

**DRAFT ENVIRONMENTAL IMPACT STATEMENT  
SR 520 BRIDGE REPLACEMENT AND HOV PROGRAM**

MAY 2010

## **SR 520 Pontoon Construction Project**

# **Navigable Waterways Technical Memorandum**



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THE INFORMATION IN THIS REPORT IS ACCURATE; HOWEVER, THE PONTOON CONSTRUCTION PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT IS THE SOURCE OF THE MOST CURRENT PROJECT INFORMATION AND ANALYSIS.



# SR 520 Pontoon Construction Project Draft Environmental Impact Statement

## Navigable Waterways Technical Memorandum

Prepared for

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## Abbreviations and Acronyms

CFR	Code of Federal Regulations
Coast Guard	U.S. Coast Guard
CTC	Concrete Technology Corporation, Inc.
EIS	environmental impact statement
HOV	high-occupancy vehicle
LOLO (lo-lo)	lift on-lift off
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
O-B-O	a multipurpose ship that can carry ore, heavy dry bulk products, and oil
RCW	Revised Code of Washington
RORO (ro-ro)	roll-on/roll-off
USACE	U.S. Army Corps of Engineers
VTS	Vessel Traffic Service
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation



# 1. Introduction

Federal regulations define navigable waterways as those waters that are subject to the ebb and flow of the tide and/or are used for the transport of interstate or foreign commerce either historically, currently, or in the future (33 CFR Part 329). This definition interprets interstate and foreign commerce very broadly—it is only necessary that goods transported on these waterways be brought from, or eventually destined for, another state or country. The kinds of goods involved in interstate or foreign commerce are diverse, typically reflecting the region where the navigable waterway is located. A historical example of interstate commerce in the Grays Harbor study area is the shipping of timber products and fish from the local communities to Seattle, Portland, Oregon, and California.

Once a waterway is designated as a navigable waterway (meaning that it is sufficiently wide, deep, and free from obstructions to allow travel by vessels), the designation is not allowed to be violated or changed by current or future actions or events that interfere with or prevent vessel movement. A designation of navigability covers the entire surface extent of the water body. The movement of goods by ship and barge, as well as the widespread recreational use of Grays Harbor and Puget Sound area, depend on the navigation channels that are maintained in these water bodies to provide passage to commercial- and recreational-ship and boat traffic.

Both the U.S. Coast Guard (Coast Guard) and the U.S. Army Corps of Engineers (USACE) are responsible for identifying and maintaining navigation channels in U.S. waters such as Grays Harbor and the Puget Sound. Both agencies operate programs affecting various aspects of navigation and navigability, and must establish the reach of navigability covered by their programs. For example, the Coast Guard operates the Sector Seattle Vessel Traffic Service (VTS) to direct and enforce vessel movement and “rules of the road.” The Sector Seattle VTS maintains and directs vessel movement from the entrance of the Strait of Juan de Fuca to the southern portion of Puget Sound. Vessels traveling between Grays Harbor and the entrance to the Strait of Juan de Fuca operate under International Rules of the Road while they are in international waters (more than 3 miles off the coast of Washington state) and both International and the Inland Rules of the Road when they pass into Puget Sound. USACE administers a permitting program under the 1899 Rivers and Harbors Act that regulates structures and other work in navigable waters. Like the Coast Guard, USACE is required to inventory and publish a list of navigable waters (USACE 2009).

## **Why are navigable waterways considered in an EIS?**

An environmental impact statement (EIS) considers navigable waterways because they are an important part of the human environment as defined by the federal regulations implementing the National Environmental Policy Act (NEPA) (40 CFR 1508.14). Navigable waterways are crucial to maintaining safe and efficient water-dependent transportation, commerce, and recreation. Because the proposed project would require the use of navigable waterways, this

EIS must evaluate the potential for project-related effects on those waterways and for mitigating any effects that could be substantial and adverse.

### **What are the key points of this technical memorandum?**

The Washington State Department of Transportation (WSDOT) proposes building a casting basin facility at one of two alternative sites in the Grays Harbor area to manufacture large concrete floating bridge pontoons needed to replace the floating portion of the Evergreen Point Bridge in the event of a catastrophic failure or to support the planned bridge replacement. The Concrete Technology Corporation, Inc. (CTC) casting basin in Tacoma could be used primarily to build smaller pontoons while the Grays Harbor casting basin is being built. The completed pontoons would be moored at locations in Grays Harbor and in Puget Sound until needed.

Effects on navigation during the construction phase of either build alternative could involve vessels transporting needed construction materials to the Port of Grays Harbor. Effects during project operation would relate to towing the completed pontoons to their moorage sites in Grays Harbor and Puget Sound. Long-term project effects on navigable waterways would relate to pontoon moorage. Once all pontoons have been moved from their storage and moorage locations to the bridge construction sites, no long-term effects are envisioned from the casting basin facility remaining in place after pontoon production is complete while under the control of WSDOT.

Operating either build alternative would result in pontoons being moved through existing navigation channels and stored for possible multiyear periods in both Grays Harbor and Puget Sound at locations removed from shipping lanes. While multiyear storage of pontoons is possible at the potential moorage site, no plans exist to permanently moor pontoons.

The key points of this technical memorandum are as follows:

- Differences in effects on navigable waterways from using the Anderson & Middleton Alternative or Aberdeen Log Yard Alternative sites would be minor. Both alternatives include potential construction at the CTC facility and storage at the same mooring locations in Puget Sound and Grays Harbor. The only difference would be the transport of completed Grays Harbor pontoons between the short section of Grays Harbor separating the Aberdeen Log Yard and Anderson & Middleton sites.
- The navigational waters analyst determined that, in general, any changes in vessel movement or frequency during pontoon movement and long-term moorage would be negligible and discountable.
- WSDOT has designed mitigation measures in accordance with all appropriate Coast Guard regulations concerning nonpowered vessel movement (towing) and mooring storage. Instituting these practices would avoid any negative effects from moving and mooring pontoons identified in this proposed project. Based on these analyses, compensation for unavoidable negative effects would not be required.

## What are the project alternatives?

The Pontoon Construction Project Draft EIS evaluates two build alternatives that would involve constructing a new casting basin in Grays Harbor and one No Build Alternative. Two waterfront sites in the Grays Harbor area are being evaluated for the new casting basin facility:

- Anderson & Middleton property in Hoquiam
- Aberdeen Log Yard property in Aberdeen

The new Grays Harbor casting basin facility could produce all 33 pontoons needed for this project: 21 longitudinal pontoons (360 feet long by 75 feet wide), 10 supplemental stability pontoons (98 feet long by 60 feet wide), and 2 cross pontoons (240 feet long by 75 feet wide). To expedite pontoon construction, however, each build alternative could include using the CTC casting basin facility in Tacoma to build pontoons while the new casting basin facility at Grays Harbor is being constructed. If used, the CTC facility, which has a limited operations area, could build up to three longitudinal pontoons and up to ten supplemental stability pontoons.

WSDOT would float most of the completed pontoons built at the new casting basin facility out of the casting basin and tow them to a moorage location in the Grays Harbor area. The last pontoons built would be stored in the casting basin until needed. Any pontoons constructed at the CTC facility would be moored at existing marine berths in Puget Sound.

After the project is completed, the new casting basin would be available to produce additional pontoons needed for the planned Evergreen Point Bridge replacement, a component of the I-5 to Medina: Bridge Replacement and High-Occupancy Vehicle (HOV) Project. Pontoons for other WSDOT bridge replacement projects in the future could also be produced at this facility.

Each alternative is described below. For more details, see the Description of Alternatives and Construction Techniques Discipline Report (WSDOT 2009), included as Appendix B to the Draft EIS.

### Site Descriptions

#### Anderson & Middleton Alternative

The 105-acre Anderson & Middleton Alternative site is on the north shore of Grays Harbor in Hoquiam, Washington (Exhibit 1). This generally flat property is privately owned and is zoned for industrial use. The site is surrounded by industrial maintenance shop buildings to the west, railroad tracks to the north, and vacant industrial property to the east; a rock berm borders the shoreline. The Anderson & Middleton site has no structures on it except for an existing small office building on the northern edge of the property. The site also has some gravel roads and an asphalt pad remaining from its former use as a log sorting yard. WSDOT

#### What is a casting basin facility?

Pontoons for this project would be built at a casting basin facility. The facility would consist of a casting basin (a large chamber in which pontoons are constructed, see the next text box for a more thorough description) and several supporting facilities, such as a batch plant to produce concrete, access roads, storage and laydown areas, office space for workers, and water treatment facilities.

would purchase 95 acres of this site for the project, and the casting basin and support facilities would occupy the eastern half of the site, amounting to approximately 55 acres.

Historically this site has been used for lumber industry activities. In the early twentieth century there was a sawmill and other related facilities, such as machine shops and burners, west of what was then an extension of 8th Street. Over the next several decades, fill from harbor dredging and refuse accumulation increased the land area of the site. By the late 1960s, the former mill structures were all gone. Since then, the site has been used for timber storage.

### **Aberdeen Log Yard Alternative**

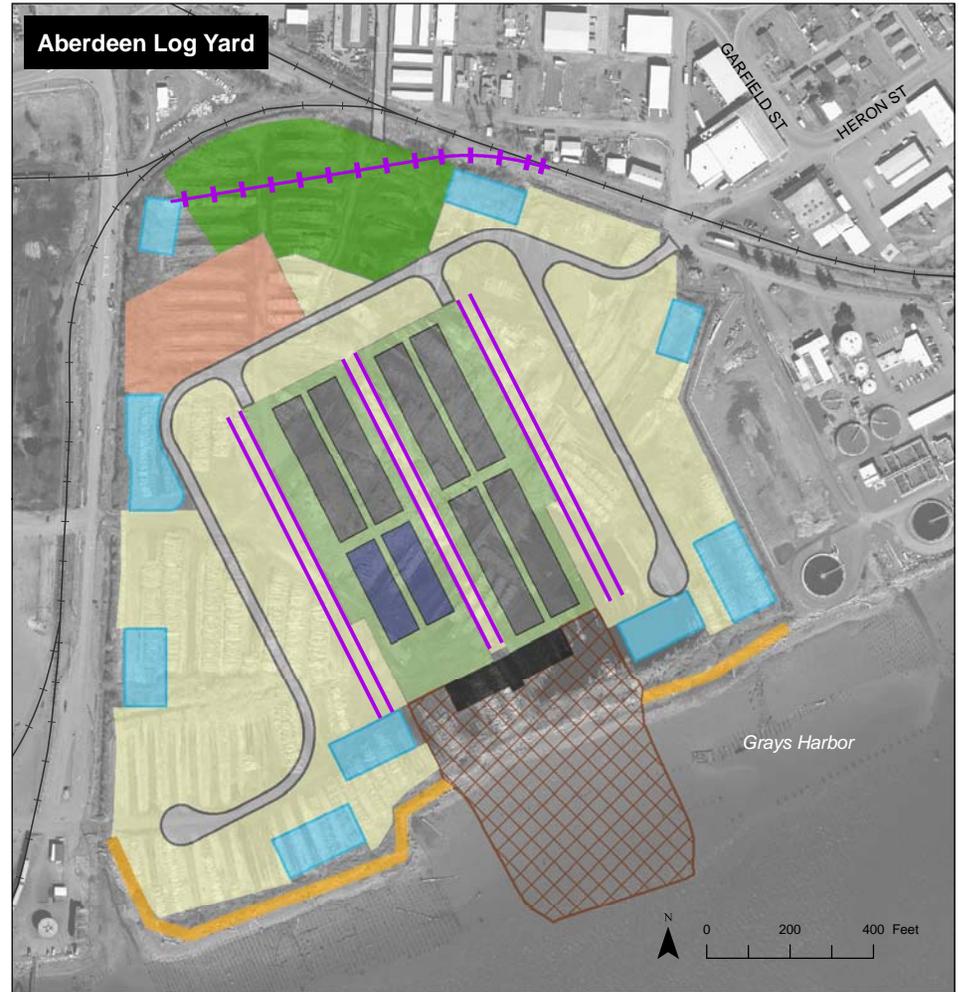
The 51-acre Aberdeen Log Yard Alternative site lies on the north shore of Grays Harbor in Aberdeen, Washington, near the mouth of the Chehalis River (Exhibit 1). This generally flat site is zoned industrial and is currently owned and used for log storage by Weyerhaeuser Corporation. There are no structures on the site now but there is a system of unpaved access roads connecting to East Terminal Road to the west and State Street to the northeast. Immediately west of the site is paved Port of Grays Harbor industrially zoned property, the City of Aberdeen wastewater treatment plant borders the eastern boundary, and the Puget Sound & Pacific Railroad mainline and siding run along the northern boundary of the site. WSDOT would purchase all 51 acres, and the casting basin and support facilities would occupy the entire site.

Two sawmills operated on the site in the last century, but since 1971, the site has been used mostly for log storage. All former sawmill-related structures have been demolished. Between 1971 and 1981, the shoreline was extended to the south through backfilling with sediments dredged from the Chehalis River, accumulated wood waste, and other fill material.

### **No Build Alternative**

For the Pontoon Construction Project, the No Build Alternative is continued existing conditions and uses at all proposed alternative sites. Specifically, this means that WSDOT would not construct or store any pontoons—either at a new Grays Harbor facility or at the existing Tacoma CTC facility—needed to respond to a catastrophic failure of the Evergreen Point Bridge. As a result, any environmental effects resulting from the proposed project activities would not occur.

For this Draft EIS, WSDOT assumes that, if unused by this project, the alternative site properties would continue to be used as they are today: the Aberdeen Log Yard would remain an active log yard, the Anderson & Middleton site would remain largely inactive, and the CTC site would be used as a casting basin for other projects and clients. While either Grays Harbor site could be developed for new uses should this project not occur, the use of these properties has remained unchanged since the 1990s. Potential future uses for these two properties, other than our proposed project, are speculative and therefore not considered under the No Build Alternative.



- Crane rail
- Proposed rail spur
- Existing railroad
- CTC facility limits
- Cross pontoon
- Longitudinal pontoon
- Water treatment area
- Access road
- Batch plant
- Berm
- Casting basin
- Dry storage and laydown area
- Gate
- Launch channel
- Office and parking

Source: WSDOT (2005, 2006) Aerial Photo, USDA-FSA (2006) Aerial Photo, Grays Harbor County (2006) GIS Data (Roads), Horizontal datum for all layers is State Plane Washington South NAD 83; vertical datum for layers is NAVD88.

### Exhibit 1. Locations and Conceptual Layouts for Build Alternative Sites

Pontoon Construction Project



## Key Components of Both Build Alternatives

Both build alternatives would carry out the proposed action by constructing a casting basin in the Grays Harbor area. Use of the existing CTC facility in Tacoma to produce pontoons while the new casting basin is constructed could also occur.

### Potential Use of the Existing CTC Casting Basin Facility

The existing CTC facility is adjacent to the Blair Waterway on the eastern edge of Commencement Bay in Tacoma (Exhibit 1). This casting basin is too small to accommodate the timely construction of the pontoons required for the Pontoon Construction Project, but WSDOT could use this facility to supplement pontoon construction at the larger casting basin proposed in the Grays Harbor area. The pontoons manufactured at the CTC facility would most likely be the smaller supplemental stability pontoons.

WSDOT would moor the pontoons built at the CTC facility at existing marine berths in Puget Sound, subject to availability.

### Proposed Grays Harbor Casting Basin

The design of the proposed Grays Harbor casting basin would be basically the same at both build alternative sites, with variations depending on site-specific features. (See the Description of Alternatives and Construction Techniques Discipline Report [WSDOT 2009] for information on the casting basin conceptual design.) The casting basin would be positioned a few hundred feet from the shoreline and partitioned into two separate work areas—called chambers—connected to the water by a single launch channel. The launch channel would consist of an onshore portion excavated between the casting basin and shoreline, a breach in the shoreline berm, and a dredged channel extending offshore to the federal navigation channel in Grays Harbor.

Up to four concrete pontoons could be cast and cured in each of the two chambers of the partitioned casting basin, allowing pontoon construction to be phased for efficiency. That is, while the second chamber is under construction, pontoon construction could be initiated in the first partitioned chamber as soon it was completed. Two reinforced floating concrete gates leading to each chamber would allow each to be independently flooded and drained, as well as control access to the launch channel.

Constructing a casting basin facility at either Grays Harbor build alternative site would require heavy construction activities to transform the vacant land into an industrial facility. Such activities include, but would not be limited to, the following:

- Grading (leveling) the site and excavating the casting basin
- Pile-driving to install support piles for the casting basin floor
- Paving onsite access roads

#### What is a casting basin?

A casting basin is a construction facility built next to a navigable waterway that consists of a concrete slab built deep below ground level and surrounded by high concrete walls. The interior area of the casting basin provides a flat dry space where several pontoons can be constructed side by side at the same time. After the pontoons are completed, the basin is flooded. The basin walls contain the flood water, allowing the pontoons to float. When the pontoons are floating, a gate is opened and the pontoons are towed from the casting basin into navigable waters.

- Making multiple truck trips for hauling materials to and from the site
- Dewatering the soils during casting basin construction

All stormwater, process water, and groundwater collected onsite would be handled and treated in accordance with state water quality requirements and discharged to Grays Harbor. Project engineers are designing a water supply, distribution, and treatment system for each site to meet state standards.

### **Dewatering**

WSDOT would install two different dewatering systems to remove groundwater from the casting basin work area at either build alternative site. Before and during casting basin construction, a temporary construction dewatering system would operate at the site. During pontoon-building operations and after the Pontoon Construction Project is completed (but while the site is still maintained by WSDOT), a permanent operation dewatering system would operate.

### **Operational Support Facilities**

To support the use of the casting basin, each build alternative would include onsite operational support facilities such as an access road, a concrete batch plant, large laydown areas, water handling and treatment areas, office space, a rail spur, and a designated parking area for workers.

### **Pontoon Towing and Moorage**

If WSDOT uses the existing CTC facility in Tacoma, it would moor the pontoons built there at existing marine berths in Puget Sound. Using these berths would be subject to availability, but there are several locations in the Puget Sound region that could accommodate this project's needs. The first two cycles of eight pontoons manufactured at the new Grays Harbor casting basin facility would be towed from the casting basin and moored in the Grays Harbor area outside of navigation channels. The last construction cycle of pontoons could be stored in the dry casting basin behind the closed gate.

For the pontoons to be moored in the Grays Harbor area, there are several existing berths that WSDOT could lease for pontoon moorage, if available when needed. In addition, WSDOT has identified another potential moorage location—open water moorage in outer Grays Harbor. Please see the Description of Alternatives and Construction Techniques Discipline Report (WSDOT 2009) for more information on these potential moorage locations.

The constructed pontoons would be stored together until they are needed to replace the Evergreen Point Bridge in the event of a catastrophic failure, and they would be identified with navigation lighting in compliance with U.S. Coast Guard requirements.

### **Construction Schedule**

If WSDOT uses the existing CTC facility, pontoon construction would take 2 years there to complete. WSDOT would start site development for the new Grays Harbor casting basin facility about the same time pontoon construction begins at the CTC facility. For the Grays

Harbor facility, casting basin construction would take 2 years, as would pontoon construction. In total, overall pontoon project construction would span 4 years.

WSDOT anticipates that it would take approximately 6 to 9 months to complete a pontoon construction cycle at either the existing Tacoma facility or at the new Grays Harbor facility. The new Grays Harbor facility could produce eight pontoons during one cycle; as a result, two and a half pontoon construction cycles would be required to produce 20 pontoons. At the existing CTC facility, five supplemental stability pontoons could be constructed during each pontoon construction cycle, and one longitudinal pontoon could be constructed during a cycle. As a result, three construction cycles would be needed to produce ten supplemental stability pontoons and one longitudinal pontoon.

## 2. Affected Environment

The Thirteenth Coast Guard District (covering Washington, Oregon, Idaho, and Montana) has determined that navigable waterways in the study area consist of all waters within the District that are subject to tidal influence (for example, Grays Harbor and Puget Sound and their tributaries) (Coast Guard 2008). Exhibit 2 lists the navigable waterways that lie within the study area. Navigable waterways in the study area consist of three types of waterways that are most commonly used for navigation by all but the smallest of private vessels:

### What is the study area for navigable waterways?

The study area consists of the waters of Grays Harbor as well as the numerous major tributaries that flow into Grays Harbor.

- Unimproved waterways functionally used for navigation, with edges and approaches marked by the Coast Guard under the United States Aid to Navigation Program.
- Waterways where large merchant ships and other commercial and government vessels are under close radar and radio direction of the Coast Guard. In the study area, these waterways are under the control of the VTS.
- Designated navigation channels dredged or otherwise maintained as federal projects by USACE, marked by the Coast Guard, and charted by the National Oceanographic and Atmospheric Administration (NOAA). Two examples are the Grays Harbor, Chehalis River, and Hoquiam River Project and the Lake Washington Ship Canal.

### How did WSDOT collect information on navigable waterways?

Initially, the analyst identified the navigable waterways in the study area by reviewing the published navigability determinations of the Thirteenth Coast Guard District (Coast Guard 2008). To characterize the waterways use, the analyst then contacted people involved in local commercial shipping and recreational boating. The analyst then conducted telephone interviews with the local tugboat companies, construction and crane companies, treaty (Quinault Indian Nation) and nontreaty seafood operations (salmon and Dungeness crab fisheries as well as oyster growers), and Grays Harbor private marinas. From these interviews, the analyst identified the kinds and amounts of vessel traffic on these waterways.

**EXHIBIT 2**Individual Navigable Waterways Designated by the Thirteenth Coast Guard District in the Study Area<sup>a</sup>

<b>Body of Water or Location</b>	<b>Extent of Designated Navigability</b>	<b>Connection to Other Navigable Waterways</b>
Chehalis River	Navigable from mouth of the river 68 miles up river (referred to as river mile 68)	Flows into Grays Harbor
Grays Harbor	From Aberdeen (tidal) at Union Pacific Railroad Bridge to seaward end of bar channel, including all bays and sloughs to the elevation of mean high water	Pacific Ocean
Hoquiam River	Navigable to river mile 8	Flows into Grays Harbor at Hoquiam (tidal to about river mile 7)
Hoquiam River (East Fork)	Entire water body	Flows into Hoquiam River at Hoquiam (tidal to about river mile 6.5)
Humptulips River	Entire water body	Flows into Grays Harbor near Hoquiam (tidal at river mile 1)
Johns River	Navigable to river mile 4	Flows into Grays Harbor near Markham (tidal)
Pacific Ocean	International and U.S. waters	Grays Harbor and the Strait of Juan de Fuca, Haro Strait, Boundary Pass, and Georgia Strait
Haro Strait, Boundary Pass, and Georgia Strait	U.S. waters of each of the water bodies	Pacific Ocean and Puget Sound
Puget Sound	Entire water body	Strait of Juan de Fuca, Haro Strait, Boundary Pass, and Georgia Strait

<sup>a</sup>All waterways and locations presented in this exhibit are in the state of Washington.

The analyst contacted the cities of Montesano, Aberdeen, Cosmopolis, Hoquiam, Ocean Shores, and Westport; Grays Harbor County; the Grays Harbor Economic Development Council; and the Quinault Indian Nation Enterprise Board to learn about current and future plans for use of these navigable waterways for either commerce or development. The analyst also reviewed Washington State Board of Pilotage Commissioners Annual Reports from 2002 to 2007 to determine the general level of ship traffic in the study area. Exhibit 3 lists individuals who provided information for this study.

Information gathered from personal contacts was supplemented with a review of the following nautical charts published by the U.S. Department of Commerce and NOAA:

- Nautical Chart 18440 – Puget Sound (NOAA 2007a)
- Nautical Chart 18502 – Grays Harbor; Westhaven Cove (NOAA 2007b)

The analyst used these charts to identify navigation channels leading to and from the CTC site in Tacoma and the Grays Harbor sites.

**EXHIBIT 3**

Contact List for Identifying Navigation Uses in the Study Area

Company/Organization	Contact Name
<b>Navigation Uses in Grays Harbor</b>	
<b>Recreational</b>	
Port of Grays Harbor, West Port Marina	Robin Leraas
Quinault Indian Nation Enterprise Board, Ocean Shores Marina	Rudy Tsukuda
<b>Commercial and Industrial</b>	
Brusco Tug & Barge, Inc.	Sam Degner
Coast Seafoods/Grays Harbor/Willapa Bay Oyster Growers Association	Tim Morris
Quigg Bros., Inc.	John Quigg
Quinault Indian Nation Enterprise Board, Quinault Pride Seafood	Rudy Tsukuda
Port of Grays Harbor, Marine Terminals	Seth Taylor, Manager
Washington Dungeness Crab Fisherman's Association	Ray Toste
Washington Department of Fish and Wildlife, Commercial Fishing – Grays Harbor	Barbara McClellan
Weyerhaeuser Company, Cosmopolis Mill	Kate Tate
Washington State University Cooperative Extension, Water Quality and Marine Resources Programs	Steve Harbell
<b>Government</b>	
City of Montesano, Community Development	Mike Wincewicz, Director
City of Aberdeen, Planning and Economic Development Department	Lisa Scott, Community Development Manager
City of Cosmopolis, Community Development and Planning Department	Michael Tracy, Director
City of Hoquiam	Brian Shay, City Administrator
City of Hoquiam, Planning Department	Alissa Thurman
City of Ocean Shores	Dennis Morrisette, City Manager
City of Westport	Randy Lewis, City Administrator
Grays Harbor County, Planning and Building Division	Brian Shea, Director
Grays Harbor Economic Development Council, Business Development	Roger Milliman
<b>Navigation Uses in Puget Sound</b>	
Navigability Determinations for the Coast Guard, Thirteenth District of the Coast Guard	U.S. Coast Guard (2008)
Coast Guard Sector Seattle VTS	Receptionist
Puget Sound Pilotage District	Receptionist

## **What guiding plans and policies apply to navigable waterways in the study area?**

The following list summarizes the guiding plans and policies that the analyst consulted while studying the navigable waterways for the Pontoon Construction Project:

- U.S. Department of Homeland Security (1989), U.S. Coast Guard Navigational Rules – International-Inland (COMDTINST M16672.2D).
- Grays Harbor Pilotage District regulations
  - Washington Board of Pilotage Commissioners (2009), Tariffs and Pilotage Rates for the Grays Harbor Pilotage District (WAC 363-116-185); CR-102 (June 2004), which implements RCW 34.05.320. 2004.
  - Port of Grays Harbor (2009), Grays Harbor Pilotage District Tariff.
  - WAC 363-116-410, Definition of Grays Harbor Pilotage District.
- Definitions of the extent of navigable waterways
  - Coast Guard (date unknown), Navigability Determinations for the Thirteenth District, Exhibit 11-K-1.
  - USACE Seattle District (2008), rivers, bayou, creeks, harbors, bays, lakes, canals, sounds, and intracoastal waterways.
- Coast Guard regulations for navigation (see Washington-specific regulations in Attachment A of this technical memorandum)
  - 33 CFR 80 – COLREGS Demarcation Lines (Coast Guard 2009a)
  - 33 CFR 110 – Anchorage Regulations (Coast Guard 2009b)
  - 33 CFR 161 – Vessel Traffic Management (Coast Guard 2009c)
  - 33 CFR 162 – Inland Waterways Navigation Regulations (Coast Guard 2009d)
  - 33 CFR 165 – Regulated Navigation Areas and Limited Access Areas (Coast Guard 2009e)
  - 33 CFR 166 – Shipping Safety Fairways (Coast Guard 2009f)
  - 33 CFR 167 – Offshore Traffic Separation Schemes (Coast Guard 2009g)
  - 33 CFR 168 – Escort Requirements for Certain Tankers (Coast Guard 2009h)
  - 33 CFR 169 – Ship Reporting Systems (Coast Guard 2009i)

## **What are the existing navigable waterway characteristics of the study area?**

### **CTC Facility**

The CTC facility is located within an approximately 3-square-mile area of land zoned as an industrial center Tacoma's Blair Waterway. This waterway is connected to Commencement

Bay and then to the south Puget Sound, which are also evaluated as navigable waterways in this analysis. The CTC facility, which is fully constructed and operating, is routinely used for industrial activities, including the building of pontoons and other concrete floating structures.

### **Grays Harbor Build Alternatives**

This technical memorandum focuses on waterways in those portions of the study area where commercial ships and recreational boats travel (Exhibit 4), and consequently where navigation could be affected by project activities. Specifically, these waterways include the following:

- Grays Harbor
  - Pontoon site construction
  - Pontoon transportation
  - Pontoon moorage
- Puget Sound
  - Pontoon transportation
  - Pontoon moorage

To characterize these different navigable waterways, the analyst asked three questions:

- What are the existing navigation channels?
- What are the current limits on ship passage?
- What is the current vessel traffic?

#### **How are these navigable waterways managed?**

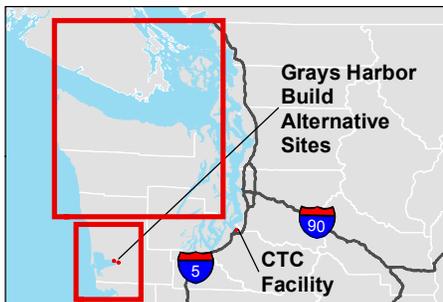
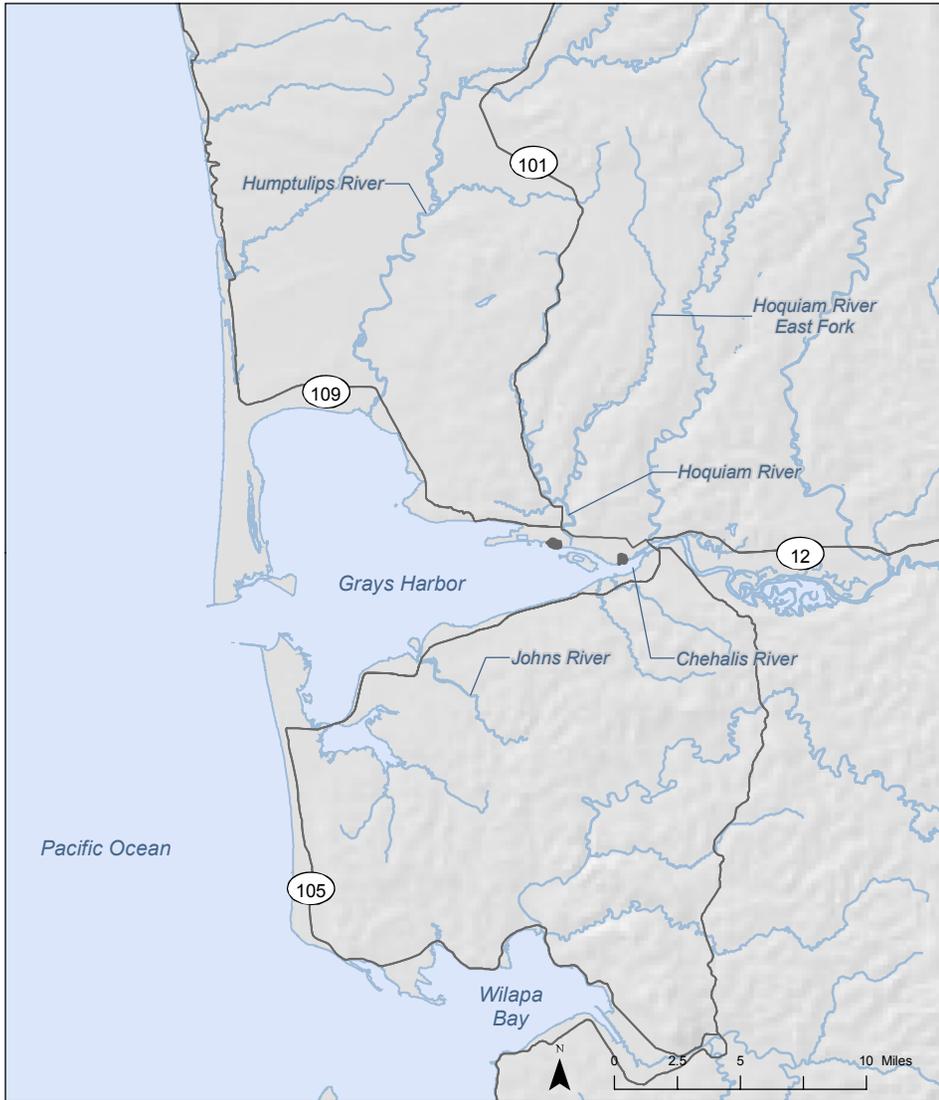
Navigation channels are established by Congress upon the advice of USACE's Chief of Engineer and the Secretary of the Army. The Grays Harbor navigation channel, for example, was established by Congress on June 3, 1896. Coast Guard nautical charts delineate existing navigation channels for Grays Harbor, its tributaries, and all of Puget Sound. The Grays Harbor navigation channel comprises a series of channels leading from the open ocean coastal waters to the City of Cosmopolis (Exhibit 5). The dimensions of these channels—last surveyed between May 2003 and May 2005 (NOAA 2007b)—are presented in Exhibit 6.

#### **How are navigable waterways used in the Grays Harbor build alternatives study area?**

The following subsections describe current vessel traffic in navigable waterways of the study areas, based on the types of vessels involved.

##### **Commercial and Industrial Use**

Commercial and industrial uses of Grays Harbor navigable waterways consist of freight vessels loading and unloading at Port of Grays Harbor facilities and logs Weyerhaeuser Corporation transports (Exhibit 7).



 River  
 Build Alternative Site

Source: Grays Harbor County (2006) GIS Data (Waterbody), Ecology (2001) GIS Data (Shoreline), WSDOT (2004) GIS (State Route), Ecology (2003) GIS Data (Stream), USGS (1999) GIS Data (10-meter DEM)  
 Horizontal datum for all layers is State Plane Washington South NAD 83; vertical datum for layers is NAVD88.

### Exhibit 4. Waterbodies in the Study Area

Pontoon Construction Project



**Washington State Department of Transportation**

Additional commercial boating uses in Grays Harbor consist of treaty (Quinault Indian Nation) and nontreaty commercial fishing for salmon and Dungeness crab, as well as for oysters in the oyster beds located shallow subtidal areas of the harbor. Commercial and industrial entities extensively use Puget Sound. A substantial number of vessels move in and out of the area every year (Exhibit 8).

#### **Recreational Use**

Sport fishing is the major recreational boating use in the Grays Harbor area, primarily from the Westport Marina. During salmon season, about 30 to 40 additional boats operate out of the Ocean Shores Marina. In 2000, approximately 14 salmon charter fishing businesses operated out of Westport (NWFSC 2008). Many individually owned sport boats use the Westport Marina. In 2003, 5,525 sport-fishing licenses were issued in Westport (NWFSC 2008). In 2000, approximately 19,895 marine-angler trips were made in Washington's sport-salmon fishery. Because of recent declines in the salmon fisheries, bottom fishing and whale watching are replacing salmon fishing as the most popular charter trips. Recreational boaters use Puget Sound waters extensively for pleasure trips and recreational fishing (Cheyne and Carter 1989).

#### **What future development plans apply to the navigable waterways of Grays Harbor?**

Future development plans for the navigable waterways of Grays Harbor include potential expansion of the navigation channel, dredging the navigational approach to Ocean Shores Marina, and dredging the marina itself. Substantial deposits of silt have been building up around Ocean Shores Marina, limiting the size and number of boats that can use the facility.

None of the local cities or Grays Harbor County indicated any foreseeable development plans that would depend on navigable waterways of the study area. Weyerhaeuser plans to sell the Cosmopolis Pulp Mill, so potential expansion or development plans for that facility cannot be determined.

### **3. Potential Effects of the Project**

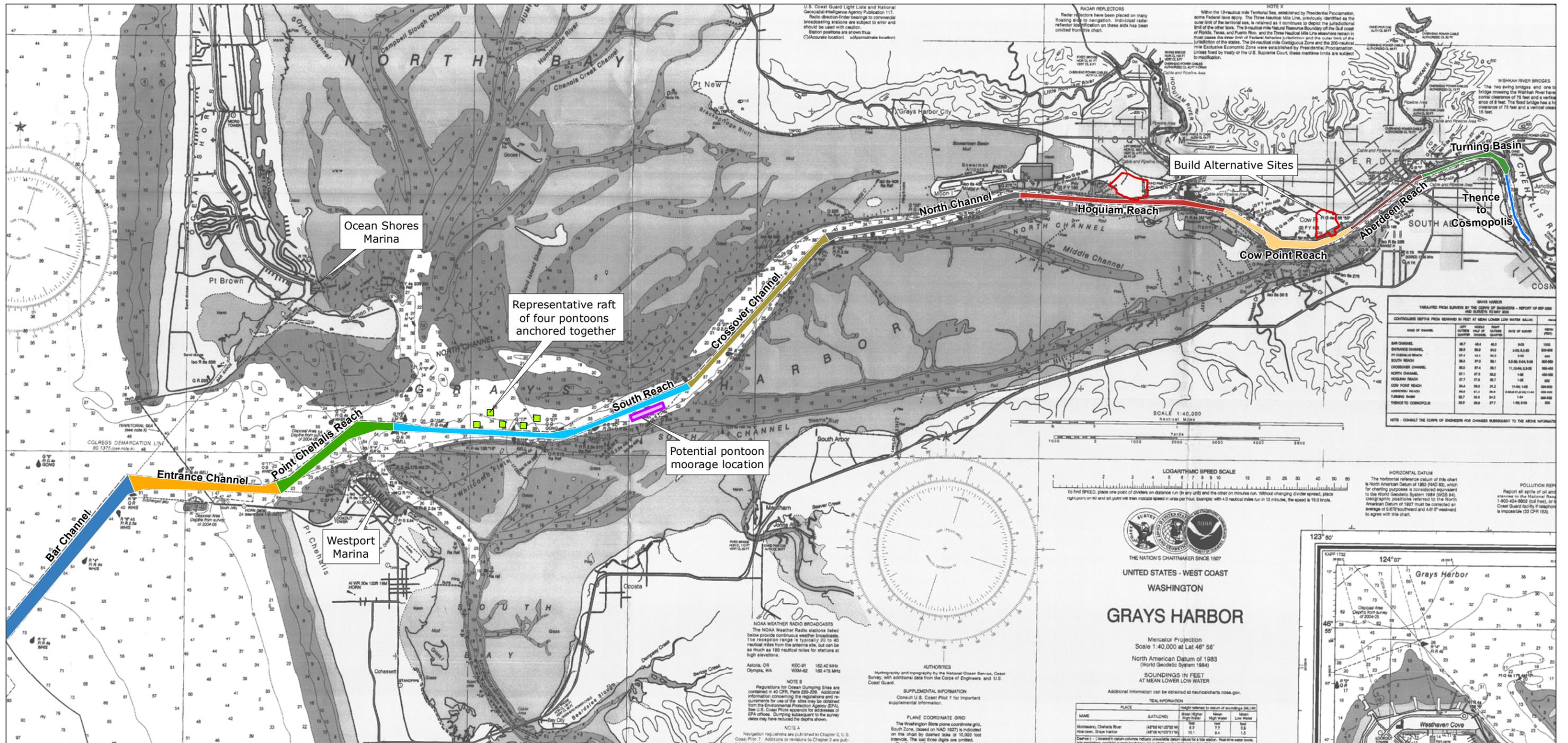
#### **How did WSDOT evaluate project effects on navigable waterways?**

The analyst evaluated potential effects of the proposed alternatives based on the specific features and present uses of the identified navigable waterways in the study area.

#### **CTC Facility**

The following activities associated with constructing the site and constructing, moving, and storing the pontoons at the existing CTC facility could potentially affect the navigable waterways of Puget Sound:

- Any effect on ship movement patterns or frequency when the pontoons are being moved to their moorage locations at existing berths in Puget Sound
- Any effect on ship movement patterns or frequency from increased demands on pilots navigating in Puget Sound while pontoons are being moved



- |  |                      |   |
|--|----------------------|---|
| <b>Name of Channel (Left to Right)</b> | North Channel        | Representative raft of four pontoons anchored together (for scale purpose only; does not represent selected moorage site)               |
| Bar Channel                            | Hoquiam Reach        | Potential open water moorage location (identified by field visit led by Port of Grays Harbor officials and experienced tugboat captain) |
| Entrance Channel                       | Cow Point Reach      | Build Alternative Site  |
| Point Chehalis Reach                   | Aberdeen Reach       |   |
| South Reach                            | Turning Basin        |   |
| Crossover Channel                      | Thence to Cosmopolis |   |

Note: This exhibit is included to show the locations of the navigable waterways in the vicinity of the proposed project. Because this exhibit was taken directly from the source cited at right, it includes some navigational information that is not related to the discussion in this discipline report.



Source: NOAA (2007) Nautical Chart 18502 Grays Harbor WA, WSDOT (2004) GIS Data (State Routes), and Ecology (2003) GIS Data (Stream). Horizontal datum for all layers is State Plane Washington South NAD 27; vertical datum for layers is NAVD88.

**Exhibit 5. Grays Harbor Navigation Channel**

Pontoon Construction Project

**Washington State Department of Transportation**



**EXHIBIT 6**

## Dimensions of Navigation Channels in Grays Harbor

Channel Name	Width (feet)	Length (nautical miles)	Depth Mean Lower Low Water (feet)
Bar Channel	1,000	4.6	46
Entrance Channel	600	1.8	42
Point Chehalis Reach	600	1.2	40
South Reach	350	4.1	36
Crossover Channel	450	2.5	36
North Channel	350	2.4	36
Hoquiam Reach	350	1.9	36
Cow Point Reach	900	1.8	36
Aberdeen Reach	200	2.6	32
Turning Basin	550	0.3	32
To Cosmopolis	200	0.8	32

Source: NOAA (2007b).

**EXHIBIT 7**

## Grays Harbor Pilotage District Vessel Movements

Vessel Movements	2002	2003	2004	2005	2006	2007	2008
Port of Grays Harbor	24	10	29	16	18	38	38
Weyerhaeuser Corporation	28	21	18	42	15	7	10
<b>Total Ship Calls</b>	<b>52</b>	<b>31</b>	<b>47</b>	<b>58</b>	<b>33</b>	<b>45</b>	<b>48</b>
Arrivals	69	31	47	58	33	45	48
Departures	52	31	46	58	35	44	47
Shifts <sup>a</sup>	0	16	25	23	14	18	14
<b>Total Vessel Trips</b>	<b>121</b>	<b>78</b>	<b>118</b>	<b>139</b>	<b>82</b>	<b>107</b>	<b>109</b>
<b>Gross Tonnage<sup>b</sup></b>	<b>2.14</b>	<b>1.41</b>	<b>2.41</b>	<b>2.77</b>	<b>1.40</b>	<b>1.5</b>	<b>0.9</b>

<sup>a</sup>Shifts are movements of vessels from one part of the harbor to another.

<sup>b</sup>Gross tons in millions.

Source: Washington State Board of Pilotage Commissioners (2002, 2003, 2004, 2005, 2006, 2007, and 2008).

## EXHIBIT 8

## Puget Sound Pilotage District Vessel Types, Movements, and Annual Tonnage

Vessel Type	2002		2003		2004		2005		2006		2007	
	Movement	Million Gross Tons										
Bulker	839	22.15	875	25.11	1,096	31.23	1,164	31.23	1,241	38.44	1,209	37.37
Car carrier	783	32.00	613	24.86	639	26.22	622	26.22	556	23.73	436	19.0
Container	2,745	126.54	2,675	129.82	2,766	131.34	3,208	131.34	3,140	158.50	2,870	156.87
Fishing vessel	17	0.01	7	0.03	17	0.02	7	0.02	-	-	5	0.09
General purpose	66	1.24	113	2.25	138	2.70	173	2.70	188	3.54	247	4.7
Naval	46	0.63	61	0.52	40	0.18	47	0.18	43	0.91	38	0.7
O-B-O <sup>a</sup>	5	0.12	2	0.06	0	0.00	-	-	5	0.22	-	-
Other	162	3.01	235	3.11	71	2.02	99	2.02	99	1.00	109	0.4
Passenger	169	11.07	204	14.93	302	24.27	347	24.27	389	30.14	380	31.6
Reefer	26	0.22	33	0.22	25	0.14	16	0.14	11	0.09	13	0.09
Roll-on/ roll-off <sup>b</sup>	439	10.26	434	11.83	332	10.35	337	10.35	316	10.80	288	9.7
Tanker	1,810	75.69	1,968	86.44	2,034	89.97	2,116	89.97	2,206	111.57	2,582	129.5
Wood-chip Carrier	43	1.43	38	1.33	34	1.22	33	1.22	9	0.29	-	-
<b>Totals</b>	<b>7,150</b>	<b>284.37</b>	<b>7,258</b>	<b>300.49</b>	<b>7,494</b>	<b>319.67</b>	<b>8,169</b>	<b>319.67</b>	<b>8,203</b>	<b>379.24</b>	<b>8,177</b>	<b>389.9</b>

<sup>a</sup>O-B-O refers to a multipurpose ship that can carry ore, heavy dry bulk products, and oil.

<sup>b</sup>Roll-on/roll-off (RORO or ro-ro) ships are designed to carry wheeled cargo such as automobiles, trailers, or railroad cars. This is in contrast to lo-lo (lift on-lift off) vessels, which use a crane to load and unload cargo.

Sources: Washington State Board of Pilotage Commissioners (2002, 2003, 2004, 2005, 2006, and 2007).

## Grays Harbor Build Alternatives

The following activities associated with the constructing the site and constructing, moving, and storing the pontoons at either Grays Harbor build alternative site could potentially affect the navigable waterways of Grays Harbor:

- Launch channel construction and mooring dolphin installation
- Any necessary interruption of vessel movement when pontoons are being moved out of the casting basin facility into the general Grays Harbor navigation channel
- Any effect on ship movement patterns or frequency from site construction, such as installing moorage areas and storing pontoons
- Any effect on ship movement patterns or frequency from increased demands on pilots navigating in Grays Harbor while pontoons are being moved from the casting basin facility to moorage locations

### What is a mooring dolphin?

A mooring dolphin is any buoy, pile, or group of piles unconnected to the shoreline that is used for mooring boats.

## How would construction of the casting basin affect navigable waterways?

### CTC Facility

There would be no construction-related effects on Puget Sound navigable waterways from using the CTC casting basin facility because it is already fully operational.

### Grays Harbor Build Alternatives

The potential effects of constructing either Grays Harbor build alternative site would be similar in nature because of their general proximity. Construction at either site could temporarily affect the navigation and movement of vessels in Grays Harbor if barges were used to transport materials to or from these sites. Such movements would likely require that one of the two Grays Harbor pilots be involved, making them temporarily unavailable to pilot other vessels. Additional temporary construction effects could involve mooring cranes on barges in the waters adjacent to each site, should this technique be selected.

### No Build Alternative

Under the No Build Alternative, no construction-related effects on navigable waterways would occur in the study area.

## How would pontoon-building operations affect navigable waterways?

### CTC Facility

The Coast Guard VTS regulates vessel traffic in Puget Sound, monitoring and directing vessel movements to maintain safety and to minimize shipping interruptions and delays. Transporting pontoons from the CTC facility to their Puget Sound moorage locations likely

would not require any substantial interruption of vessel movement or frequency, which are sized to accommodate the large vessel traffic levels shown in Exhibit 7.

Temporary operation-related effects on navigable waterways would relate to towing pontoons from the CTC casting basin to moorage locations at existing marine berths in Puget Sound; there would be no permanent operational effects on navigable waterways.

### **Grays Harbor Build Alternatives**

In general, the level of vessel traffic within Grays Harbor (as shown in Exhibit 6) is light enough that using navigation channels and Grays Harbor pilots to tow the pontoons to their moorage locations would have only a minor effect, if any, on navigable waterways. With two to three large vessel calls each month at the Port of Grays Harbor, scheduling pontoon towing to avoid conflict with arriving or departing vessels should prevent any temporary disruption of navigation in Grays Harbor.

Apart from temporarily using the navigation channel for towing pontoons, neither build alternative would have any operational effects on navigable waterways in Grays Harbor because operating either site would not block the adjacent navigation channel. Mooring pontoons in Grays Harbor would similarly not block the Grays Harbor navigation channel. Appropriate lighting and designation of the moored pontoons under Coast Guard regulations would limit their effect on the movement of recreational vessels outside of the navigation channel, which would then be able to maneuver around the moored pontoons.

### **How would the project affect navigable waterways in the long term?**

Pontoon moorage in Grays Harbor and Puget Sound would not permanently affect navigable waterways in the study area. The analyst did not identify any permanent effects from either build alternative. While multiyear pontoon storage at the moorage site is possible, long-term effects on navigable waterways would not result from pontoon moorage because moorage would be at Coast Guard-approved locations outside of navigation channels and vessel traffic lanes.

The No Build Alternative would have no effect on navigable waterways in the study areas.

### **How would the alternatives compare in their effects on navigable waterways?**

The Anderson & Middleton and Aberdeen Log Yard alternatives would have minor differences in their effects on navigable waterways. Both alternatives include potential pontoon construction at the CTC facility and pontoon storage at the same mooring locations in Grays Harbor and Puget Sound. The only difference between the alternatives would involve the transport of completed pontoons through the short section of Grays Harbor separating the Aberdeen Log Yard site and the Anderson & Middleton site.

Under the No Build Alternative, navigable waterways would not be affected.

## 4. Mitigation

### What measures would WSDOT propose to reduce negative project effects on navigable waterways?

WSDOT would design and implement mitigation measures to avoid or minimize adverse construction effects, including measures designed in accordance with appropriate Coast Guard regulations concerning nonpowered vessel movement (towing) and mooring storage. Specifically, these mitigation measures could include the following:

- Coordinating with port and pilotage districts to ensure availability of pilots during pontoon movements in and out of these jurisdictions
- Providing appropriate lighting during storage at all moorage locations
- Closely coordinating with the appropriate Coast Guard authorities during towing
- Restricting movement based on the weather
- Publishing “Notices to Mariners” concerning the movement and storage of pontoons at all locations

Instituting these practices would avoid any negative effects from moving and mooring pontoons identified in this project.

### How could the project compensate for unavoidable negative effects?

Because the project would not produce any unavoidable negative effect on navigable waterways, no compensatory mitigation would be necessary.

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ATTACHMENT A

**Selected Coast Guard Navigation Regulations for  
Washington State**



## **Selected Coast Guard Navigation Regulations for Washington State**

### **COLREGS Demarcation Lines (33 Code of Federal Regulations [CFR] 80)**

- 33 CFR 80.01 – General basis and purpose of demarcation lines
- 33 CFR 80.1365 – Columbia River Entrance, Oregon/Washington
- 33 CFR 80.1370 – Willapa Bay, Washington
- 33 CFR 80.1375 – Grays Harbor, Washington
- 33 CFR 80.1380 – Quillayute River, Washington
- 33 CFR 80.1385 – Strait of Juan de Fuca
- 33 CFR 80.1390 – Haro Strait and Strait of Georgia
- 33 CFR 80.1395 – Puget Sound and adjacent waters

### **Anchorage (33 CFR 110)**

- 33 CFR 110.1 – General
- 33 CFR 110.1a – Anchorages under Ports and Waterways Safety Act
- 33 CFR 110.228 – Columbia River, Oregon and Washington
- 33 CFR 110.229 – Strait of Juan de Fuca, Washington
- 33 CFR 110.230 – Puget Sound Area, Washington

### **Vessel Traffic Services [VTS]/Movement Reporting Systems (33 CFR 161)**

- 33 CFR 161.1 – Purpose and Intent
- 33 CFR 161.10 – Services
- 33 CFR 161.11 – VTS measures
- 33 CFR 161.12 – Vessel operating requirements
- 33 CFR 161.13 – VTS Special Area operating requirements
- 33 CFR 161.15 – Purpose and intent
- 33 CFR 161.16 – Applicability
- 33 CFR 161.17 – Definitions
- 33 CFR 161.18 – Reporting requirements
- 33 CFR 161.19 – Sailing Plan (SP)
- 33 CFR 161.2 – Definitions

- 33 CFR 161.20 – Position Report (PR)
- 33 CFR 161.21 – Automated reporting
- 33 CFR 161.22 – Final Report (FR)
- 33 CFR 161.23 – Reporting exemptions
- 33 CFR 161.3 – Applicability
- 33 CFR 161.4 – Requirement to carry the rules
- 33 CFR 161.5 – Deviations from the rules
- 33 CFR 161.55 – Vessel Traffic Service Puget Sound and the Cooperative Vessel Traffic Service for the Juan de Fuca Region

**Inland Waterways Navigation Regulations (33 CFR 162)**

- 33 CFR 162.1 – General
- 33 CFR 162.225 – Columbia and Willamette Rivers, Washington and Oregon; administration and navigation
- 33 CFR 162.230 – Columbia River, Washington
- 33 CFR 162.235 – Puget Sound Area, Washington

**Regulated Navigation, Safety, and Security Zones (33 CFR 165)**

- 33 CFR 165.1 – Purpose of part
- 33 CFR 165.10 – Regulated navigation areas
- 33 CFR 165.11 – Vessel operating requirements (regulations)
- 33 CFR 165.13 – General regulations
- 33 CFR 165.1301 – Puget Sound and Adjacent Waters in Northwestern Washington – Regulated Navigation Area
- 33 CFR 165.1302 – Bangor Naval Submarine Base, Bangor, Washington
- 33 CFR 165.1303 – Puget Sound and adjacent waters, Washington-regulated navigation area
- 33 CFR 165.1304 – Bellingham Bay, Bellingham, Washington
- 33 CFR 165.1305 – Commencement Bay, Tacoma, Washington
- 33 CFR 165.1306 – Lake Union, Seattle, Washington
- 33 CFR 165.1307 – Elliott Bay, Seattle, Washington

- 33 CFR 165.1308 – Columbia River, Vancouver, Washington
- 33 CFR 165.1309 – Eagle Harbor, Bainbridge Island, Washington
- 33 CFR 165.1310 – Strait of Juan de Fuca and adjacent coastal waters of Northwest Washington; Makah Whale Hunting – Regulated Navigation Area
- 33 CFR 165.1311 – Olympic View Resource Area, Tacoma, Washington
- 33 CFR 165.1313 – Security zone regulations, tank ship protection, Puget Sound and adjacent waters, Washington
- 33 CFR 165.1314 – Safety Zone; Fort Vancouver Fireworks Display, Columbia River, Vancouver, Washington
- 33 CFR 165.1317 – Security and Safety Zone; Large Passenger Vessel Protection, Puget Sound and adjacent waters, Washington
- 33 CFR 165.20 – Safety zones
- 33 CFR 165.2010 – Purpose
- 33 CFR 165.2015 – Definitions
- 33 CFR 165.2020 – Enforcement authority
- 33 CFR 165.2030 – Pacific Area
- 33 CFR 165.23 – General regulations
- 33 CFR 165.30 – Security zones
- 33 CFR 165.33 – General regulations
- 33 CFR 165.40 – Restricted waterfront areas
- 33 CFR 165.5 – Establishment procedures
- 33 CFR 165.7 – Notification
- 33 CFR 165.8 – Geographic coordinates
- 33 CFR 165.9 – Geographic application of limited and controlled access areas and regulated navigation areas

**Shipping Safety Fairways (33 CFR 166)**

- 33 CFR 166.100 – Purpose
- 33 CFR 166.103 – Geographic coordinates
- 33 CFR 166.105 – Definitions

- 33 CFR 166.110 – Modification of areas

**Traffic Separation Schemes (33 CFR 167)**

- No regulations in this part are applicable

**Escort Requirements for Certain Tankers (33 CFR 168)**

- 33 CFR 168.01 – Purpose
- 33 CFR 168.05 – Definitions
- 33 CFR 168.10 – Responsibilities
- 33 CFR 168.20 – Applicable vessels
- 33 CFR 168.30 – Applicable cargoes
- 33 CFR 168.40 – Applicable waters and number of escort vessels
- 33 CFR 168.50 – Performance and operational requirements
- 33 CFR 168.60 – Pre-escort conference

**Mandatory Ship Reporting Systems (33 CFR 169)**

- No regulations in this part are applicable