Quartermaster Harbor, Page 6

- Buoy Inventory May 4, 2011
- Buoy Inventory 11/7/2011 and 11/10/2011
- Buoy Inventory Aug 29, 2012
- Swing radius with boat. Scope = 1.5 10ft mooring line assumed.
- Swing radius without boat. Scope = 1.5 10ft mooring line assumed.
- Generalized eelgrass location (DNR)
- King County Parcels 2012

Herring Data (WDFW)

- Adult Holding Areas
- Spawning Areas

The Maury Island Aquatic Reserve includes the tidelands and bedlands of navigable waters owned by the state of Washington as described in the legal description. The legal description can be found at http://www.dnr.wa.gov/ResearchScience/Topics/AquaticHabitats/Pages/aqr_rsve_maury_island.aspx

The reserve boundary is illustrated by the following lines:

- Shoreline
- Mean Low Tide
- Extreme Low Tide
- Meander Line
- Meander Line approximation (no data)
- Platted Line
- Aquatic Reserve Boundary
- Protracted Line

Depth contours (feet), 0 = MLLW (NOAA)

Imagery: 2011 Washington orthophoto, 3 foot resolution (NAIP)

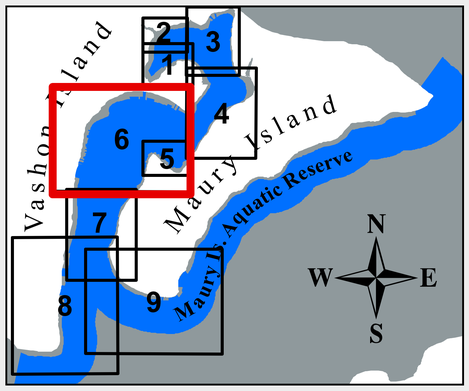
0 500 1,000 1,500 2,000 Feet

0 100 200 300 400 500 Meters

1:3,000

Map updated 9/10/2012 by Mac McKay.

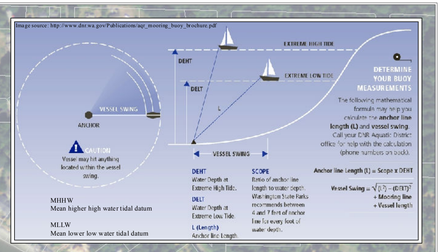
NOTE:
Buoy inventories taken at different dates/times may show the same buoy, but in a different location.



WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

Extreme care was used during map compilation to ensure accuracy. However, due to the need to rely on outside sources for information and changes in ownership, the Department of Natural Resources cannot accept responsibility for errors or omissions of data. Therefore, no warranties accompany this data.

Aquatic Resources Division
Phone 360-902-1100
Fax 360-902-1786
Email ard@dnr.wa.gov
1111 Washington St. SE
MS 47027
Olympia, WA 98504-7027



Herring Spawning Area (WDFW)

Quartermaster Harbor

Eelgrass Habitat Area (DNR)

Eelgrass Habitat (DNR)

Herring Spawning Area (WDFW)

Dockton

Vessel Swing Radius, Scope = 1.5

Anchor line length and vessel swing radius calculated as follows:

Measured depths were adjusted by adding an assumed 1foot depth-finder transducer offset and the tidal height for each buoy site.

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. Washington State Parks recommends a scope between 4 and 7 feet of anchor line for every foot of water depth. SCOPE = 1.5 was used in these calculations.

Swing Radius = $\sqrt{(L^2) - (ELT^2)}$ + mooring line (10ft assumed) + vessel length

These formulas are described in the brochure: "How to Moor Your Boat On State-Owned Aquatic Lands"

These results are based on Tacoma tide data and an assumed 1 foot depth-finder transducer offset. Various sources of error including tide prediction error and variation in the position of the depth sounder relative to the mooring buoy anchor are not considered here.