



Applying Kitsap Public Health's Pollution Identification and Correction Methods for the Restoration & Protection of Shellfish Growing areas

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Water Pollution Identification & Correction
Program

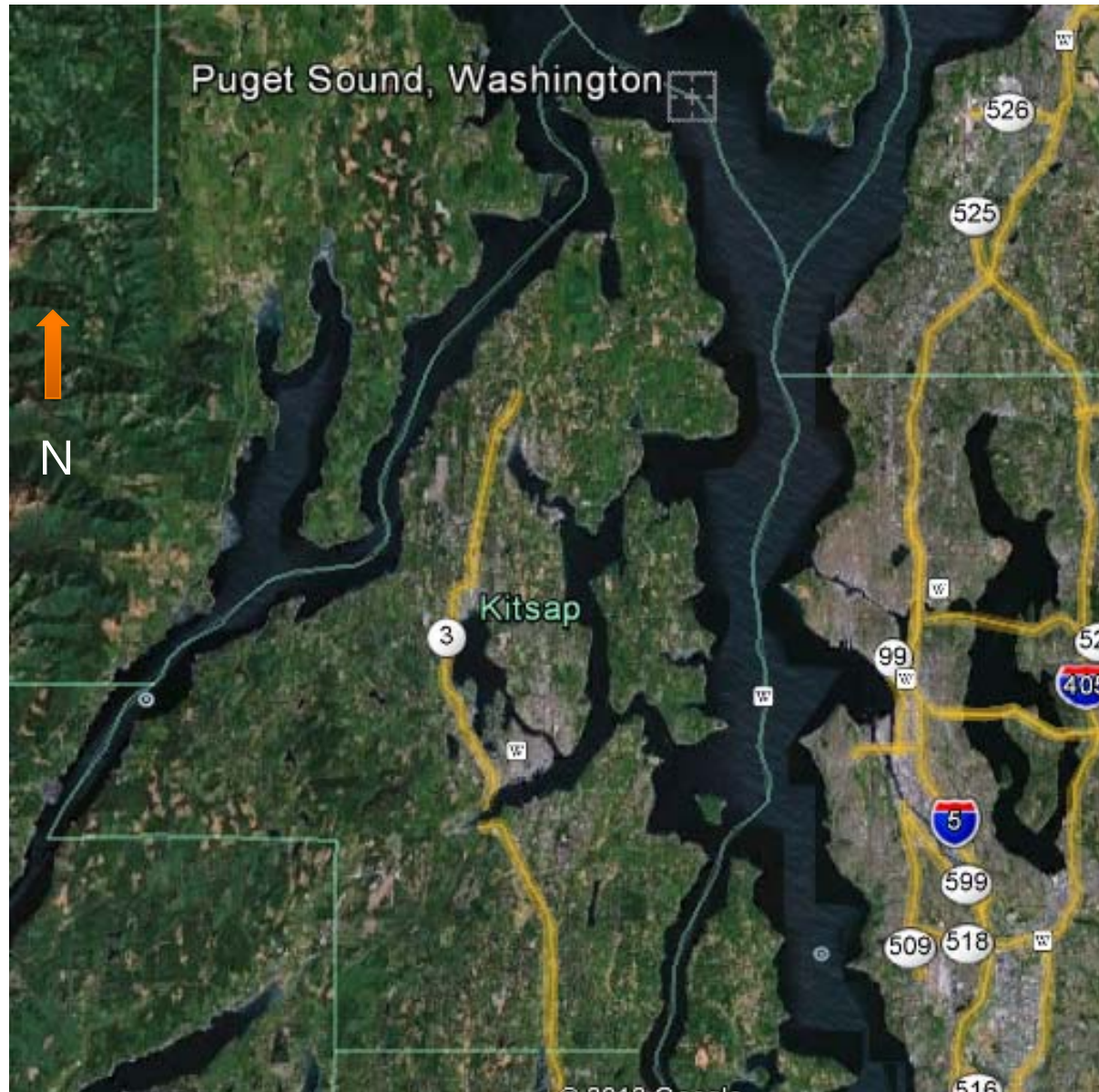


Kitsap County, Washington

- Population: 251,133
- Land area: 396 sq miles
- Population density: 635 / sq.miles
- Number of households: 97,220
- Estimated # Onsite septic systems: 58,000
- Total miles of shoreline 228
- Miles of shellfish classified shoreline 144







Pollution Identification & Correction

- Assess Kitsap County surface waters for fecal bacteria pollution
- Prioritize & Implement cleanup efforts
- Evaluate the results



Pollution Identification & Correction (PIC)

- The foundation of Kitsap Public Health's PIC program is a county-wide trend monitoring program that annually assesses :
 - 120 stations in 58 streams
 - 65 stations in 12 marine waters
 - 24 stations on 17 lakes



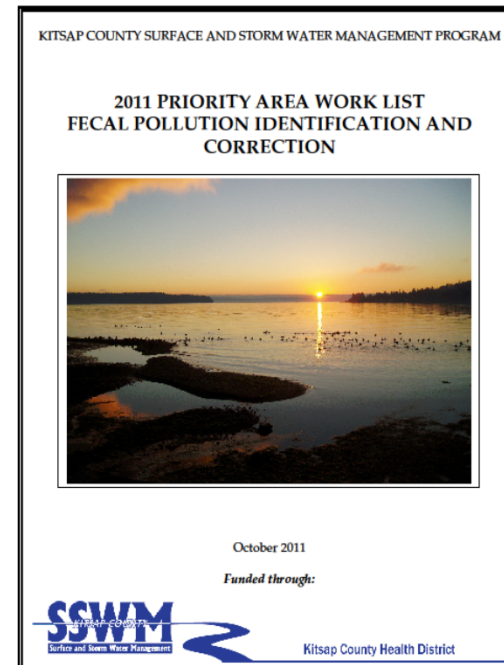
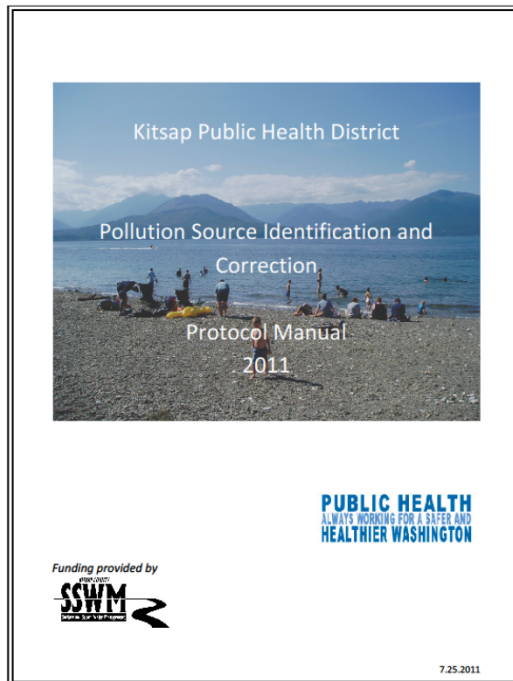
Pollution Identification & Correction

- Water quality problem areas are prioritized for clean up on an annual basis and reported in a Priority Area Work List. The primary factors considered for prioritization include:
 - Fecal coliform (FC) levels
 - Shellfish harvest impacts
 - Total Maximum Daily Load Studies
 - Public Health Advisories



Pollution Identification & Correction

Standard procedures used for implementation



- PIC Protocol and Priority List



Pollution Identification & Correction

Funding provided by

- Kitsap County Surface and Storm water Management Program
- Washington State Department of Health
- Washington State Department of Ecology
- US Environmental Protection Agency



PIC Methodology

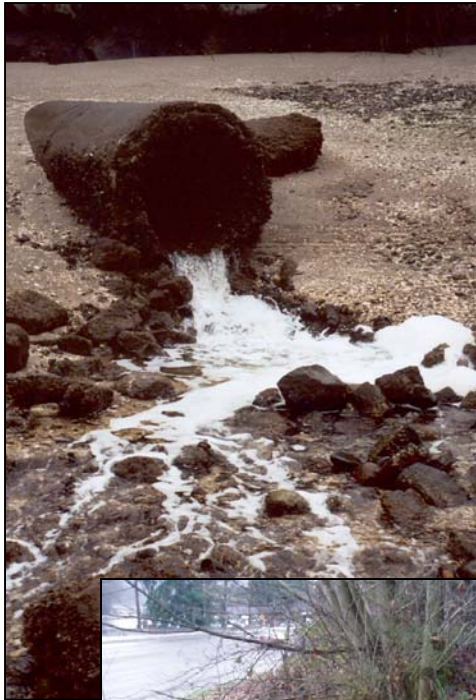
- PIC utilizes an innovative “door-to-door” site visit process, public education & water quality monitoring to locate fecal (FC) pollution sources.



- FC sources are generally corrected voluntarily by the property owner. However, local on-site sewage and solid waste regulations are used to enforce correction when necessary.



Sources of Bacteria



Pollution Identification & Correction

In 2010 Kitsap Public Health received a Puget Sound Watershed Management Assistance Grant from US EPA Region 10 to conduct the Shellfish Restoration and Protection Project.



Pollution Identification & Correction

- The Goals for this project are to restore & protect water quality of both fresh and marine waters of Kitsap County by correcting sources of fecal pollution that impact shellfish growing areas and pose a threat to public health.



Pollution Identification & Correction

Objectives:

1. Implement a routine shoreline monitoring program that locates fecal “hot spots” affecting “Prohibited” and “Approved” shellfish growing areas around Kitsap County.
2. Provide education to residents regarding onsite septic systems and sustainable land use practices that can restore or protect surface waters that drain into shellfish growing areas.



Pollution Identification & Correction

Objectives :

3. To ensure correction of failing onsite sewage systems by providing financial assistance to qualified Kitsap County residents through the Craft 3 Septic Loan Program.
4. To connect residents with healthy shellfish growing areas through the establishment of the Port Madison Community Shellfish Farm.



Shoreline Surveys

- Collect fresh water samples from all flows entering marine waters
- Conduct confirmation sampling to determine “hot spots”
- Initiate source tracking
- Implement corrective action



Pollution Identification & Correction

In 2011 EPA grant activities

- Completed 50 shoreline miles (twice, dry/wet)
- Collected approximately 1200 water samples
- Confirmed “hot spots”: 49
- OSS failures/repairs; 14 failures, 7 repaired



Pollution Identification & Correction

In 2012 EPA grant activities

- Completed 80 shoreline miles (wet weather), and will repeat these during dry weather
- Collected approximately 950 water samples
- Confirmed ~ 20 additional “hot spots”

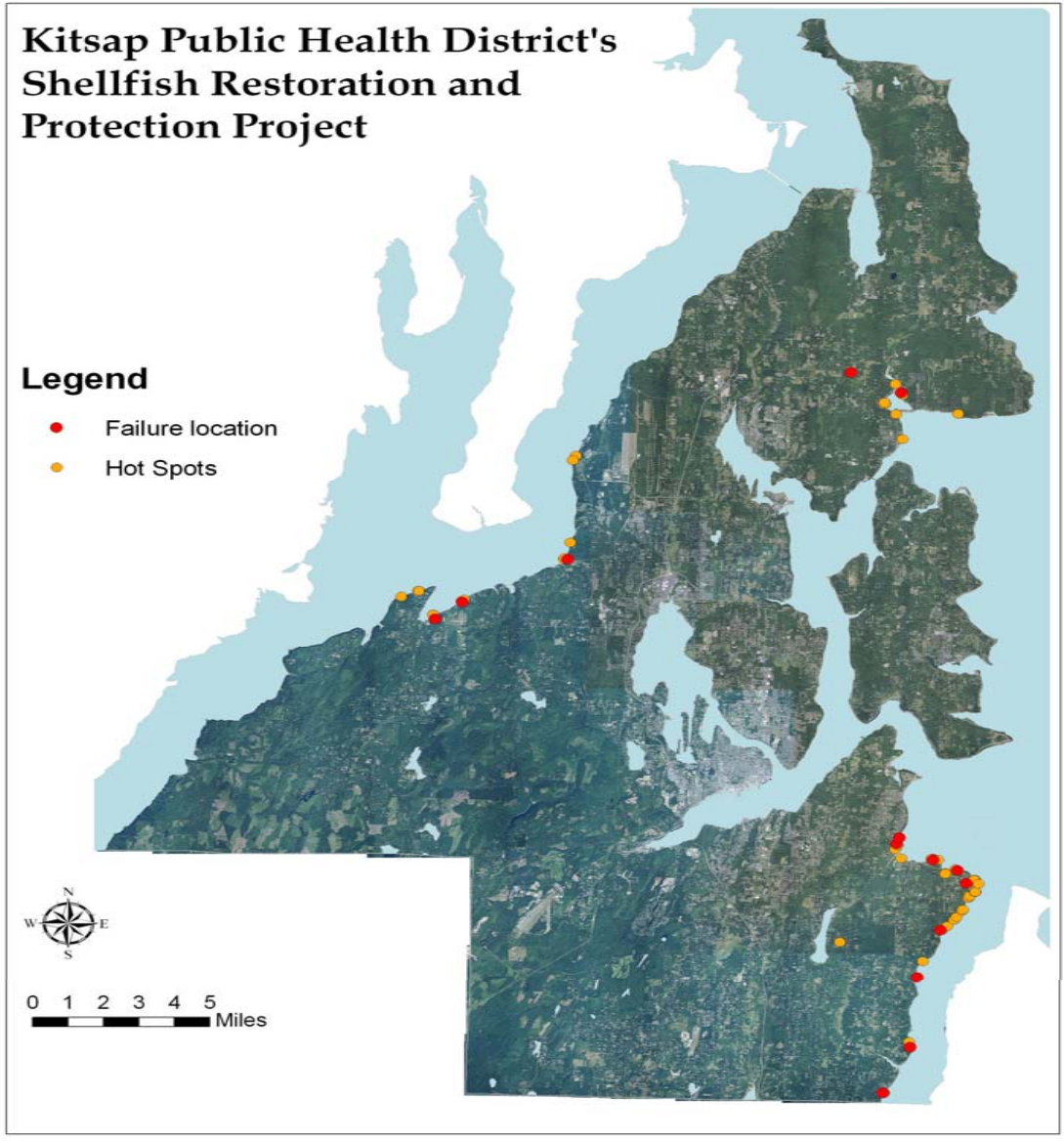


Pollution Identification & Correction

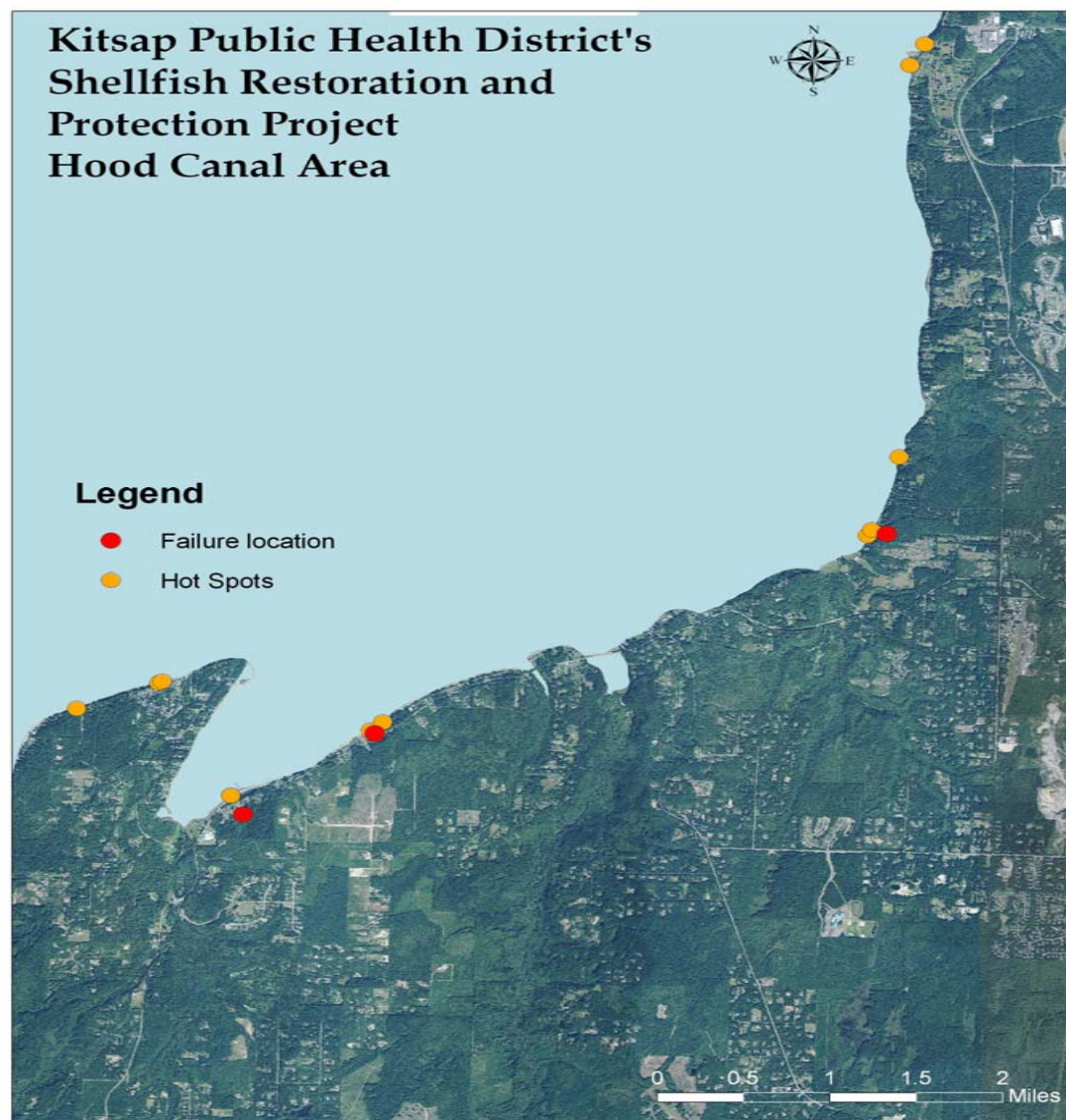
- Source tracking tools:
 - Mapping
 - Impact/segmentation water sampling
 - Onsite sewage records
 - Property site visits
 - Testing for optical brighteners (Fluorometer)
 - Dye tracing



Mapping for “hot spot” investigations



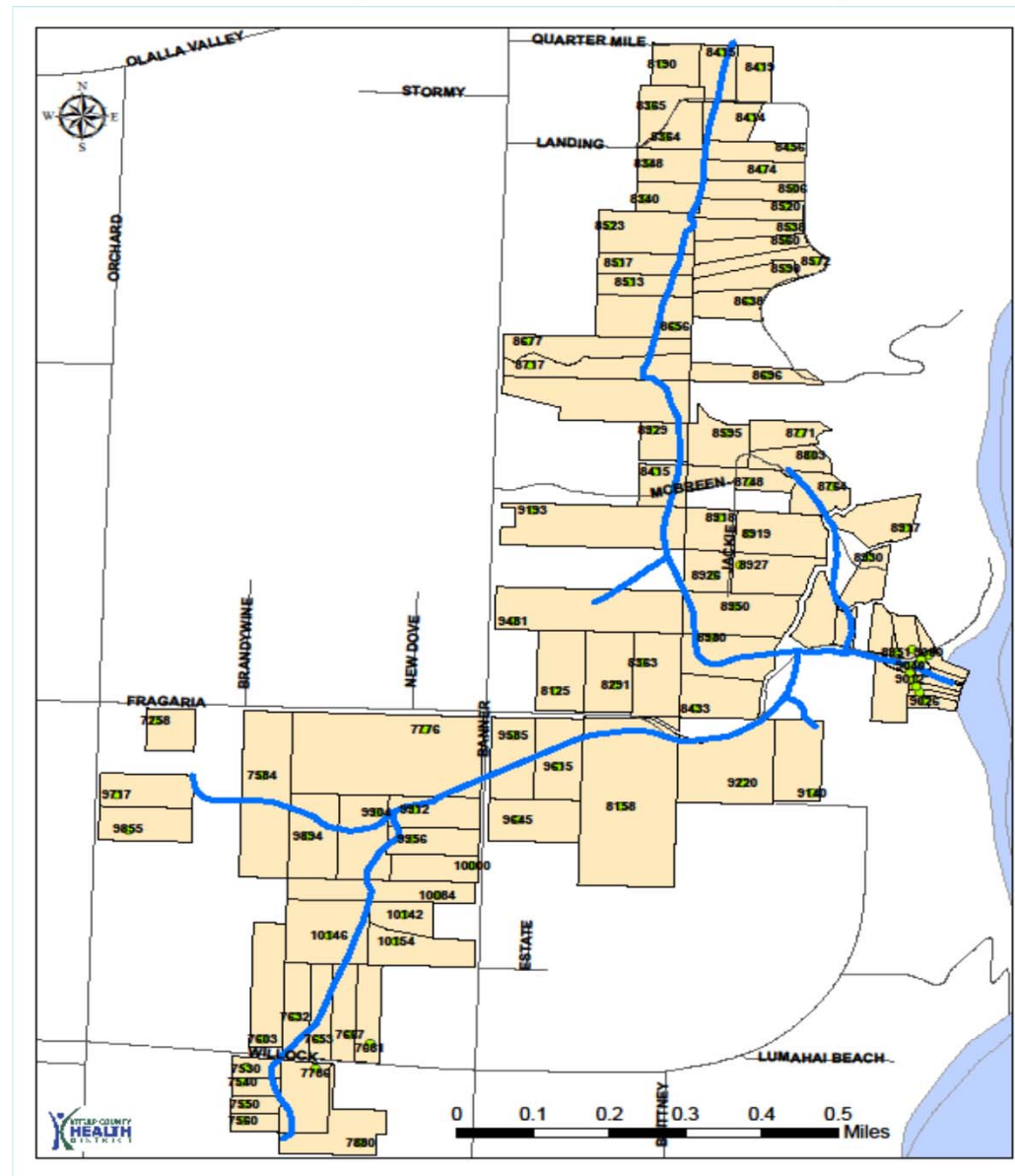
Mapping for “hot spot” investigations



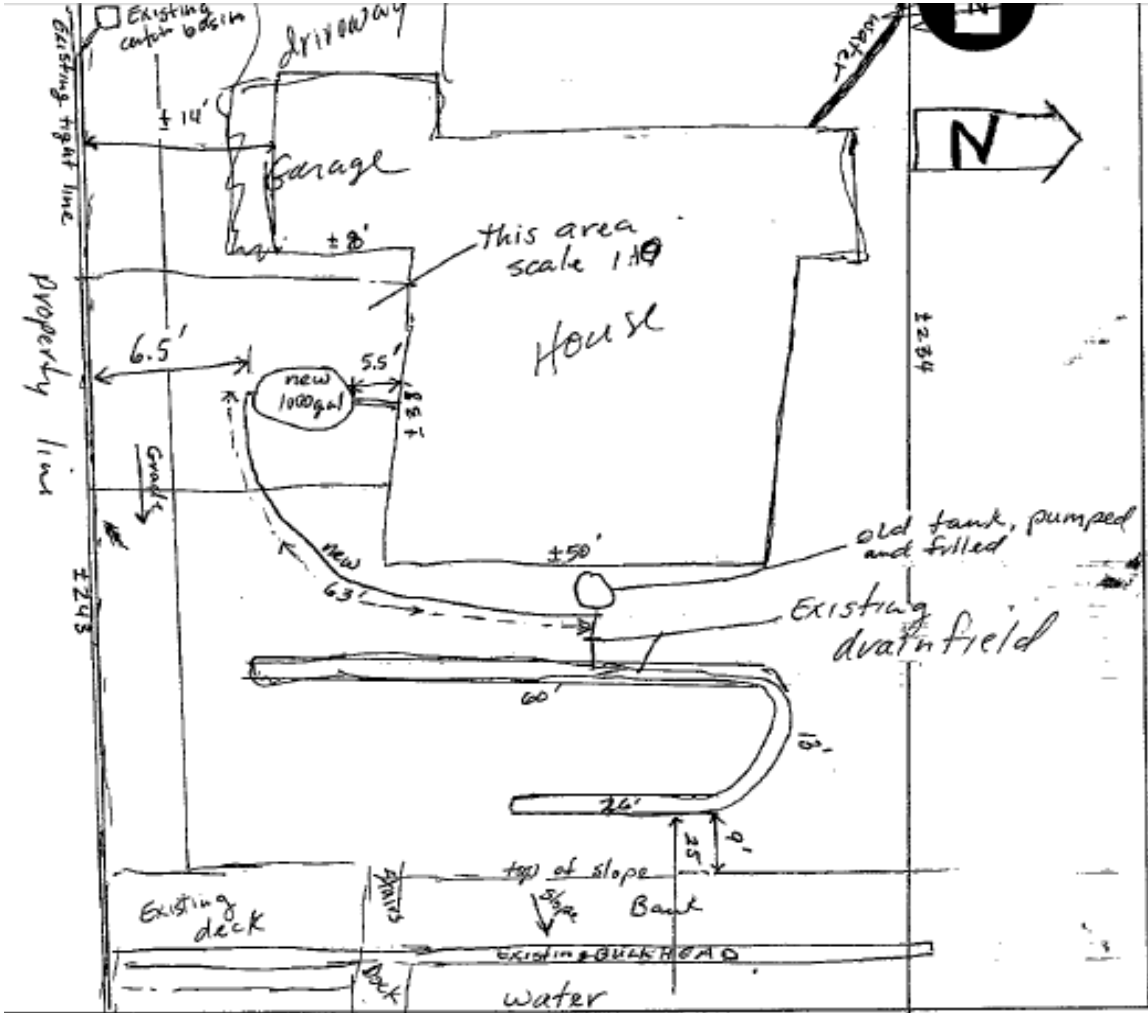
Mapping for “hot spot” investigations



Segmentation of drainages for "hot spot" investigations



Onsite sewage record



Dye tracing



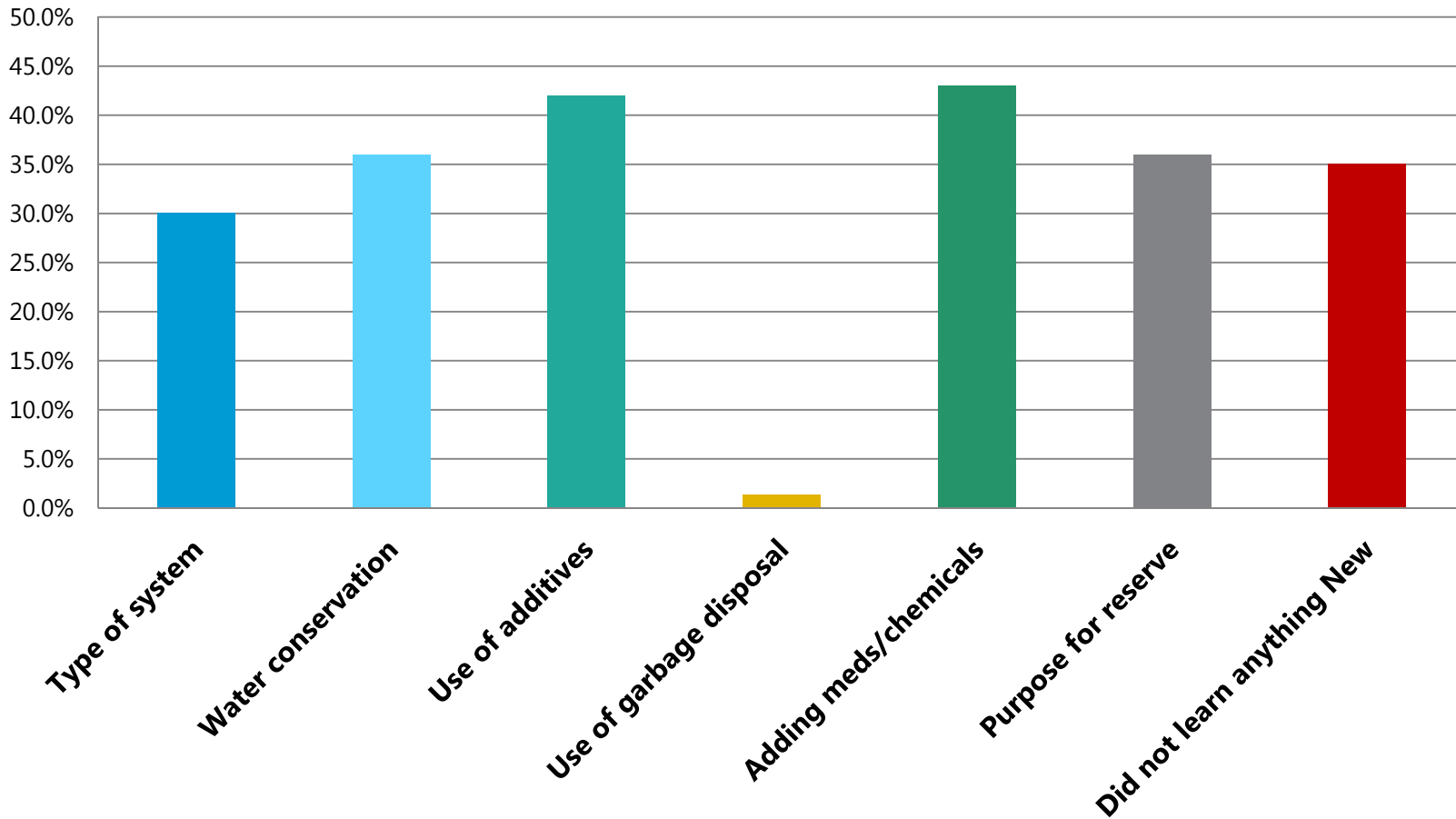
Pollution Identification & Correction

EPA grant activities (Sep 2010-present)

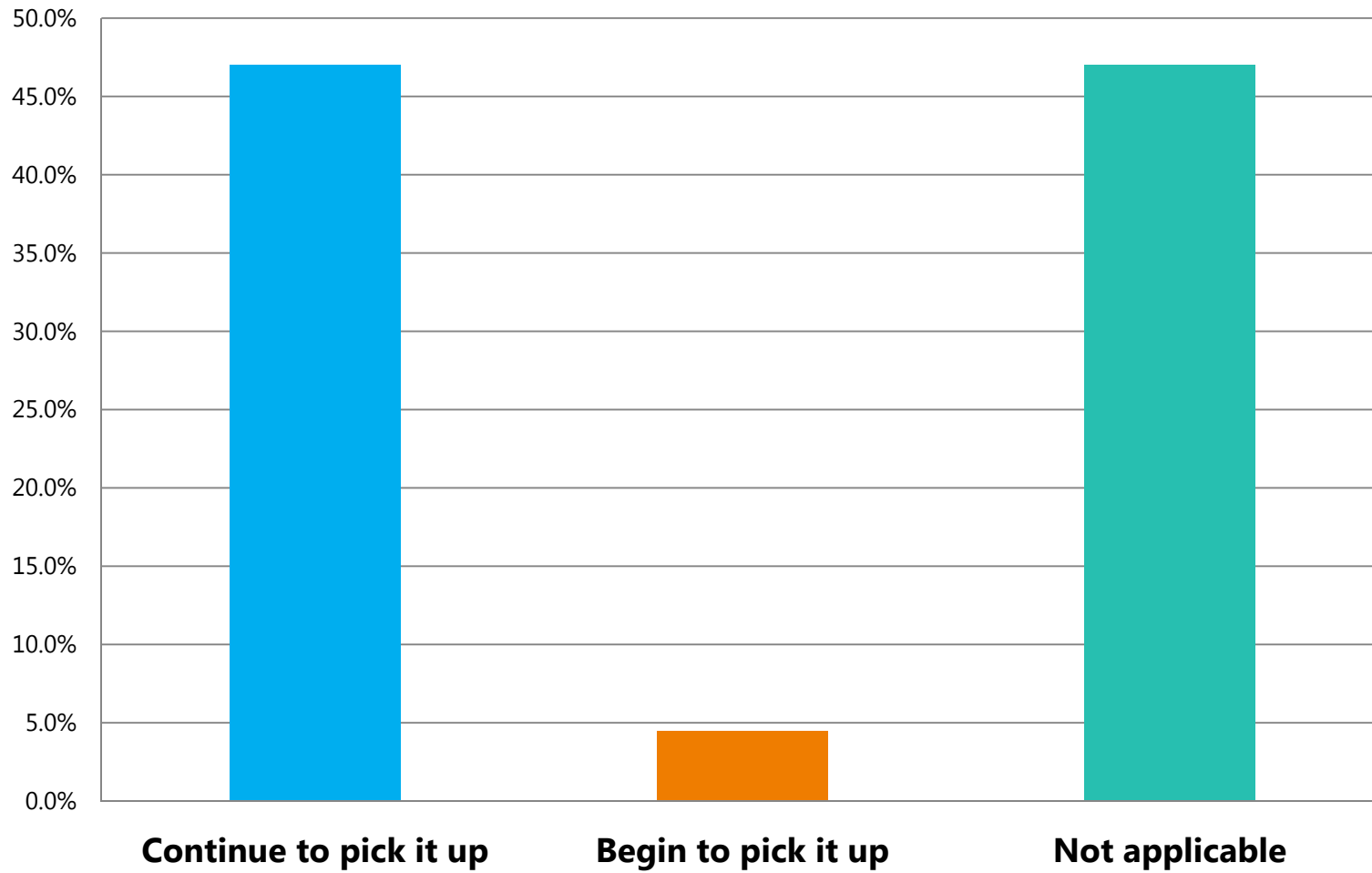
- PIC “door to door” property visits
 - 213 completed
- Follow up postcard survey results
 - 41 % response rate



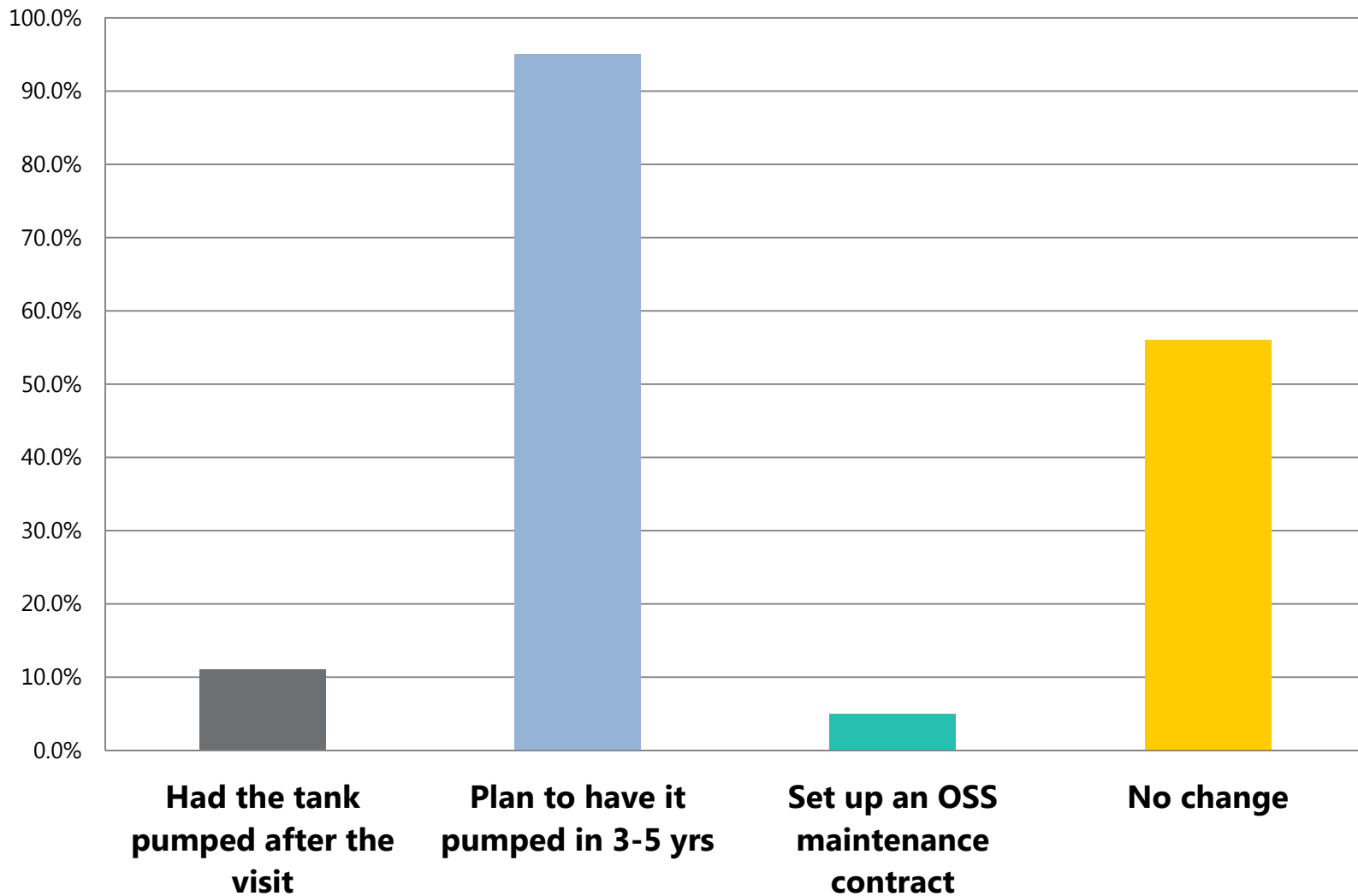
What did you learn about your onsite septic system?



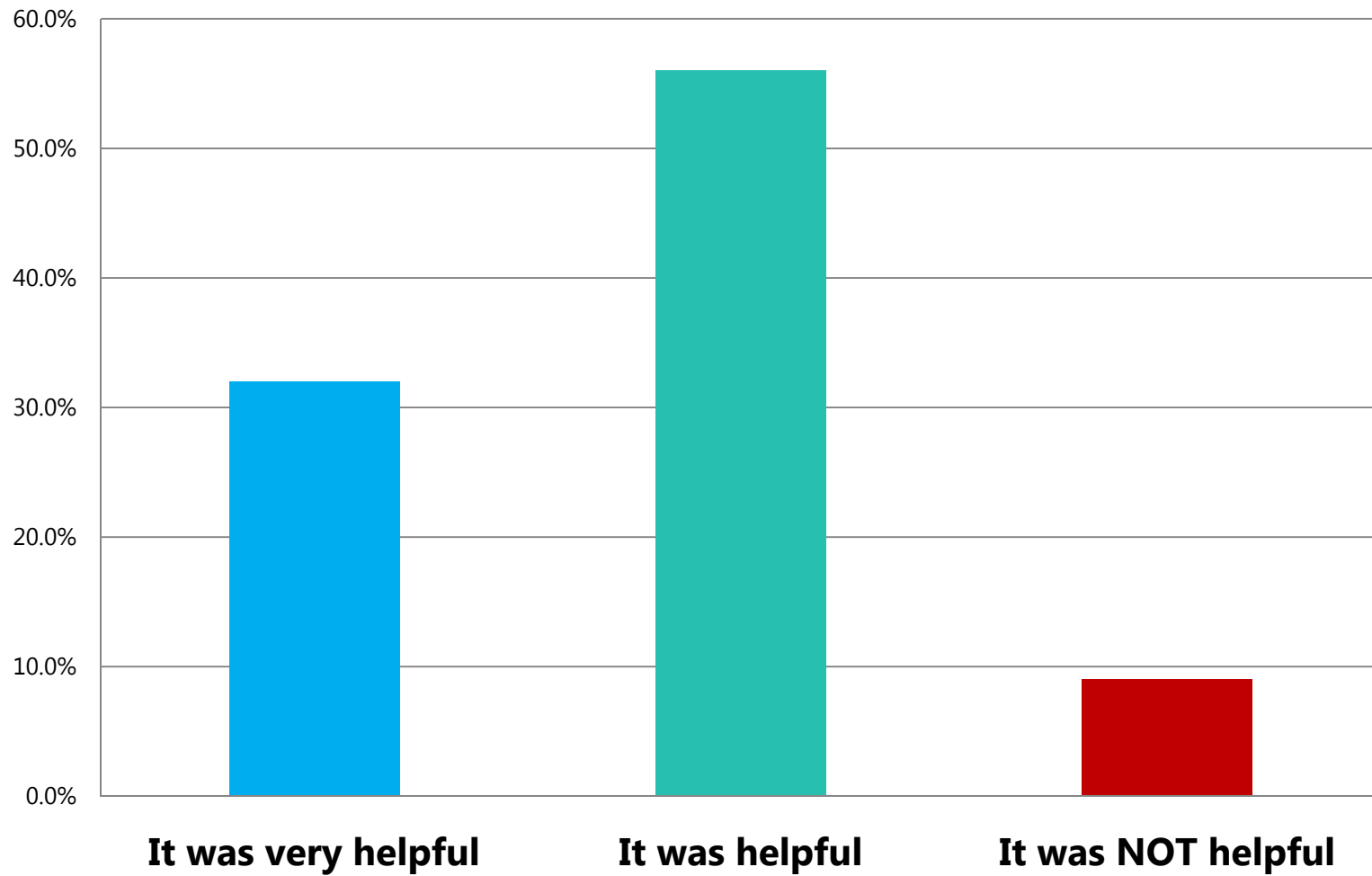
What will you do about pet &/or livestock waste?



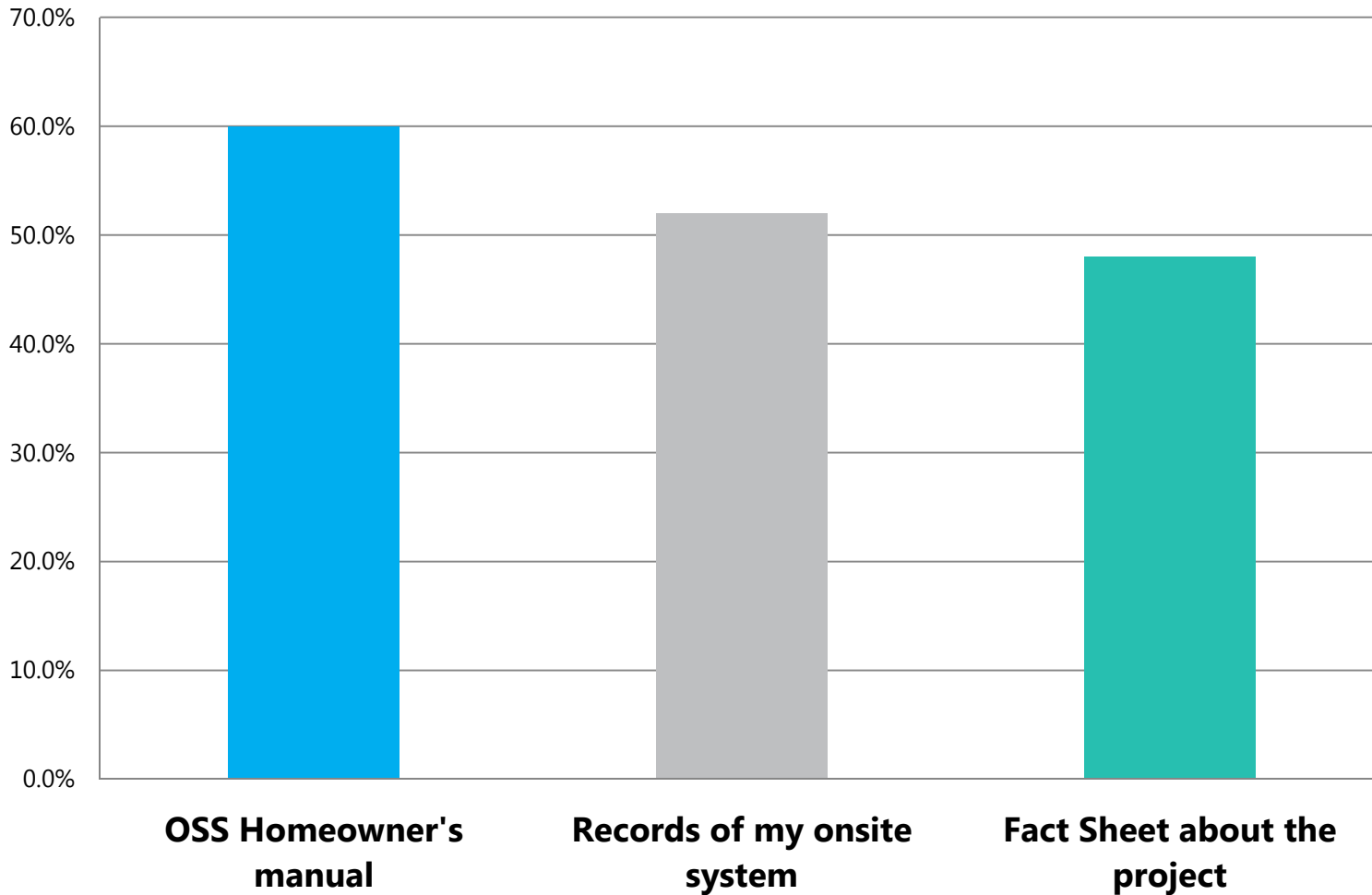
What changes/actions taken with your OSS?



How helpful was the site visit?



What materials provided during the visit were informative?



To wrap up...

- Follow up postcard surveys are providing us with good feedback regarding our site visits
- We would like to expand this in future
- Continue to Plan, Do, Check, Act
- And our success depends upon....



PIC Program success depends upon..

- Stakeholders/Partners
- Political support
- Stable funding sources
- Standard procedures
- Effective outreach
- Enforcement capability
- Consistent follow-up

AND.....



Our dedicated staff..



QUESTIONS



THANK YOU!!!!

