DMMP

25-year review

May 1, 2013

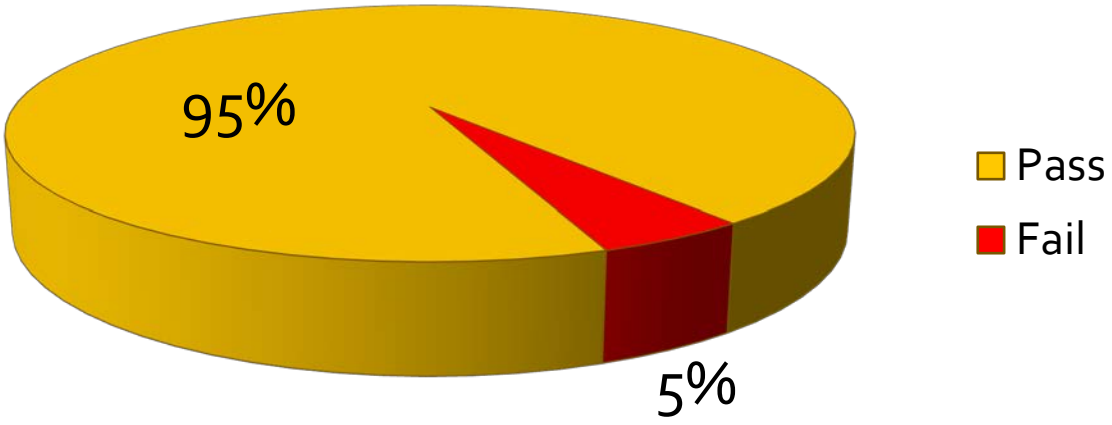
Prepared by David Fox

Implementation dates

- Puget Sound Dredged Disposal Analysis
  - Phase I – December 1988
  - Phase II – December 1989
- Grays Harbor/Willapa Bay
  - June 1995
- Columbia River
  - November 1998

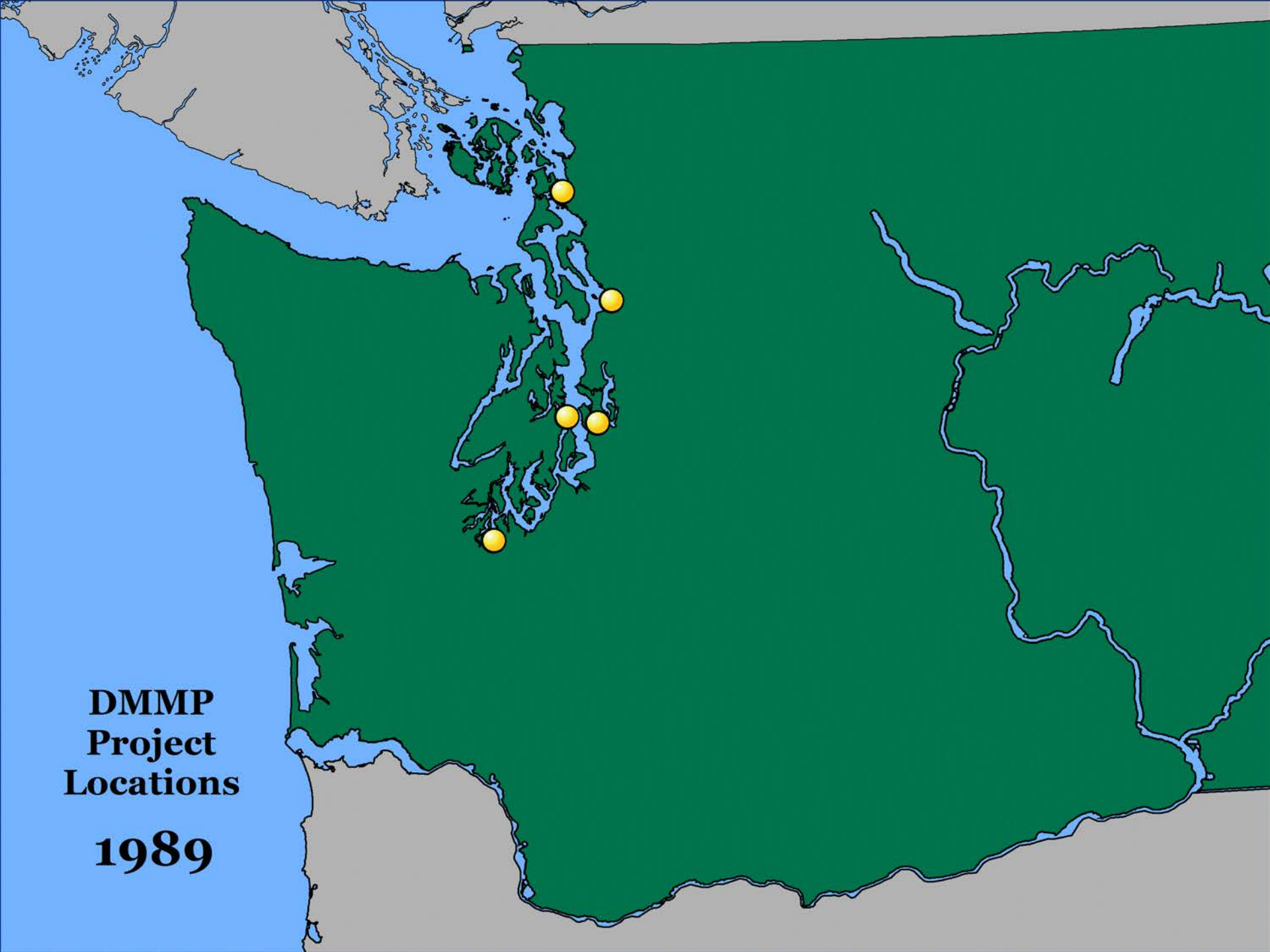
Testing Summary

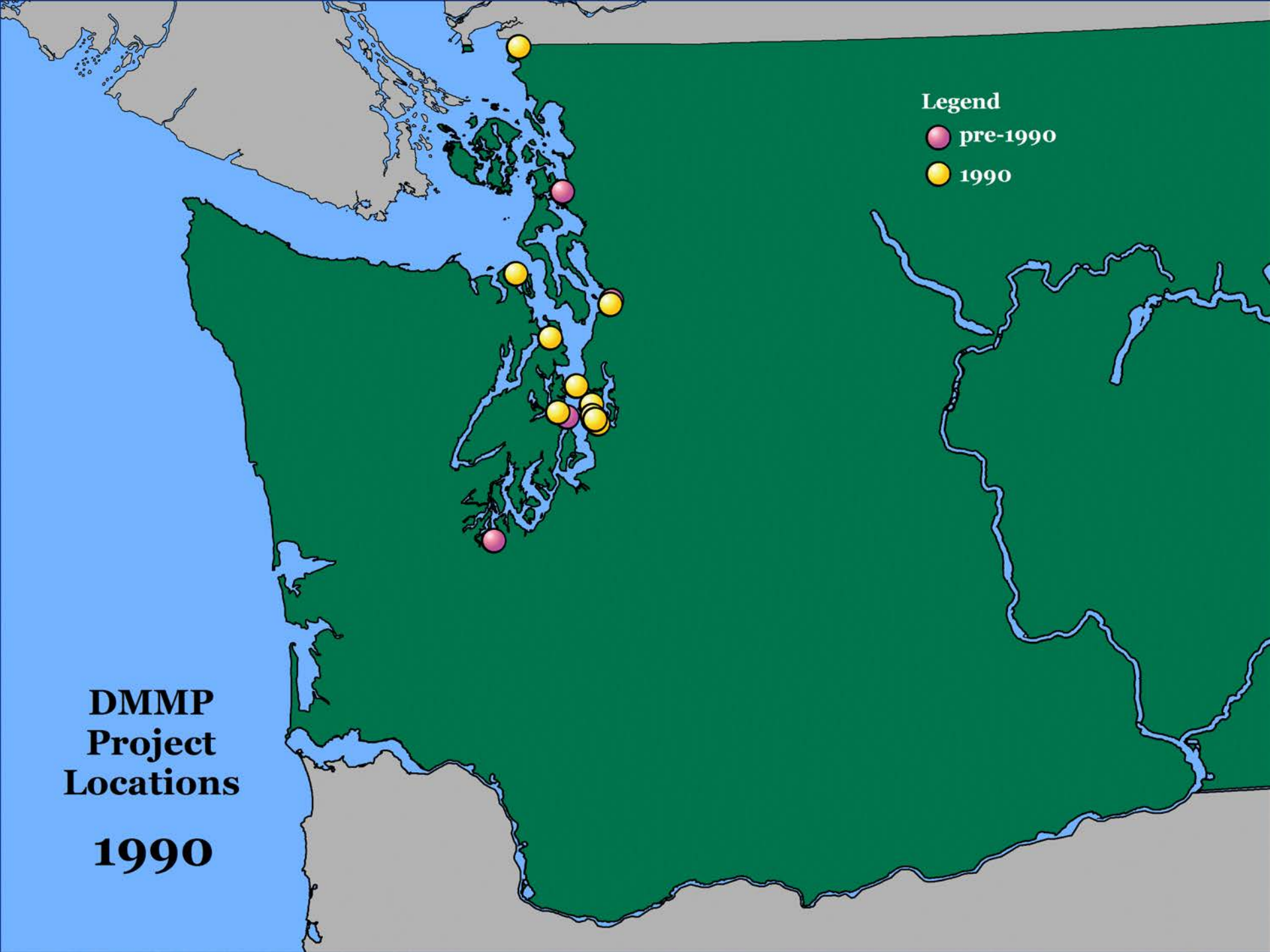
- 303 project tested
  - 232 in Puget Sound Basin
  - 56 in Grays Harbor, Willapa Bay or other coastal locations
  - 15 in the Columbia River Basin
  - 275 marine and 28 freshwater
- 52 million cubic yards tested



Time Travel

- Map Series – things to keep in mind
  - Current year in yellow, prior years in pink
  - Dredging years, not calendar years
  - The designated year corresponds to the date of the suitability determination
  - Only non-port projects on the Washington side of the Columbia River


DMMP
Project
Locations
1989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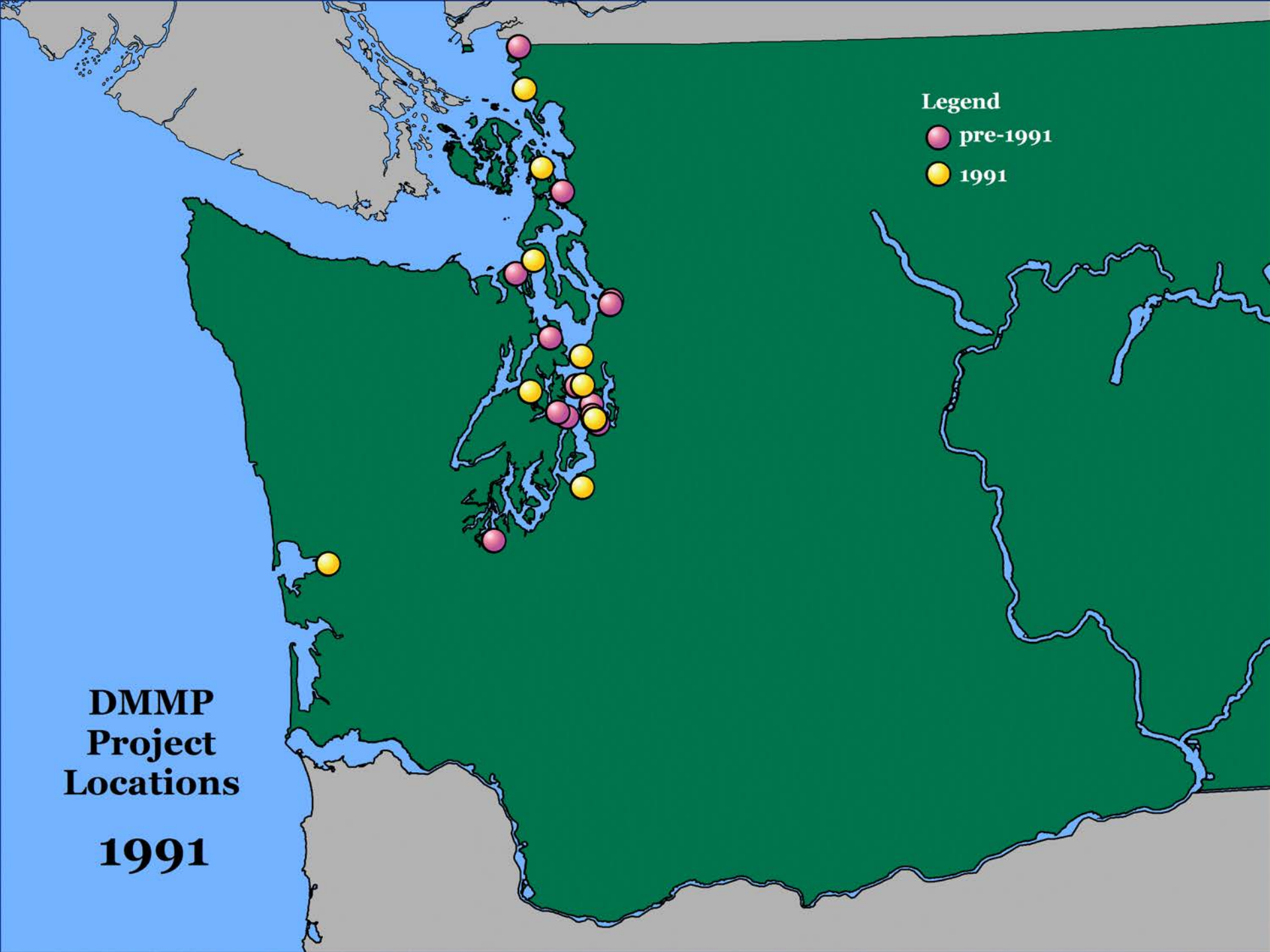
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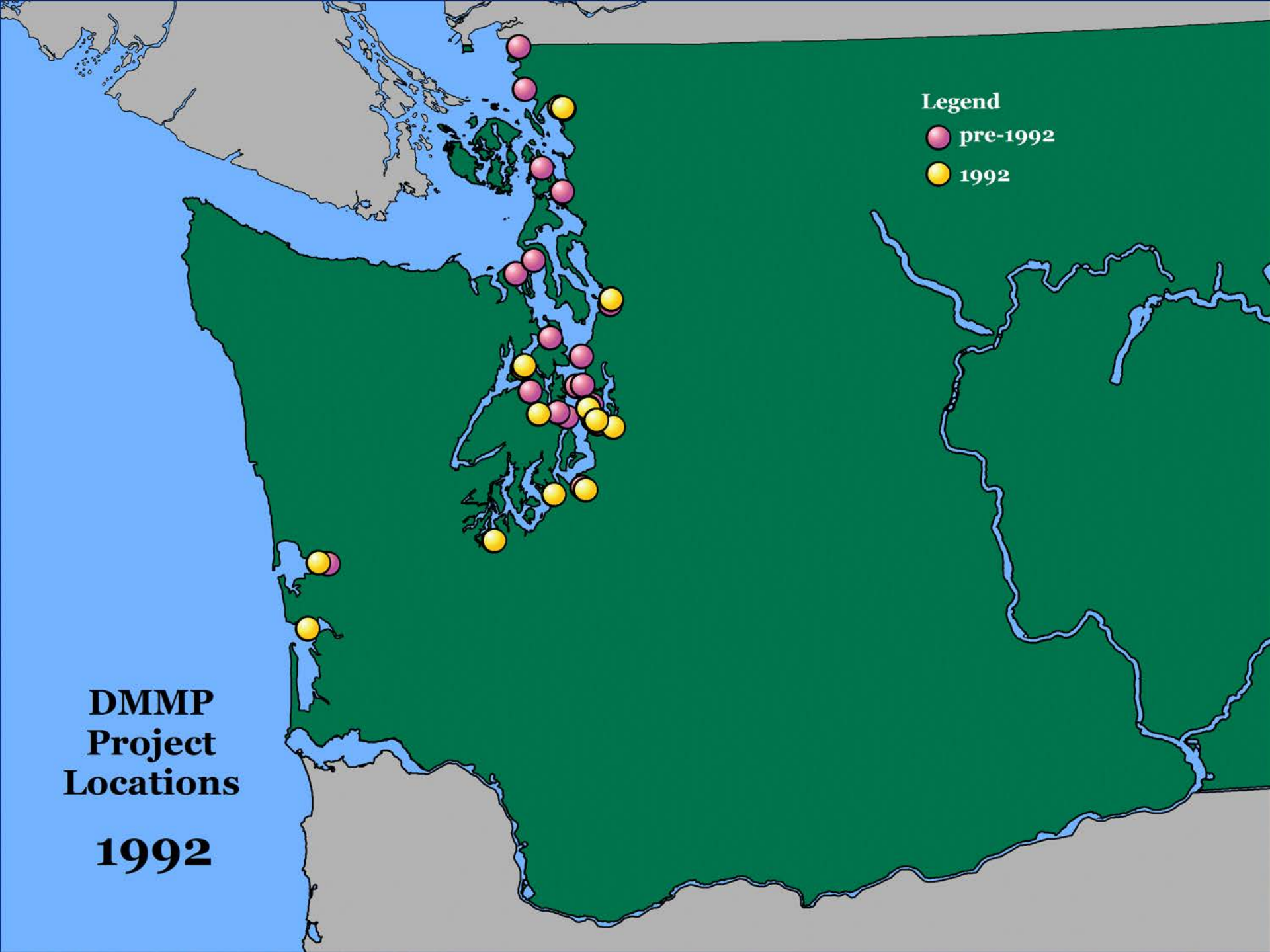
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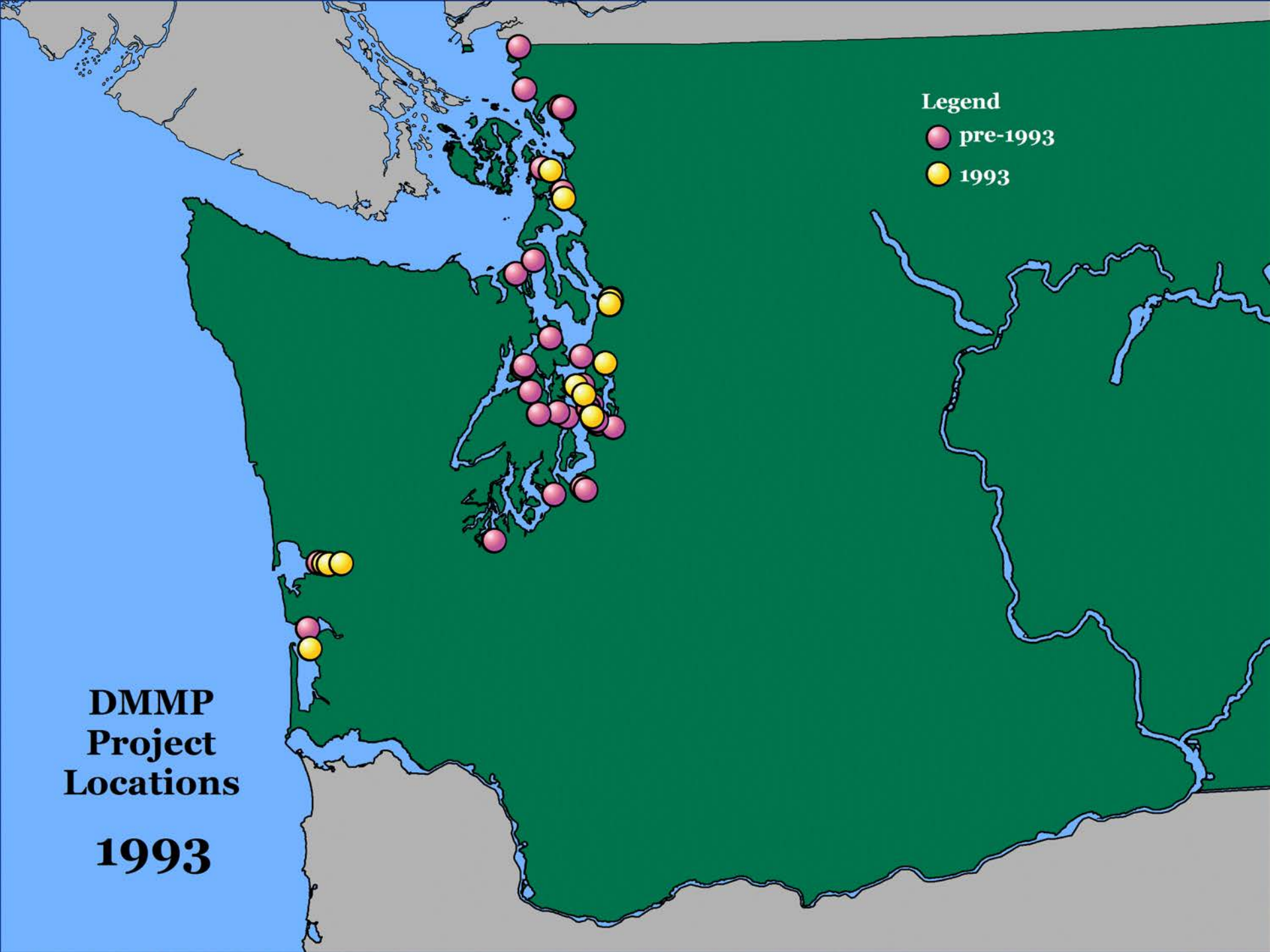
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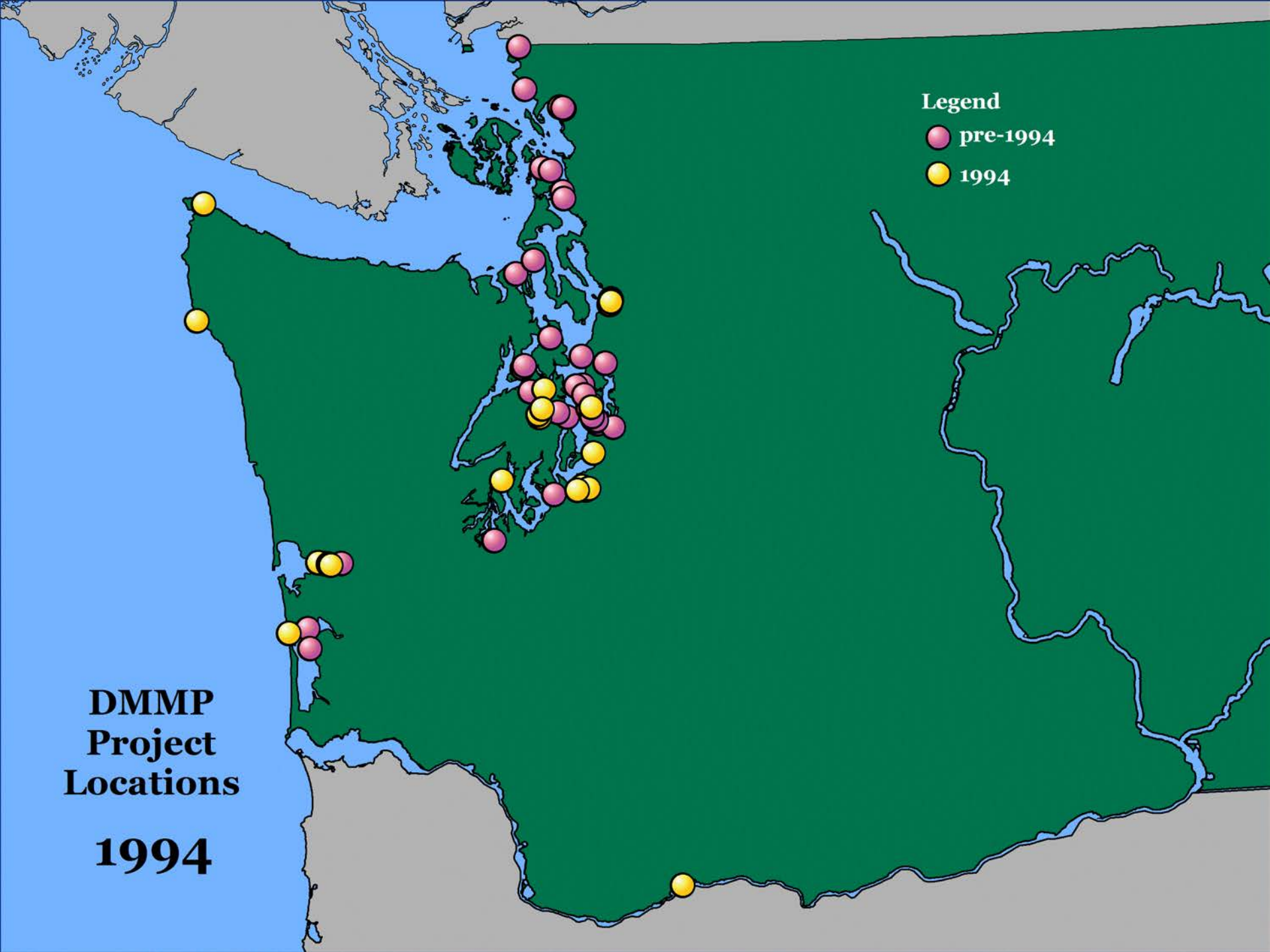
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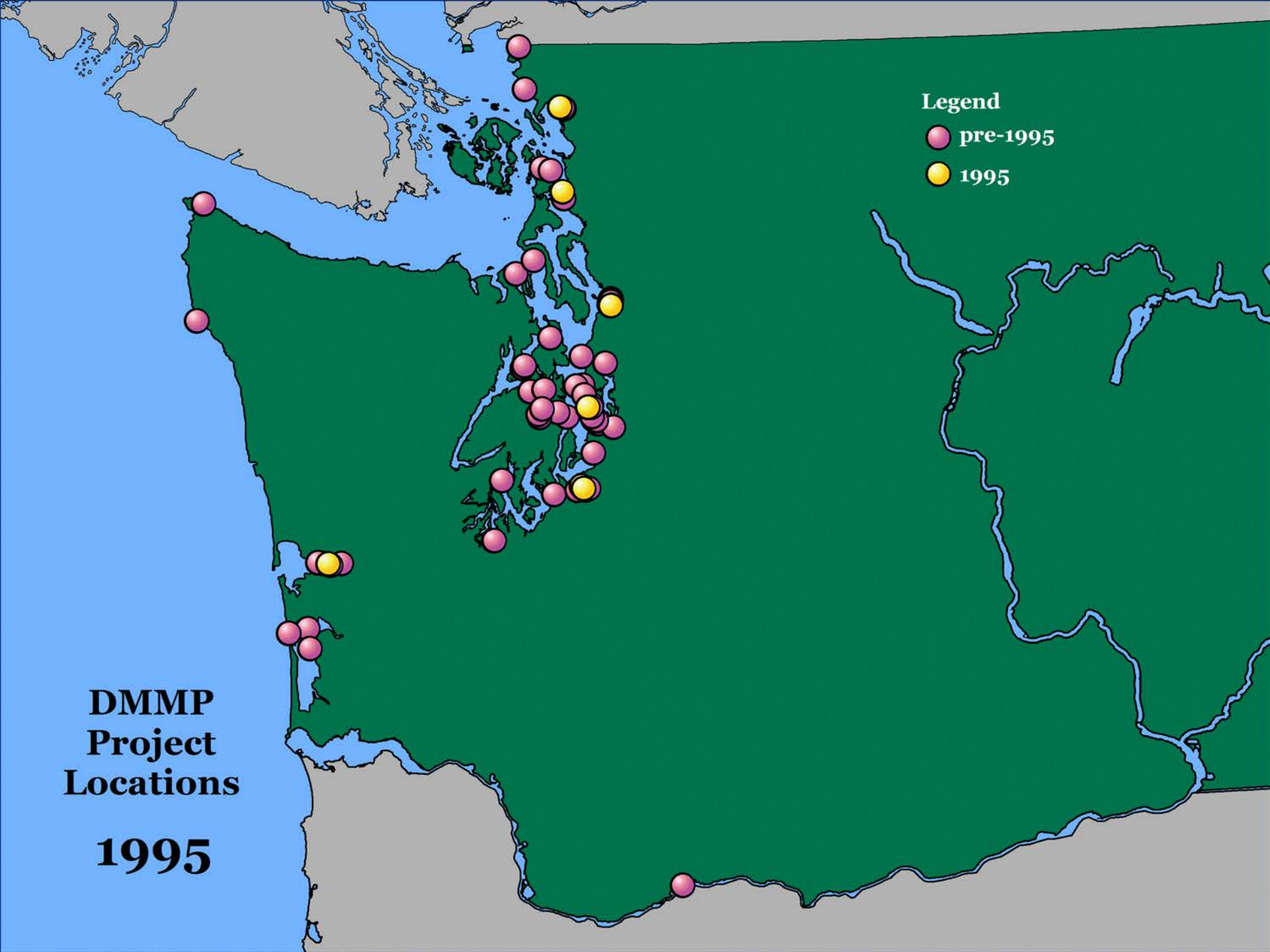
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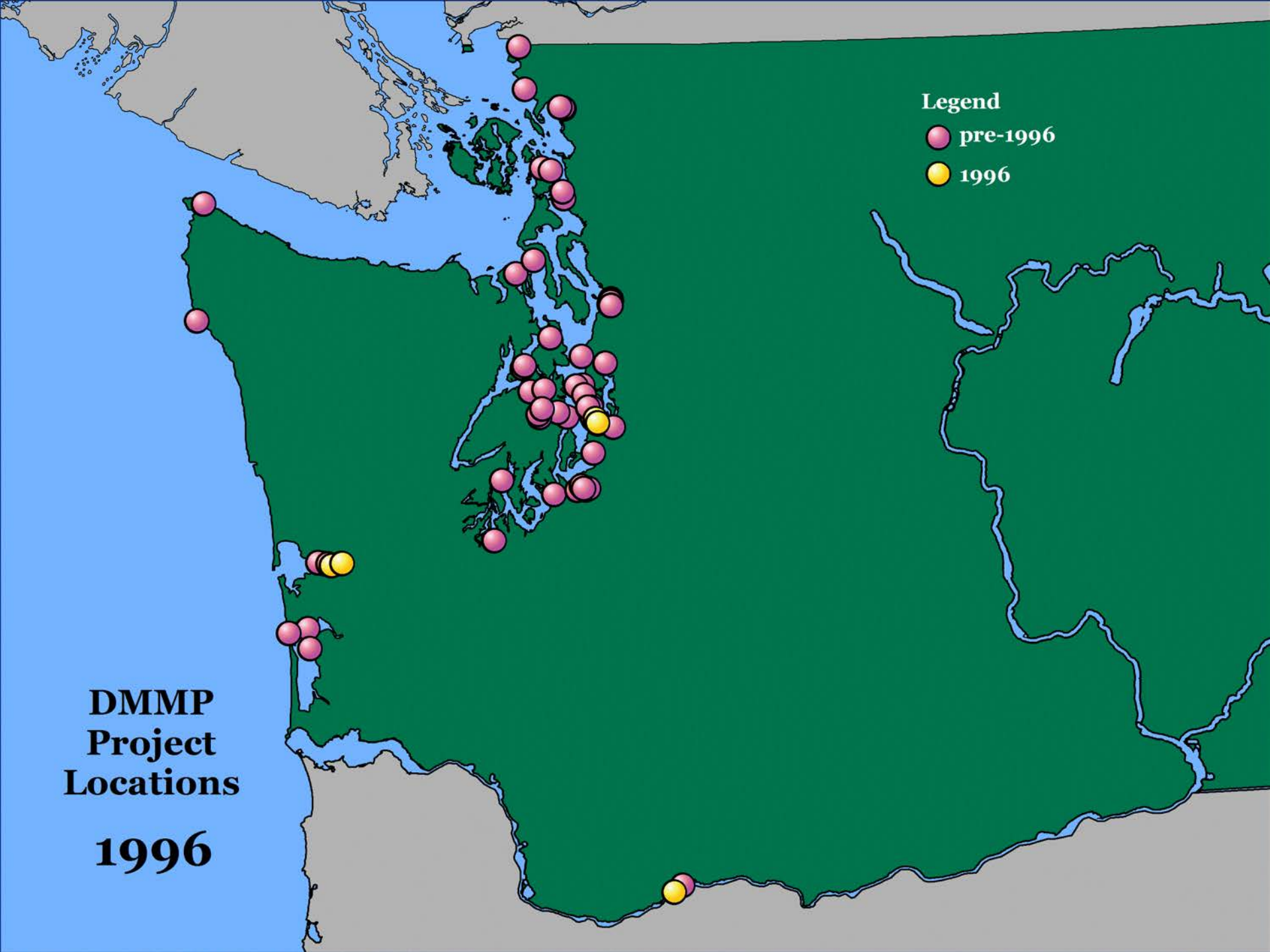
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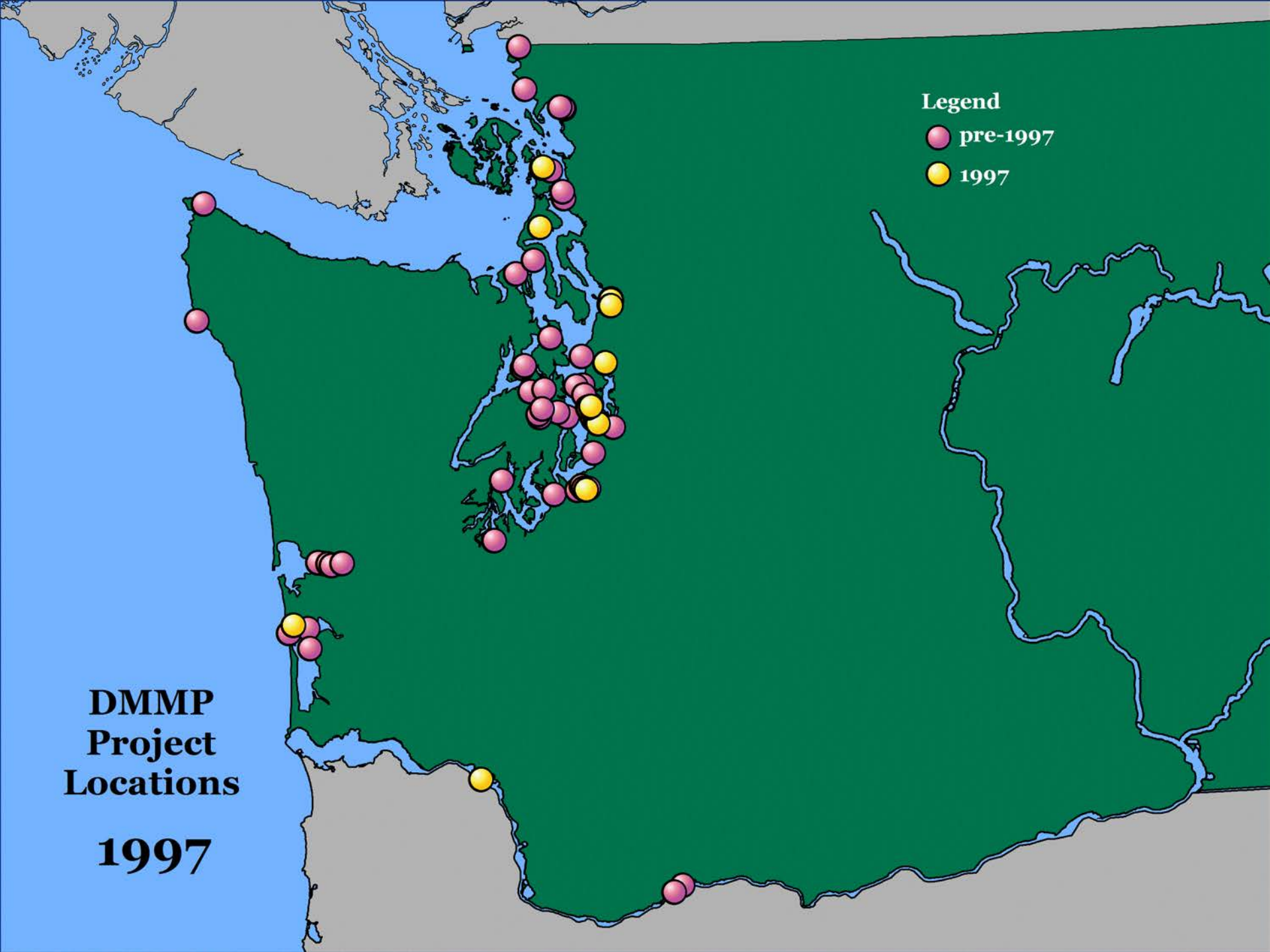
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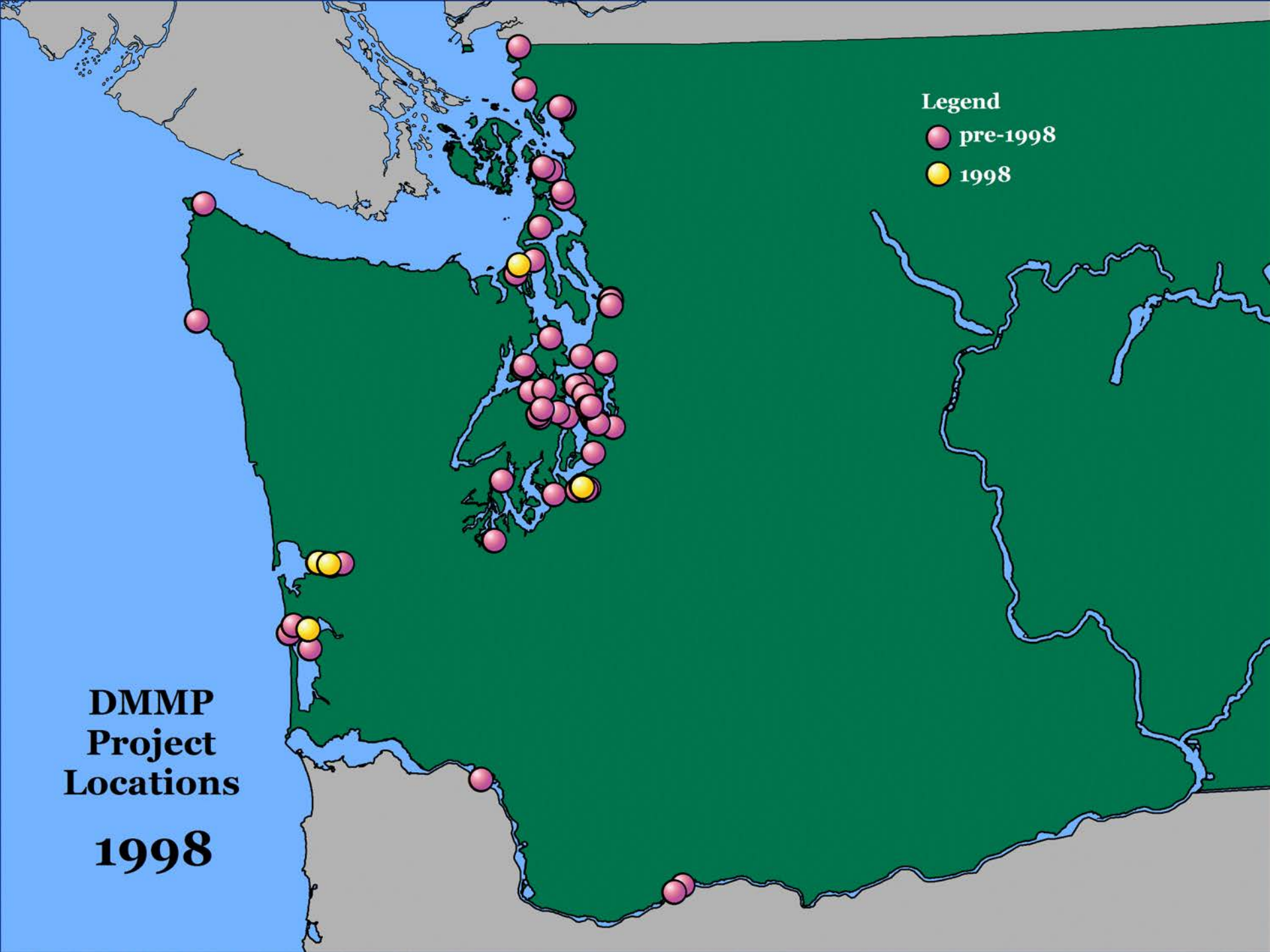
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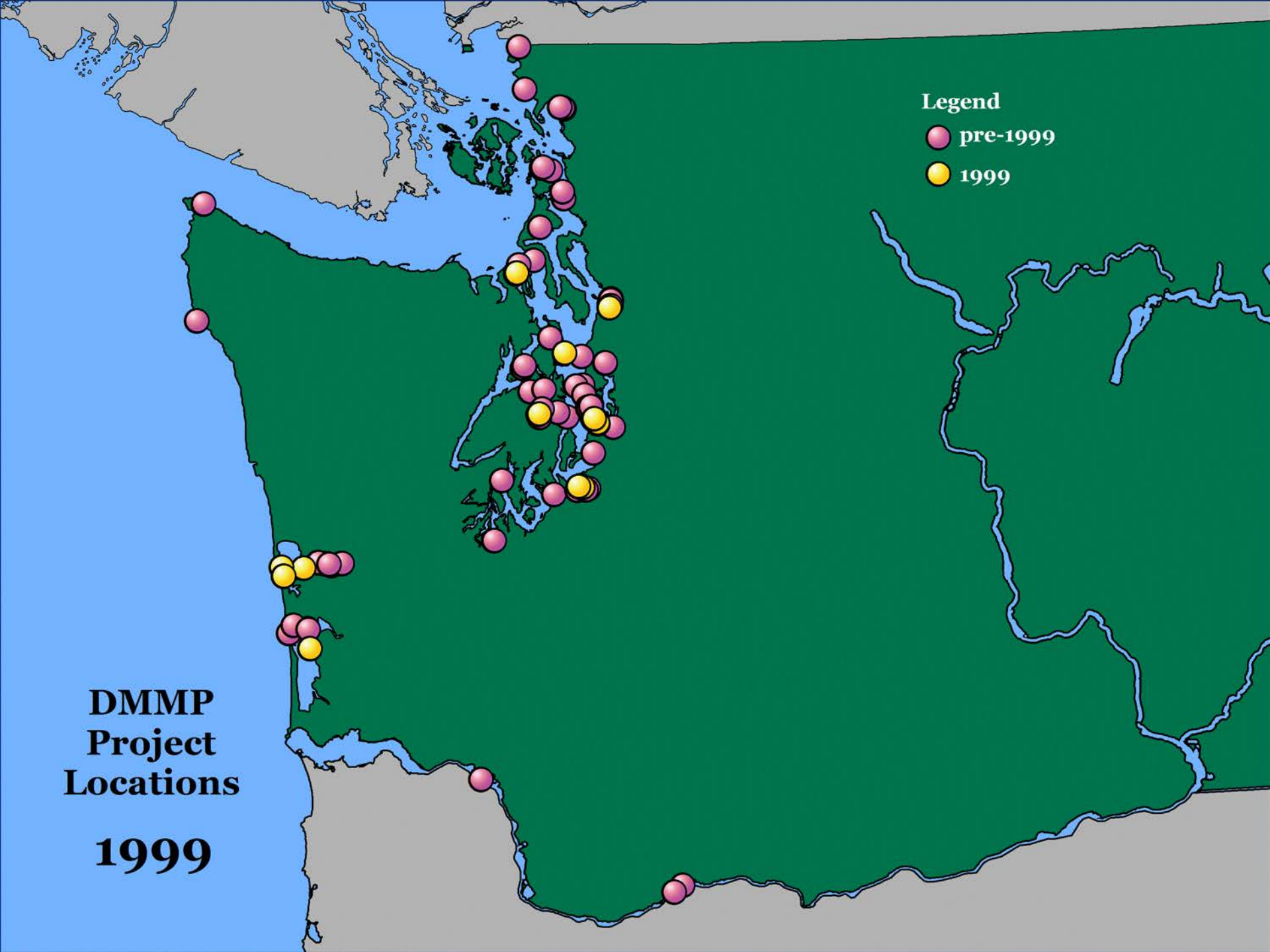
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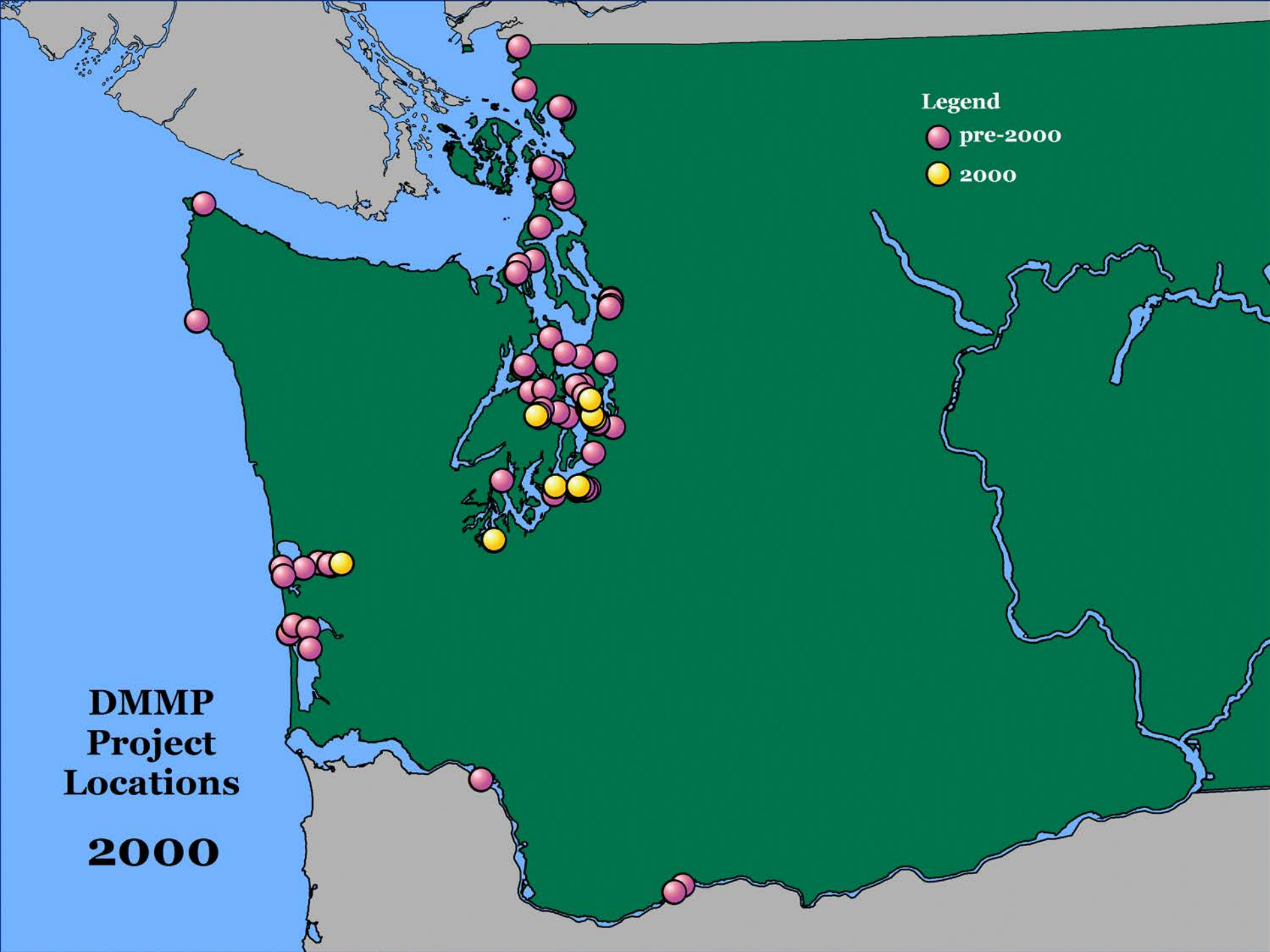
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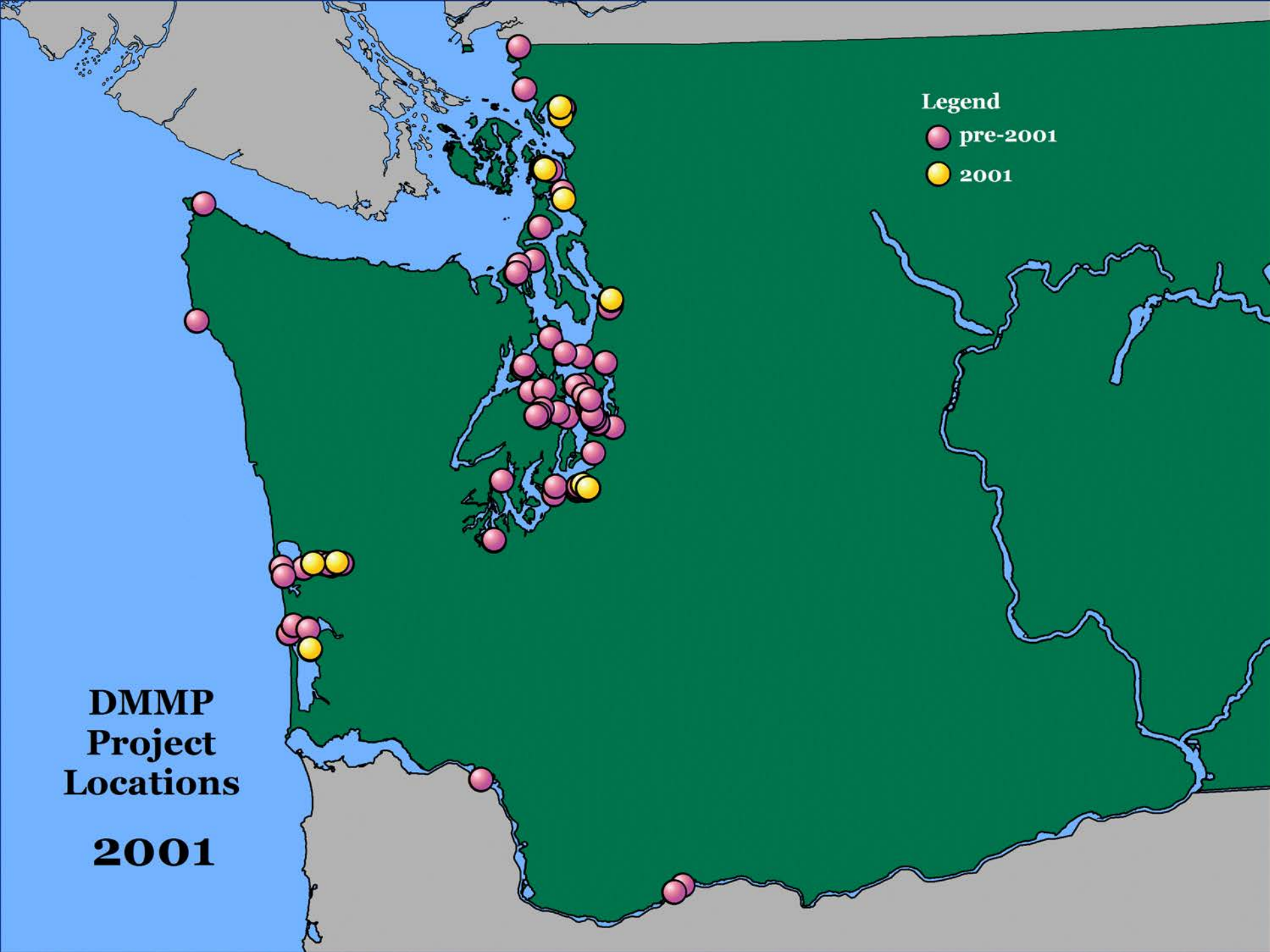
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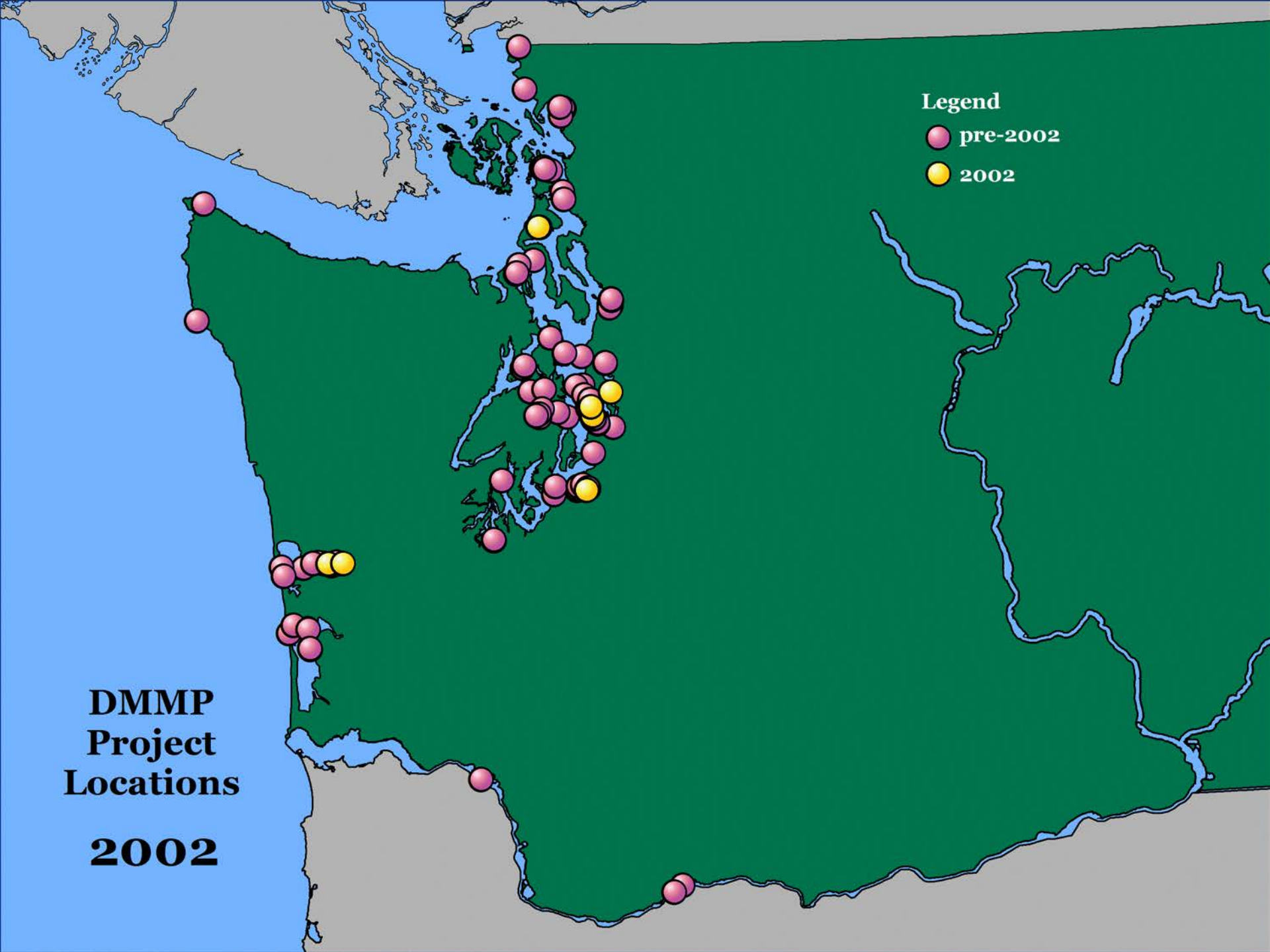
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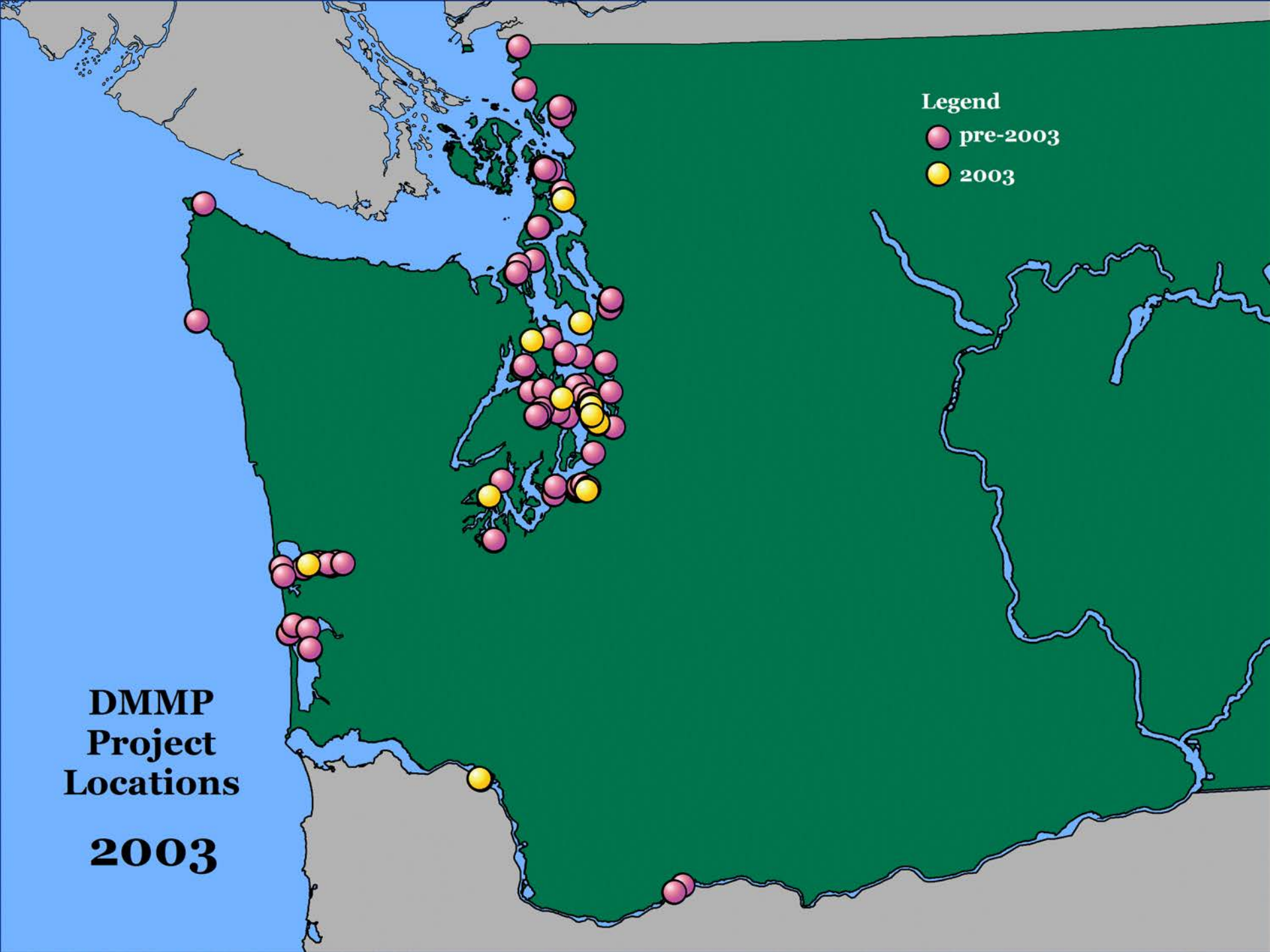
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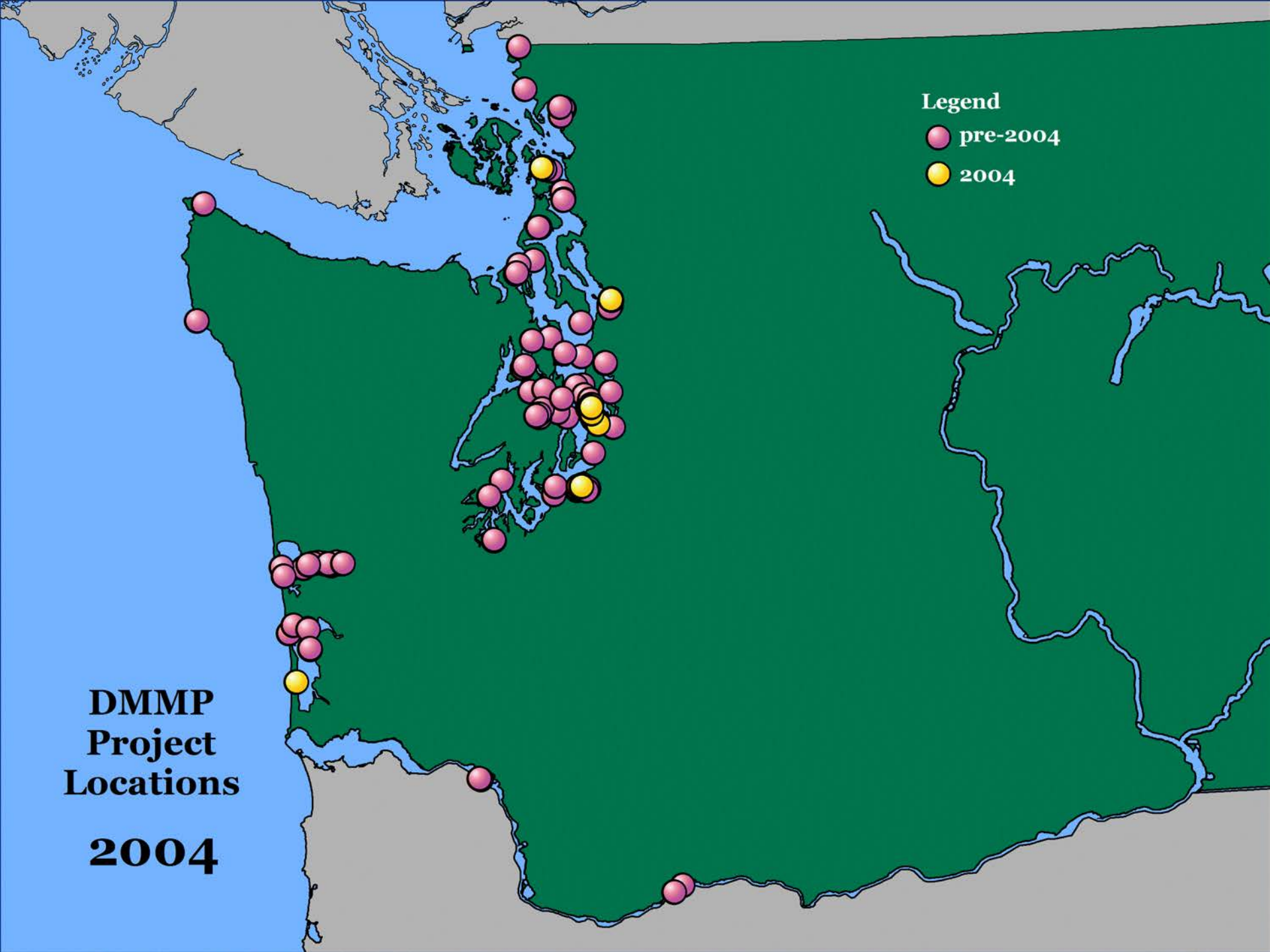
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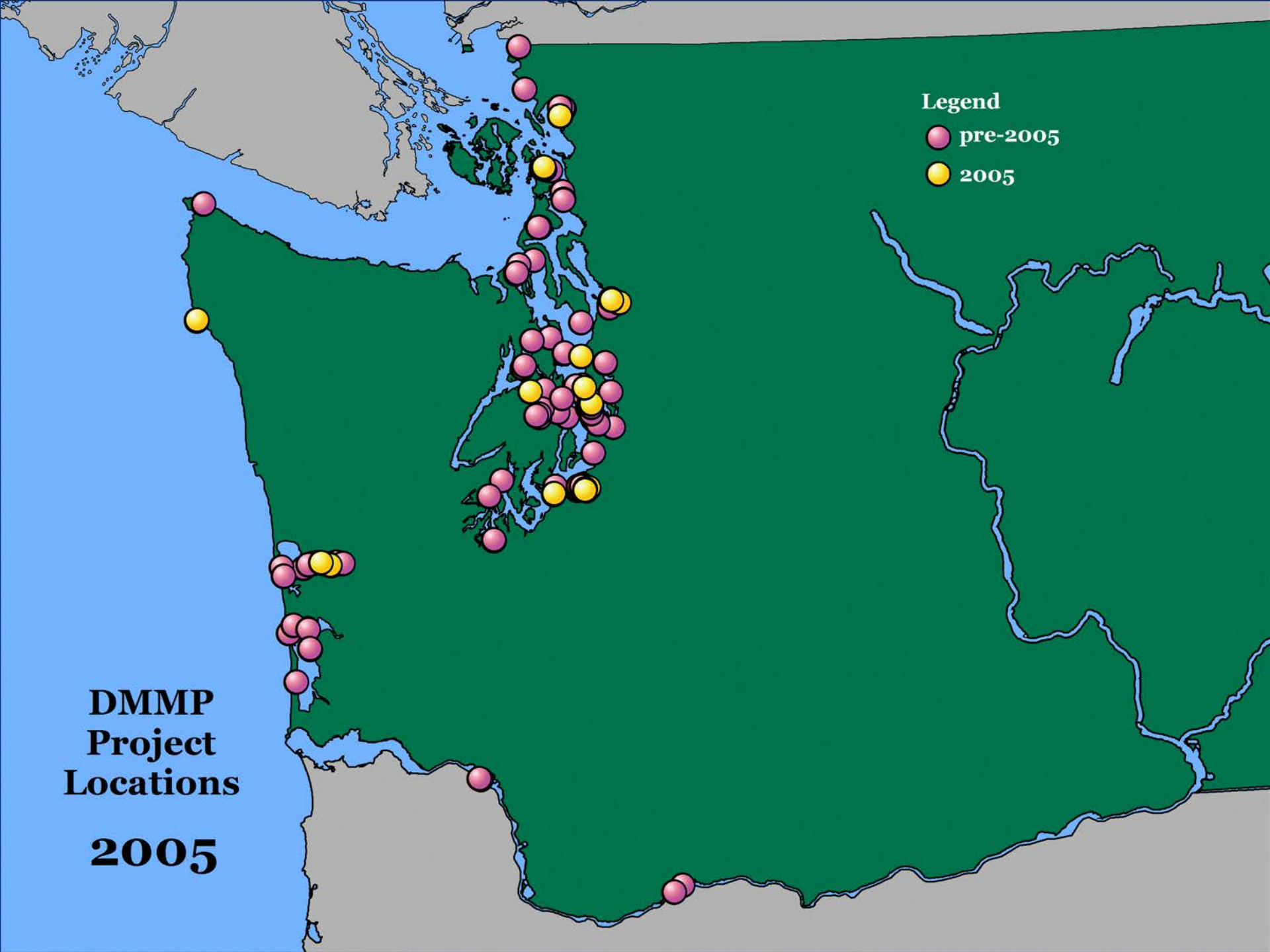
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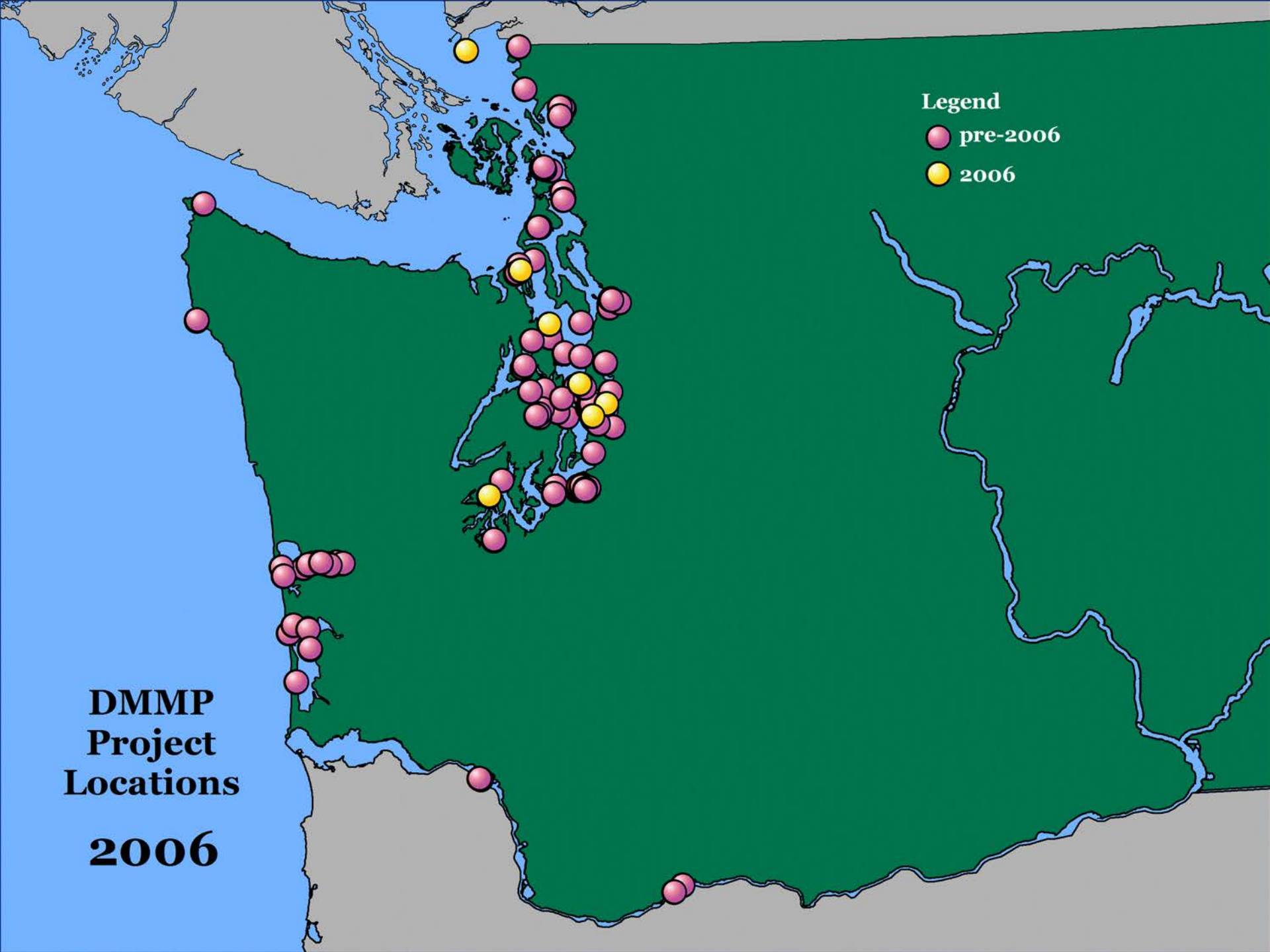
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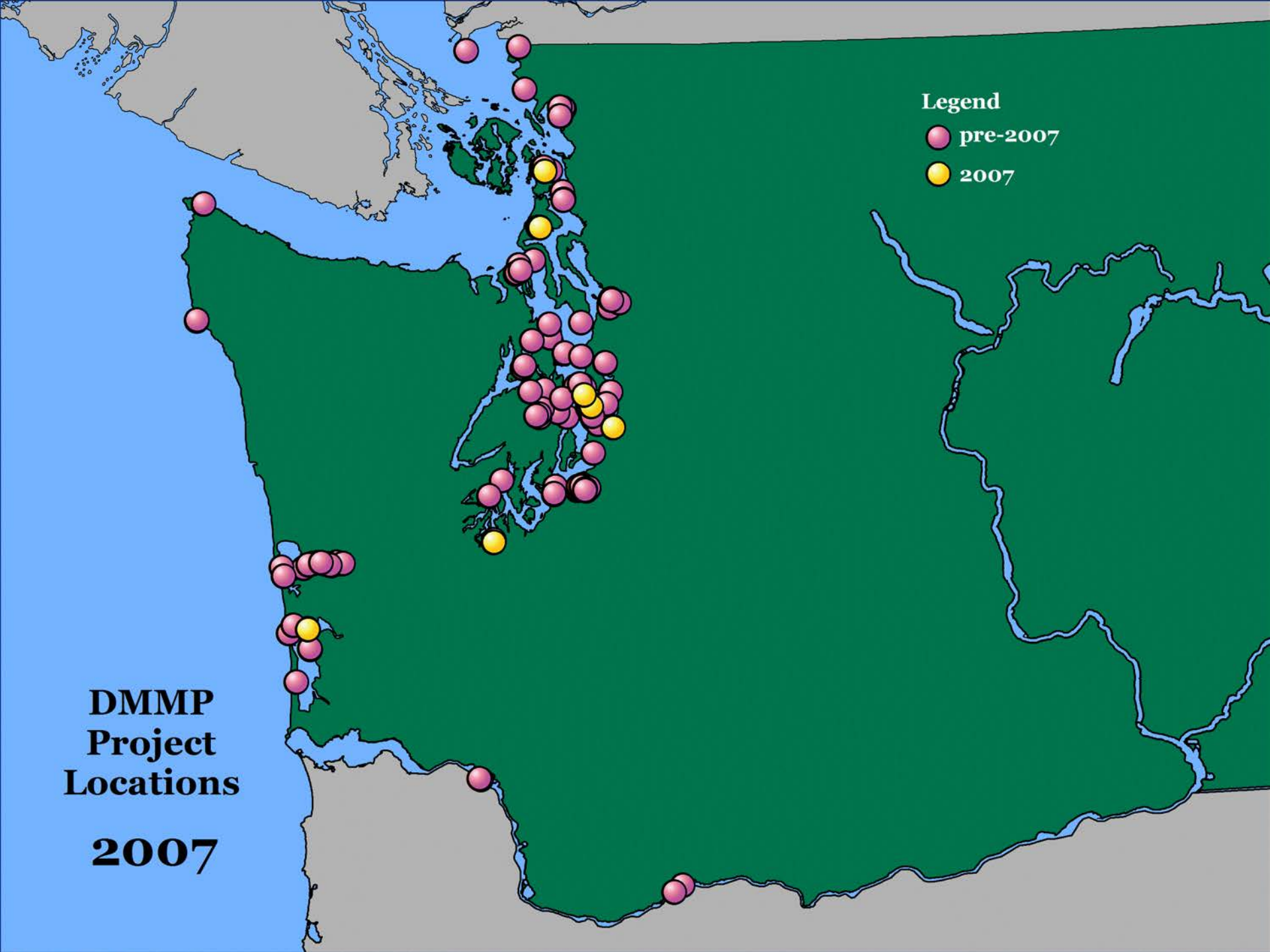
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Locations
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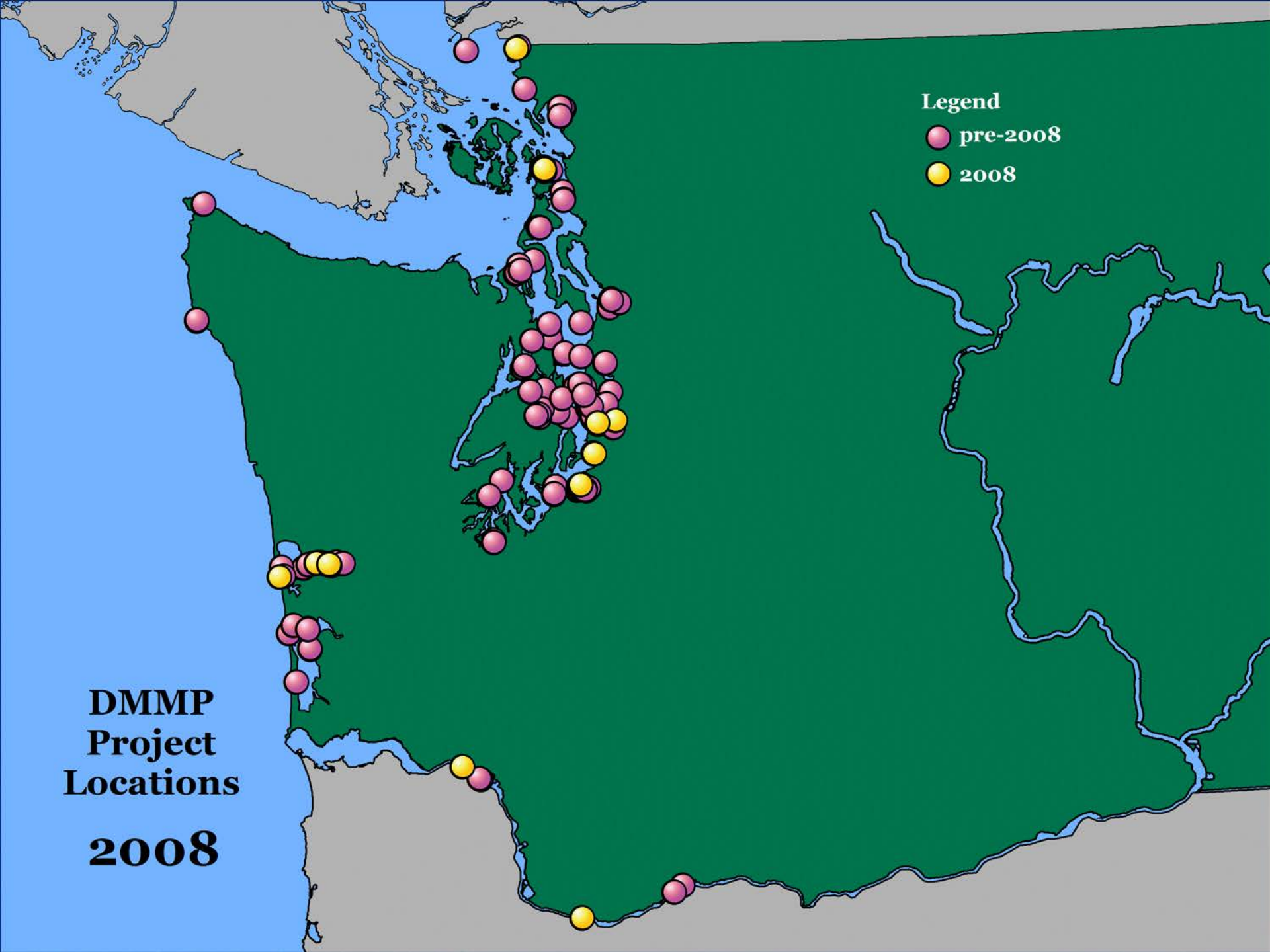
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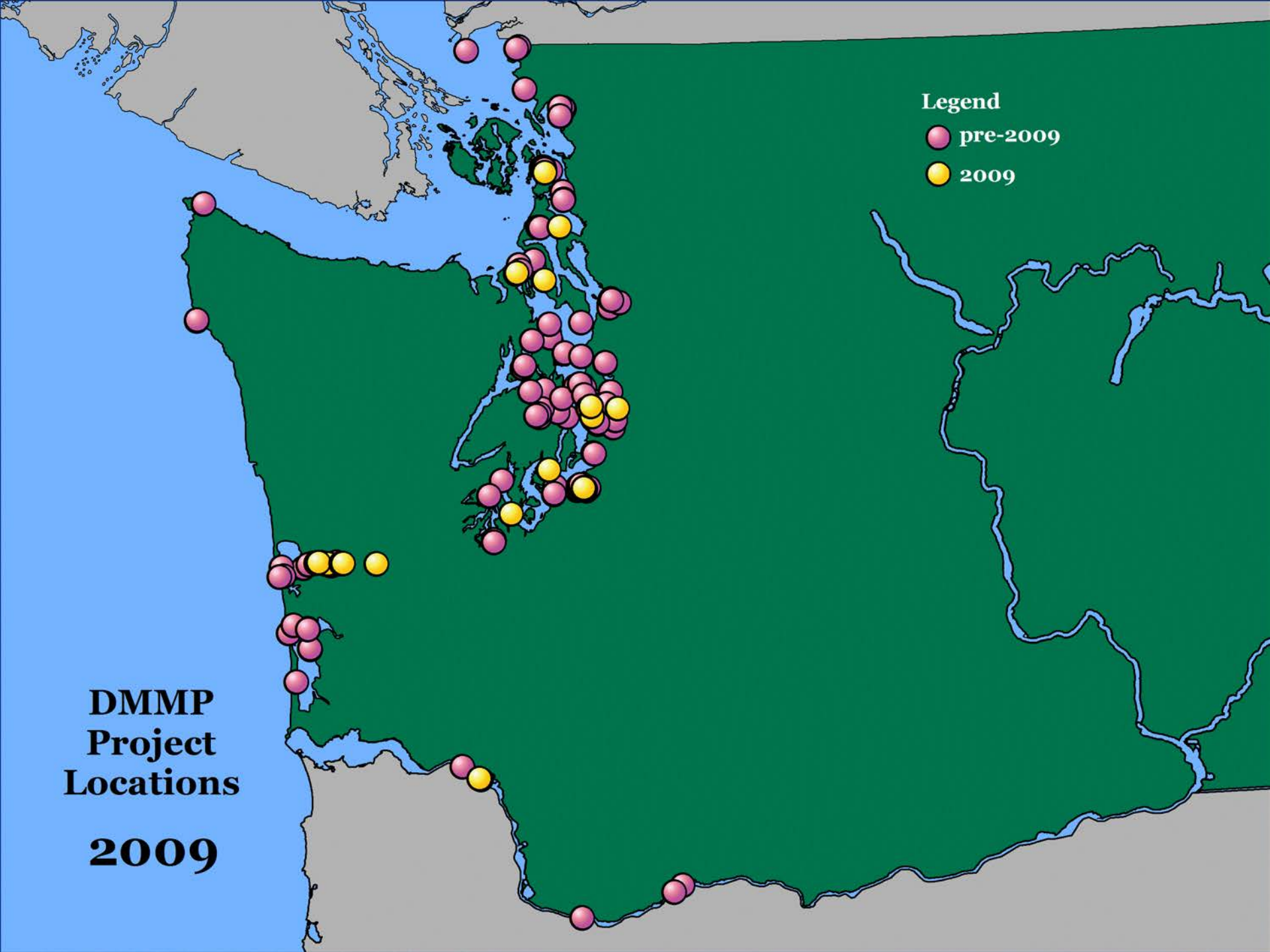
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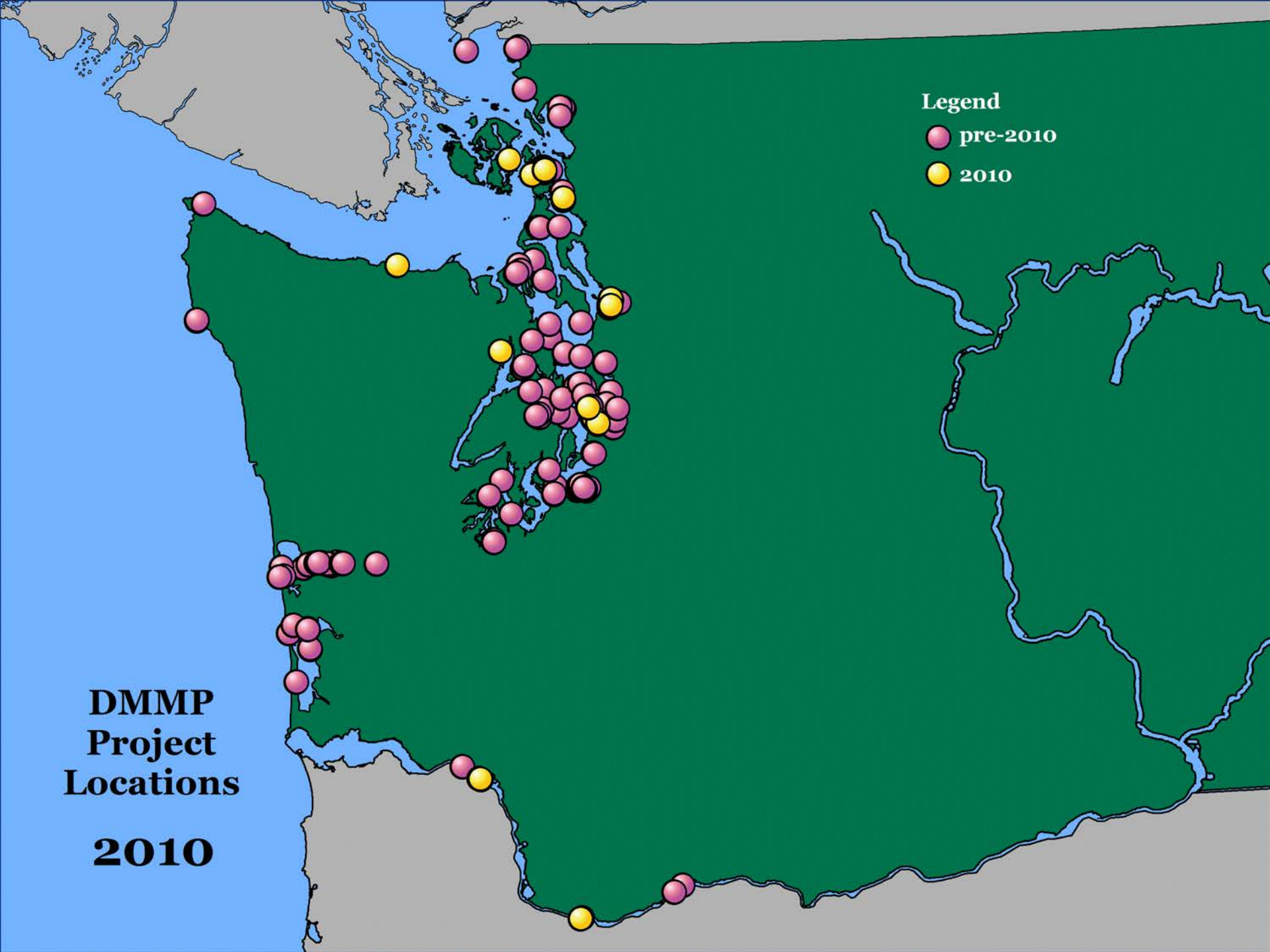
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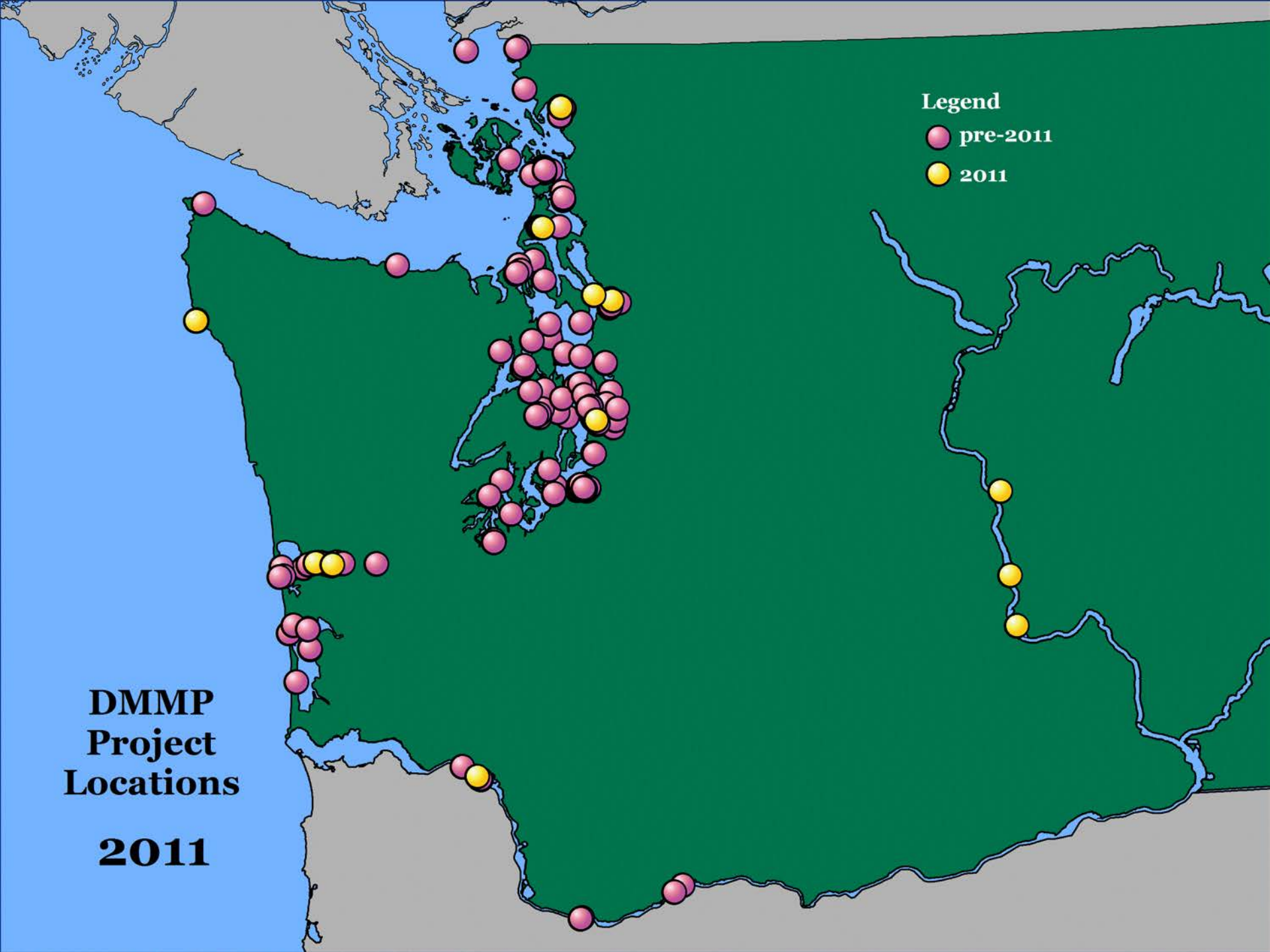
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pre-2011
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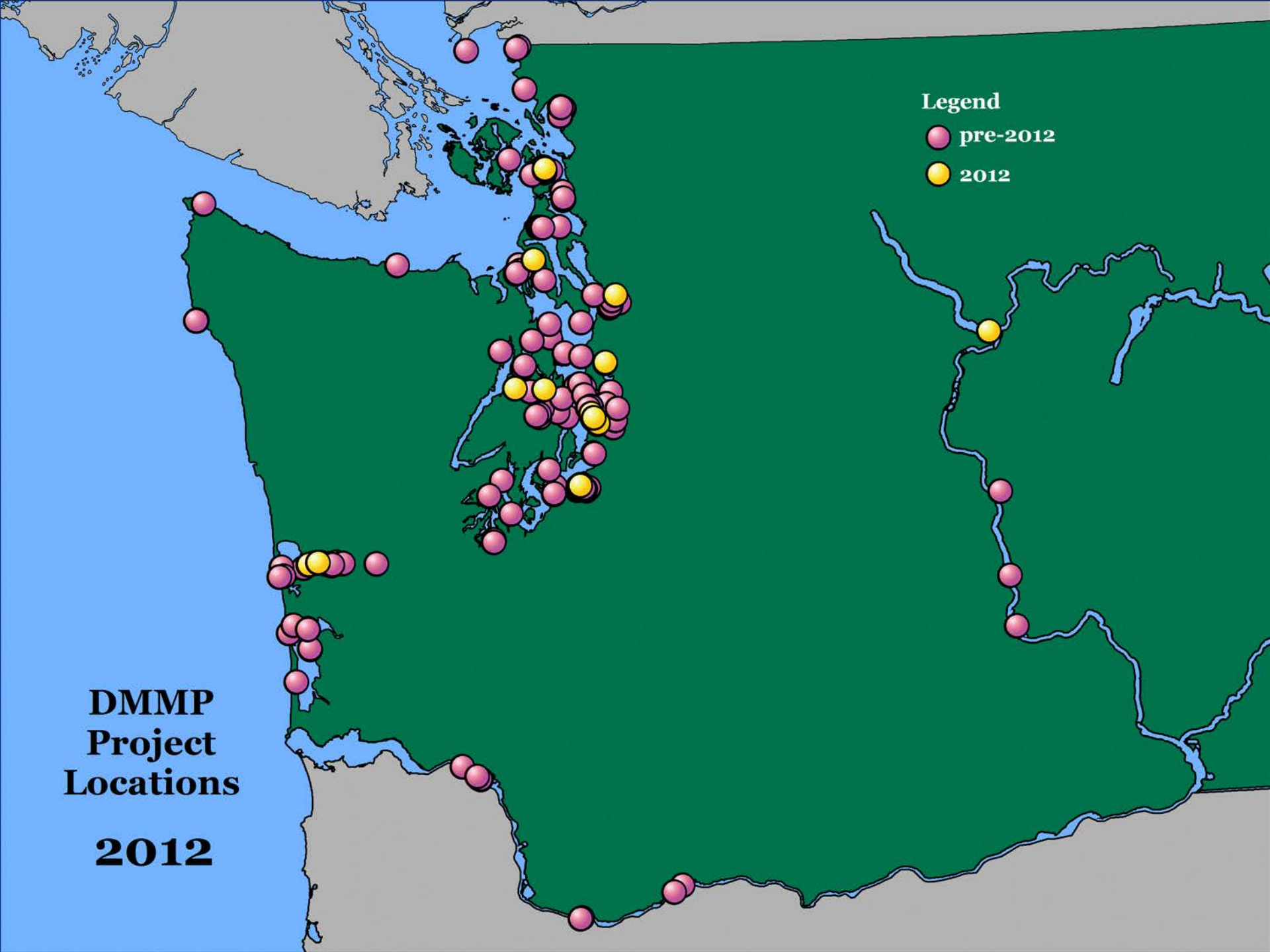
Project
Locations
2011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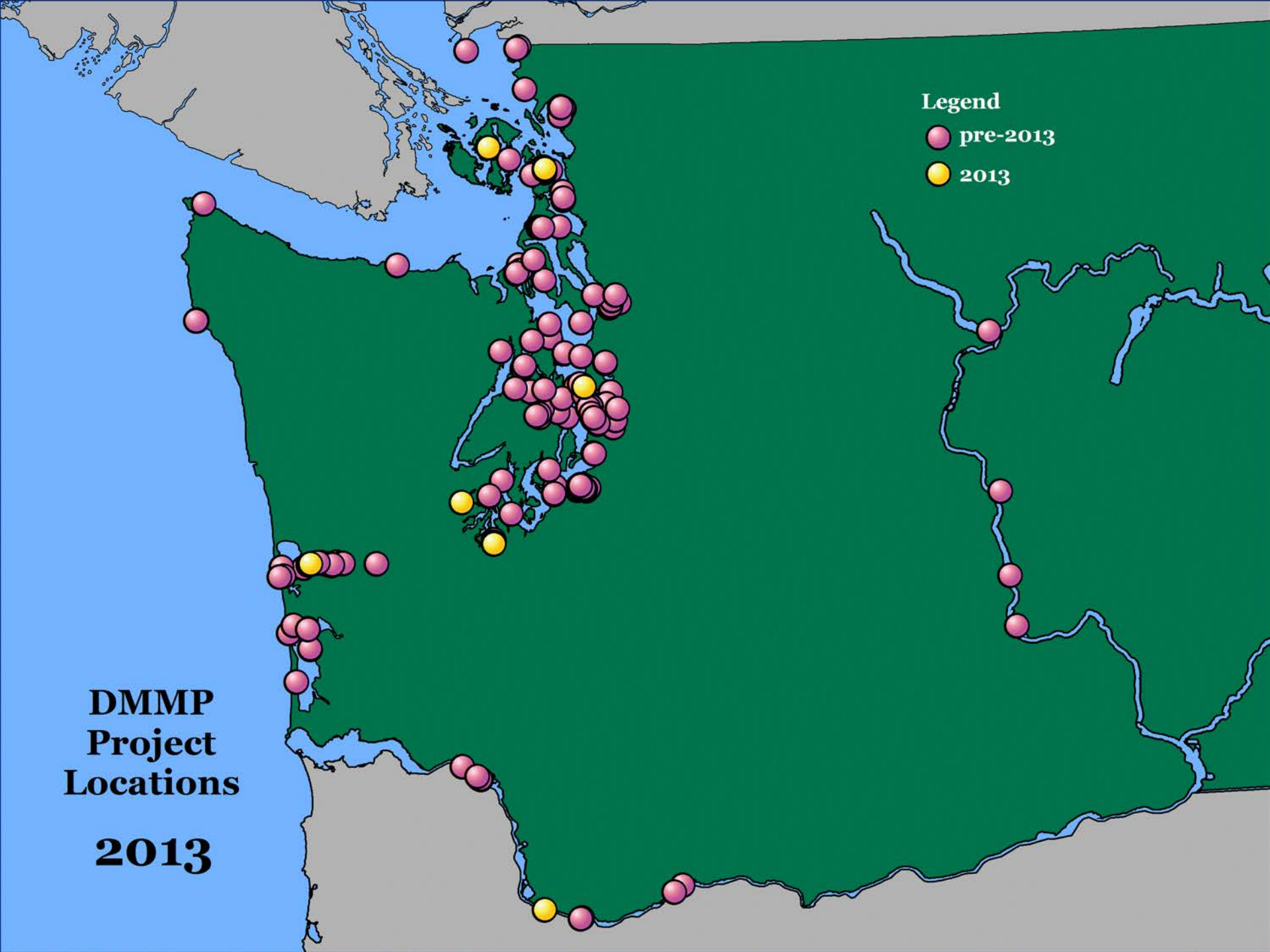
DMMP
Project
Locations
2012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pre-2013
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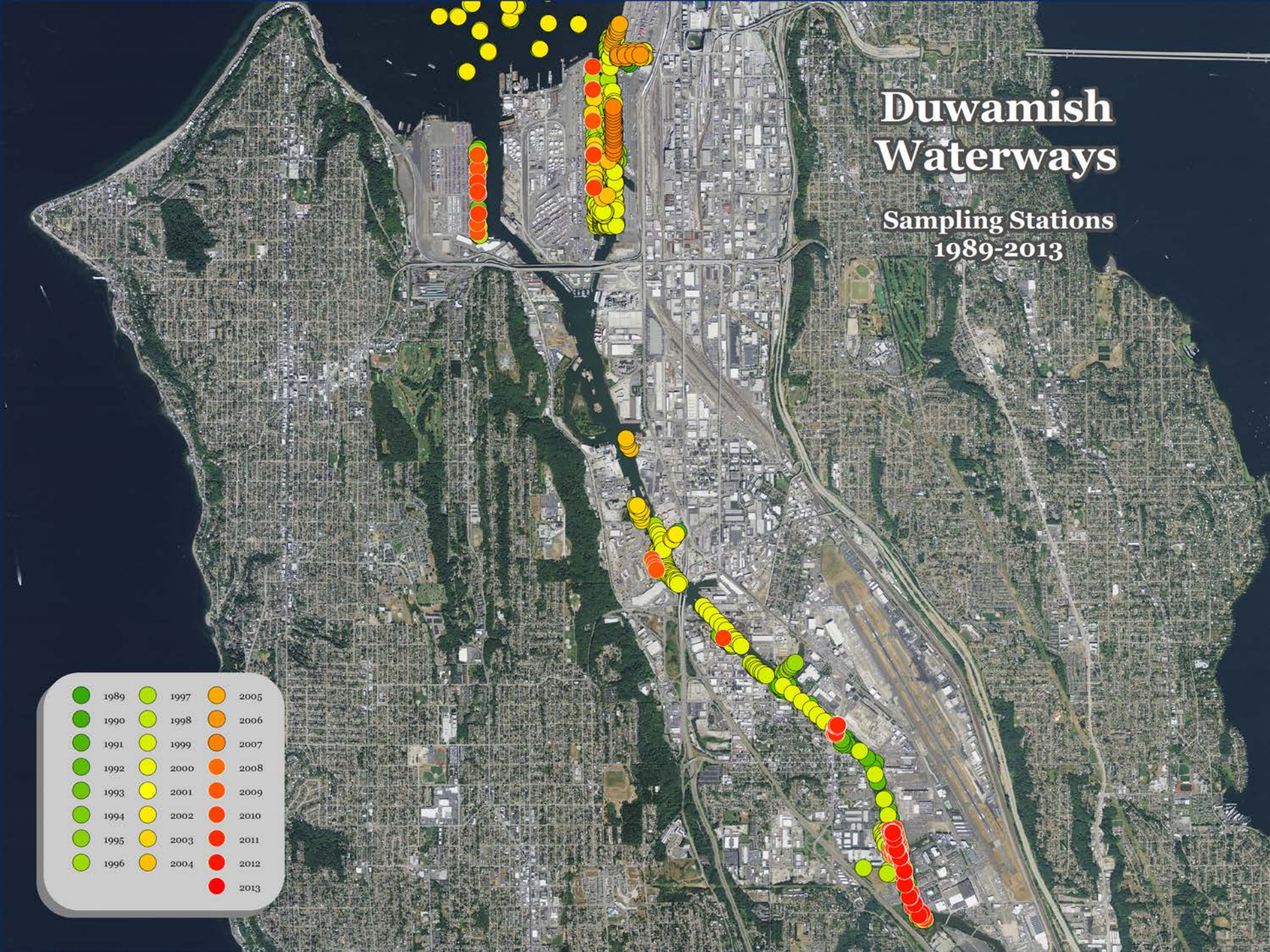
DMMP
Project
Locations
2013

Frequently Sampled Areas

- Duwamish River and Waterways
- Tacoma Waterways
- Everett
- Bellingham
- Anacortes
- Swinomish Channel
- Grays Harbor


Duwamish Waterways
Sampling Stations
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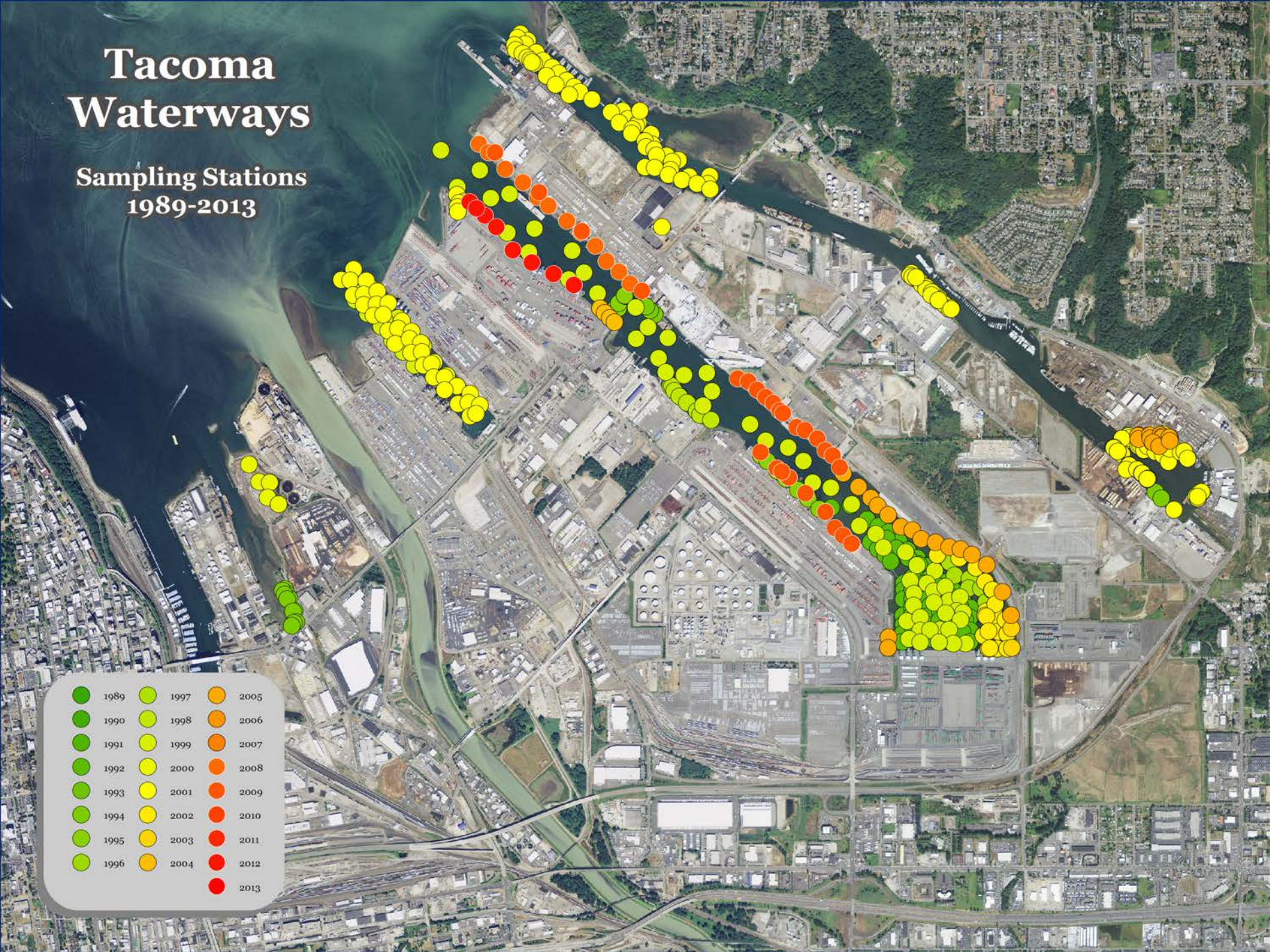
Tacoma Waterways
Sampling Stations 1989-2013
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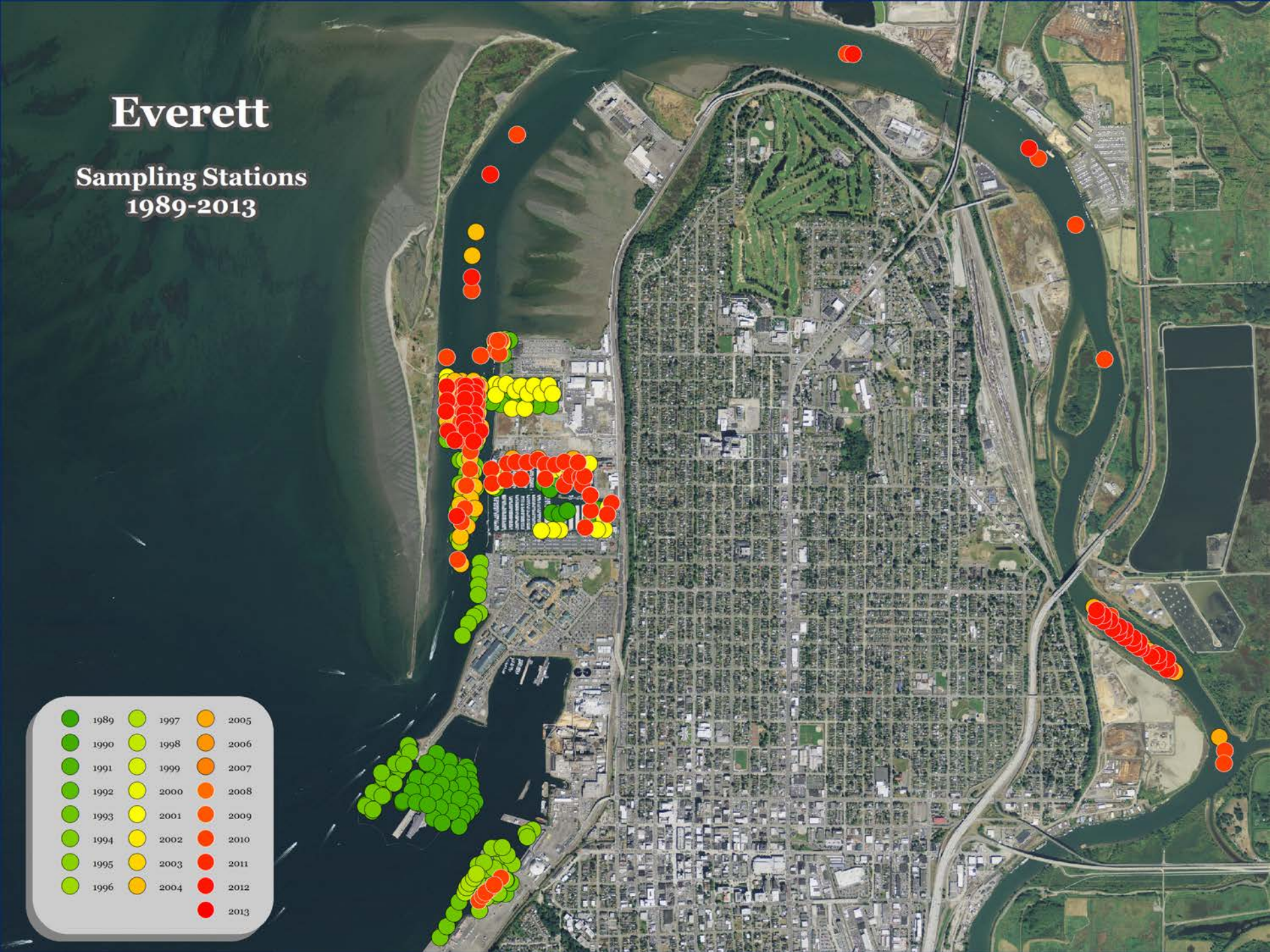
Everett
Sampling Stations
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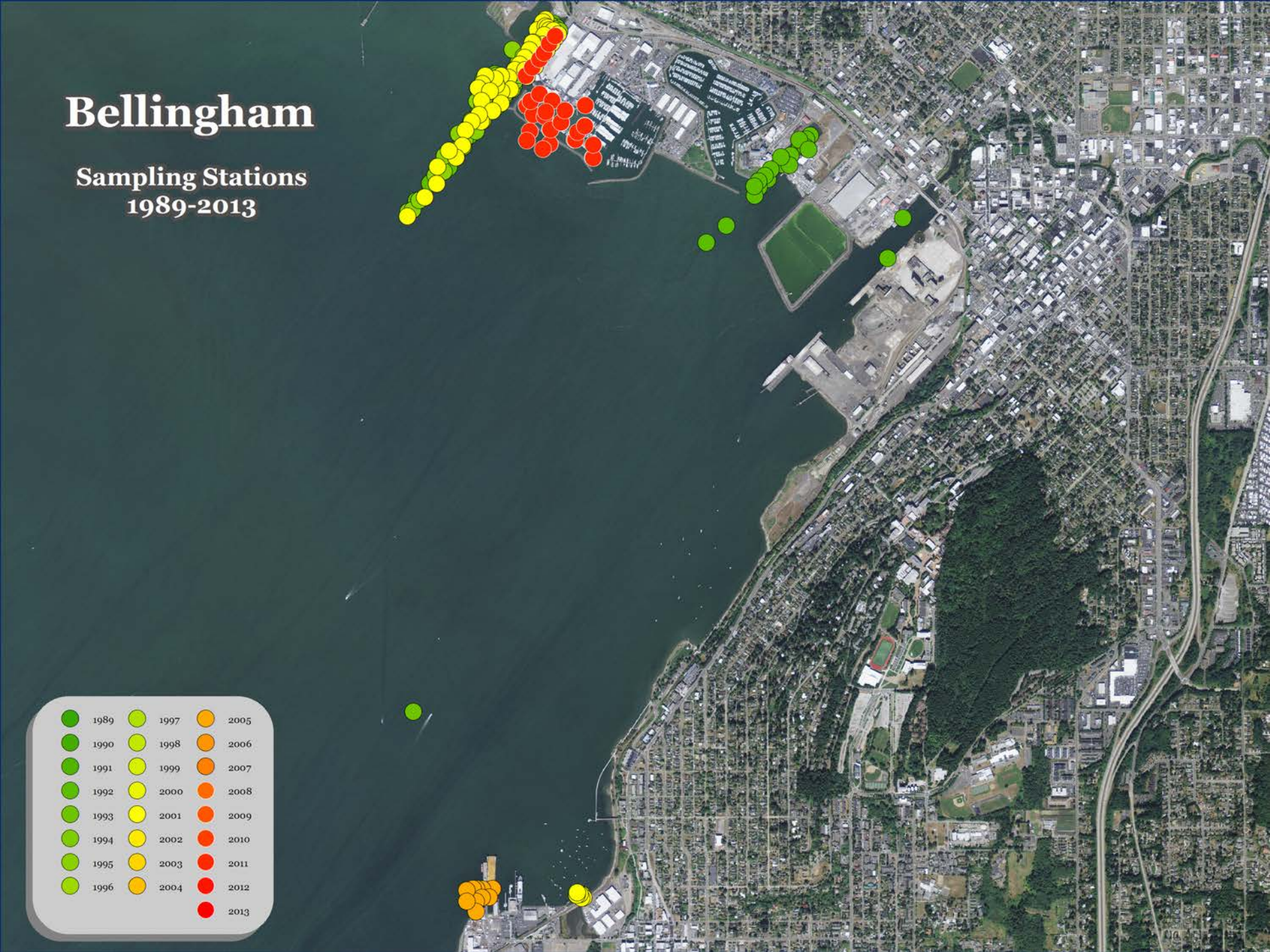
Bellingham
Sampling Stations
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Anacortes
Sampling Stations
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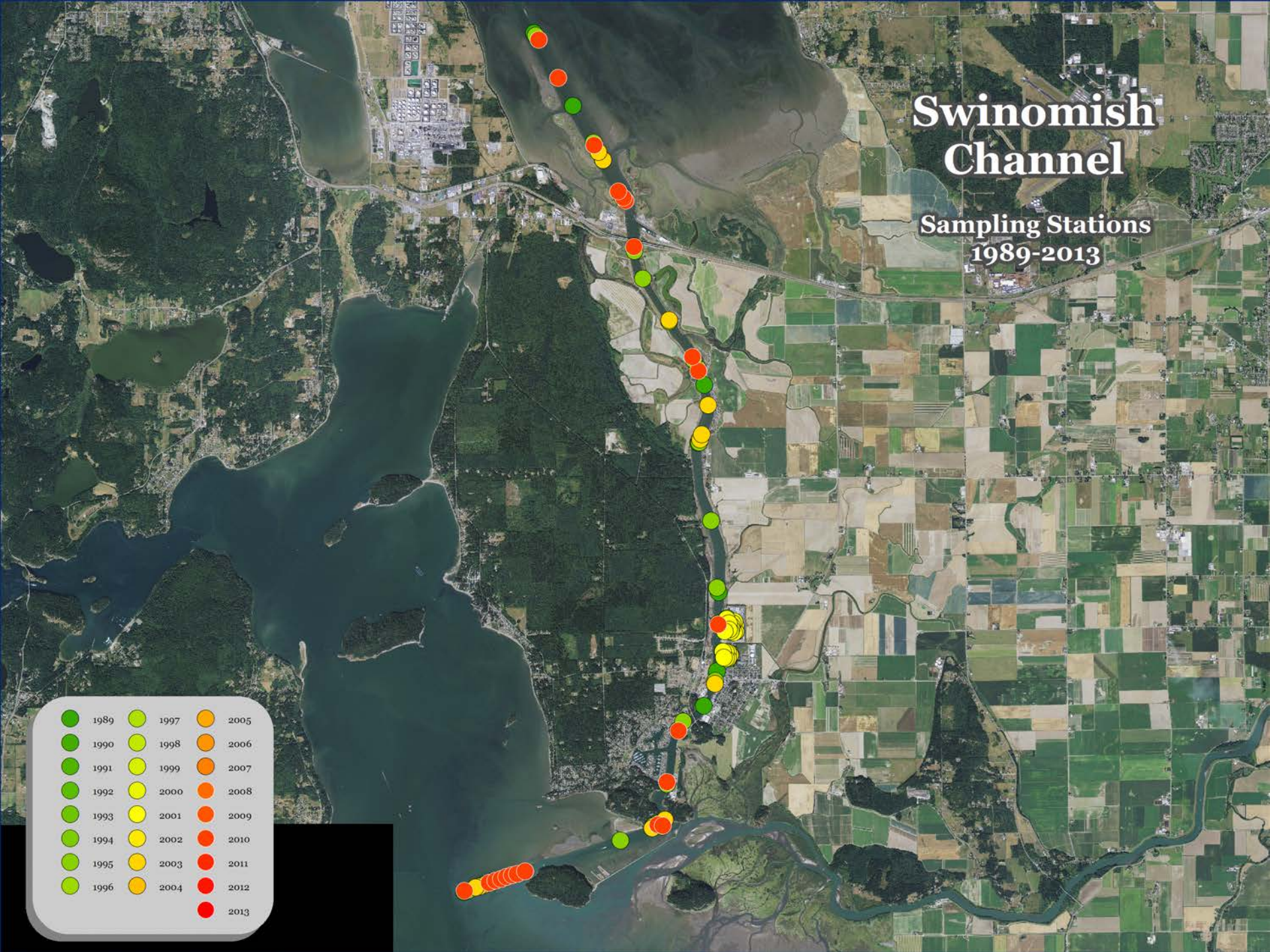
Swinomish Channel
Sampling Stations
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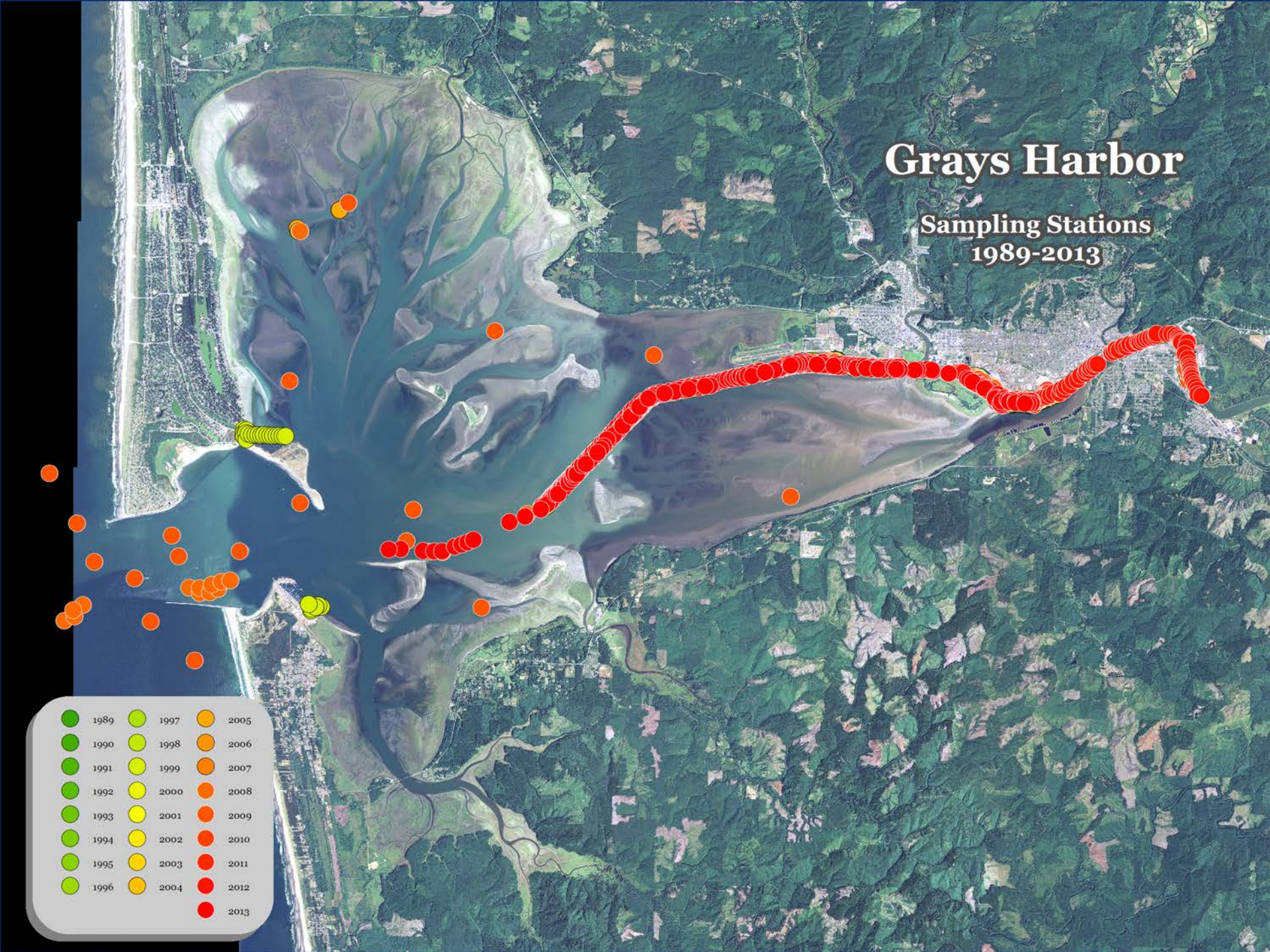
Grays Harbor
Sampling Stations
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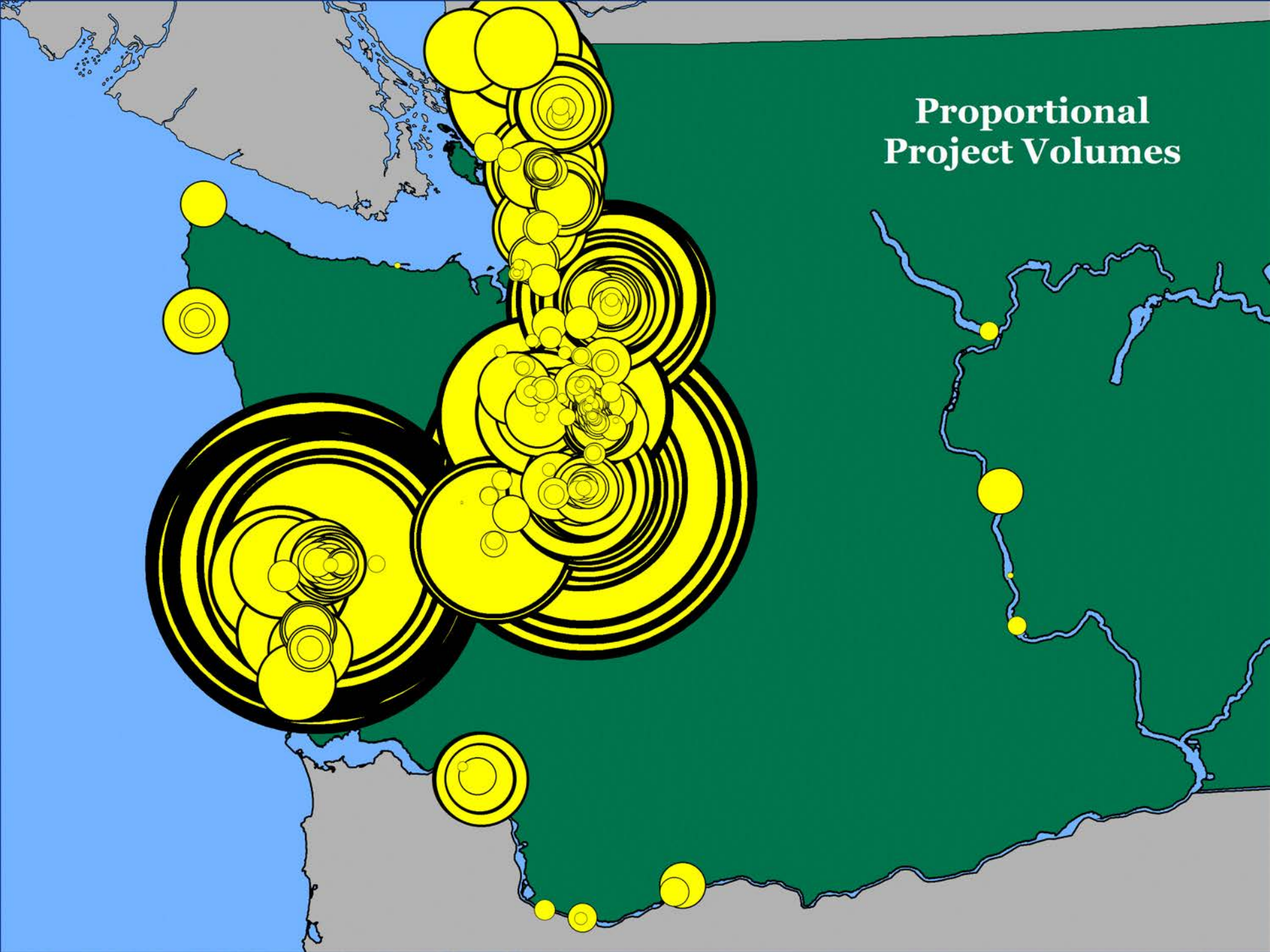
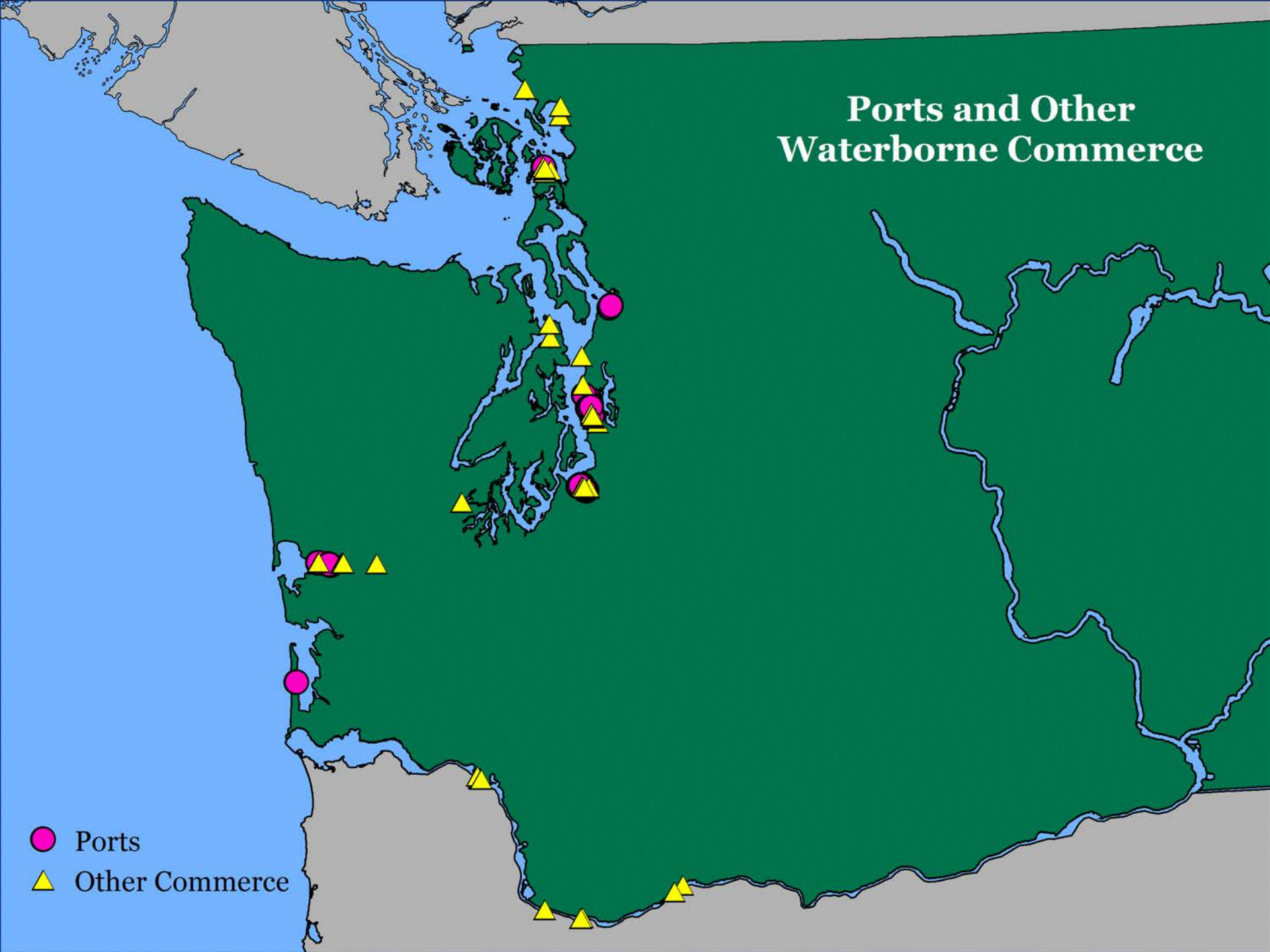
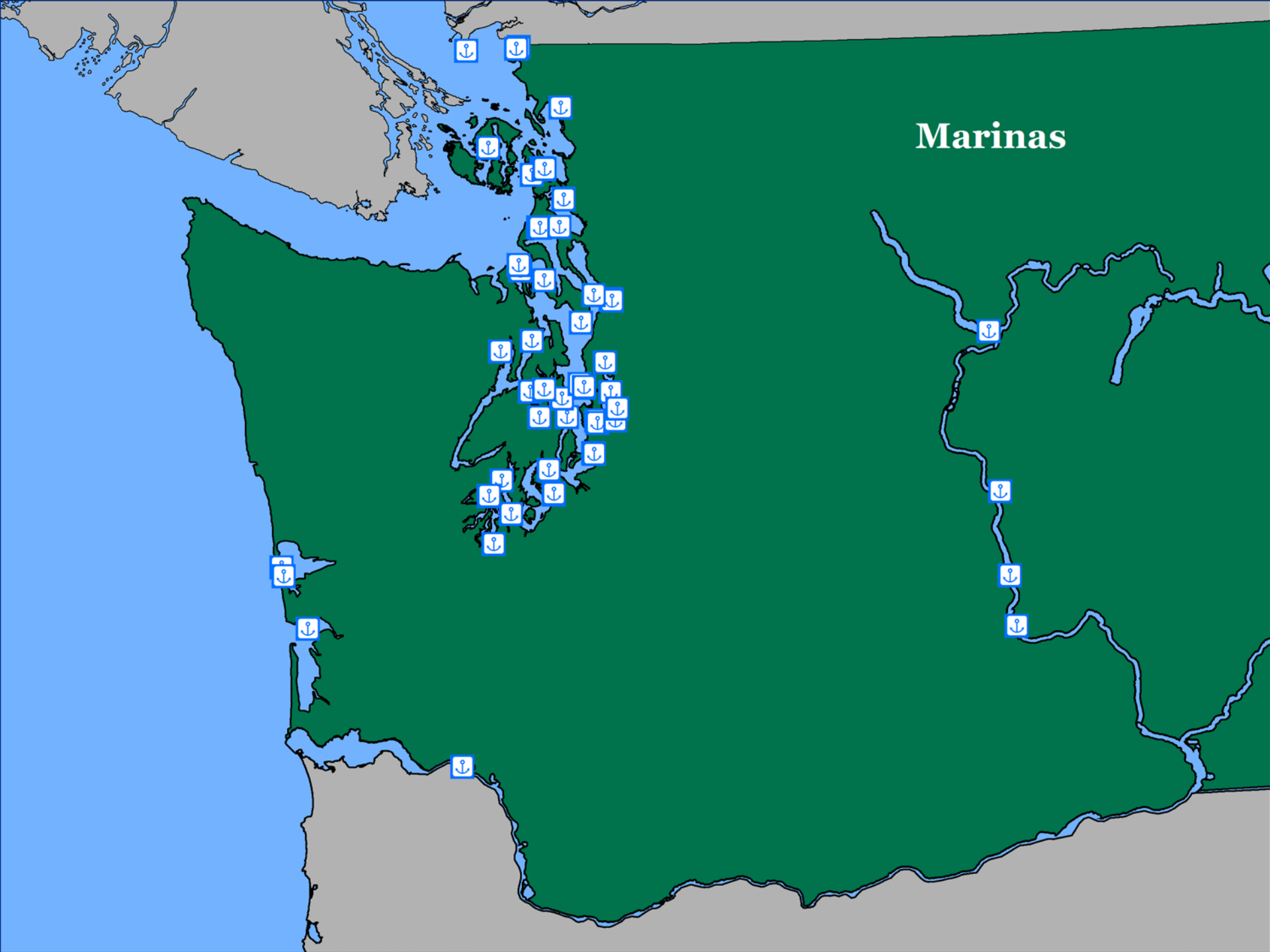
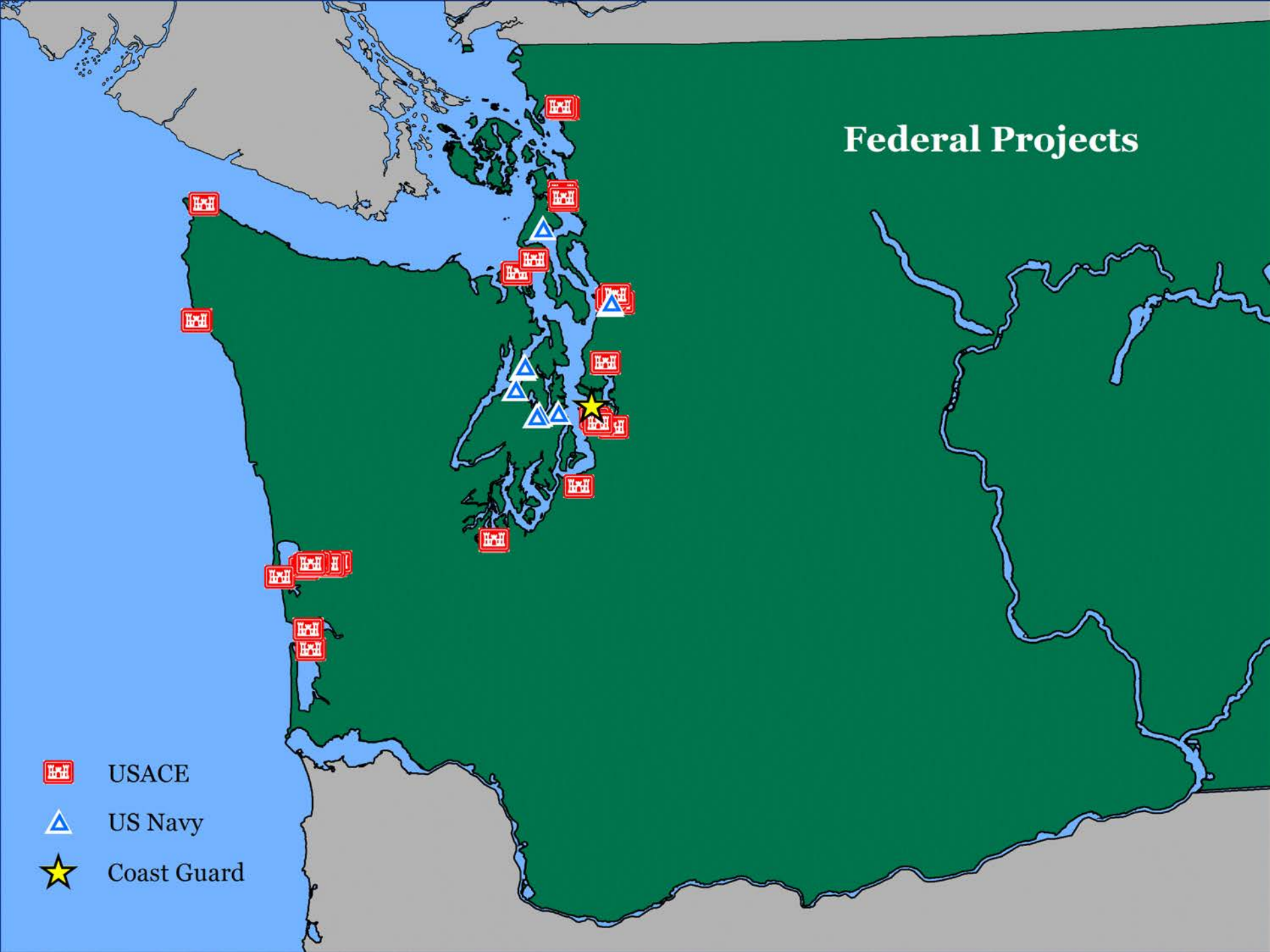

Proportional
Project Volumes

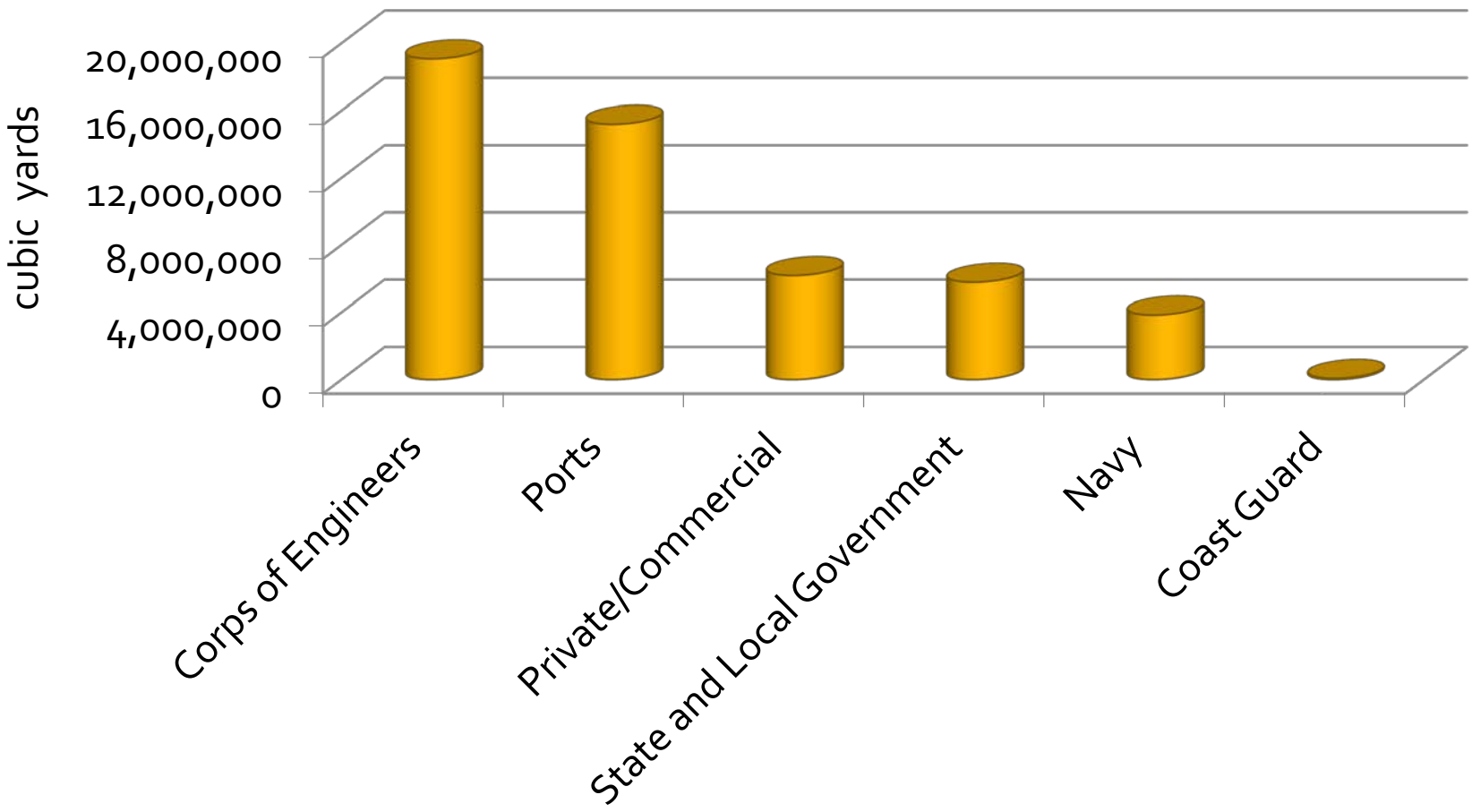

Ports and Other
Waterborne Commerce
Ports
Other Commerce

Marinas



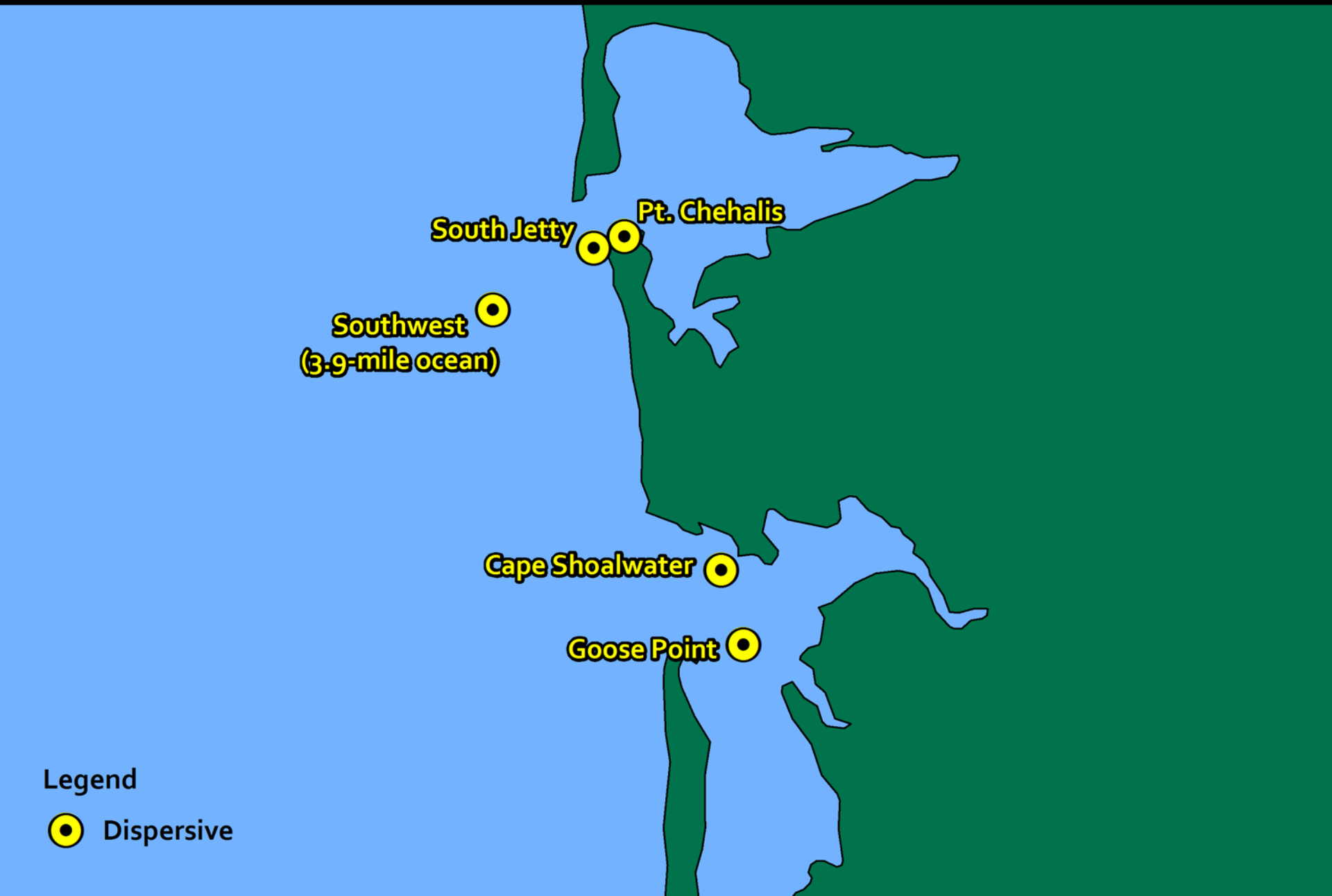

Federal Projects
USACE
US Navy
Coast Guard

Project Proponents



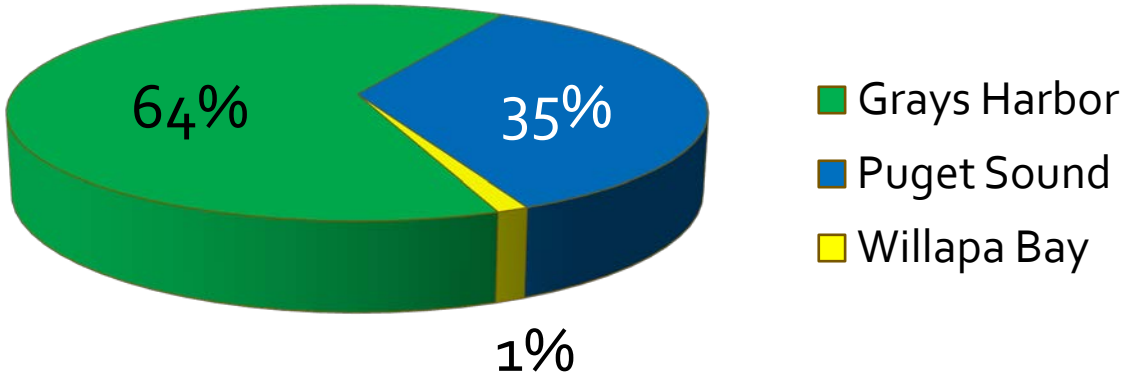
Puget Sound Disposal Sites

Grays Harbor and Willapa Bay Disposal Sites

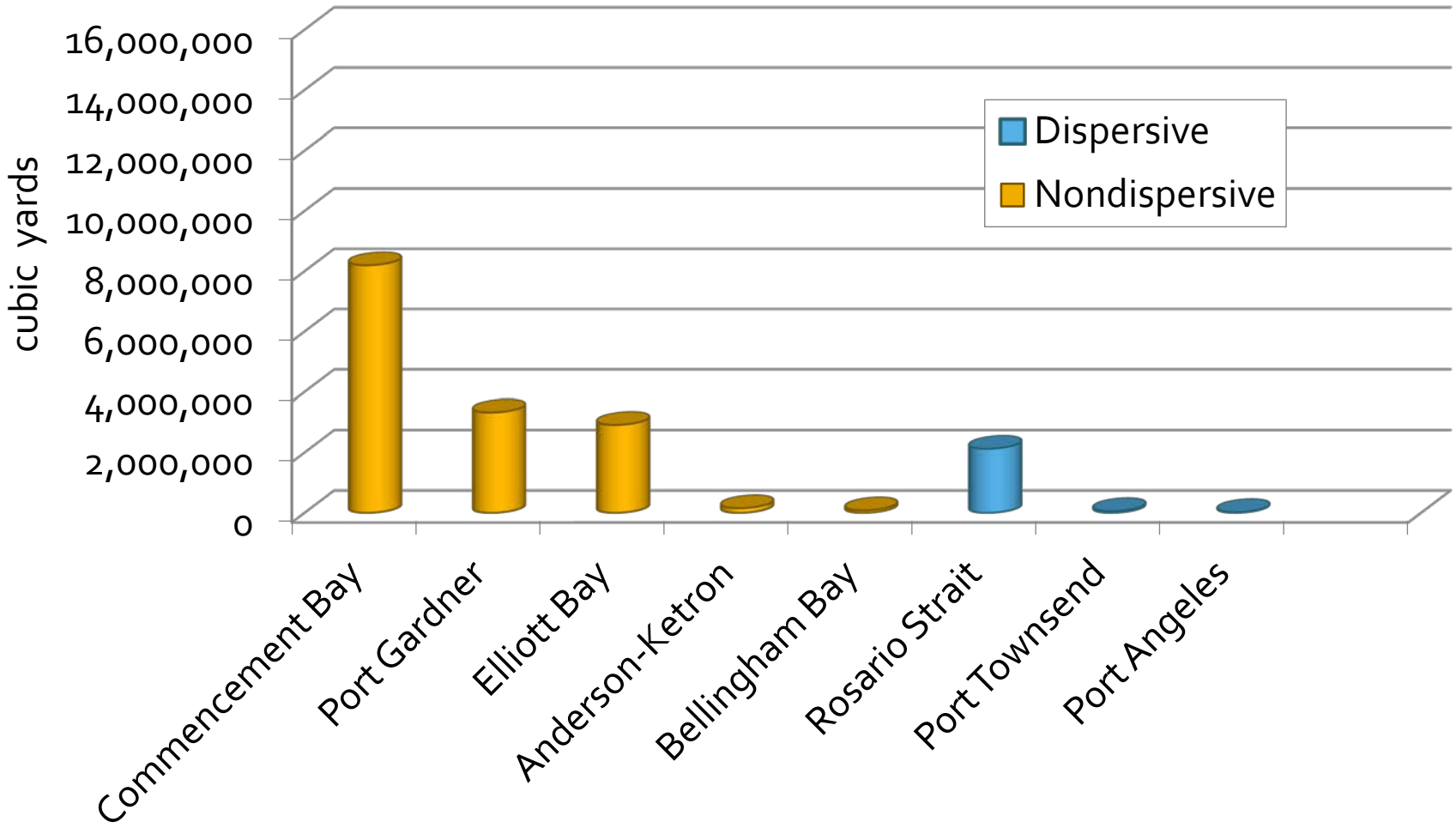


Disposal Summary

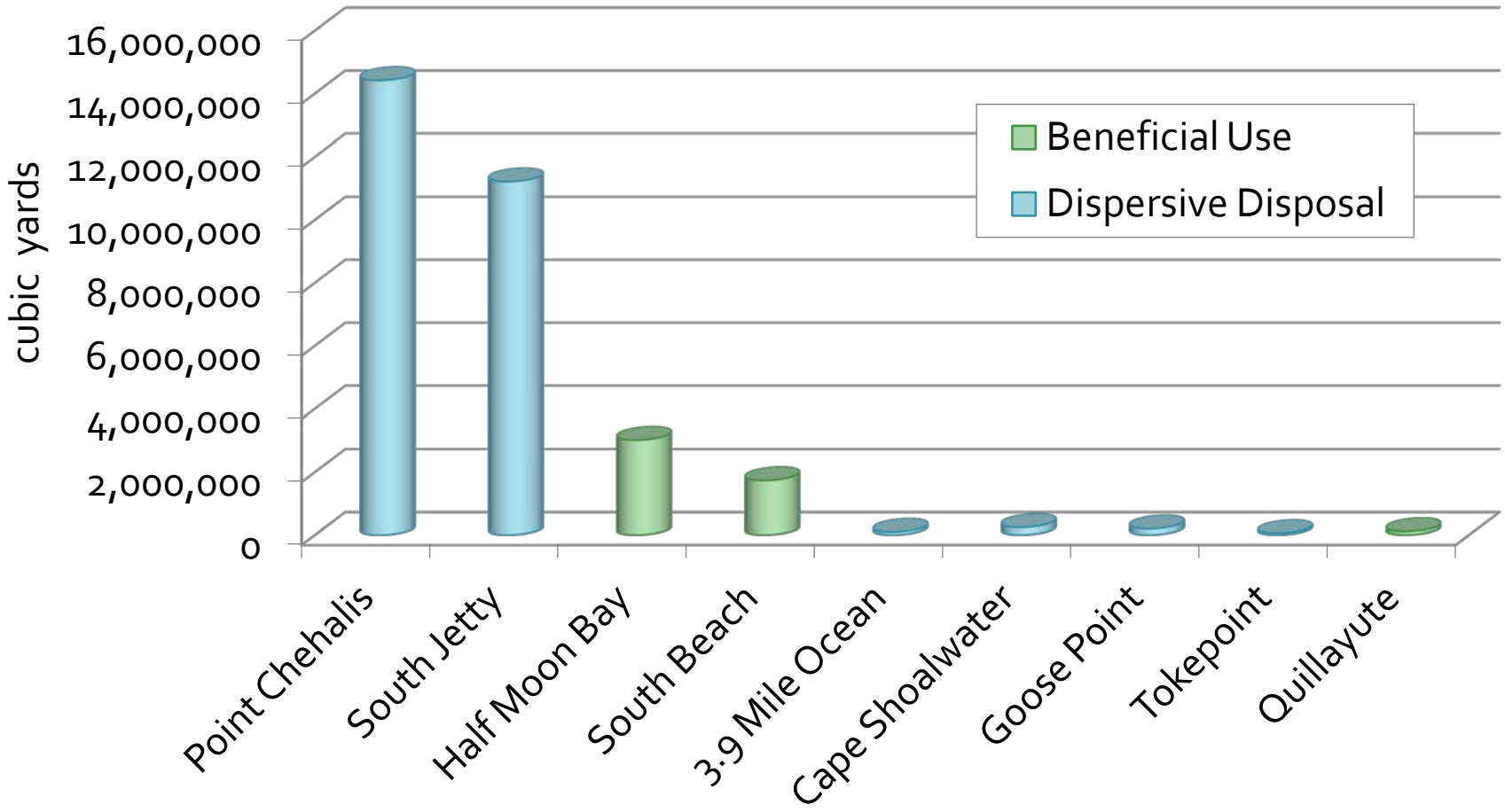
- Puget Sound sites = 16.9 million cy
- Grays Harbor sites = 30.5 million cy
- Willapa Bay sites = 0.6 million cy



Puget Sound Disposal Volumes



Pacific Coast Disposal Volumes



Disposal Site Monitoring Events

Disposal Site Management Objectives Achieved?

(Revelas, Kendall and Barton – 2012 PIANC presentation)

		Dredging Year													
		1990	1992	1993	1994	1995	1996	2000	2001	2002	2003	2004	2005	2006	2007	2010
1) SPI Mapping	CB					YES	YES		NO		NO	NO	NO		YES	
	EB		YES					YES		YES						
	PG	NO			YES									YES		YES
	BB			YES												
	AK												YES			
1) Perimeter Chemistry	CB					NO	YES		YES		NO	YES	YES		YES	
	EB		NO					YES		YES						
	PG	YES			NO									YES		YES
	BB			YES												
	AK												YES			
2) Onsite Sediment Chemistry	CB					YES	YES		YES		YES	YES	NA		YES	
	EB		YES					YES		YES			YES			
	PG	YES			YES									YES		YES
	BB			YES												
	AK															
2) Onsite Bioassays	CB					YES	YES		YES		YES	YES	NA		YES	
	EB		YES					YES		YES						
	PG	YES			YES									YES		YES
	BB			YES												
	AK												YES			
3) Offsite Tissue Chemistry	CB					YES	NA		YES		YES	NA	NA		YES	
	EB		NA					NA		YES						
	PG	YES			NA									YES		NA
	BB			NA												
	AK												YES			
3) Offsite Benthic Infauna	CB					YES	NA		YES		YES	NA	NA		YES	
	EB		YES					NA		YES						
	PG	YES			NA									YES		NA
	BB			NA												
	AK												YES			

YES = Management Goal Achieved; NO = Additional Evaluation; YES = Change Not Due to Disposal; NO = Management Change Implemented

Beneficial-Use Projects

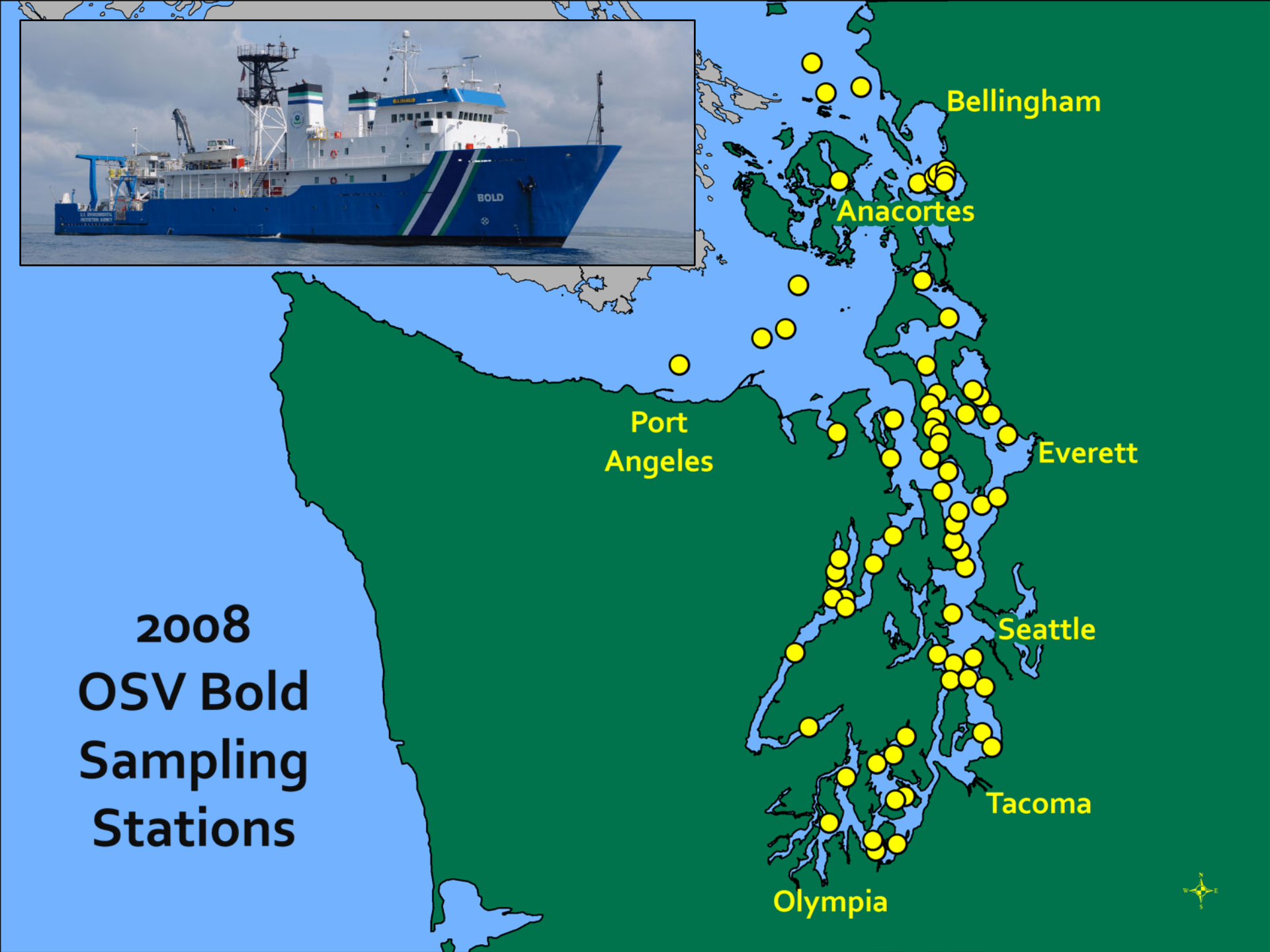
- Habitat Development
  - Jetty Island - Everett
  - Squalicum Harbor habitat bench - Bellingham
- Capping
  - Denny Way outfall
  - Pier 53 - Seattle
  - Pier 64 - Seattle
  - Pacific Sound Resources Superfund– Elliott Bay
  - Eagle Harbor Superfund

Major developments

- Dredged Analysis Information System – 1990
- Neanthes chronic sublethal bioassay – 1992
- Refinements of PSDDA bioassays - 1993
- TBT guidelines – 1996, 1998
- Statistics guidelines and BioStat software – 1996, 1998
- Revisions to screening and maximum levels – 1998

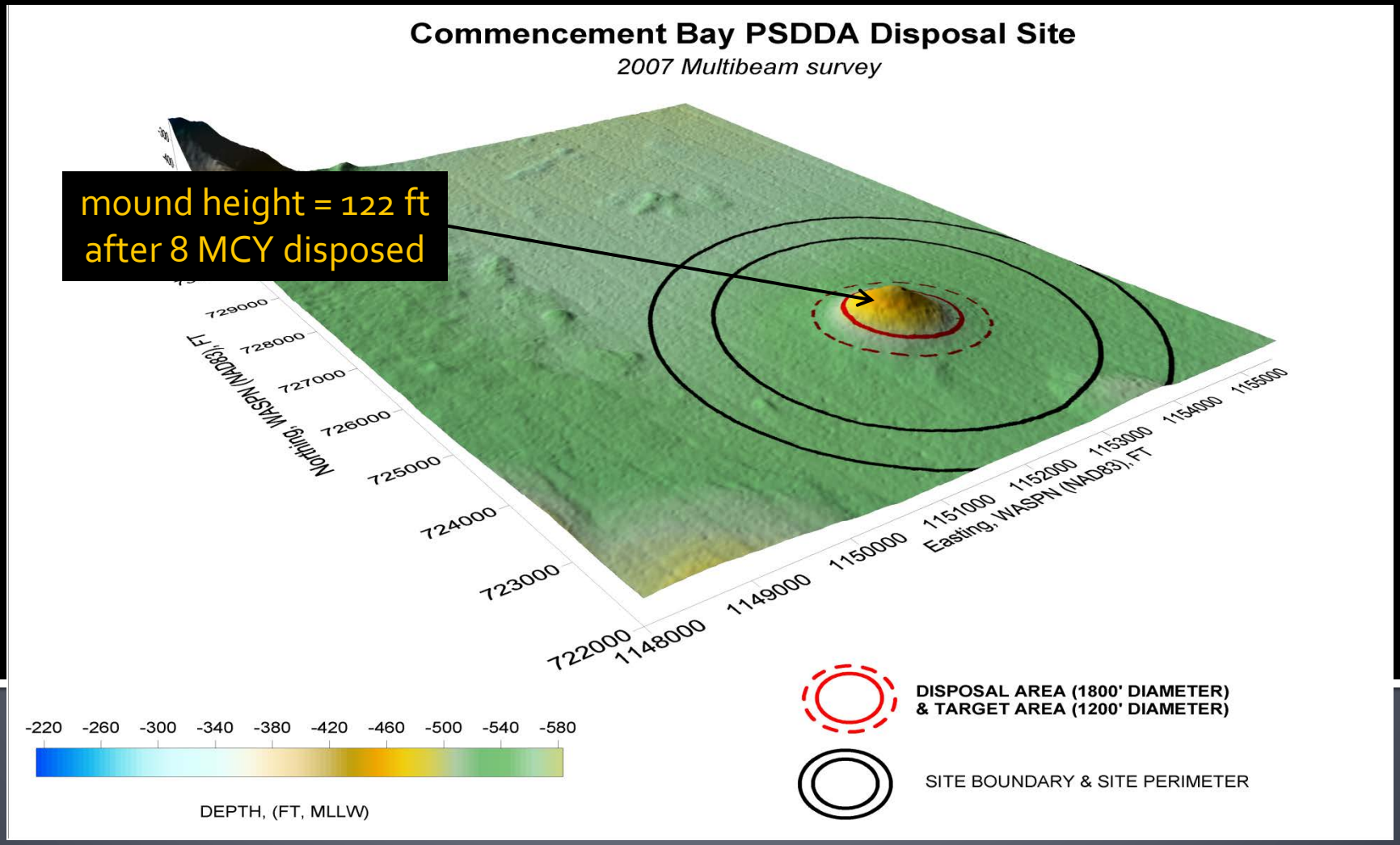
Major developments

- Revisions to list of bioaccumulative chemicals of concern – 1998, 2003, 2007, 2009
- OSV Bold survey – dioxin background – 2008
- Dioxin guidelines - 2010
- Commencement Bay SEIS – 2010
- Fate and transport study – 2012
- Survey of larval rockfish at Puget Sound disposal sites - 2012

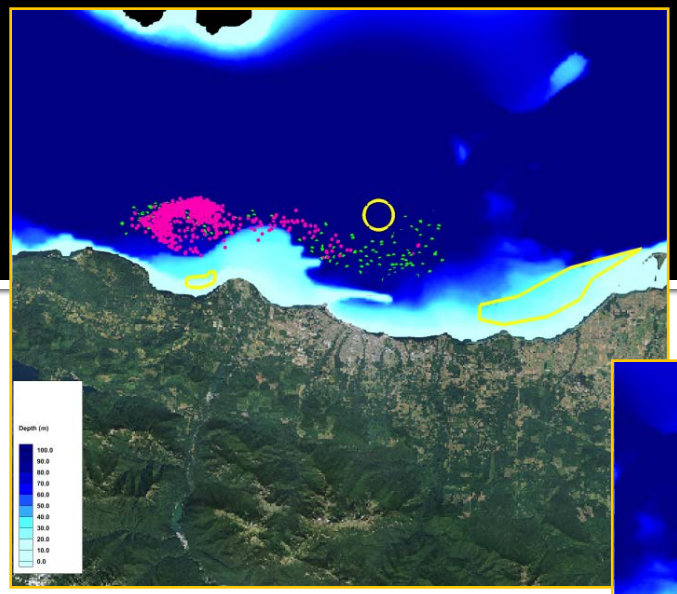


2008 OSV Bold Sampling Stations

The 2010 Commencement Bay SEIS established a new volume ceiling of 23 MCY and shifts the disposal coordinates over time to flatten the disposal mound.



Dispersive Site Fate and Transport Study



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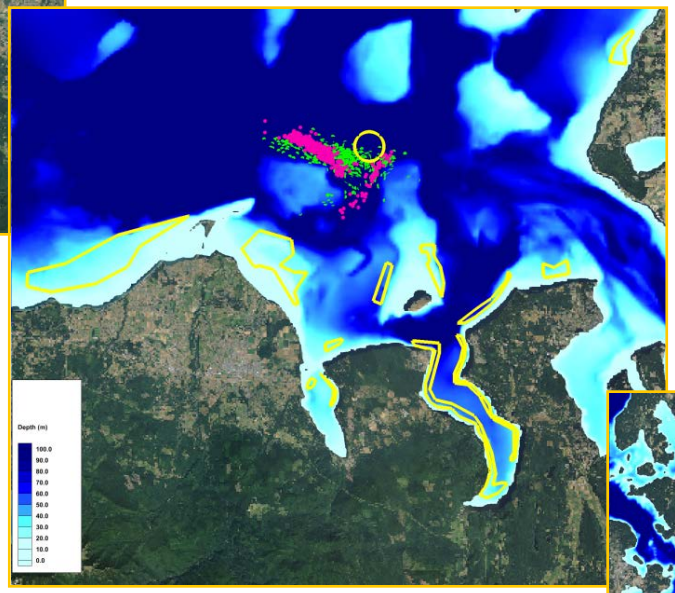

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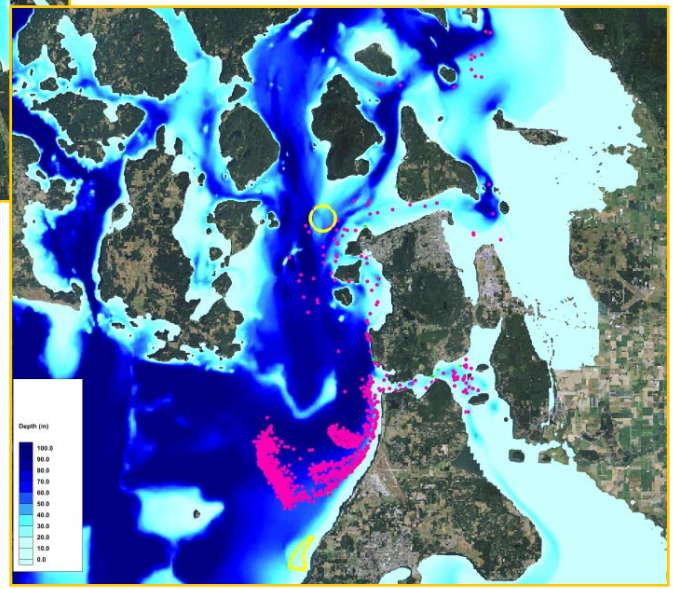

Rosario Strait

Puget Sound
Sediment Reference Material

Collaboration

- Regional Sediment Evaluation Team (RSET) – Sediment Evaluation Framework
- NOAA – rockfish BiOp and survey
- Puget Sound Partnership, Tribes, Ports, Environmental groups, Consultants – dioxin guidelines
- Analytical and bioassay labs – protocol development, workshops, Puget Sound Reference Material round robin
- MTCA and CERCLA – woodwaste areas and cleanup projects

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