Non-point source pollution
Pathogens

- Amoebas
- Campylobacter
- Cryptosporidium
- E. coli 0157:H7
- Giardia
- Hepatitis
- Salmonella
- Shigella
- Vibrio

Diseases

- Amoebiasis
- Campylobacteriosis
- Cryptosporidiosis
- Dysentery
- Giardiasis
- Hepatitis A
- Salmonellosis
- Shigellosis
- Vibrio Infection
- Viral Gastroenteritis
Suspected sources

1. OSS
2. Pet waste
3. Wildlife
4. Livestock
Other water quality concerns

- Nutrient loading
- Algae blooms
- Low dissolved oxygen

University of Washington, Hood Canal Dissolved Oxygen Program, 2016
Project tasks

• 2017 – 2019

• Water Quality Monitoring
  • Shoreline surveys
  • Stream trend monitoring
  • Marine monitoring to augment DOH data set

• Pollution Identification and Correction
  • Hot spot investigations
  • Septic system sanitary surveys
  • Onsite septic code enforcement
  • Septic system repair financial assistance
Shoreline, stream, and marine surveys

- streams
- springs
- pipes

Photo: M. Dawson
Water quality sampling

• Fecal coliform
• Nutrients
  • Nitrate-nitrite
  • Ammonia
  • Total Nitrogen
  • Phosphorus

NIH 2015
# Sanitary Surveys

**Site Information:**
- *Site address:*
- *Owner:*
  - Occupant: __________________________
  - # of Occupants: ________; # of Bedrooms: ________
- Use: FT / Seasonal-FT / Vacation-PT / Unknown
- Water source: Well / Public / Haul-in
- *Year House built:*

**Septic System Information:**
- *Permit: Y / N  * Case #:
- *System Type:*
  - conventional
- Alarms: Y / N  Plumbing leaks or backups: Y / N
- Surface Water <100 ft from septic: ________
- Altered/Repaired: ________
- *Last Pumped: ________
- *Last O&M: ________
- O&M Schedule: Annual / 3 years

**Reminder:**
- Spread laundry out through the week
- Don’t use liquid fabric softeners
- Dispose of pet waste in the garbage
- Don’t use additives
- Don’t flush chemicals, meds or toxics

**Walkaround:**
- Drainfield walked on: Y / N  If not, why? ________
- Do roof, gutters or other sources drain onto drainfield area? Y / N
- Livestock/Ag or pet waste observed? Y / N (see Ag form)

**Other Site Information:**
- Staff: ________
- *Parcel #:
- *Mailing address:
- Phone #: __________________________
- Email: __________________________

**Status:**
- [ ] Completed
- [ ] Attempted-Denied Access
- [ ] Attempted-No Response
- [ ] Other: __________________________

**Rating:**
- [ ] No Problems
- [ ] Suspect - L M H [see back of this page]
- [ ] Surfacing sewage [failure][create COM]
- [ ] Safety Violation [create COM]
  - (Unstable / broken tank risers / lids)
- [ ] Sketch of unknown/altered/non permitted OSS (see red box on back)
- [ ] COM created? Case#:
- [ ] SOM requested? Date:
- [ ] Mailer Sent? Date:

**Other:**
- [ ] ________

---

*Visit Dates & Comments/Concerns:

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________
Records
Tips for a long (septic) life

✓ Spread laundry out through the week
✓ Fix leaky faucets and running toilets
✓ Avoid liquid fabric softener
✓ Dispose of pet waste into the garbage
✓ Do not use additives
✓ Do not flush chemicals, medications, or toxics
✓ Don’t drive on or park on the drainfield or transport lines
✓ Landscape drainfield or mound with shallow-rooted plants
Check for safety issues
Owners of septic systems are responsible for ensuring the systems are safe and function properly, including having a secure lid on the tanks.
Operation & Monitoring Inspections

- Every 3 years (conventional)
- Every year (alternative)
- Time of sale of property
- When applying for new permits
Welcome to onlineRME™

Responsible Management Entity

> Company Web Site
> Public Record Search

onlinerme.com
Homeowner authorization for septic inspections

Check our website for the next round of septic classes:
www.jeffersoncountypublichealth.org
Goal: protect public health

• Recreation

• Shellfish
Project area

- Bays
  - Quilcene
  - Dabob
  - Tarboo
- 50 miles shoreline
- 17,000 acres marine waters
- Communities
  - Quilcene
  - Brinnon
Comparison

- **Maximum depth**
  - Dabob: 600’
  - Quilcene: 200’
  - Tarboo: 8’

- **Inputs**
  - Big Quilcene River
  - Little Quilcene River
  - Tarboo Creek
  - Donovan Creek
  - Spencer Creek
  - Marple & Jackson Creeks
Monitoring locations

- Marine
  - Washington State Department of Health

- Shoreline
  - Hood Canal Clean Water Project 2007-12

- Streams
  - Hood Canal Watershed Project 2010-14
  - Hood Canal Clean Streams 2014-16
Past results

Clean Water Projects
• Hood Canal (shoreline)
• Hood Canal Watershed
• Hood Canal Clean Streams

• Freshwater E. coli
• Septic system surveys
Land use

• Shoreline residential
  • Full-time
  • Seasonal
  • Vacation
• Forest
• Agricultural
Residences

Sanitary survey goal:
- 200 residences
Septic permits

Within 500’ of shoreline:
• 633 case files
• ~100 pre-permit/unpermitted
Septic O&M inspections
Septic O&M inspections
Illness Investigation: Norovirus Outbreak Linked to Consumption of Raw Oysters Contaminated by a Failing Residential Septic System

- 6 illnesses reported from Portland, OR gallery opening event in late November 2014
  - Raw oysters served
  - 2 confirmed Norovirus illnesses
- In early December, three more illness cases involving oysters from King County and Whatcom County
- Several sources of oysters reported in each case, but Hammersley Inlet oysters served in every case.
  - All oysters in Hammersley from only two parcels
  - Oysters from one of the parcels and restaurant sent to FDA for testing.
Shoreline survey in early December 2014 discovers failing septic system near parcel in Hammersley where oysters came from.
Recall: 12,000 dz oysters and 8,000 lb clams
Landowner capped and pumped septic tank. Worked with county to replace system.
Same norovirus strain identified in people who became sick, oysters on the beach and the septage from the septic tank.
Area reopened month after closure
  Oysters tested negative for norovirus and the minimum 21 day closure had passed.
dye testing
Financial Assistance

- Craft3 Septic Loan
- USDA Rural Assistance Program
What you can do

• Maintain your septic system
• Dispose of pet waste
• Talk to your friends and neighbors
• Call us with concerns

• Water quality concerns
• Septic problems
  360-385-9444
Craft3 is a nonprofit that provides loans to entrepreneurs and individuals

- Since 1994, Craft3 has invested $390 million in entrepreneurs, nonprofits, individuals and others who don’t normally have access to financing.
- Craft3 loans align with our mission of strengthening economic, ecological, and family resilience in urban and rural communities of Ore. and Wash.
- We currently have $162 million in total assets under management.
- 55 employees in 7 regional offices.
The Craft3 Clean Water Loan helps repair or replace failing septic systems

Loan Features & Benefits

- Finance the full cost of designing, permitting, installing, and maintaining your septic system.
- Competitive interest rates and no up-front cost.
- Highly inclusive for a range of property types and incomes.
- Deferred payment options may be available for homeowners with lower incomes.
Clean Water Loan Eligibility

- Open to residential and commercial properties in select counties in Washington and Oregon:
  - WA: Clallam, Grays Harbor, King, Jefferson, Mason, Kitsap, Pacific, Pierce, Snohomish, Thurston, Wahkiakum, Whatcom
  - OR: Deschutes

- Properties can be owner- or non-owner occupied. Rentals and second homes are eligible.

- One of the following must apply:
  - your septic system is at least 25 years old;
  - your system is failing;
  - you have been contacted by Health Officials; or
  - you are under orders to fix your septic system.
Rates & terms offered in participating Washington state counties as of 6/6/2016

<table>
<thead>
<tr>
<th>Annual Household Income</th>
<th>Interest Rate</th>
<th>Loan Terms**</th>
<th>Example Project and Loan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to $35,000, owner-occupied</td>
<td>1.99% (2.04% APR)</td>
<td>No monthly payments required.*** Terms up to 15 years.</td>
<td>$15,000 loan amount*, no monthly payments for 179 months, 1 balloon payment of $19,456 due on the 180th month.</td>
</tr>
<tr>
<td>$35,001 - $55,000, owner-occupied</td>
<td>3.99% (4.36% APR)</td>
<td>Monthly interest-only payments.*** Terms up to 15 years.</td>
<td>$15,000 loan amount*, 179 monthly interest payments of $50.83, 1 balloon payment of $15,051 due on the 180th month.</td>
</tr>
<tr>
<td>Greater than $55,000 - or - Non-owner-occupied, rental property or secondary home</td>
<td>4.99% (5.62% APR)</td>
<td>Monthly principal and interest payments. Terms up to 15 years.</td>
<td>$15,000 loan amount*, $118.58 per month, 15 year term (180 months).</td>
</tr>
</tbody>
</table>

APR, Annual Percentage Rate
* Loan availability, terms and conditions current as of 6/1/2016 and are subject to change. Residential property examples include financing of Craft3 $595 loan fee. Not all applicants will qualify.
** Principal balance and interest (if applicable) due on sale, transfer, refinance or maturity.
*** If, after 15 years, homeowner has not sold, refinanced or otherwise transferred ownership of the property, is in compliance with the loan agreement, and meets relevant lending/program criteria, the 15-year loan period may be extended, at the lender’s sole discretion, for up to an additional five years.
Rates & terms offered in Deschutes County, Oregon as of 6/6/2016

<table>
<thead>
<tr>
<th>Annual Household Income</th>
<th>Interest Rate</th>
<th>Loan Terms**</th>
<th>Example Project and Loan</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>4.99% (5.62% APR)</td>
<td>Monthly principal and interest payments. Term up to 15 years</td>
<td>$15,000 loan amount*, $118.58 per month, 15 year term (180 months).</td>
</tr>
</tbody>
</table>

APR, Annual Percentage Rate
* Loan availability, terms and conditions current as of 6/1/2016 and are subject to change. Residential property examples include financing of Craft3 $595 loan fee. Not all applicants will qualify.
** Principal balance and interest (if applicable) due on sale, transfer, refinance or maturity.
Steps in the Process

1. Submit your loan application online at www.Craft3.org/CleanWater. Receive pre-approval within three business days.

2. Obtain a design for your system, permits, and installation bids from a county-approved contractor.

3. Finalize your Craft3 loan. Sign your loan documents electronically or by mail. 50 percent of your loan amount is available up-front for design, permits and installation.

4. Oversee the work by your contractor to repair or replace your septic system.

5. Authorize Craft3 to pay your contractor once work is completed to your satisfaction and approved by the county.

6. Enjoy your new system – making sure to maintain it properly. All loans include a $2,000 reserve to support your system’s ongoing health.

7. Repay your Craft3 loan via convenient automatic bank payments.
Contact Craft3

Learn more about the Clean Water Loan or apply at:

www.Craft3.org/CleanWater

WASHINGTON

Jena Ross
CleanWater@Craft3.org
(888) 231-2170 ext. 171

OREGON

Rebecca Tuccio
CleanWater@Craft3.org
(888) 231-2170 ext. 510