engineers proposes to dredge approximately 100,000 to 200,000 cubic yards between stations 254+00 and 275+56 during each dredging cycle.

Proposed Action.

Public Notice CENWS-OD-TS-NS-26 dated July 28, 2006, describes the maintenance dredging by clamshell of an estimated 100,000 to 200,000 cubic yards (cy) of sand and silt from the navigation channel. The public notice covers a 5-year period (FY 2007 - 20011) of maintenance dredging with dredging occurring every one to three years during this period. The proposed dredging in FY 2007 includes approximately 100,000 to 200,000 cy of silt and sand in the upper turning basin between stations 254+00 and 275+56.

Disposal of dredged materials is proposed at the Washington State Department Natural Resources managed Puget Sound Dredged Disposal Analysis (PSDDA) open water site in Elliott Bay. This site is located at 47 degrees 35.96 minutes' north latitude and 122 degrees 21.45 minutes' west longitude. A suitability determination by the Dredged Material Management Program agencies (Corps, EPA, Ecology and DNR) indicated that the material in the turning basin is suitable for open-water disposal at the Elliott Bay non-dispersive open water disposal site.

Disposal activities will be conducted in accordance with established criteria for the site. Dredging and disposal activities are scheduled to be performed between December 1 and

February 14, 2007. If beneficial disposal uses can be identified, the material will be made available.

Disposal activities at the PSSDA open water site will be conducted in accordance with established criteria for these sites, as detailed in their respective Biological Assessments and concurrence letters which are incorporate herein by reference.

Summary of Impacts.

A draft Environmental Assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) for the proposed action and is attached. The draft EA describes the environmental consequences of the project, which are briefly summarized below.

Impacts from the dredging and disposal activities will generally be highly localized in nature, short in duration, and minor in scope. While there will be a loss of subtidal habitats for benthic invertebrates and demersal fish species, this loss is expected to be temporary as these areas continuously reshore and benthic populations are expected to recolonize the dredged areas quickly. There would likely be small-scale, temporary increases in turbidity and decreases in dissolved oxygen within the river channel as a result of dredging activities. Increases in turbidity and dissolved oxygen impacts will be localized and temporary. In order to reduce these impacts and potential related effects on juvenile salmonids in the river, all 'in-water' construction work will take place between December 1 and February 14 of each year. Avoiding 'in-water' work during peak salmonid out migration periods (generally between February 15 and July 15) would minimize the short-term effects of the project on juvenile salmonids and allow for maximum recovery of the benthic, epibenthic, and forage fish communities prior to the subsequent year's juvenile salmonid out migration period. Impacts from this navigation project should not be significant, either individually or cumulatively. The in-water construction of this project would occur when federally listed threatened juvenile and adult Puget Sound Chinook salmon and Coastal/Puget Sound bull trout are least likely to be present in the Duwamish River, and during the portion of the year when bald eagles are not nesting and are most tolerant of disturbance. The Corps has received concurrence with a 'may effect, but not likely to adversely effect' determination for listed species in relation to this project via concurrence letters dated January 12, 2006 from USFWS (for the fiscal year 2007 - 2011 dredging cycle) and will conclude consultation with NOAA Fisheries prior to any dredging.

There will be no loss of intertidal mudflat or marsh habitats. Impacts to the human environment would also be temporary and localized. There will be no effect on known historic and cultural resource sites. There will be no adverse impacts to fishing rights of Native American Tribes. Dredging and disposal vessels may temporarily disrupt local boat traffic, increase air emissions and noise in the vicinity of the dredging and disposal sites, and decrease the aesthetic attractiveness of the general area during dredging. Noise, traffic, and air quality issues will be managed through implementation of appropriate control plans. Thus, these impacts will be temporary and highly localized. The project will receive a 401 water quality certification before any dredging begins.

Finding.

Based on the analysis detailed in the draft EA (attached) and summarized above I have determined that the proposed project will not result in significant adverse environmental impacts, does not constitute a major Federal action significantly affecting the quality of the human environment and, therefore, does not require preparation of an environmental impact statement.

Date

Michael McCormick
Colonel, Corps of Engineers
District Engineer

DRAFT