

Hood Canal Onsite Septic System Nitrogen Reduction



Hood Canal Salmon Enhancement Group
&
University of Washington Civil & Environmental Engineering

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Toxics and Nutrients Prevention, Reduction and Control



General Background

- DOH study concluded the RGF and Woodchip bed systems are effective in a controlled environment
- Our study implements the tested systems in “real-world” conditions; do they remain effective on an acute household or business system?

2

Lower Hood Canal

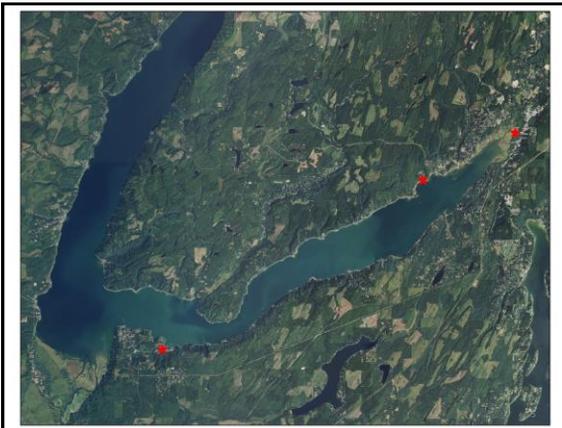
- Low Dissolved Oxygen
 - Along-shore septic systems estimated to contribute 4% of DIN load to Hood Canal (Paulson et al., 2007)
 - Estimated ~23% of freshwater DIN load to upper layer of Lynch Cove from shoreline septic systems (Paulson et al., 2007)
 - Although septic systems are only a small part of the DO problem, the remedy may be relatively simple
- Large number of part-time residents
 - Factor to consider in these systems’ performance
- Many of the houses along the lower HC are jammed in; can small/crowded lots accommodate these systems?

3

Study Design

- 3 systems will be installed
 - South Shore: B&B
 - North Shore: Full Time Residence
 - Lynch Cove: PNWSC (Office)
- Landowners will participate in a survey throughout study to give feedback (odors, system problems, aesthetics, etc.)

4



Monitoring

- One sampling event each month, at all three sites, for two years
 - Grab samples taken at septic tank, RGF, and woodchip bed effluents
 - Samples will be analyzed for BOD* & CBOD*, Nitrogen**, Suspended Solids, and Fecal Coliform
 - DO and pH will be measured in the field
- After the 2 year period we will continue to sample & monitor quarterly for another 6 years***

*BOD & CBOD will each be tested at one location per site
**Nitrogen parameters include Total N, Ammonia, and Nitrate-Nitrite
***Analyses after initial two years will be limited to Nitrogen and Fecal Coliform

6

Public Outreach

- Conduct 3 public site visits during study
- Publications and Presentations
- Continuous feedback from landowners about the system
- A final report of results and procedures for monitoring and maintenance

7

Outcomes

- Homeowner perception
- System Maintenance
- System longevity
- System Efficacy
- Logistics of Physical Implementation

8

Work Cited

Paulson, Anthony J., Christopher P. Konrad, Lonna M. Frans, Marlene Noble, Carol Kendall, Edward G. Josberger, Raegan L. Huffman, and Herea D. Olsen. "Freshwater and Saline Loads of Dissolved Inorganic Nitrogen to Hood Canal and Lynch Cove, Western Washington." *Freshwater and Saline Loads of Dissolved Inorganic Nitrogen to Hood Canal and Lynch Cove, Western Washington*. United States Geological Survey, Aug. 2007. Web. 20 Feb. 2014.

9

Images

- http://upload.wikimedia.org/wikipedia/commons/4/40/Hood_Canal_07771.JPG
- <http://pugetsoundblogs.com/waterways/files/2011/04/HCO2.jpg>

10