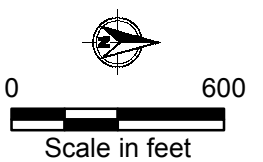


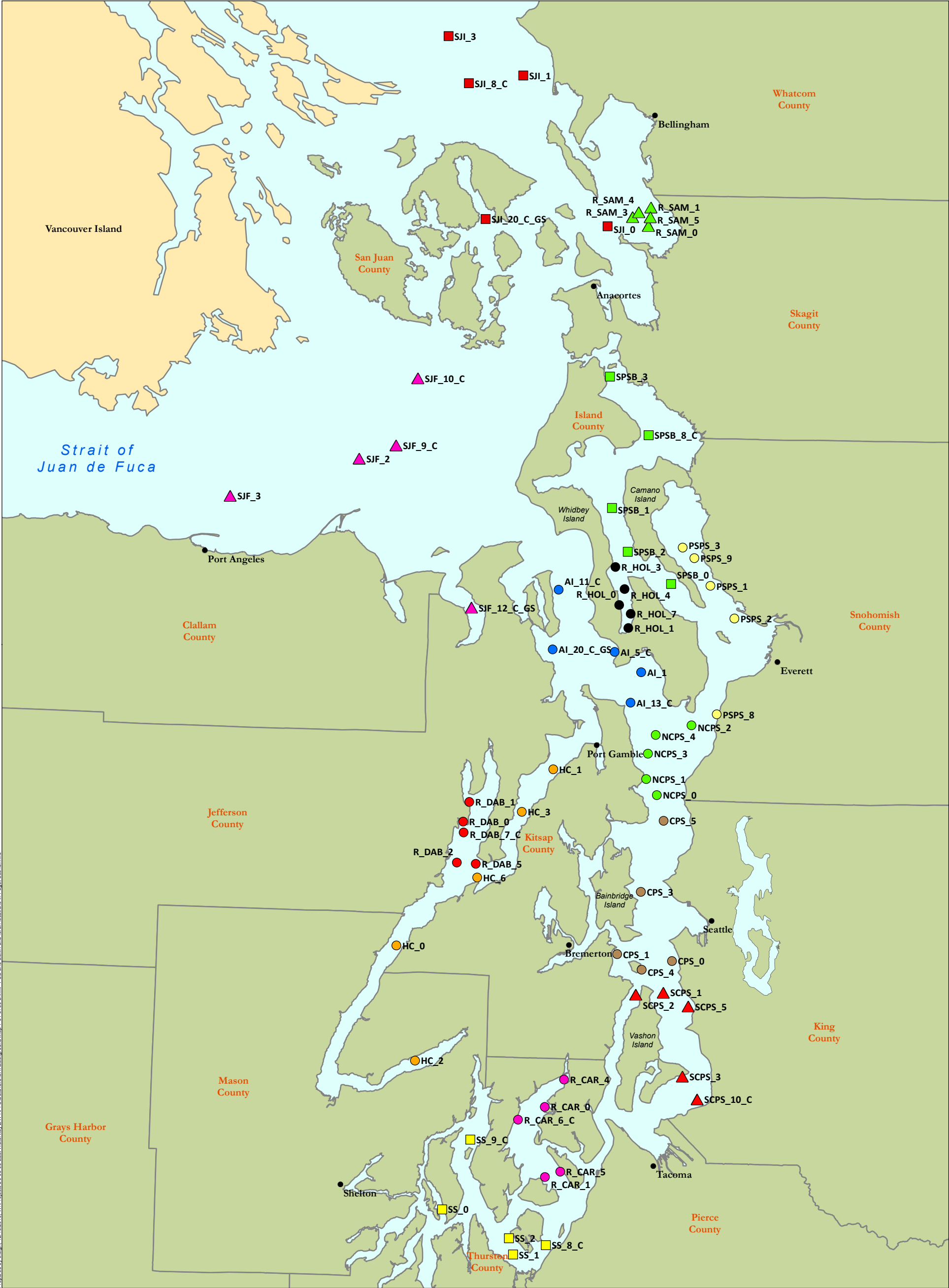
Prepared by: craigh, 12/13/2013, W:\Projects\00-08-08 East Waterway\EW RI\FS\Date\GIS\RI\ER\Map 5-1 3715 TBT in Benthic Invertebrates.mxd

\* Historic pier location

- ◆ Location of Benthic Tissue and Co-located Sediment Sample
- TBT Tissue Collection Area Boundary
- ▨ Benthic Invertebrate Tissue TBT LOAEL HQ > 1
- ▤ Dock/Pier/Bridge
- Road
- == East Waterway Study Area Boundary

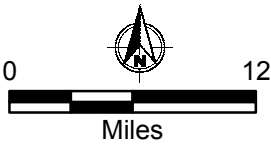


**Map 5-1**  
Benthic Invertebrate Tissue Sampling Areas for TBT  
Supplemental Remedial Investigation  
East Waterway Study Area

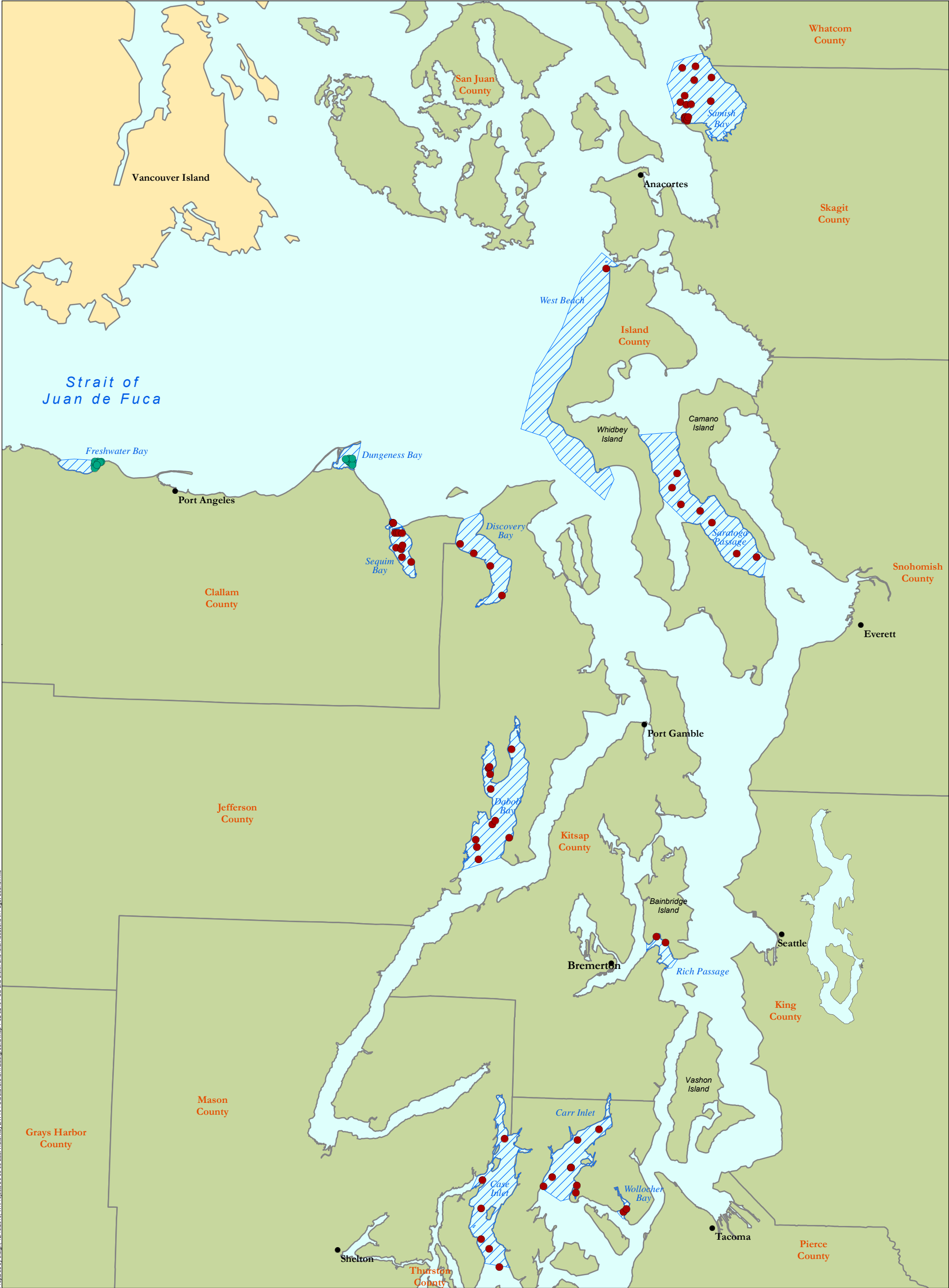


**Puget Sound 2008 Survey Location**

- AI
- CPS
- HC
- NCPS
- PSPS
- R\_CAR
- R\_DAB
- R\_HOL
- R\_SAM
- SCPS
- SJF
- SJI
- SPSB
- SS



**Map 7-1**  
Locations of Surface Sediment Data Available for Arsenic, PCBs, cPAHs, and Dioxins and Furans from the Puget Sound 2008 Survey for Natural Background Consideration  
Supplemental Remedial Investigation  
East Waterway Study Area



Prepared by: craph, 12/13/2013, W:\Projects\010-08-08 East Waterway\VIEW RFL\SD\GIS\SRRI\Background\Map\_7-2\_3240 PCB and dioxin and furan locations in Puget Sound.mxd



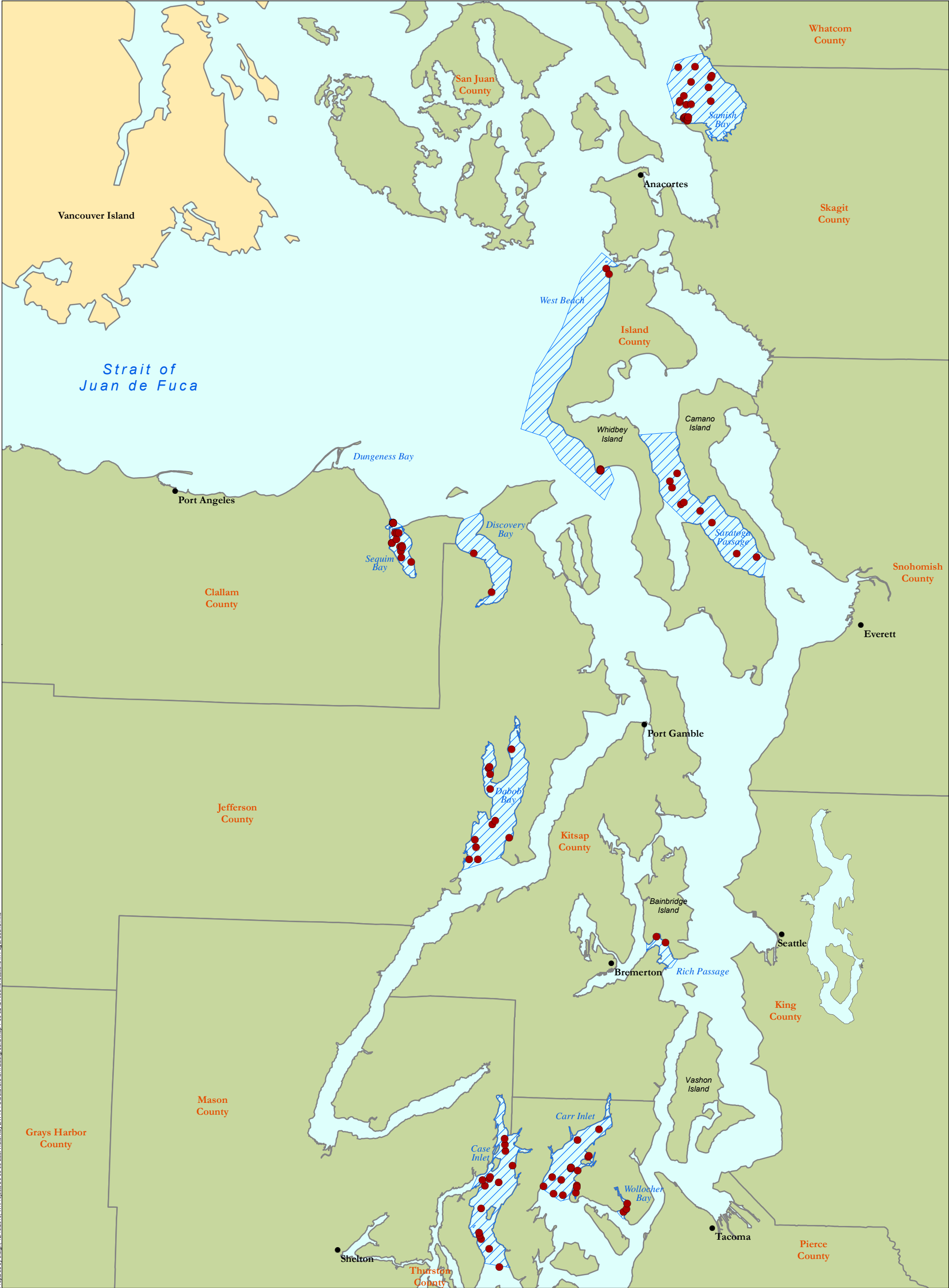
PCB and Dioxin and Furan  
Sediment Sample Location

PCB Sediment Sample Location

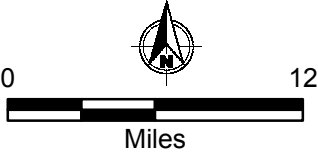
Background Sampling Area

**Map 7-2**  
Locations of Surface Sediment PCB and Dioxin and Furan Data  
Available for Natural Background from Reference Areas Prior to 2008  
Supplemental Remedial Investigation  
East Waterway Study Area

Note: Puget Sound 2008 survey locations are shown on Map 7-1.



Prepared by: cgraph, 12/13/2013, W:\Projects\010-08-08 East Waterway\VIEW RFL\FSData\GIS\SRRI\BackgroundMap\_7-03-3242\_Arsenic locations in Puget Sound.mxd

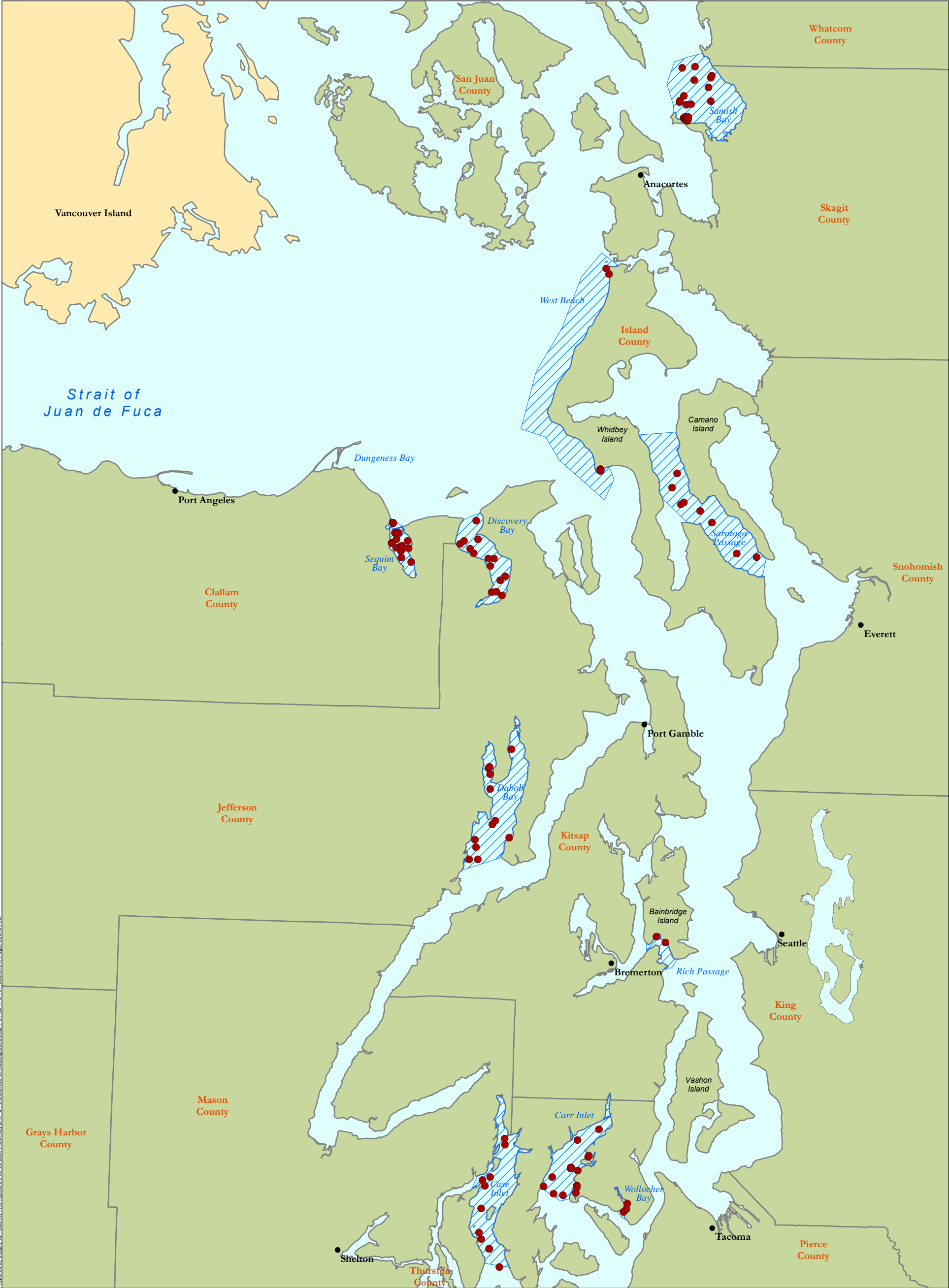


Arsenic Sediment Sample Location

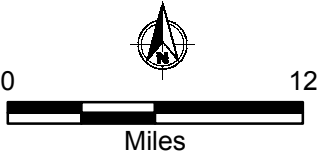
Background Sampling Area

Note: Puget Sound 2008 survey locations are shown on Map 7-1.

**Map 7-3**  
 Locations of Surface Sediment Arsenic Data Available for  
 Natural Background from Reference Areas Prior to 2008  
 Supplemental Remedial Investigation  
 East Waterway Study Area



Prepared by cgraph, 12/13/2013, W:\Projects\010-08-08 East Waterway\VIEW\RLFSData\GIS\SR\Background\Map\_7-4\_3241 cPAH locations in Puget Sound.mxd

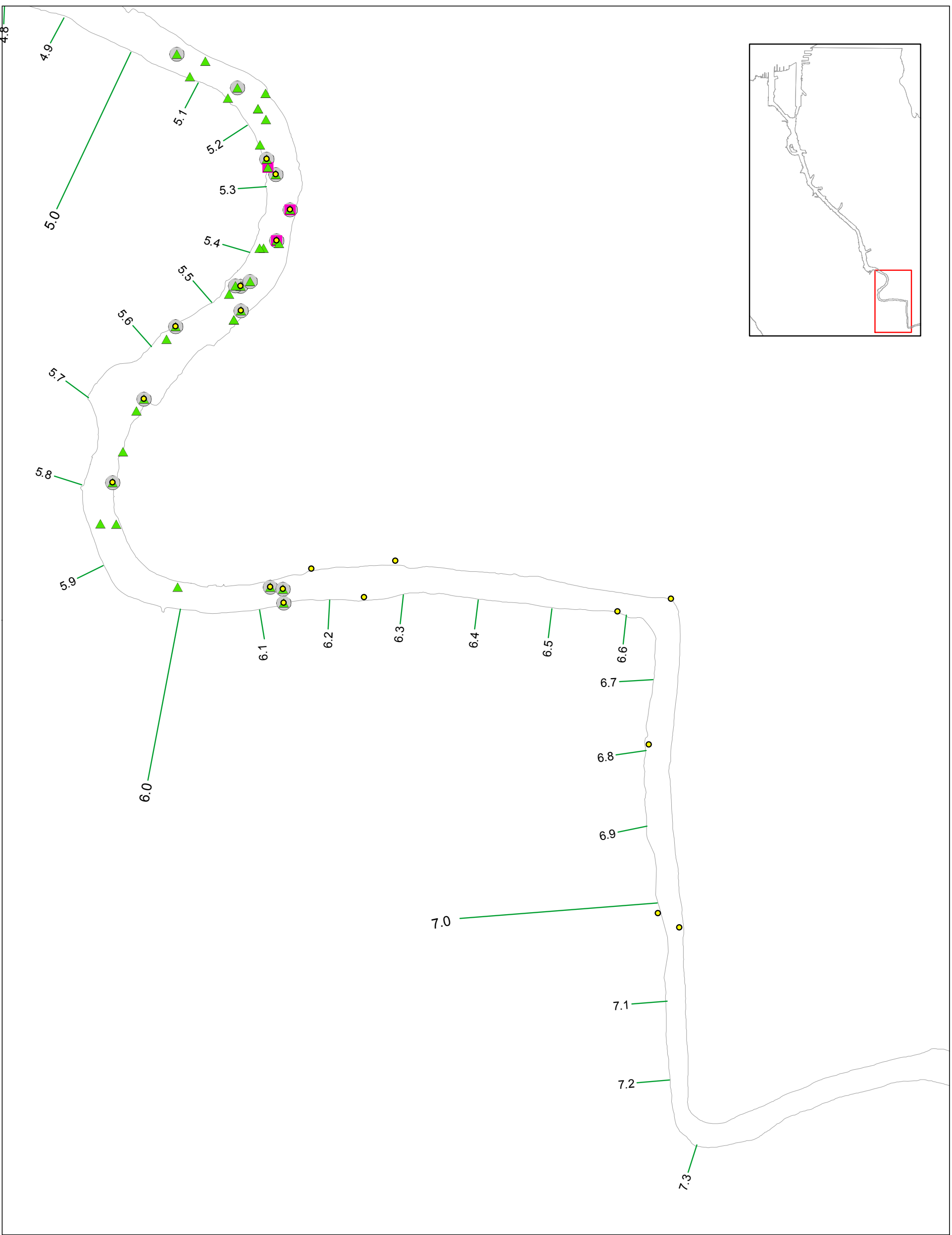


cPAH Sediment Sample Location

Background Sampling Area

Note: Puget Sound 2008 survey locations are shown on Map 7-1.

**Map 7-4**  
Locations of Surface Sediment cPAH Data Available for Natural Background from Reference Areas Prior to 2008  
Supplemental Remedial Investigation  
East Waterway Study Area



Source: Windward (2010g)

**Legend**

Arsenic sample location

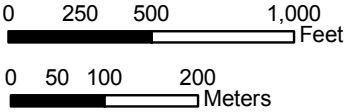
PCB sample location

cPAH sample location

Dioxin and furan sample location

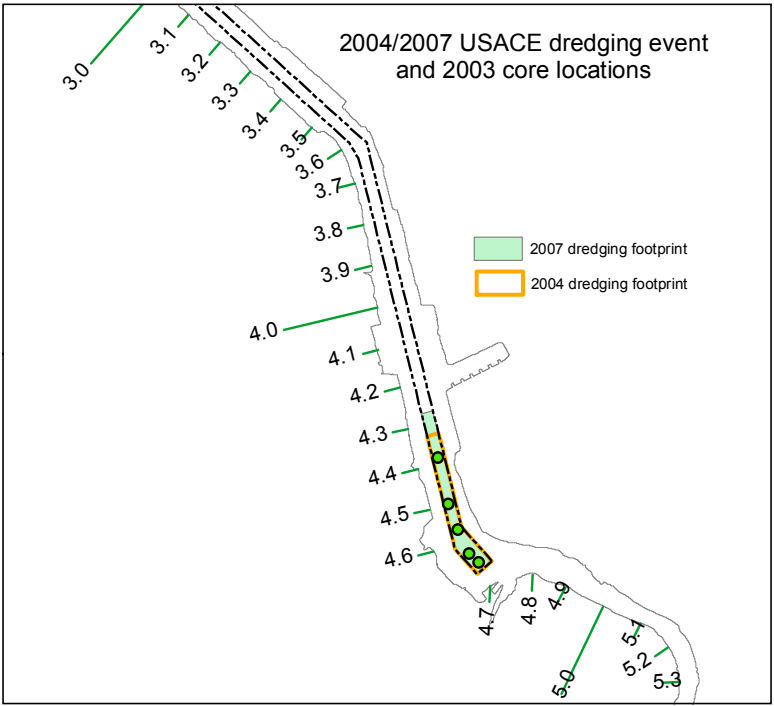
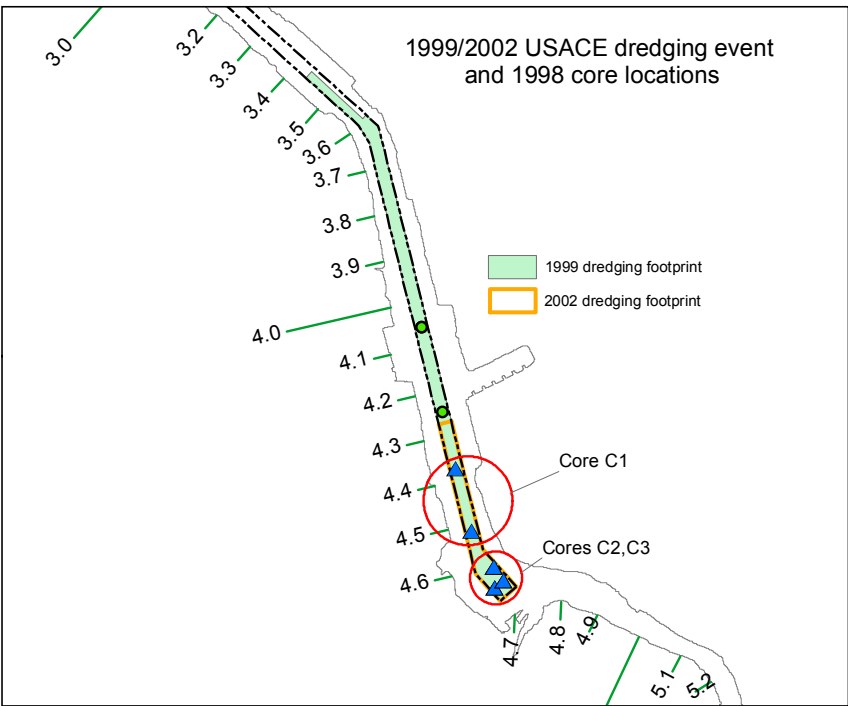
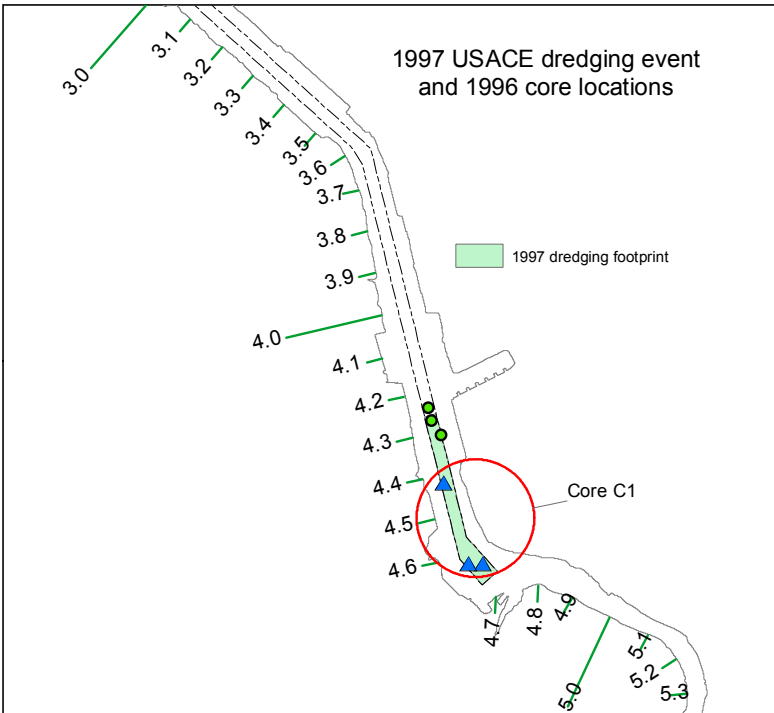
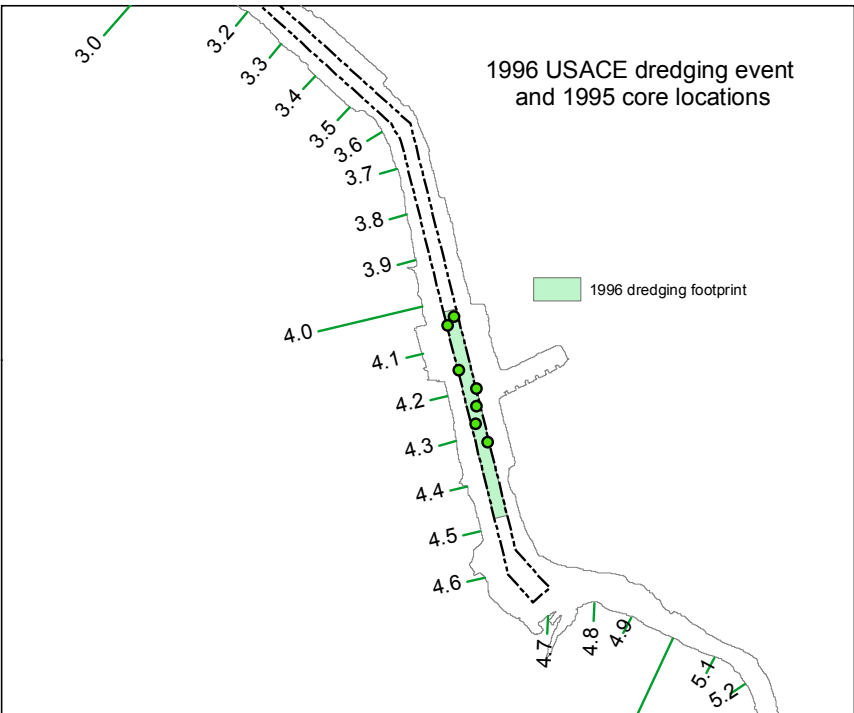
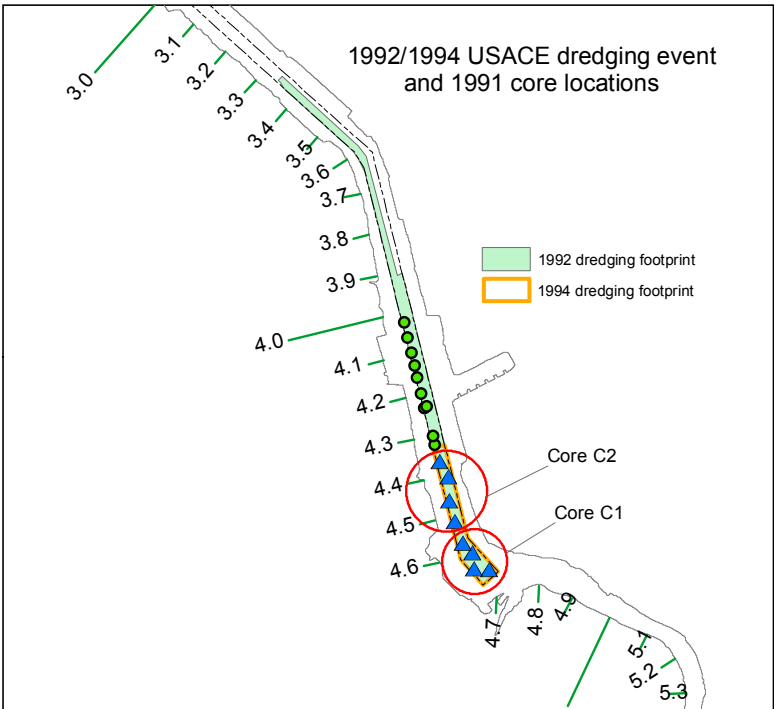
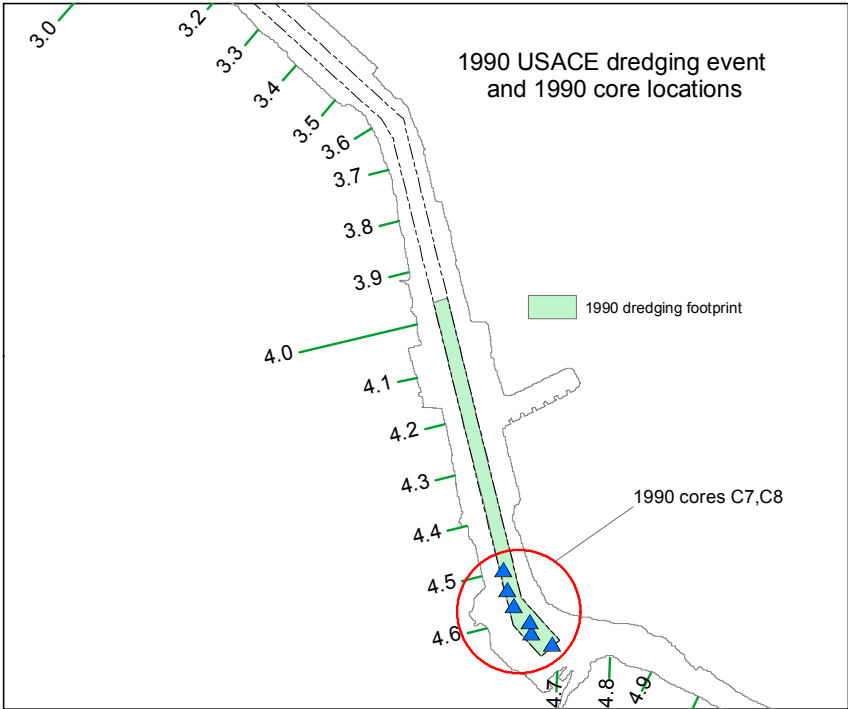
Navigation channel

River Mile marker



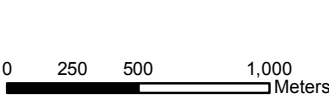
Notes:  
1. An additional sample collected from Springbrook Creek (which enters the Duwamish River at RM 10.2) was included in the dioxin and furan dataset for samples from RM 5.0 - 7.0, but is not shown on this map.

Map 7-5. Surface Sediment Sampling Locations for Arsenic, PCBs, cPAHs, or Dioxins and Furans - RM 5.0 to RM 7.0



- Notes:
1. Sampling data provided by USACE (2007).
  2. Dredge footprints from USACE dredge summary and analysis reports.
  3. Single sample locations represent stations where a single core was collected (generally from 0 to 4 ft below the mudline), composited over the length of the core, and analyzed. Composite sample locations represent stations where single cores from each of those stations (again, generally from 0 to 4 ft below the mudline) were first composited over the length of the core and then composited with the samples from the cores at other stations prior to analysis.
  4. Stations downstream of RM 4.0 not shown.

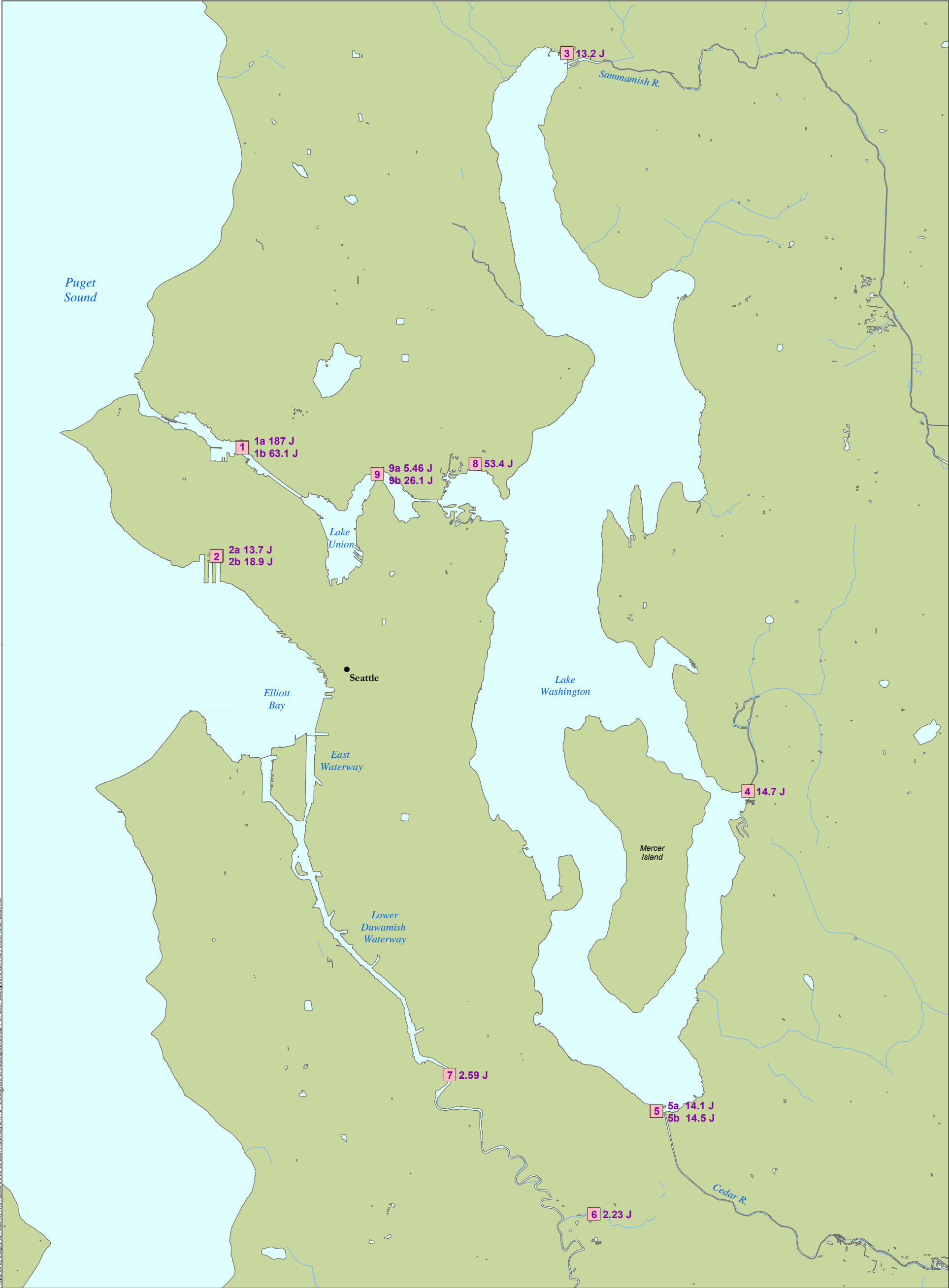
Source: Windward (2010g)



**Map 7-6. Locations of Subsurface Sediment Samples Collected as Part of the 1990 to 2003 USACE Dredged Material Characterization Events**

### Legend

- Single core location
- ▲ Composite core location
- Navigation channel
- River mile



Prepared by craph, 12/13/2013, W:\Projects\0106-08-East Waterway\VIEW RLFSData\GISRI\BackgroundMap\_7-07-2307 Background summary dioxin furan data.mxd

3

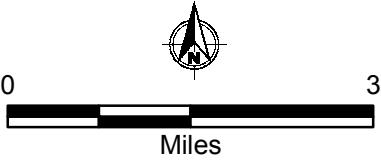
13.2 J

Centroid location number

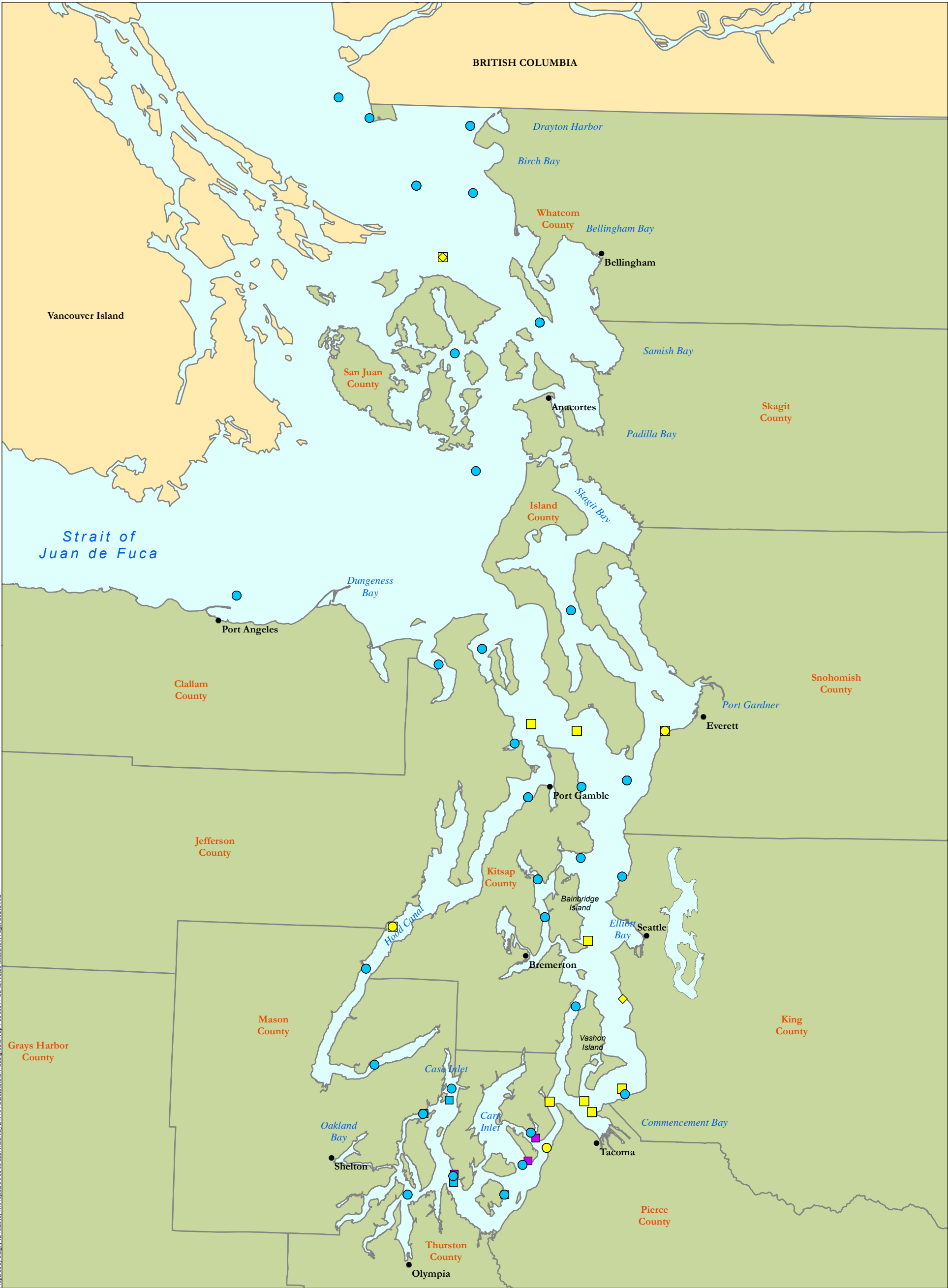
Dioxin and furan TEQ (ng/kg dw)

J: estimated

Dioxin and furan TEQs were calculated from individual dioxin and furan concentrations with mammalian TEFs, using ½ the reporting limit for undetected dioxin and furan congeners. The TEQ at location 3 is the average of the original sample value and the field duplicate sample value.



**Map 7-7**  
Dioxin and Furan TEQs in Surface Sediment Samples from the Greater Seattle Area  
Supplemental Remedial Investigation  
East Waterway Study Area



Fish Tissue Sampling Locations

English Sole (West et al. 2001)

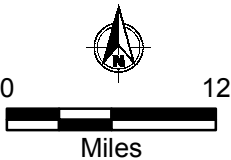
English Sole (Era-Miller 2006)

Rock Sole (Era-Miller 2006)

Copper Rockfish (West et al. 2001)

Quillback Rockfish (West et al. 2001)

Yelloweye Rockfish (West et al. 2001)



Map 7-8

Non-Urban Puget Sound Sampling Locations for Fish Tissue Analyzed for PCBs

Supplemental Remedial Investigation

East Waterway Study Area



Prepared by cgraph, 12/13/2013, W:\Projects\010-08-08 East Waterway\VIEW RFL\FSData\GIS\SR\Background\Map\_7-9\_3035 PCBs clam tissue locations in Puget Sound.mxd

Clam Tissue Sampling Locations

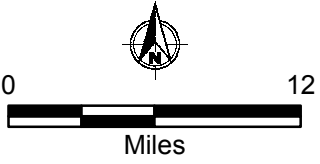
Butter Clam (Ecology 2000)

Littleneck Clam (Ecology 2000)

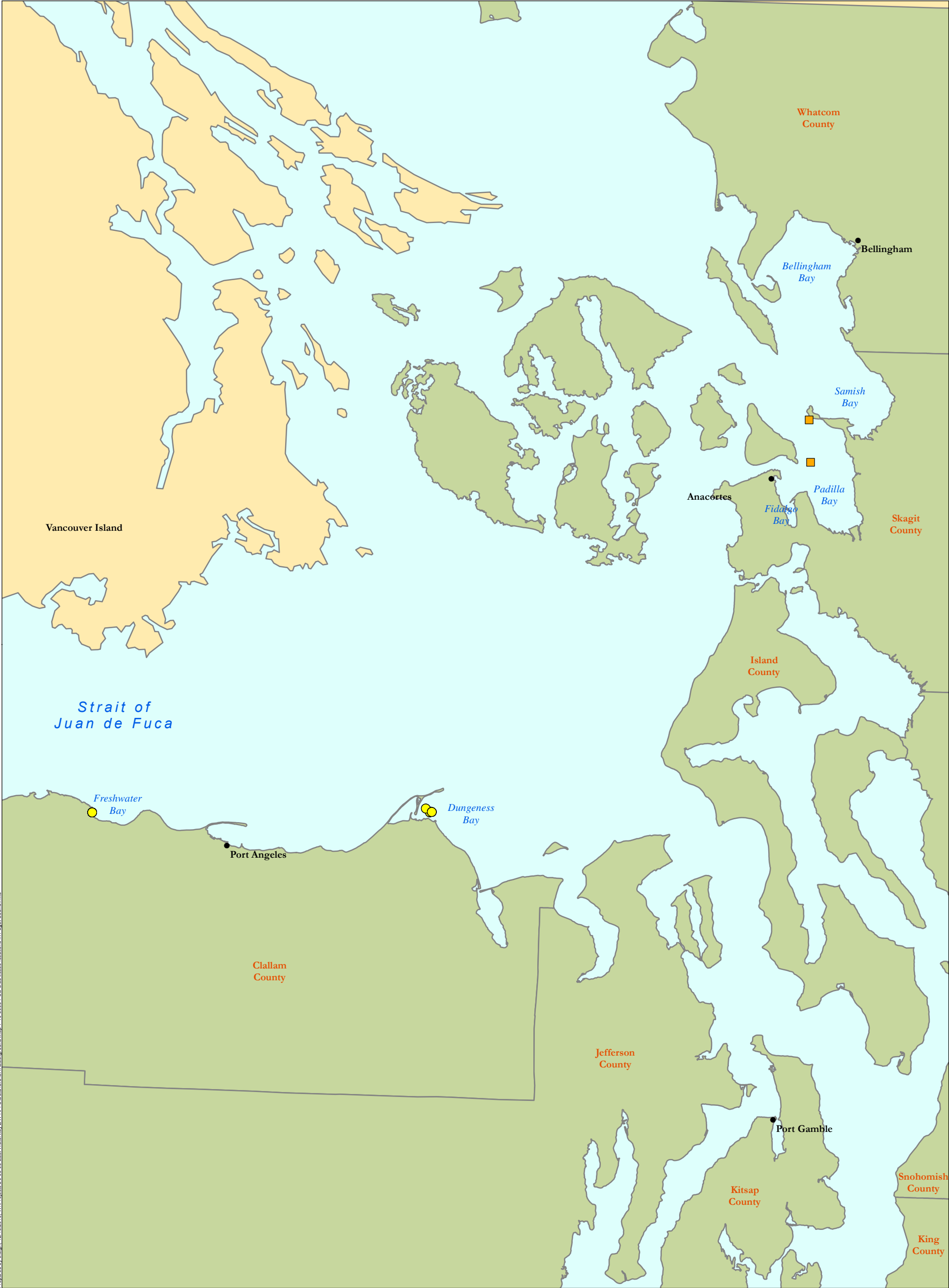
Littleneck Clam (Parametrix 2003)

Geoduck and Horse Clam (Malcolm Pirnie 2007)

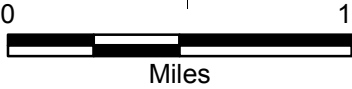
Butter Clam (King County 1995, 2000, 2001, 2002, 2005, 2006, 2009)



**Map 7-9**  
Non-Urban Puget Sound Sampling Locations for Clam Tissue Analyzed for PCBs  
Supplemental Remedial Investigation  
East Waterway Study Area



Prepared by: cgraph, 12/13/2013, W:\Projects\010-08-08\_East Waterway\VIEW\_RL\FSD\Data\GLS\SR\Background\Map\_7-10\_3035\_PCB\_crab\_tissue\_locations\_in\_Puget\_Sound.mxd



**Crab Tissue Sampling Locations**

Dungeness Crab (Ecology 2000)

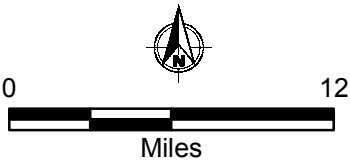
Dungeness Crab (Malcolm Pirnie 2007)

Map 7-10

Non-Urban Puget Sound Sampling Locations for Crab Tissue Analyzed for PCBs

Supplemental Remedial Investigation

East Waterway Study Area



**Fish Tissue Sampling Locations**

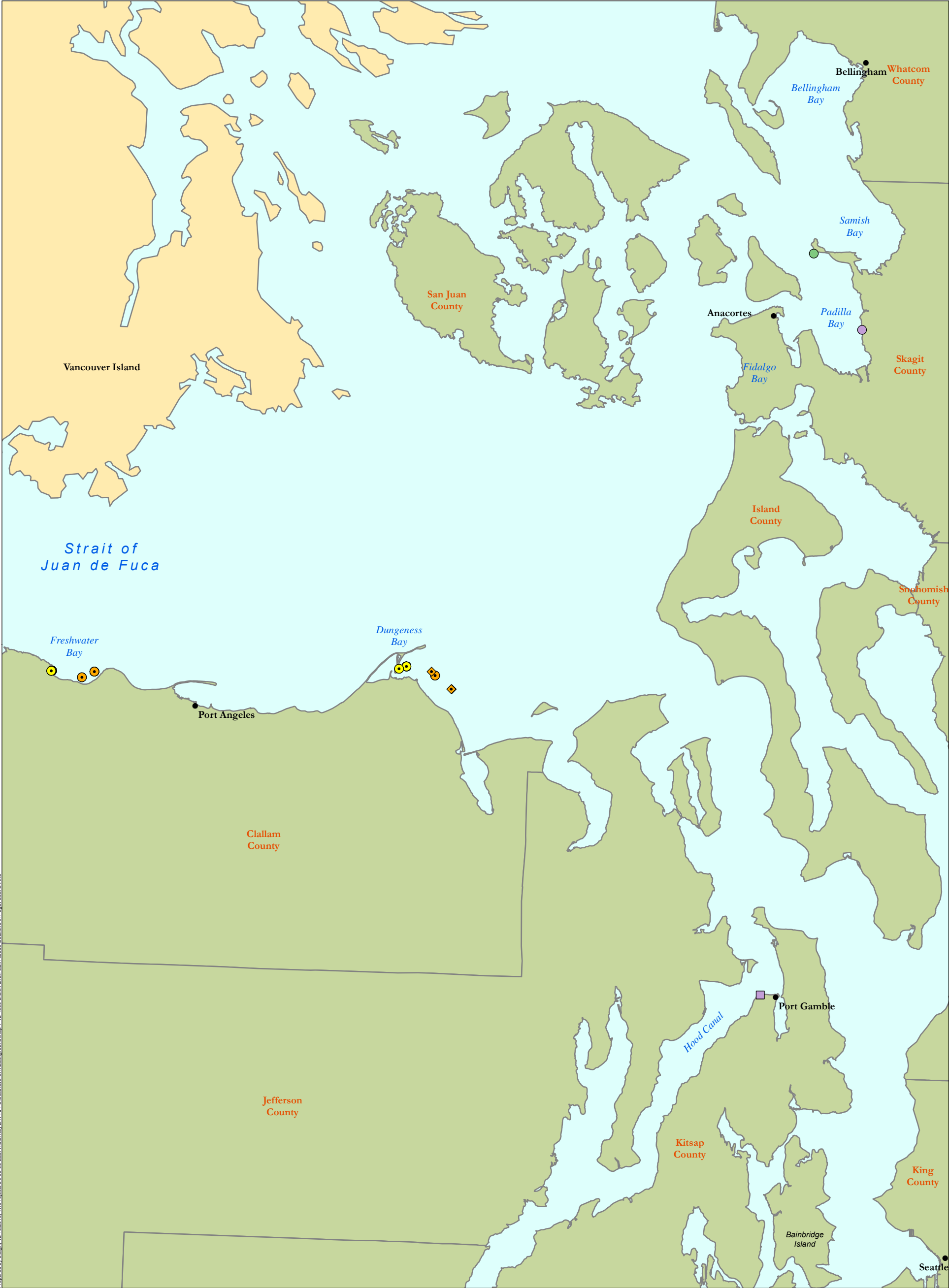
◆ Rock Sole (Malcolm Pirnie 2007)

◇ Starry Flounder (Malcolm Pirnie 2007)

○ English Sole (SAIC 2008b)

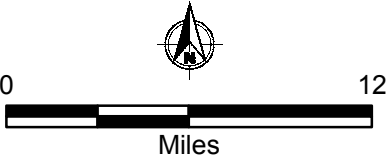
**Map 7-11**

Non-Urban Puget Sound Sampling Locations for Fish Tissue Analyzed for Dioxins/Furans  
Supplemental Remedial Investigation  
East Waterway Study Area



**Clam Tissue Sampling Locations**

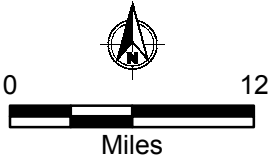
- Butter Clam (Ecology 2000)
- Littleneck Clam (Ecology 2000)
- Littleneck Clam (Parametrix 2003)
- Geoduck (Malcolm Pirnie 2007)
- Horse Clam (Malcolm Pirnie 2007)
- ◆ Geoduck and/or Horse Clam (Ecology 2009)



**Map 7-12**  
Non-Urban Puget Sound Sampling Locations for Clam Tissue Analyzed for Dioxins/Furans  
Supplemental Remedial Investigation  
East Waterway Study Area



Prepared by cgraph, 12/13/2013, W:\Projects\0106-08-08\_East\_Waterway\VIEW\_RLFS\Data\GLSSRI\BackgroundMap\_7-13\_4389\_Down\_turan\_crab\_tissue\_locations\_in\_Puget\_Sound.mxd



**Crab Tissue Sampling Locations**

Dungeness Crab (PSEP 1991)

Dungeness Crab (Ecology 2000)

Dungeness Crab (Malcolm Pirnie 2007)

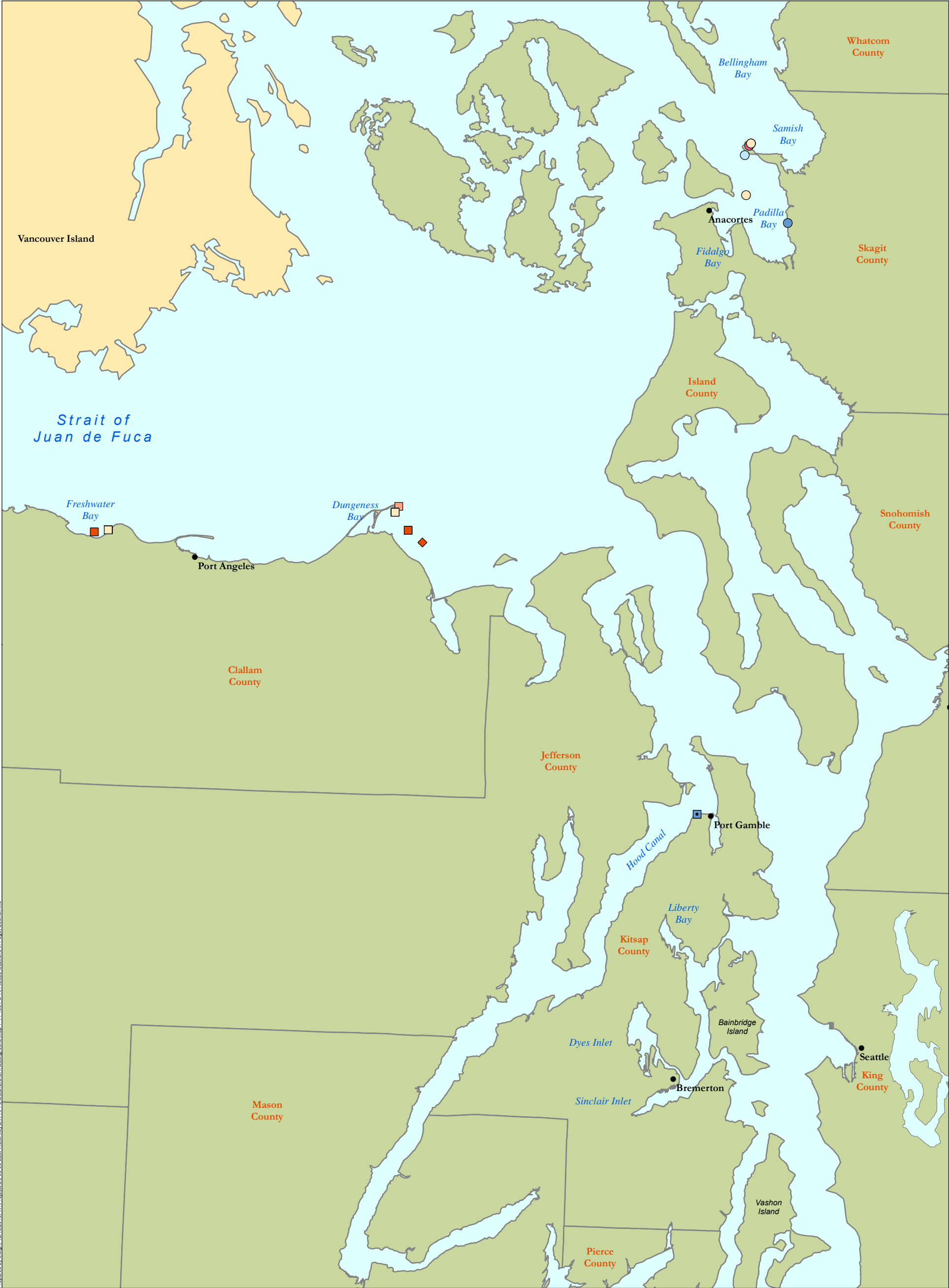
Dungeness Crab (SAIC 2008b)

Map 7-13

Non-Urban Puget Sound Sampling Locations for Crab Tissue Analyzed for Dioxins/Furans

Supplemental Remedial Investigation

East Waterway Study Area



Prepared by cgraph, 12/13/2013. W:\Projects\010-08-08 East Waterway\VIEW RFLS\Data\GLSRI\Background\Map 7-14 4581 cPAH tissue locations in Puget Sound.mxd

**Clam Tissue Sampling Locations**

- Butter Clam (Ecology 2000)
- Littleneck Clam (Ecology 2000)
- Littleneck Clam (Parametrix 2003)
- Geoduck (Malcolm Pirnie 2007)
- Geoduck (Ecology 2009)

**Mussel Tissue Sampling Locations**

- Bay Mussel (Ecology 2000)

**Crab Tissue Sampling Locations**

- Dungeness Crab (Ecology 2000)
- Dungeness Crab (Malcolm Pirnie 2007)

**Fish Tissue Sampling Locations**

- Starry Flounder (Malcolm Pirnie 2007)



**Map 7-14**  
Non-Urban Puget Sound Sampling Locations  
for Seafood Tissue Analyzed for cPAHs  
Supplemental Remedial Investigation  
East Waterway Study Area