



US Army Corps
of Engineers
Seattle District



WASHINGTON STATE
DEPARTMENT OF
E C O L O G Y

Joint Public Notice

Application for a Department of the Army Permit and a Washington Department of Ecology Water Quality Certification and/or Coastal Zone Management Consistency Concurrence

US Army Corps of Engineers

Regulatory Branch
Post Office Box 3755
Seattle, WA 98124-3755
Telephone: (206) 764-6901
ATTN: Ms. Jacalen Printz,
Project Manager

WA Department of Ecology

SEA Program
Post Office Box 47600
Olympia, WA 98504-7600
Telephone: (360) 407-6068
ATTN: SEA Program,
Federal Permit Coordinator

Public Notice Date: November 21, 2013

Expiration Date: December 21, 2013

Reference No.: NWS-2013-846

**Name: WA ST Dept of
Natural Resources**

Interested parties are hereby notified that the U.S. Army Corps of Engineers (Corps) and the Washington Department of Ecology (Ecology) have received an application to perform work in waters of the United States as described below and shown on the enclosed drawings, dated September 20, 2013.

The Corps will review the work in accordance with Section 10 of the Rivers and Harbors Act. Ecology will review the work pursuant to the Coastal Zone Management (CZM) Act.

APPLICANT: Washington State Dept of Natural Resources (WA DNR)
Aquatic Resources Division, Reserves Program
Attention: Ms. Lisa Randlette
Post Office Box 47027
Olympia, Washington 98504-7027
Telephone: (360) 902-1085

LOCATION: In Quartermaster Harbor at Vashon, Washington.

WORK: Install or relocate up to 200 privately-owned mooring buoys on State-owned aquatic land. This would involve the relocation of 150 existing mooring buoys and installation of 50 new buoys. The mooring buoys would be anchored using embedded helical screw anchors or, if the substrate is too hard, a fully cured concrete block or steel anchor. The project also includes the removal of up to 40 existing creosote-treated timber piles, up to 75 existing abandoned private mooring buoys and associated marine debris. Removal of existing structures would be conducted by barge.

PURPOSE: To provide boat moorage and clean up of State-owned aquatic land.

ADDITIONAL INFORMATION: WA DNR is proposing a mooring management plan in which existing mooring buoys on State-owned aquatic land are surveyed and either removed or relocated into an organized mooring buoy fields. The proposed mooring buoys would be privately-owned, managed by WA DNR and relocated/installed through application to WA DNR.

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Copies of this public notice which have been mailed or otherwise physically distributed feature project drawings in black and white. The electronic version features those drawings in color, which we think more accurately communicates the scope of project impacts. To access the electronic version of this public notice, go to the Seattle District's web page at: <http://www.nws.usace.army.mil/> and under the heading Open Public Comment Periods select Regulatory Public Notices. Recently-issued public notices are listed in chronological order of the date of issuance. Select and view the listing for this project.

MITIGATION: No mitigation has been proposed by the applicant.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat. After receipt of comments from this public notice, the Corps will evaluate the potential impacts to proposed and/or listed species and their designated critical habitat.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The proposed action would impact EFH in the project area. If the Corps determines that the proposed action may adversely affect EFH for federally managed fisheries in Washington waters, the Corps will initiate EFH consultation with the NMFS. The Corps' final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

CULTURAL RESOURCES: The Corps has reviewed the latest published version of the National Register of Historic Places, lists of properties determined eligible and other sources of information. There are no recorded historic properties within the permit area. The proposed work is of such a limited nature and extent that little likelihood exists for the project to impinge upon an unrecorded historic property. The Corps invites responses to this public notice from Native American Tribes or Tribal governments; Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns regarding historic properties and sites of religious and cultural significance at or near the project area. After receipt of comments from this public notice, the Corps will evaluate potential impacts and consult with the State Historic Preservation Officer and Native American Tribes in accordance with Section 106 of the National Historic Preservation Act, as appropriate.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION – CORPS: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The Corps is soliciting comments from the public; Native American Nations or Tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition

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or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

EVALUATION – ECOLOGY: Ecology is soliciting comments from the public; Federal, Native American Nations or Tribal governments, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Ecology will be considering all comments to determine whether to certify or deny certification for the proposed project.

ADDITIONAL EVALUATION: This proposal is the subject of Shorelines Substantial Development Permits No. SHOR 13-0021 and SHOR 13-0022, which are being processed by King County.

COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. Either conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commentator's name, address, and phone number. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act, including any personally identifiable information such as name, phone numbers, and addresses. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration.

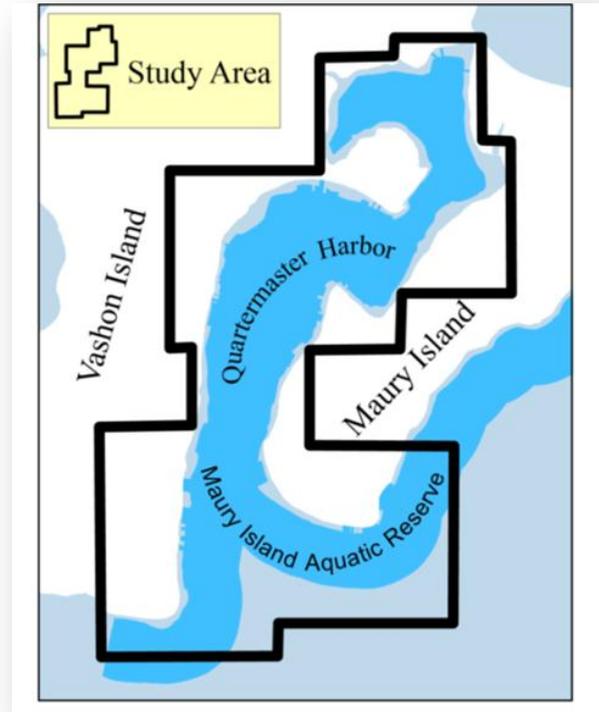
CORPS COMMENTS: All e-mail comments should be sent to jacalen.m.printz@usace.army.mil. Conventional mail comments should be sent to: U.S. Army Corps of Engineers, Regulatory Branch, Attention: Ms. Jacalen Printz, P.O. Box 3755, Seattle, Washington 98124-3755. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act including any personally identifiable information such as names, phone numbers, and addresses.

ECOLOGY COMMENTS: Any person desiring to present views on the project pertaining to a request for water quality certification under Section 401 of the Clean Water Act and/or CZM consistency concurrence, may do so by submitting written comments to the following address: Washington State Department of Ecology, Attention: Federal Permit Coordinator, P.O. Box 47600, Olympia, Washington 98504-7600, or e-mail to ecyrefedpermits@ecy.wa.gov.

To ensure proper consideration of all comments, responders must include the following name and reference number in the text of their comments: WA ST Dept of Natural Resources; NWS-2013-846

Encl: Figures (33)

QUARTERMASTER HARBOR MOORING BUOY MANAGEMENT PLAN



SHEET INDEX

1. COVER SHEET / AREA MAP / STUDY AREA (p. 1)
2. EXISTING CONDITIONS DESCRIPTION (p. 2)
3. MAPS OF EXISTING AND PROPOSED BUOY LOCATIONS (pp. 3-31)
4. END NOTES / SCHEMATIC DRAWINGS FOR EMBEDDED ANCHOR SYSTEM AND CALCULATING VESSEL SWING (pp.32-33)

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027

PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.

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EXISTING CONDITIONS

Washington State Department of Natural Resources (DNR) inventoried **274** existing recreational mooring buoys throughout Quatermaster Harbor on both state-owned and private tidelands. More than half (**140**) are clustered at Burton Cove, Judd Creek, and Dockton where DNR proposes to establish mooring buoy fields. Of the total number of existing buoys, about **187** buoys are located completely or partially on state-owned aquatic lands. The remaining **87** buoys are located completely on private tidelands, outside of DNR's proprietary jurisdiction, and beyond the scope of this regulatory permit request.

DNR proposes to authorize up to **200** properly-installed buoys on state-owned aquatic lands, consistent with regulatory permit requirements that minimize potential adverse environmental and navigational impacts. DNR anticipates authorizing up to **50** new buoys over time, primarily to waterfront residential property owners. DNR estimates up to **150** existing buoys will be relocated, including some that are currently located on private tidelands whose owners need deeper water to avoid periodic, low-tide boat groundings. Finally, DNR intends to remove up to **75** existing, unclaimed and abandoned buoys over time, along with associated marine debris, as funding becomes available.

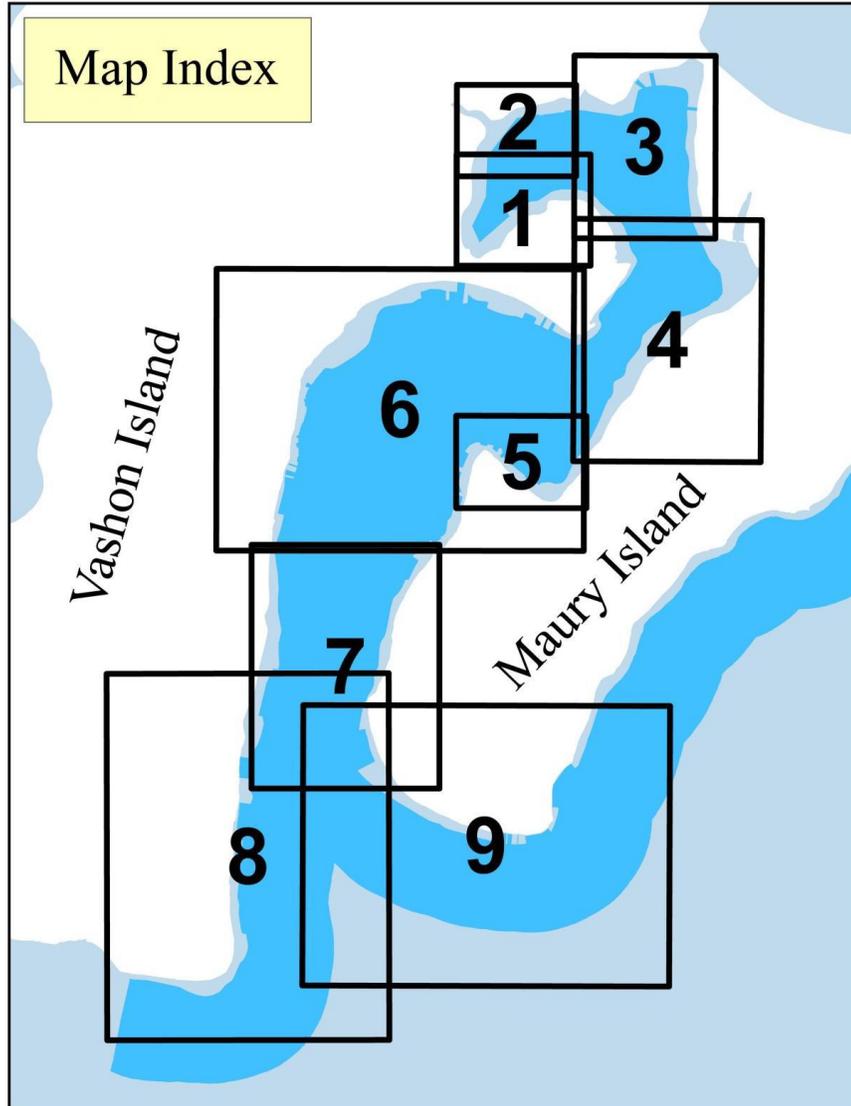
To date, DNR has received almost **100** applications for recreational buoy licenses for existing or new buoys. DNR is holding these applications for consideration and formal action until DNR receives the necessary regulatory permits.

Assumed Water Depths in Study Area

- Burton Cove north area assumed depth – 12.5 feet
- Burton Cove south area assumed depth – 10.0 feet
- Judd Creek assumed depths – 10.0 feet, 12.5 feet, 15.0 feet
- Dockton area assumed depths – 10.0 feet, 15.0 feet, 20.0 feet
- Inner Quatermaster Harbor average assumed depth – 15.0 feet
- Outer Quatermaster Harbor average assumed depth – 30.0 feet

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Inner Quartermaster Harbor (Maps 1 - 5)

1. Burton Cove (A-D)
2. Judd Creek (A-C)
3. N. Burton Peninsula / Portage (A-C)
4. Jensen Pt. / Raab's Lagoon / S.E. Burton Peninsula / N. Dockton (A-C)
5. Dockton (A-D)

Outer Quartermaster Harbor (Maps 6 - 9)

6. W. Dockton / S. Burton / Magnolia Beach / Indian Pt. / (A-D)
7. Harbor Heights / S.W. Maury Island (A-B)
8. S.E. Vashon Island / Neill Pt. (A-B)
9. Piner Pt. (A-B)

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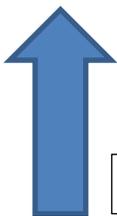
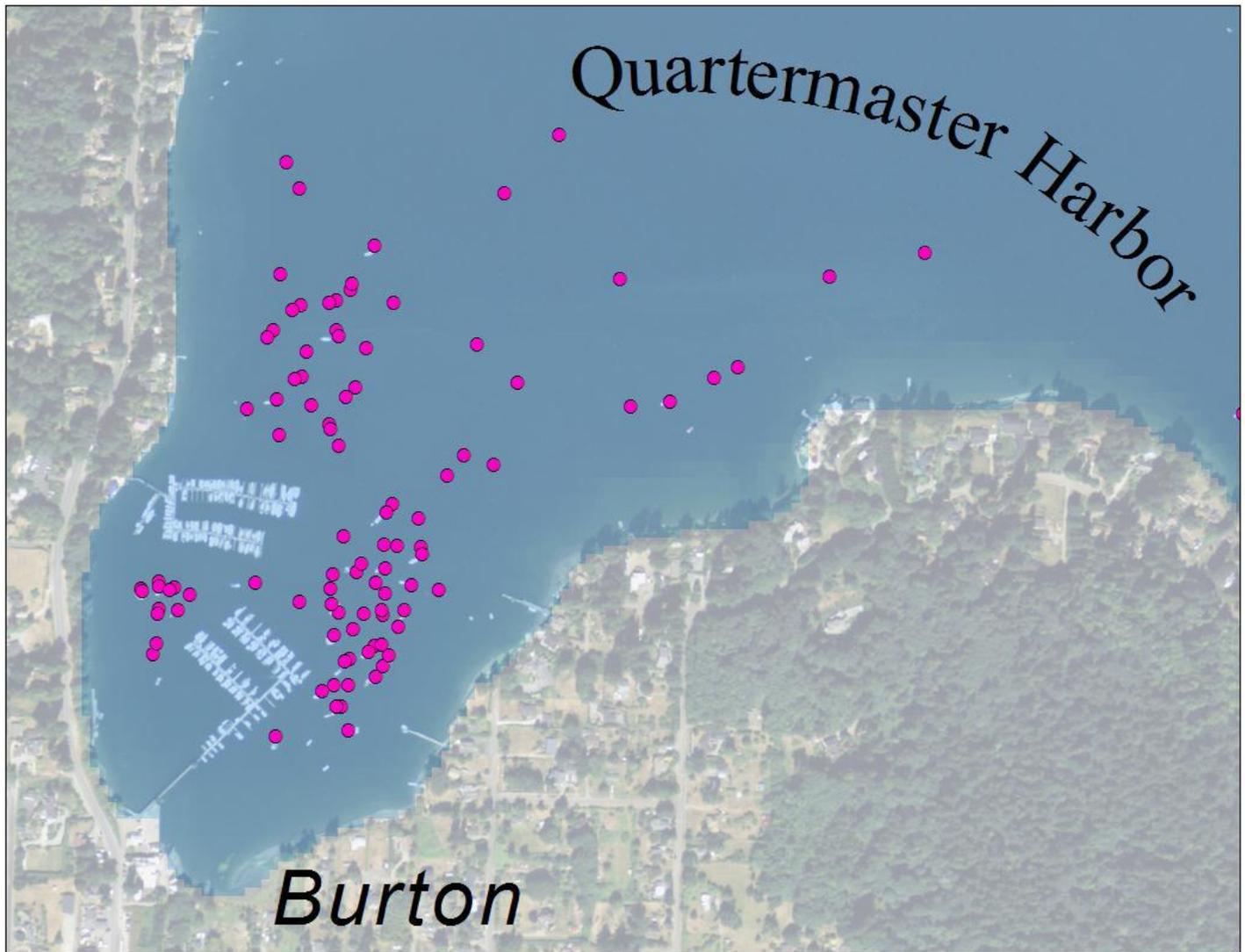
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Map 1A BURTON COVE - GENERAL DISTRIBUTION OF EXISTING BUOYS



Not to Scale

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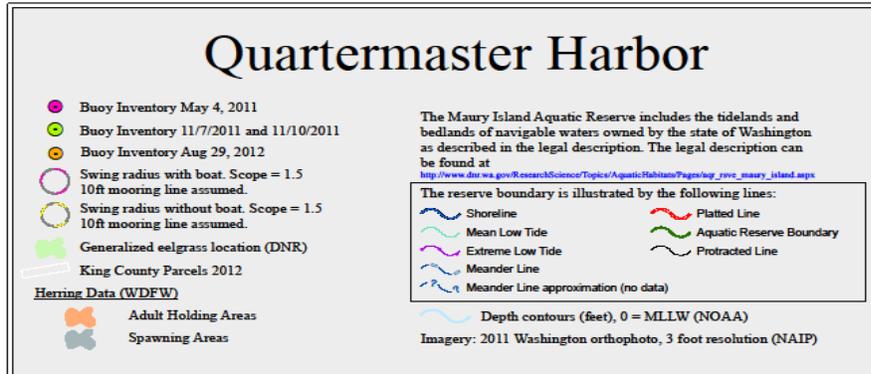
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LEGEND FOR DETAILED MAPS



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Map 1B BURTON COVE (approx. 63 existing buoys on state-owned and private tidelands)

Match w/ Map 2A



Match w/
Map 1C

Not to Scale

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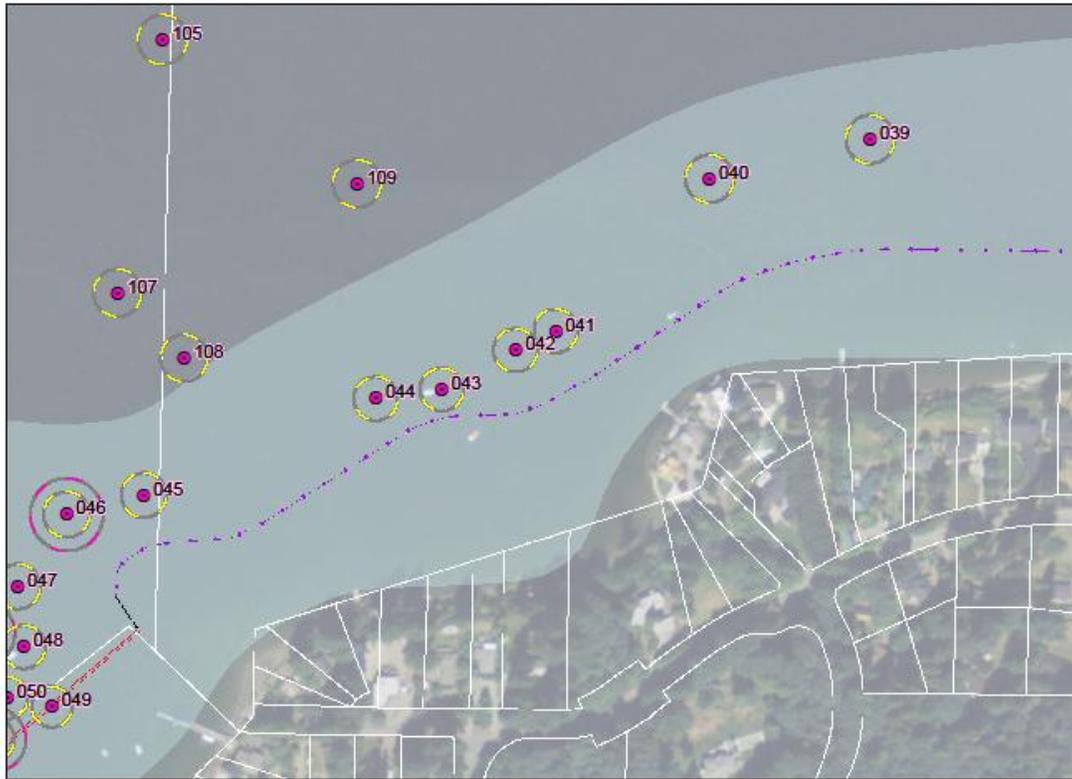
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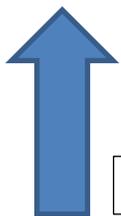
DATE: 9/20/13

Map 1C E. BURTON COVE (approx. 8 buoys on state-owned aquatic lands)



**Match w/
Map 4A**

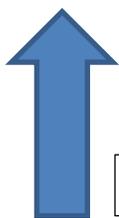
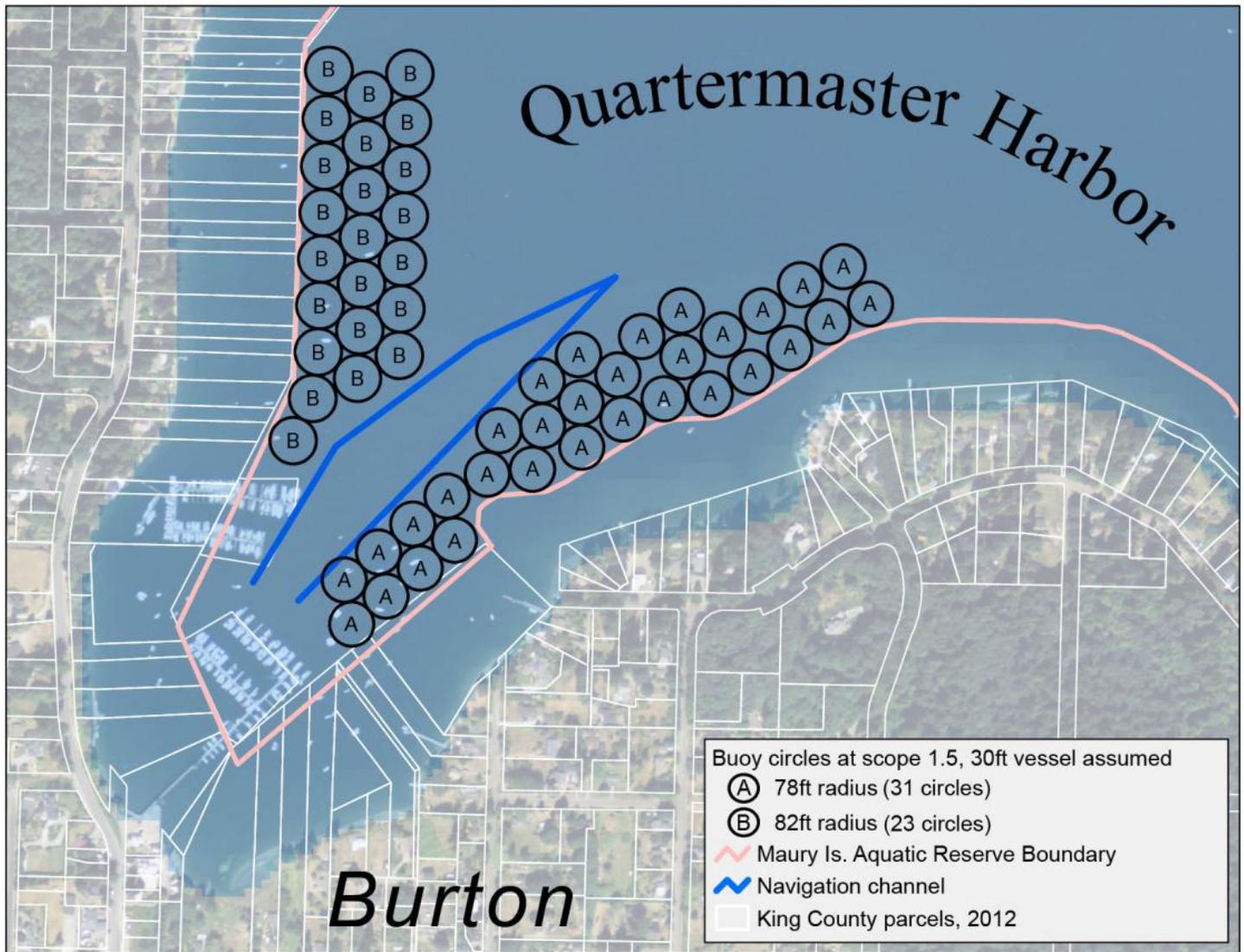
**Match w/
Map 1B**



Not to Scale

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Map 1D BURTON COVE - PROPOSED BUOY FIELD (54 buoys on state-owned aquatic lands)



Not to Scale

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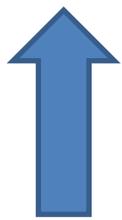
Map 2A S. JUDD CREEK (approx. 11 buoys on state-owned and private tidelands)



Match w/ Map 2B

Match w/ Map 1A

Not to Scale



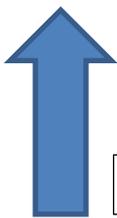
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Map 2B JUDD CREEK (approx. 18 buoys on state-owned aquatic lands and private tidelands)



Match w/ Map 2A

Match w/ Map 3A



Not to Scale

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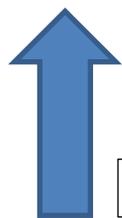
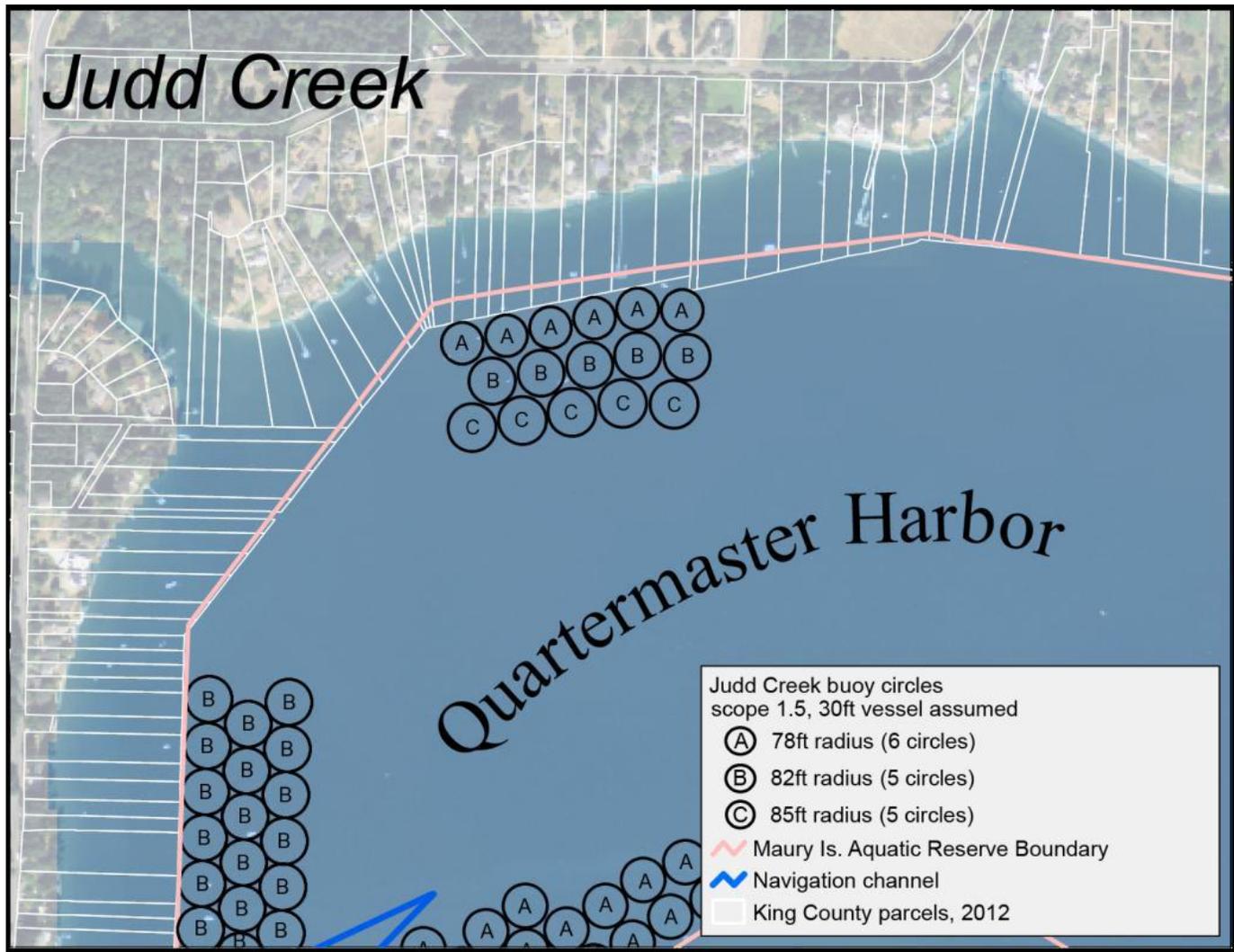
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Map 2C JUDD CREEK – PROPOSED BUOY FIELD (16 buoys on state-owned aquatic lands)



Not to Scale

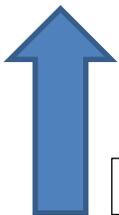
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Map 3A W. PORTAGE (approx. 10 buoys on state-owned and private tidelands)

Match
w/
Map
3B



Match w/ Map 2B



Not to Scale

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Map 3B PORTAGE (approx. 15 buoys on state-owned and private tidelands)

Match w/ Map 3A



Match w/ Map 3C

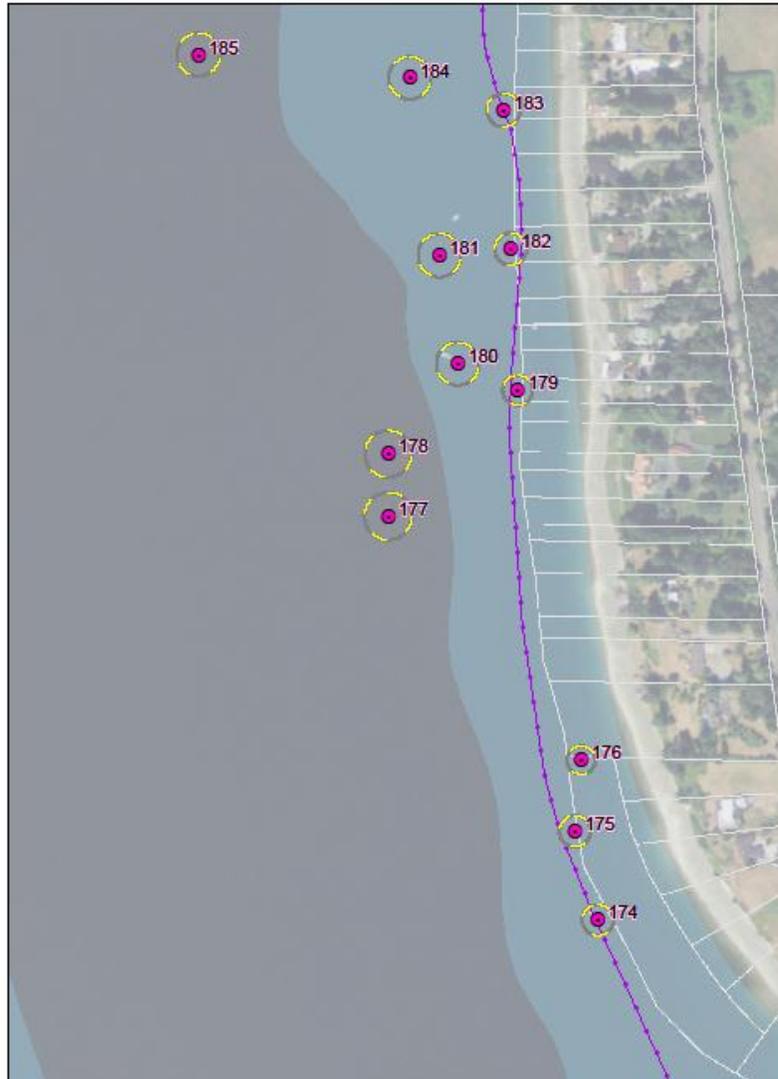


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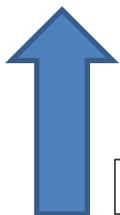
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Map 3C S.E. PORTAGE (approx. 12 buoys on state-owned and private tidelands)

Match w/ Map 3B



Match w/ Map 4B



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

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USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

COUNTY: King

SHEET: Page 14 of 33

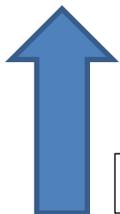
DATE: 9/20/13

Map 4A JENSEN PT. (approx. 7 buoys on state-owned and private tidelands)

Match w/ Map 1B



Match w/ Map 4C



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027

PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.

USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

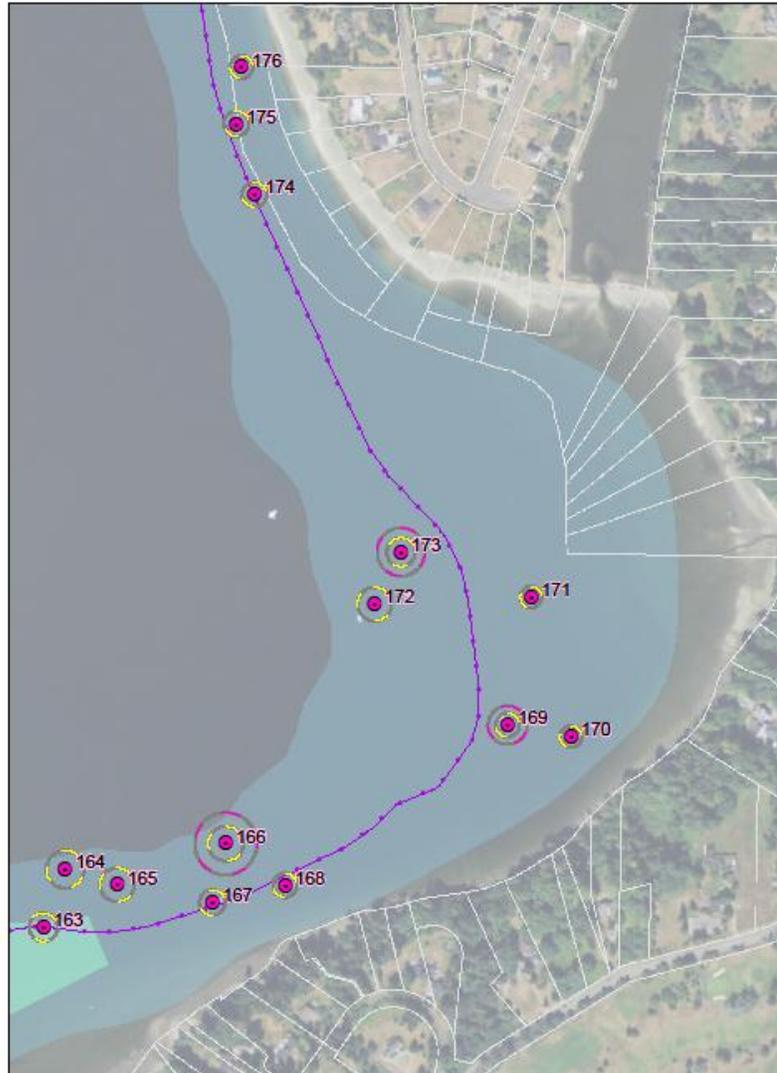
COUNTY: King

SHEET: Page 15 of 33

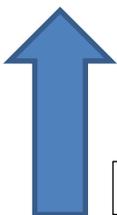
DATE: 9/20/13

Map 4B RAAB'S LAGOON (approx. 14 buoys on state-owned and private tidelands)

Match w/ Map 3C



Match w/ Map 4C



Not to Scale

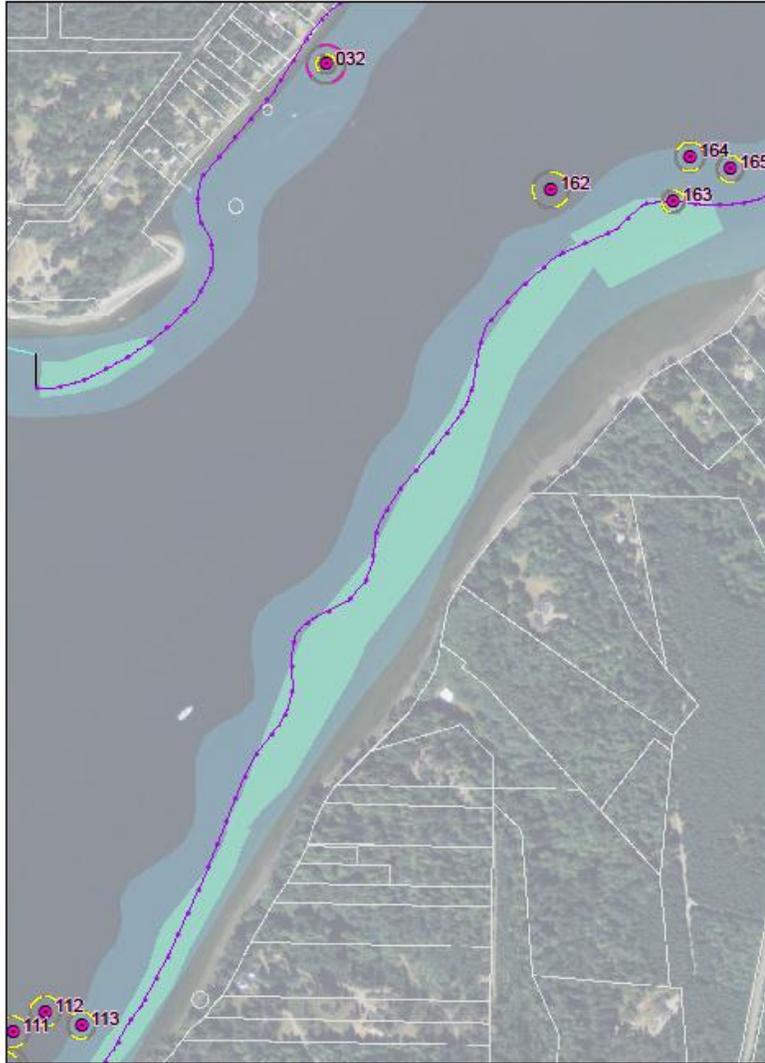
<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p>	<p>USACE REFERENCE #: NWS-2013-846</p>
<p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p>	<p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>IN: Quartermaster Harbor</p>
<p>ADJACENT PROPERTY OWNERS: See JARPA Application</p>		<p>COUNTY: King</p>
<p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>		<p>SHEET: Page 16 of 33 DATE: 9/20/13</p>

Map 4C S.E. BURTON PENINSULA /N. DOCKTON (approx. 8 buoys on state-owned tidelands)

Match w/ Map 4A

Match w/
Map 6B

Match w/
Map 4B



Match w/ Map 5B

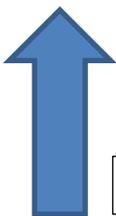
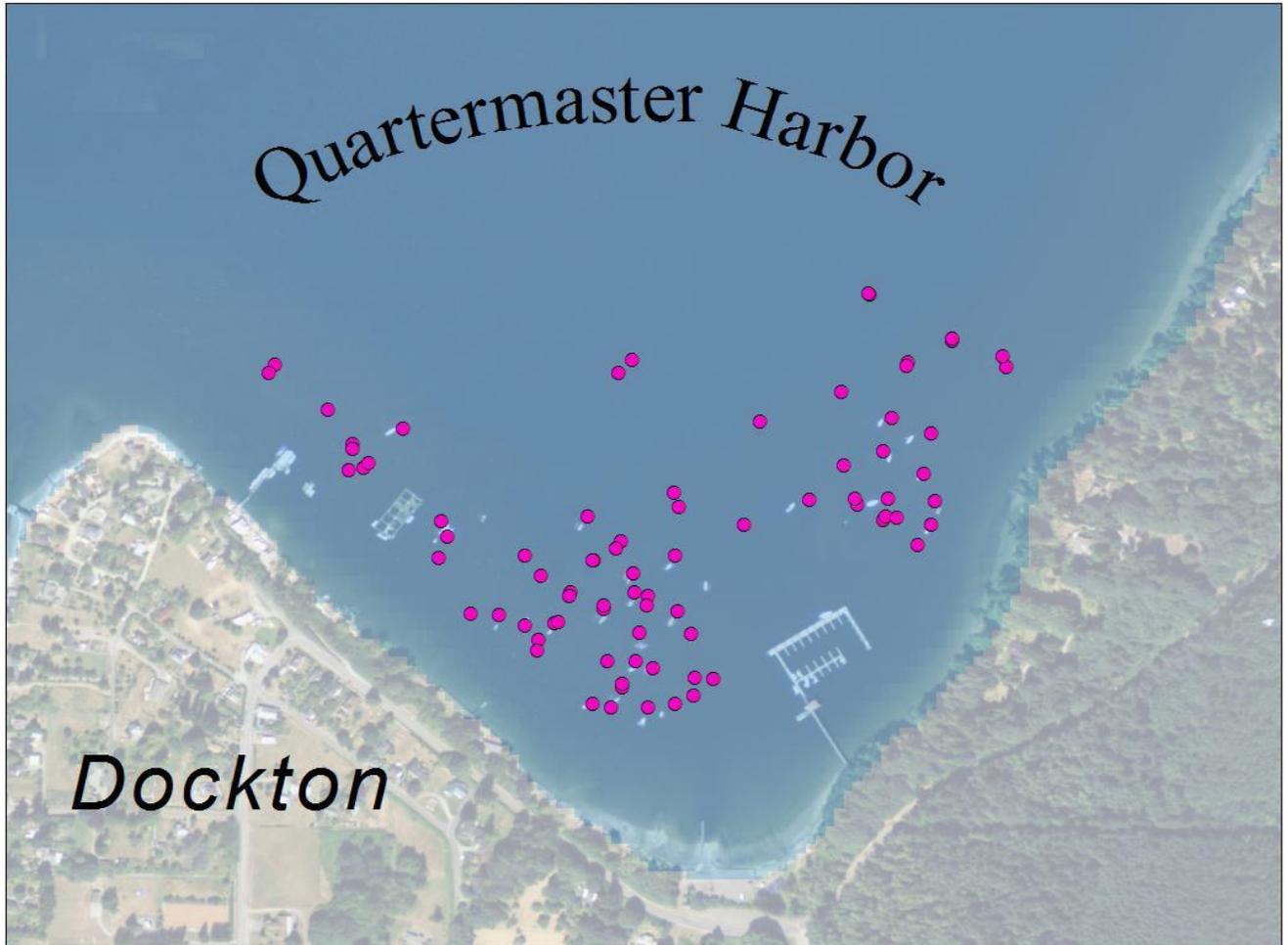


Not to Scale

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 17 of 33 DATE: 9/20/13</p>
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Map 5A DOCKTON - GENERAL DISTRIBUTION OF EXISTING BUOYS

(approx. 51 on state-owned aquatic lands and private tidelands)



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027

PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.

USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

COUNTY: King

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DATE: 9/20/13

Map 5B E. DOCKTON (18 buoys on state-owned and private tidelands)



Match w/ Map 4C

Match w/ Map 5C



Not to Scale

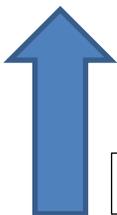
<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 19 of 33 DATE: 9/20/13</p>
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Map 5C W. DOCKTON (approx. 33 buoys on state-owned and private tidelands)

Match w/ Map 6A



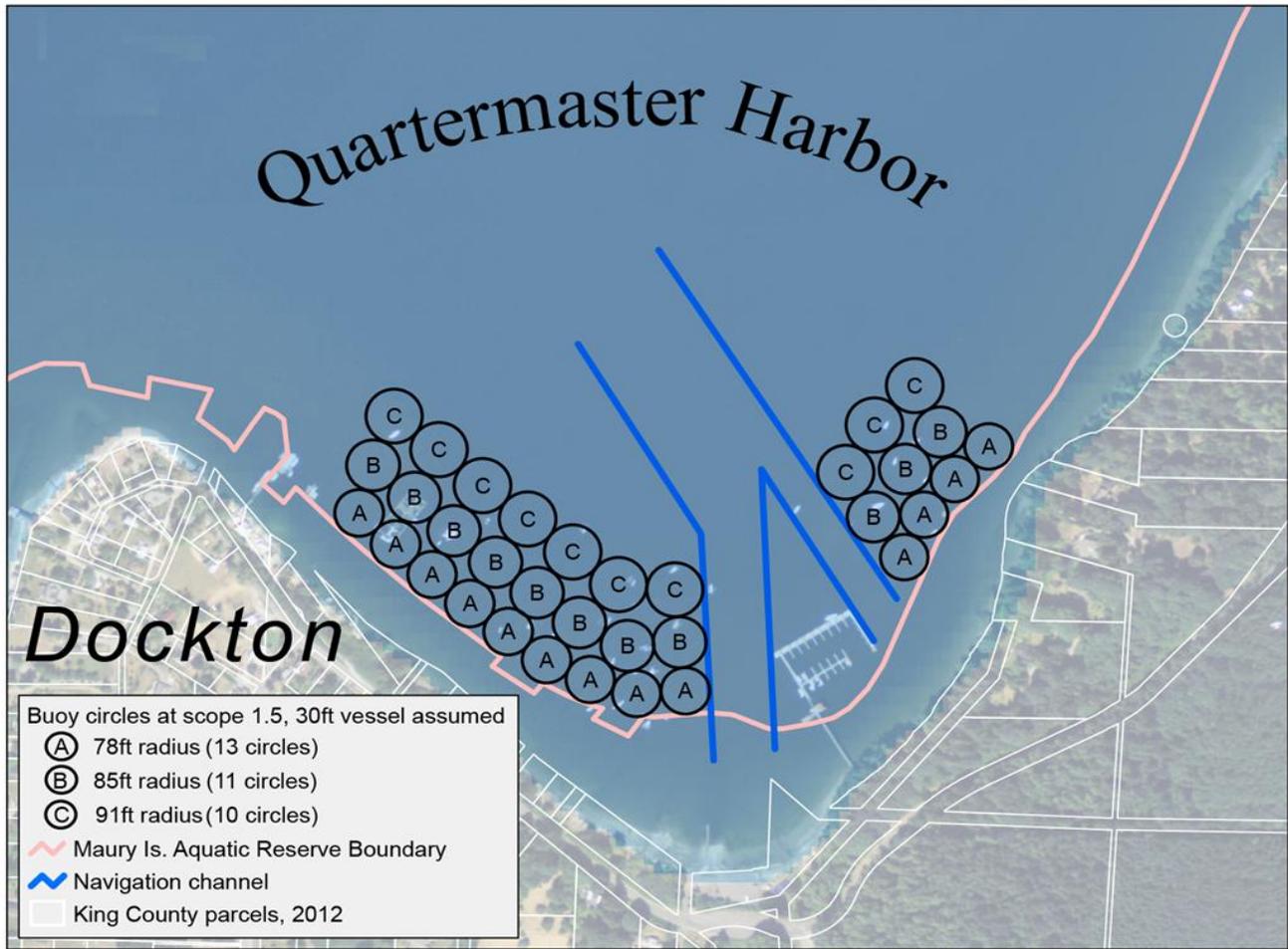
Match w/ Map 5B



Not to Scale

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 20 of 33 DATE: 9/20/13</p>
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Map 5D DOCKTON – PROPOSED BUOY FIELD (34 buoys on state-owned aquatic lands)

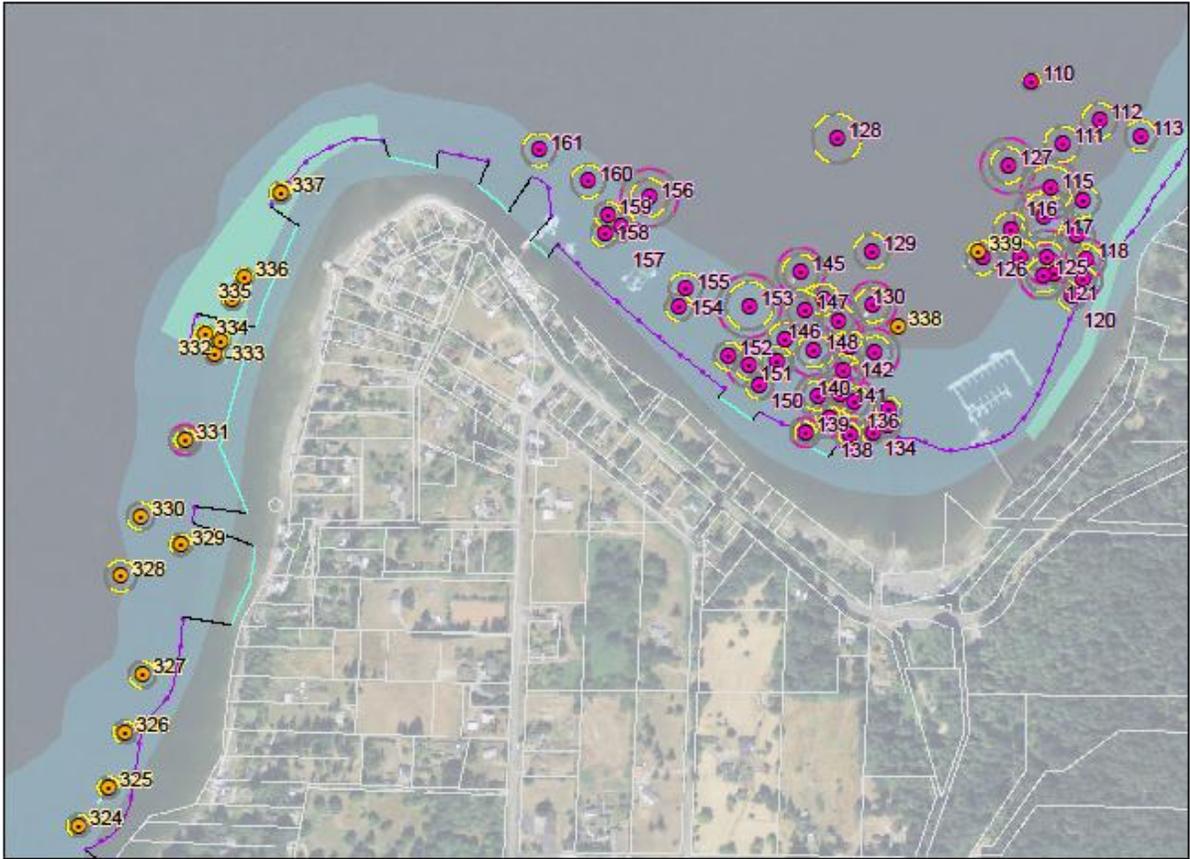


Not to Scale

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 21 of 33 DATE: 9/20/13</p>
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Map 6A W. DOCKTON (approx. 14 buoys on state-owned and private tidelands)

Match w/ Map 5A



Match w/ Map 7B



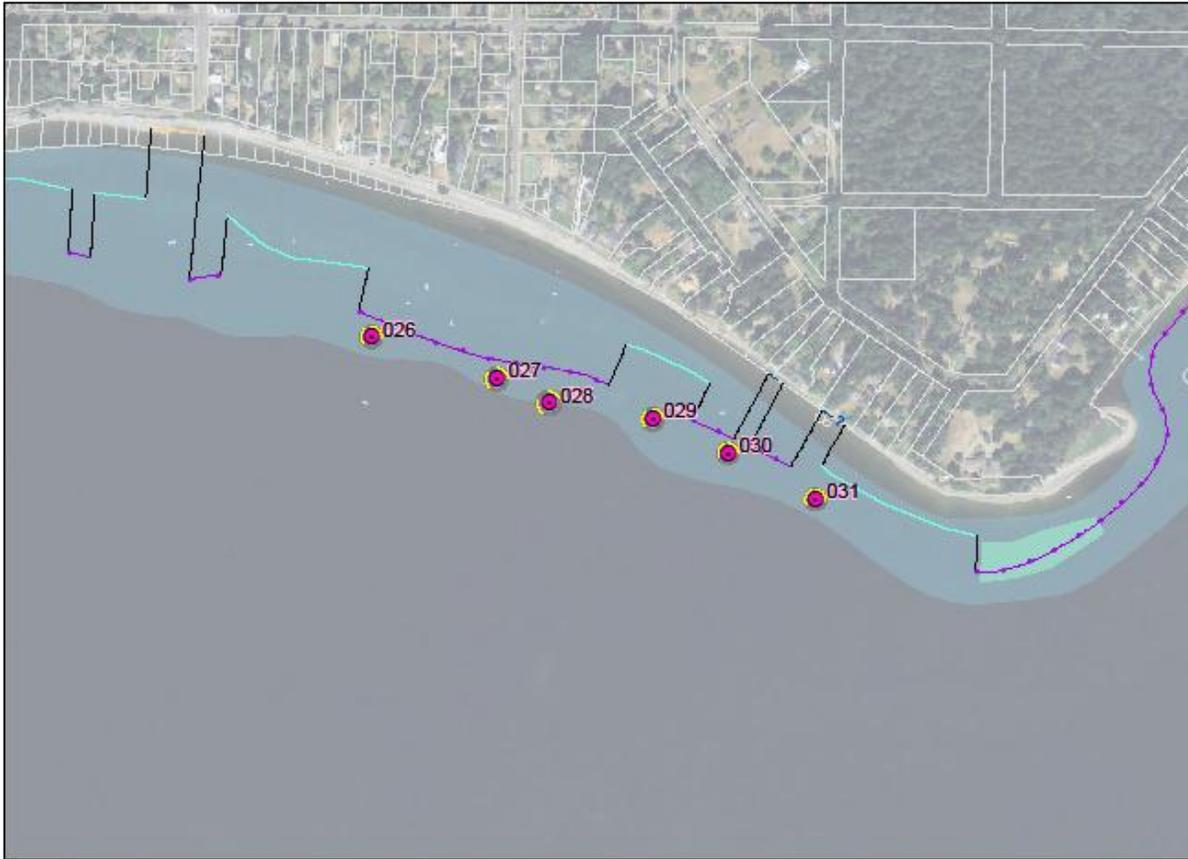
Not to Scale

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 22 of 33 DATE: 9/20/13</p>
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Map 6B S. BURTON (approx. 6 buoys on state-owned and private tidelands)

Match w/ Map 6C

Match w/ Map 4C



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027

PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.

USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

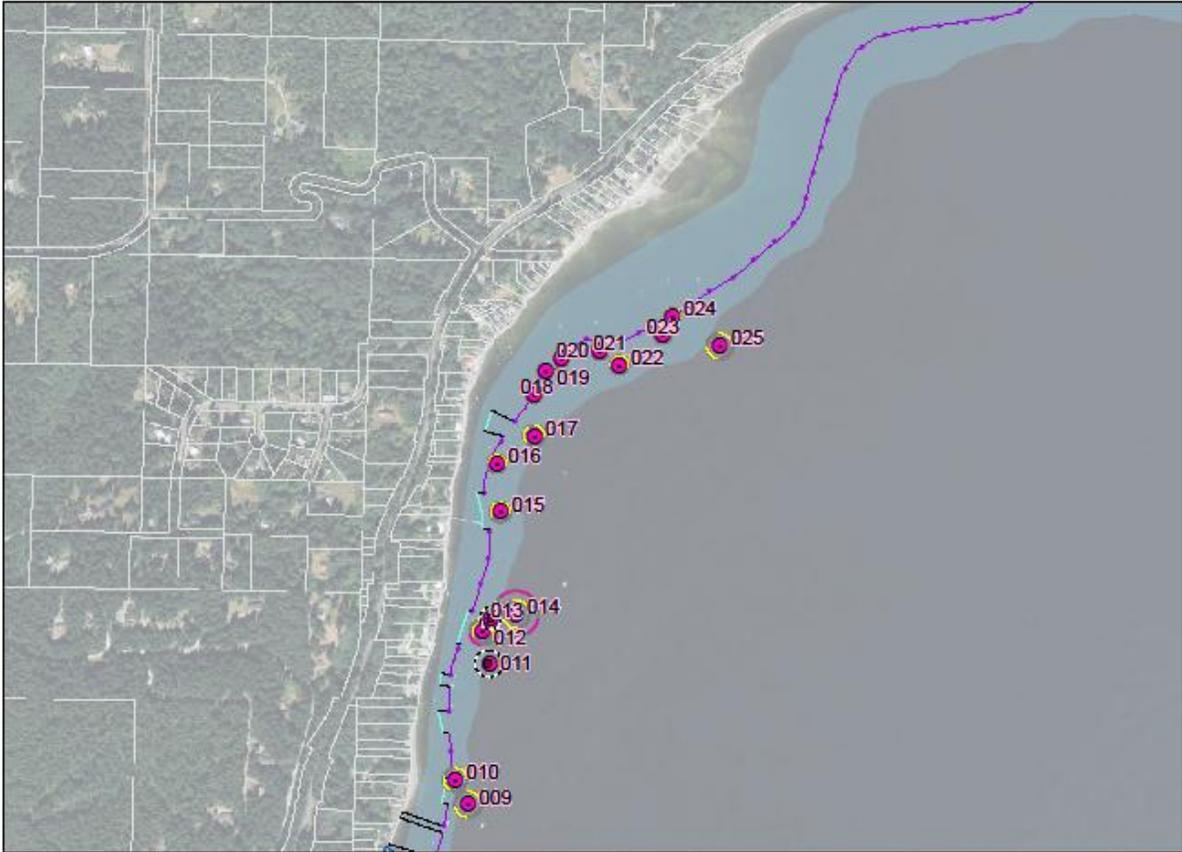
COUNTY: King

SHEET: Page 23 of 33

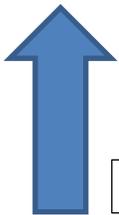
DATE: 9/20/13

Map 6C INDIAN POINT (approx. 16 buoys on state-owned and private tidelands)

Match w/ Map 6B



Match w/ Map 6D

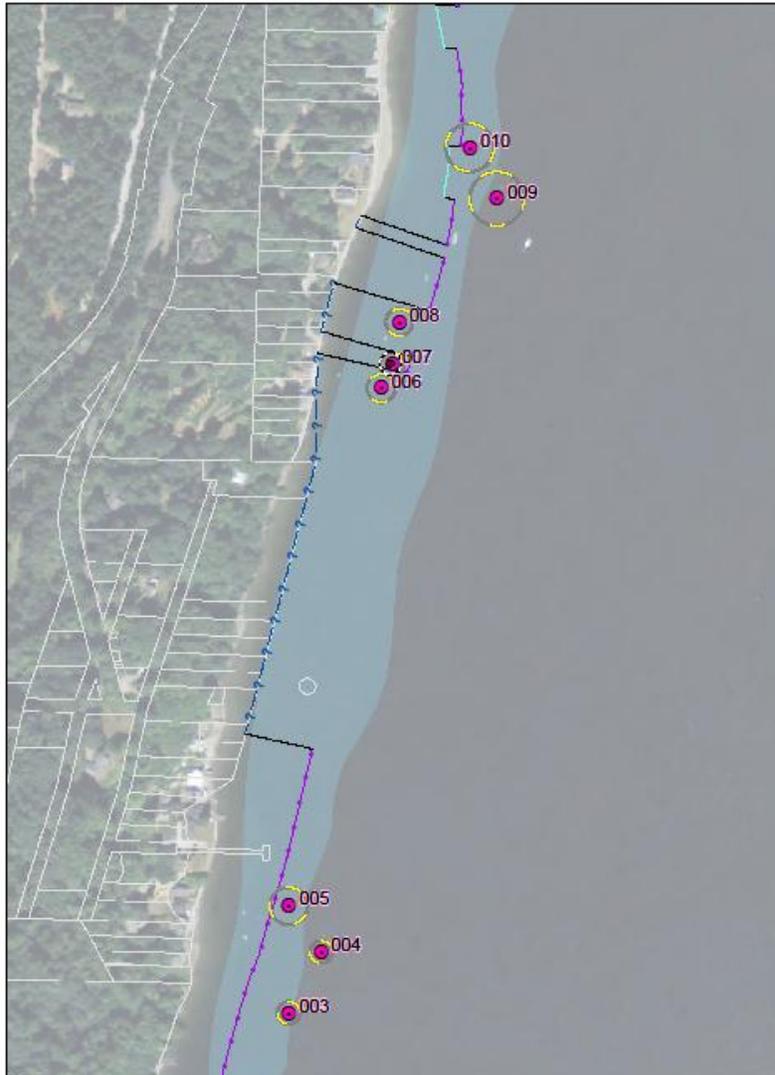


Not to Scale

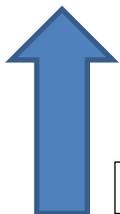
<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 24 of 33 DATE: 9/20/13</p>
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Map 6D MAGNOLIA BEACH (8 buoys on state-owned and private tidelands)

Match w/ Map 6C



Match w/ Map 7A



Not to Scale

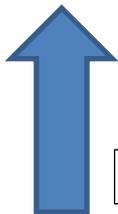
<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 25 of 33 DATE: 9/20/13</p>
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Map 7A HARBOR HEIGHTS (3 buoys on state-owned and private tidelands)

Match w/ Map 6D



Match w/ Map 8A

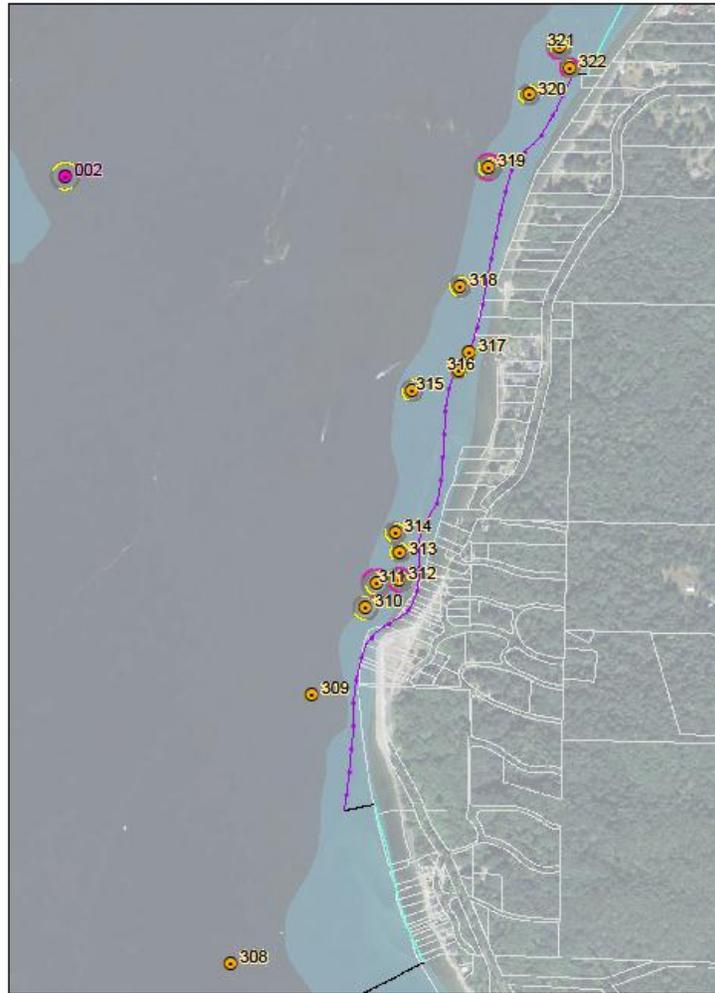


Not to Scale

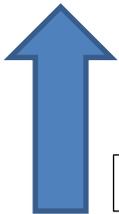
<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 26 of 33 DATE: 9/20/13</p>
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Map 7B S.W. MAURY ISLAND (15 buoys on state-owned and private tidelands)

Match w/ Map 6A



Match w/ Map 8A



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027

PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.

USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

COUNTY: King

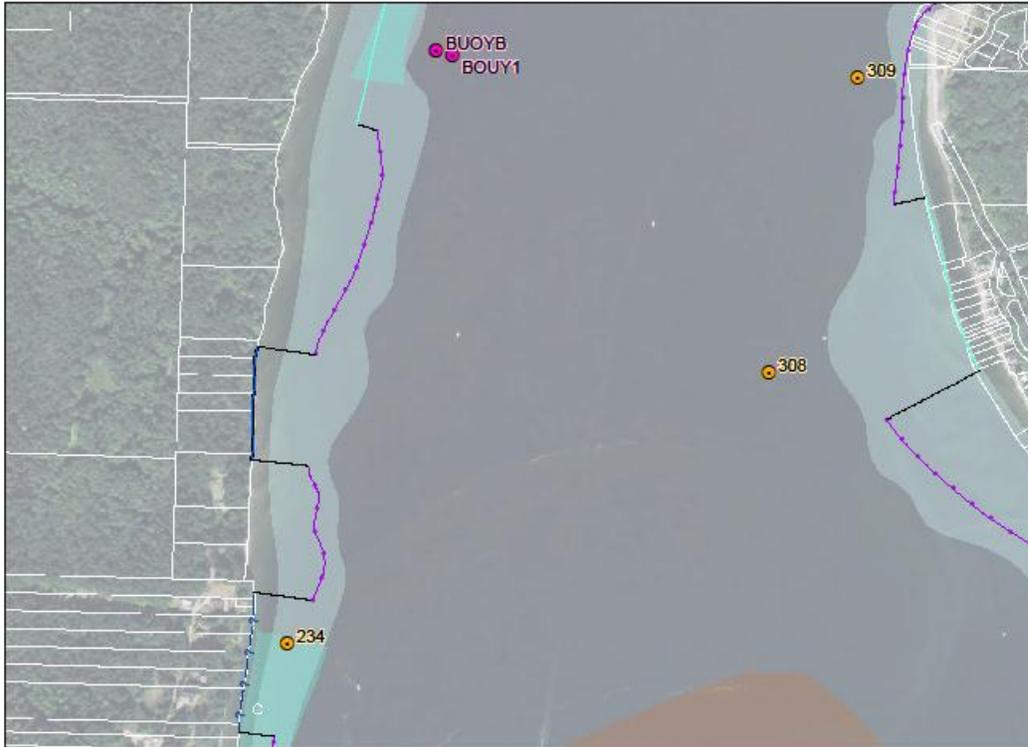
SHEET: Page 27 of 33

DATE: 9/20/13

Map 8A S.E. VASHON ISLAND (1 buoy on state-owned aquatic lands)

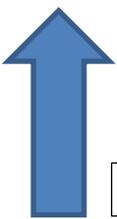
Match w/ Map 7A

Match w/ Map 7B



Match w/
Map 9A

Match w/ Map 8B



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027

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USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

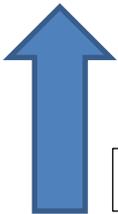
COUNTY: King

SHEET: Page 28 of 33

DATE: 9/20/13

Map 8B NEILL POINT (1 buoy on state-owned aquatic lands)

Match w/ Map 8A



Not to Scale

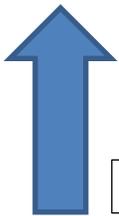
<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 29 of 33 DATE: 9/20/13</p>
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Map 9A W. PINER POINT (7 buoys on state-owned and private tidelands)

Match to Map 8A



Match w/ Map 9B



Not to Scale

PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve

DATUM: MLLW = 0.58
[TACOMA, WA, 1983-2001 EPOCH]

ADJACENT PROPERTY OWNERS:
See JARPA Application

SITE PROPERTY OWNER:
State of Washington, managed by the Department of Natural Resources

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USACE REFERENCE #: NWS-2013-846

IN: Quartermaster Harbor

COUNTY: King

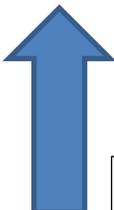
SHEET: Page 30 of 33

DATE: 9/20/13

Map 9B PINER POINT (2 buoys on state-owned and private tidelands)



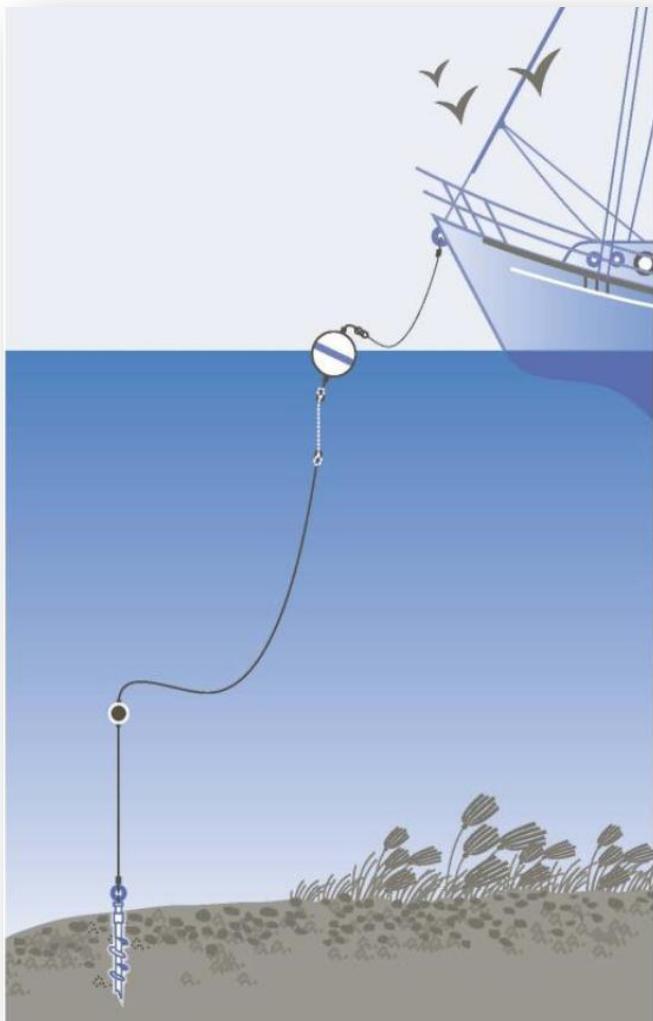
Match w/
Map 9A



Not to Scale

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 31 of 33 DATE: 9/20/13</p>
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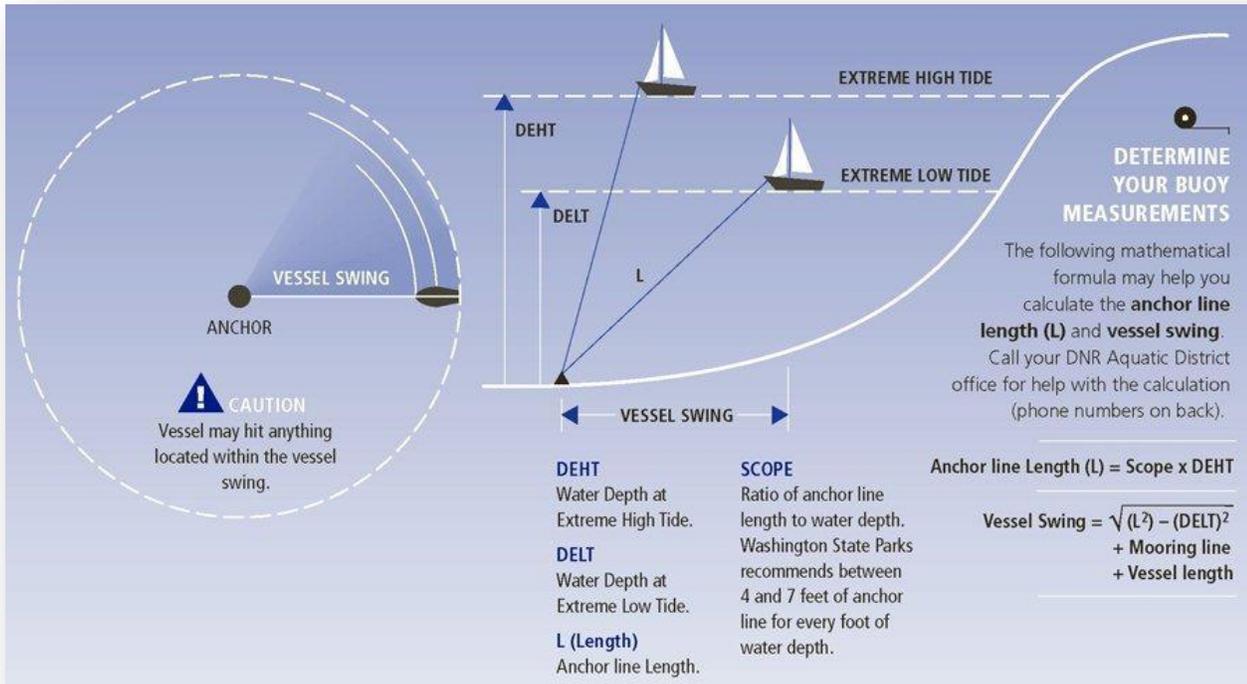
END NOTES



Schematic Drawing for Embedded Anchor Mooring Buoy System with midline float

Embedded helical anchor systems consist of a shaft made of 1¼-inch or 1 ½-inch solid, galvanized steel with two or three anchor plates that are hydraulically screwed into the substrate. Double-braided anchor lines are connected to the shaft by a shackle with plastic thimbles and then connected from the shackle to a swivel and 6 feet of chain that passes through the buoy. Midline floats attached on the anchor line minimize line dragging or scouring the substrate.

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 32 of 33 DATE: 9/20/13</p>
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Schematic Drawing for Calculating Vessel Swing

Vessel Swing Radius, Scope = 1.5

Anchor line length and vessel swing radius calculated as follows:

Measured depths were adjusted by adding an assumed 1 foot depth-finder transducer offset and the tidal height for each buoy site. Proposed buoy fields assume 30-foot average vessel and 10-foot buoy line.

Using tide data from the National Oceanic and Atmospheric Administration website

(<http://tidesandcurrents.noaa.gov>), depth relative to the tidal datums was corrected for each buoy using the following datum information:

Station: 9446484 12.39 Mean Higher-High Water (MHHW)
 Name: Tacoma, WA 0.58 Mean Lower-Low Water (MLLW)
 Units: Feet 0.00 Station Datum
 Tidal Epoch: 1983-2001 15.15 Highest Observed Water Level (EHT)
 -4.11 Lowest Observed Water Level (ELT)

The extremes were then used to find anchor line length and swing radius by the following formulas:

Anchor line length (L) = SCOPE x EHT where SCOPE is the ratio of anchor line length to water depth.

SCOPE = 1.5 was used in these calculations.

<p>PURPOSE: Habitat restoration in the Maury Island Aquatic Reserve</p> <p>DATUM: MLLW = 0.58 [TACOMA, WA, 1983-2001 EPOCH]</p> <p>ADJACENT PROPERTY OWNERS: See JARPA Application</p> <p>SITE PROPERTY OWNER: State of Washington, managed by the Department of Natural Resources</p>	<p>APPLICANT: Washington State Dept. of Natural Resources / Aquatic Resources Division / P.O. Box 47027, Olympia, WA 98504-7027</p> <p>PROPOSED: Authorize initial placement, relocation, and/or reinstallation in place of up to 200 privately-owned recreational mooring buoys on state-owned aquatic lands. Remove up to 75 abandoned buoys and associated debris from state-owned aquatic lands.</p>	<p>USACE REFERENCE #: NWS-2013-846</p> <p>IN: Quartermaster Harbor</p> <p>COUNTY: King</p> <p>SHEET: Page 33 of 33 DATE: 9/20/13</p>
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