

# Stormwater Passive Sampling: Summer 2017 Sampling Plan Status Update: 8/3/2017

- NESDI/PSNS&IMF Project Objectives
- How is Passive Sampling Being Conducted?
  - DGT (metals)
  - POCIS (polar organic compounds)

- FY2016 Sampling
  - POCIS deployment Nov/Dec 2015
  - DGT/POCIS deployment March 2016 (Wet Weather)
  - Lab Studies
    - Nov 2015 SSC Pacific initial DGT gell thickness
    - Jan 2016 PNNL Sequim Bay Seawater MDL Study
    - Mar 2016 SSC Pacific Pulse Study
  - DGT/POCIS deployment Aug 2016 (Dry Season)
- FY2017 Sampling
  - POCIS “First Flush”
  - DGT Fall and Winter during Wet Events 2wk period(s) in conjunction with ambient (AMB) nearshore and marine monitoring
  - POCIS Fall and Winter continuous 6-wk deployments at selected stations
  - **Dry Season Deployment (Aug 2017)**

Completed

Planned



# **Navy Environmental Sustainability Development to Integration (NESDI) Program Funding for Stormwater Passive Sampling Demo Project**

## **Objectives**

1. Integrate passive sampling into existing stormwater monitoring program to improve data collection, evaluation of stormwater impacts, and management effectiveness.
2. Validate the use of passive sampling devices to capture pulse inputs from stormwater runoff and better identify sources
  - Field study wet season and dry season FY2016
  - Lab study FY2016
3. Optimize stormwater sampling designs to obtain better information with lower costs
  - Implement improved sampling design for FY2017
  - Verify results FY2018
4. Gain regulatory and public acceptance of technical approach

# Passive Samplers and Chemicals of Concern

- Diffusive Gradient in Thin film (DGT) Metals
  - DGT Metals  
(Ag Al Cd Cr Cu Fe Mn Ni Pb Zn)



- Polar Organic Chemical Integrative Sampler (POCIS)
  - Medicines and Personal Care Products
  - Endocrine Disrupting Compounds
  - Household Products
  - Hydrocarbons
  - Herbicides and Pesticides



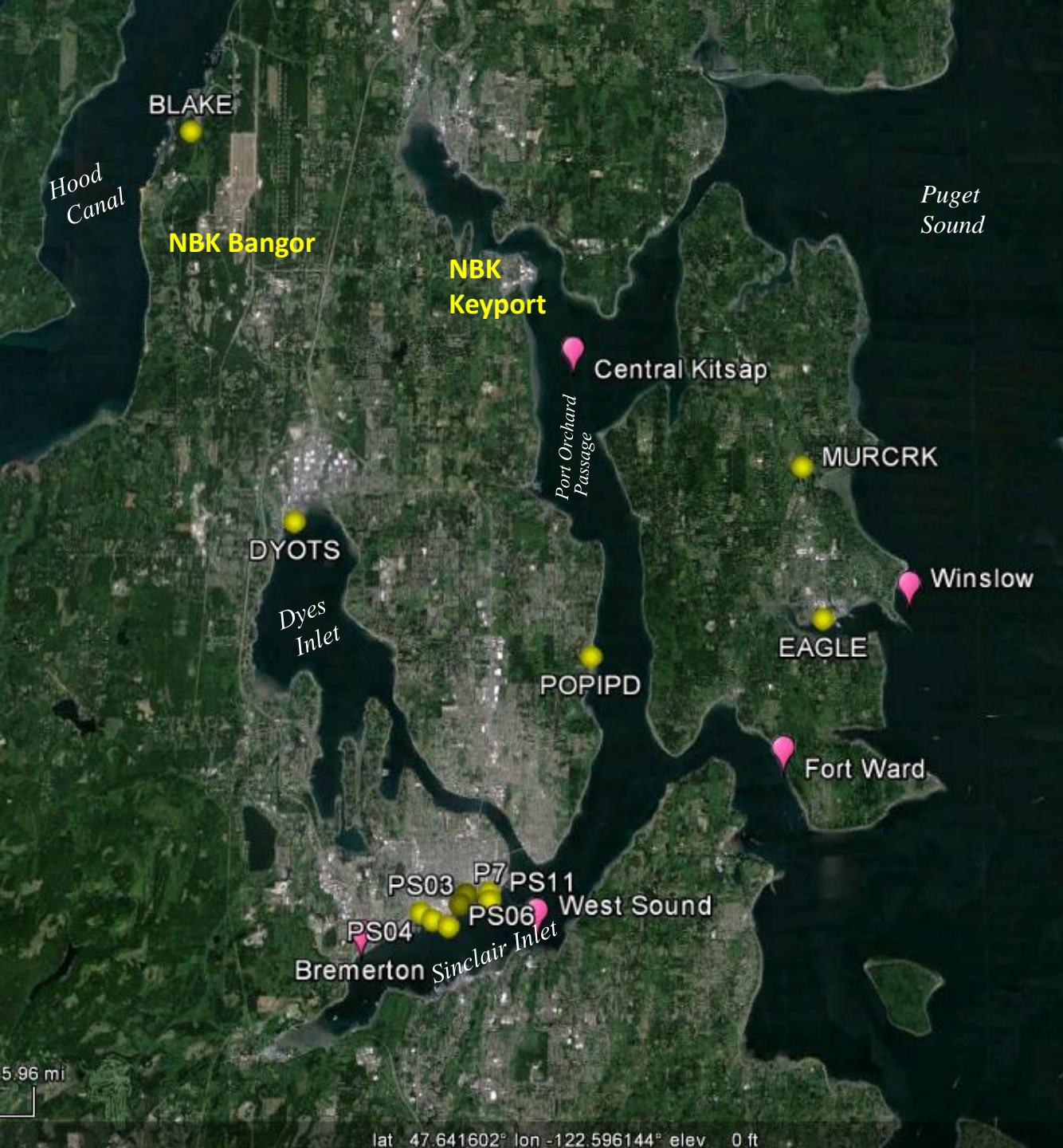
# DGT Sampler



- No metal parts
- Parachute cord for securing to dock
- Enclosed in protective basket
- Rocks used for weight

# POCIS sampler in protective stainless steel cage





## Sampling Locations

- Station Location
- WWTP Outfall

# Sinclair Inlet Sampling Locations



# Polar Organic Chemical Integrative Sampler (POCIS)

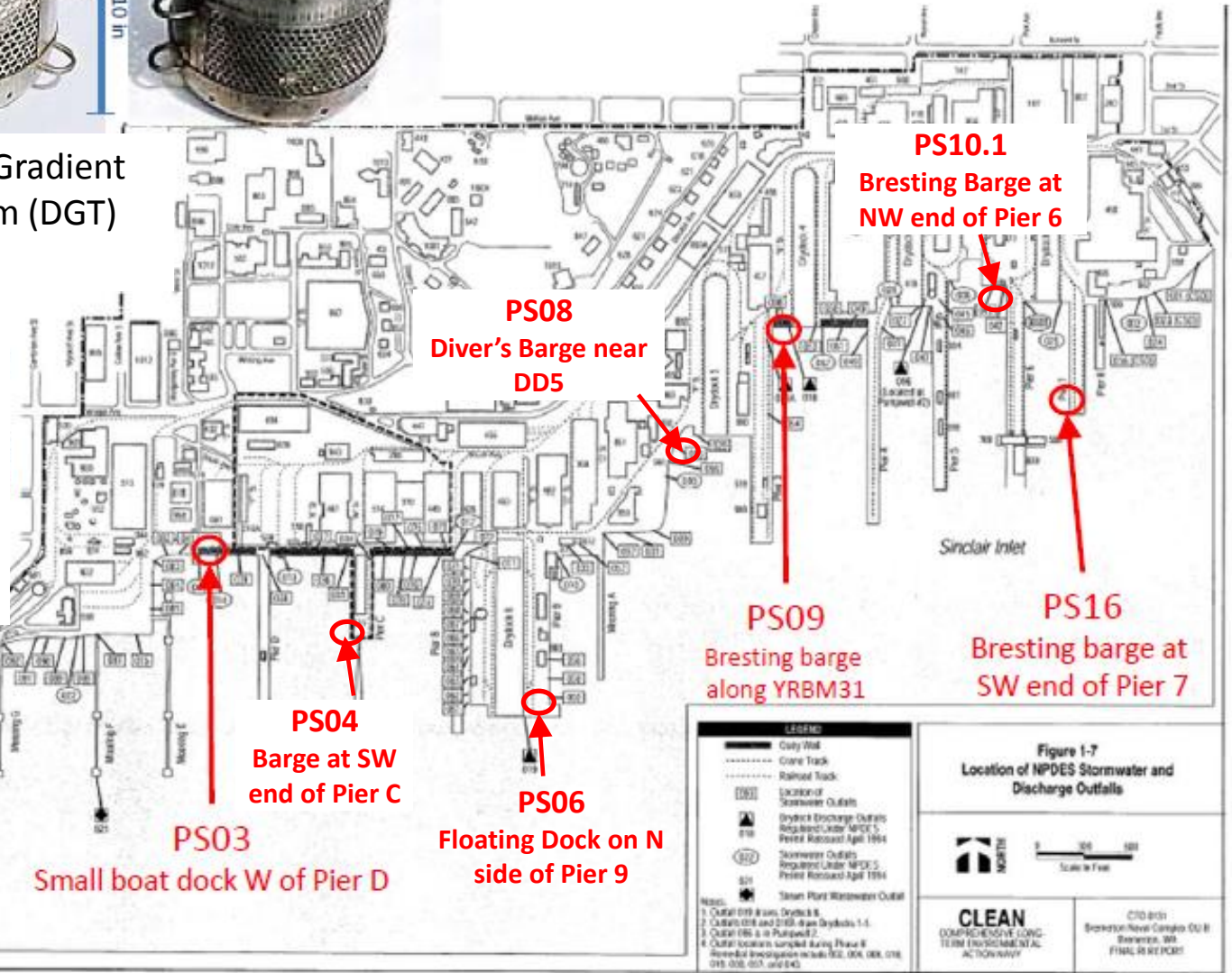


Passive sampling devices to be deployed on Aug 15 and recovered on Aug 30, 2017



Diffusive Gradient in Thin film (DGT) Metals

Samplers will be tied to floating dock/barges (as shown) so that they are submerged about 1-2 ft below surface. One POCIS and one DGT sampler will be deployed at each location. Samplers should remain submerged at all times.

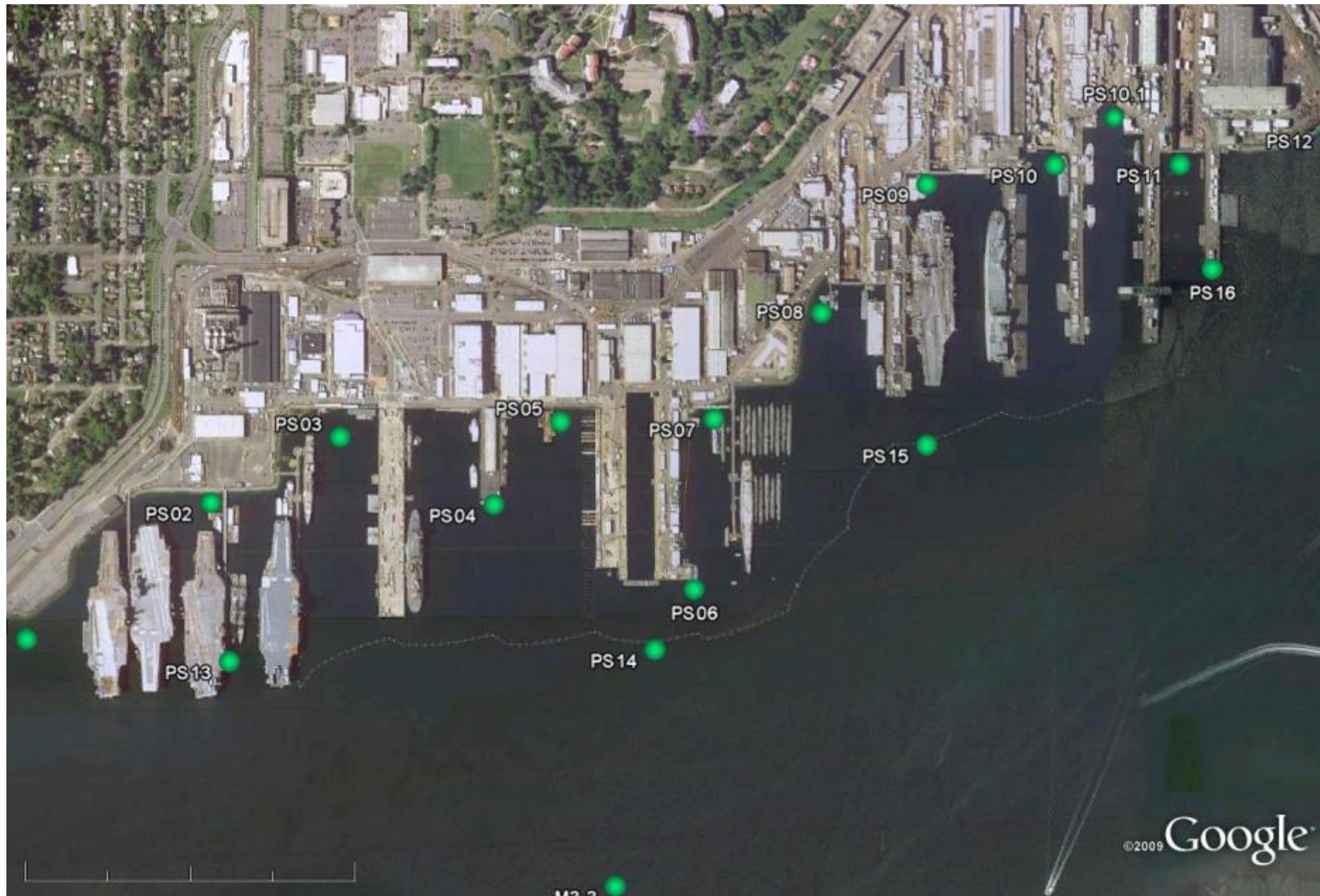




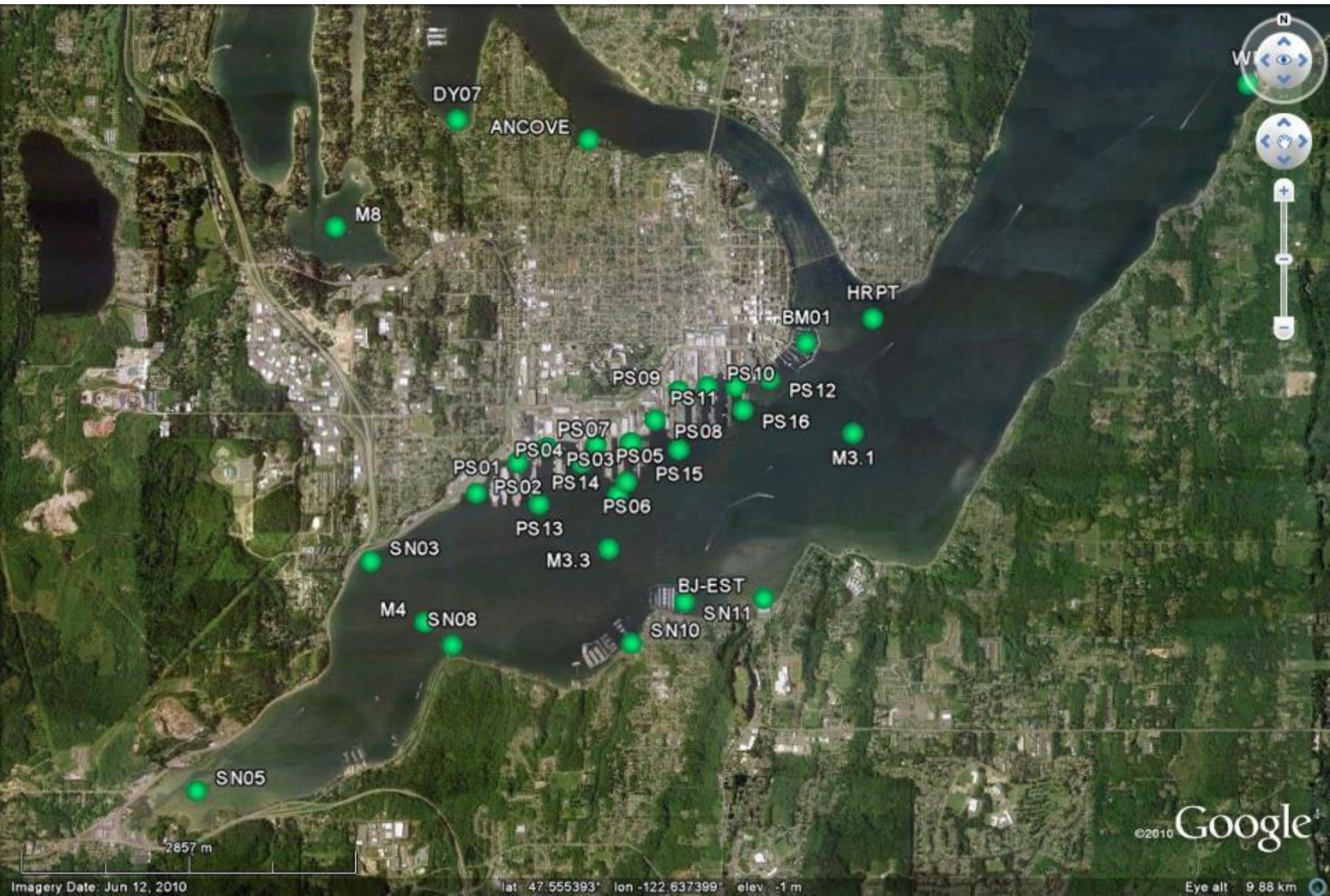
# Stations Selected for Sampling Aug 2017

Jusidiction	Runoff Regime	StationID
NBK-BREM	Urban/Ind M/NS	PS03
NBK-BREM	Urban/Ind M/NS	PS04
PSNS&IMF	Urban/Ind M/NS	PS06
PSNS&IMF	Urban/Ind M/NS	PS08
PSNS&IMF	Urban/Ind M/NS	PS09
PSNS&IMF	Urban/Ind M/NS	PS10.1
PSNS&IMF	Urban/Ind M/NS	PS16
Silverdale Port Dist.	Urban/Com M/NS	DYOTS
Illahee Port Dist.	Rural/Res M/NS	POPIPD
NBK-Bangor	Rural/Ind FW/P	BLAKE
Bainbridge Island	Rural/Res FW/S	MURCRK
Bainbridge Island	Urban/Com M/NS	EAGLE
Ind = industrial	NS = nearshore	
Com = commercial	FW = fresh water	
M = marine	P = pond	

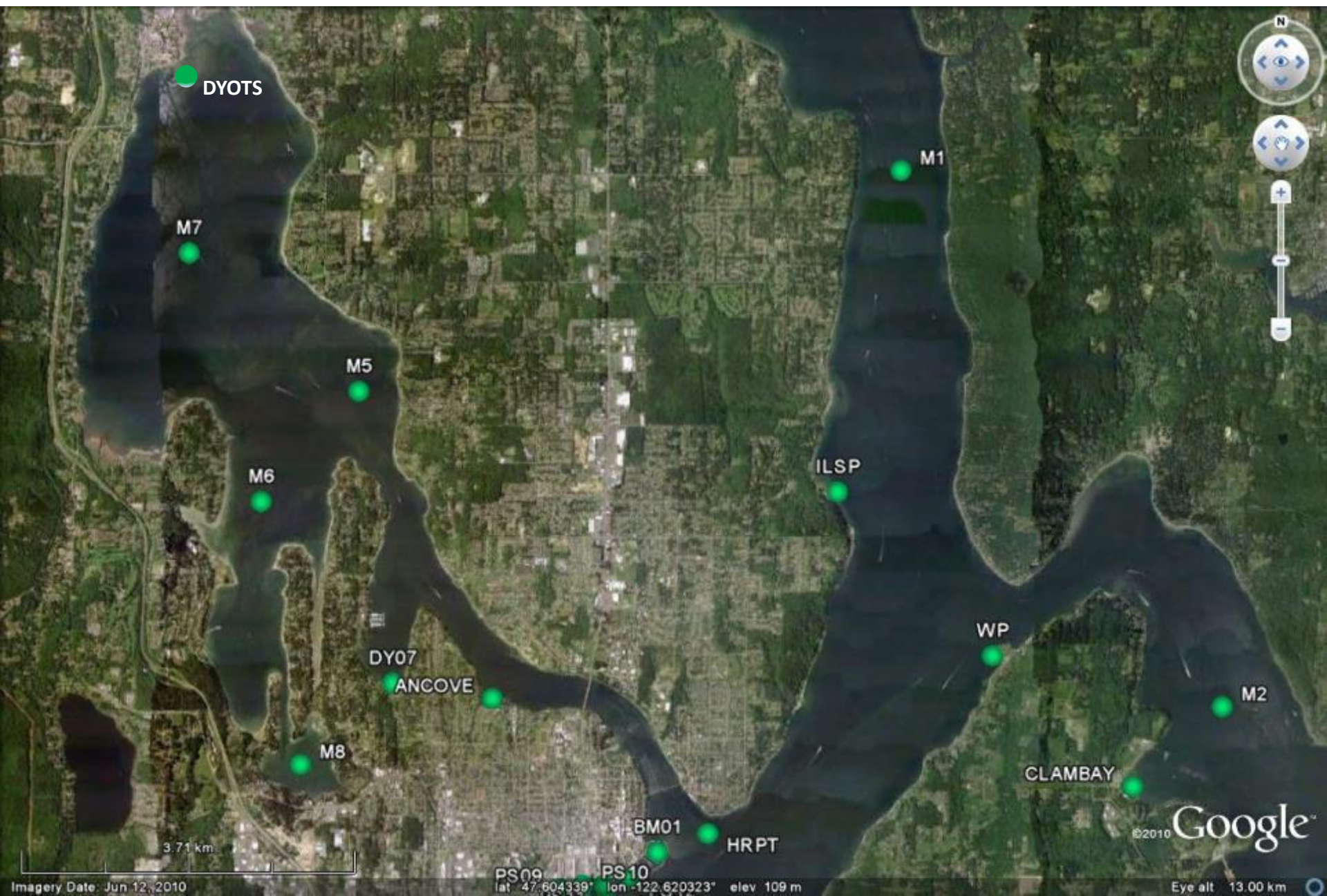
# Ambient nearshore and marine stations within PSNS&IMF and NBK Bremerton



# Ambient nearshore and marine stations within Sinclair Inlet



# Ambient nearshore and marine stations within Dyes Inlet and Passages





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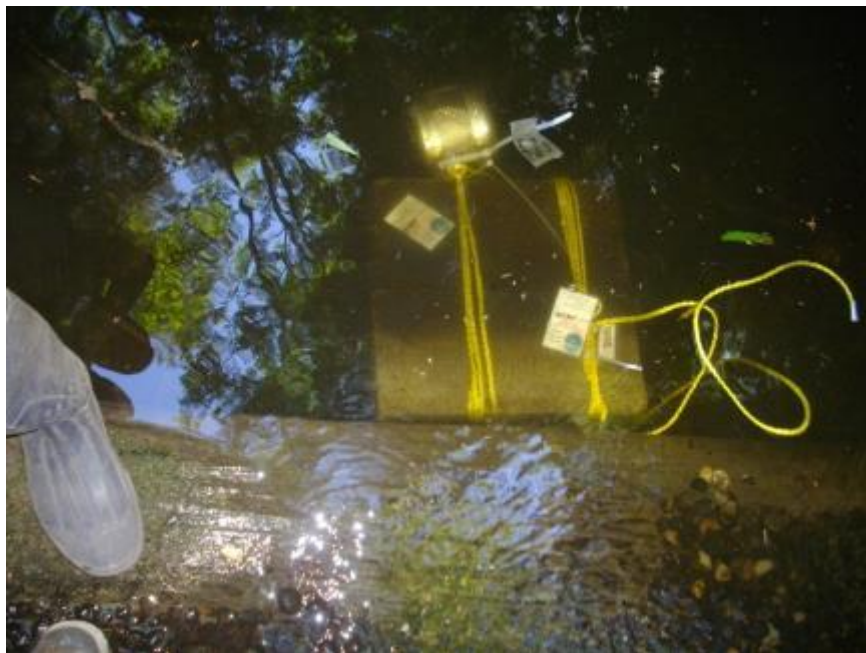
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