



Pollution Identification & Correction Program

2019 Annual Report

Skagit County's Pollution Identification and Correction (PIC) Program is a partnership between state and local agencies, tribes, local non-governmental organizations, shellfish growers, and private citizens. Skagit County is the lead agency for the program. We are dedicated to protecting the public from waterborne illness by reducing the levels of fecal bacteria in the rivers and creeks of Skagit County. The PIC Program has been operating since 2010, and has successfully reduced bacterial pollution in several watersheds in Skagit County.

Water quality monitoring is the core of any PIC Program. Traditionally, sampling sites are identified near the confluence of streams and are monitored on a regular basis. Where high levels of fecal bacteria are found, source identification sampling (sometimes referred to as "bracket sampling") occurs upstream to identify where the pollution is coming from. Staff then follow up by visiting nearby property owners to identify the source of pollution, and work with them to correct any problems that are found. Common sources include pets, leaking septic systems, livestock such as horses, cows, and pigs, and wildlife.

Thanks to our partnerships with other organizations, we are able to offer resources solve problems that property owners may have. With the help of partners like the Skagit Conservation District, the Skagit County Public Health Department, Craft3 Clean Water Loans, and Skagit Fisheries Enhancement Group, we can offer low-interest loans and grants for septic system repairs or replacements, free and confidential farm assessments by trained farm planners, assistance with farm management, and financial assistance for fencing, invasive plant removal, native plantings, and other projects.

A graphic representation of all aspects of the PIC Program is presented in Figure 2.



Figure 1. A PIC staff member takes a sample of the Samish River after a storm.

Skagit County Pollution Identification & Correction Program

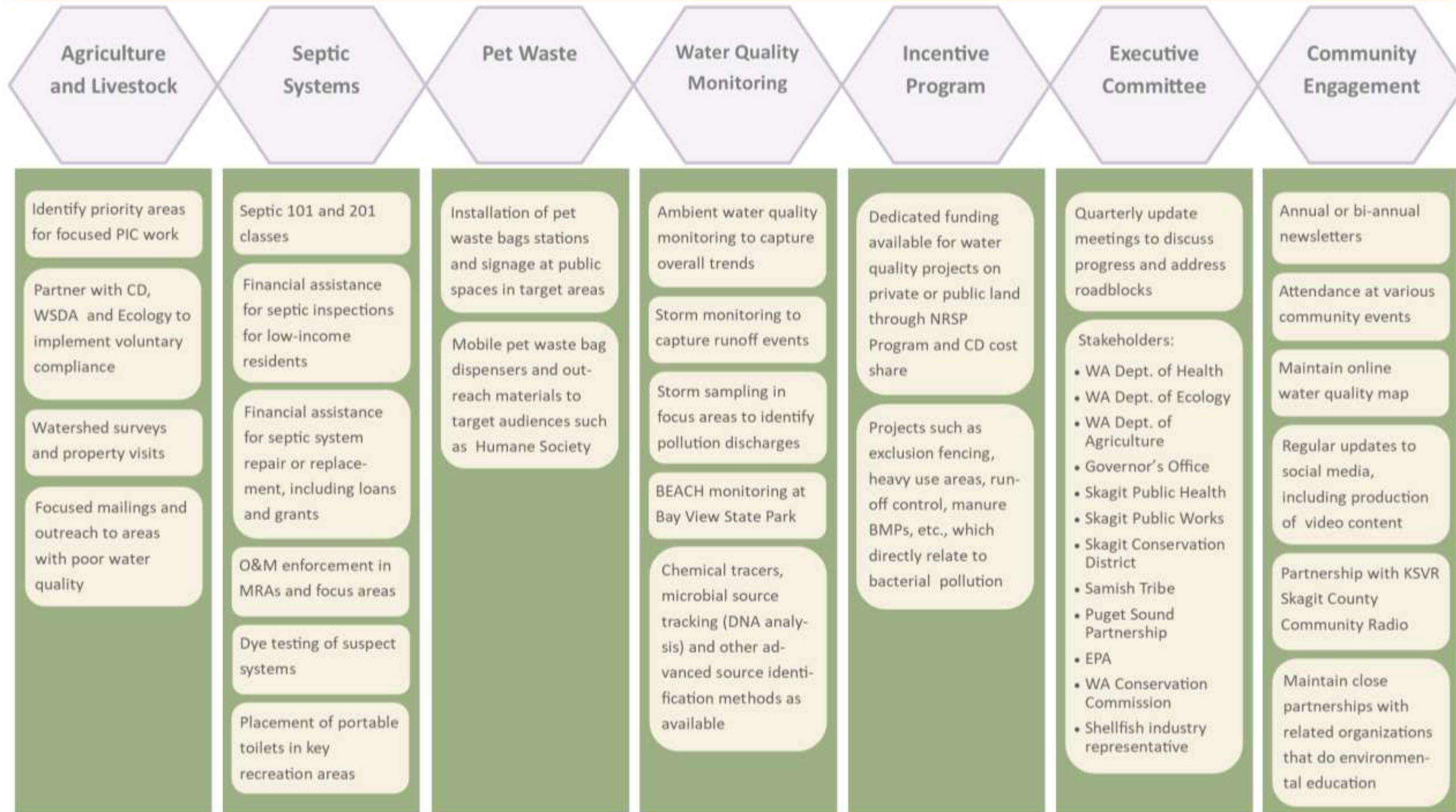


Figure 2. Skagit County's PIC Program

Areas of focus

The Samish Bay watershed has been the major focus of the PIC Program since its inception (Figure 3). Over 4,000 acres of commercial shellfish beds are located in Samish Bay. Shellfish are filter feeders and can accumulate fecal bacteria and other pollutants that can make people sick.



Figure 3. The Samish Bay watershed to the north, and the Padilla Bay watershed in darker blue to the south.

In the fall of 2009, the Washington State Department of Ecology (Ecology) completed a study on fecal coliform bacteria pollution in Samish Bay, along with a plan for reducing the level of bacteria. The PIC Program has been working to implement that plan since 2010. The Samish River and its tributaries continue to be a major focus of the program.

In 2015, the program expanded to include the Padilla Bay watershed. This watershed includes 151 acres of commercial shellfish beds, along with a popular beach at Bay View State Park that was regularly closing every summer due to water polluted by fecal bacteria.

The PIC Program also responds to reports of problems throughout Skagit County as time and resources allow.

Progress in 2019

In the Samish watershed, 21 small farm properties were identified with conditions that could lead to pollution (Figure 4). Fourteen of those were at high risk of causing pollution. Six sites were ranked as lower priority sites due to either a low likelihood of significant pollution reaching a waterway or recent sampling showed no significant pollution. These sites will receive outreach materials that we produce over the next year. One small farm was put on a watch list for next year.

Pollution problems were resolved on 14 properties in the Samish watershed. Several of the properties with resolved problems were first identified in 2015 and 2016, highlighting how long it can take to get best management practices on the ground, especially when property owners choose to take advantage of financial assistance available.

In the Padilla watershed, six small farm properties were identified with conditions that could lead to pollution such as muddy, overgrazed pastures and animals with access to ditches. We also continued to work on several sites that were identified in previous years. We've resolved problems on three sites.

Proven agricultural sources are becoming more difficult to identify. After ten years of working in the Samish, most obvious, verifiable problems have already been identified. High-risk livestock situations are still common in all of our focus areas, however. These sites have conditions that are likely to cause pollution to run into our waterways, but we have not been able to verify that they actively contribute to pollution. Often, this is because runoff from the property doesn't flow to a publicly-accessible area where we can get a sample.

The most common high-risk situations we see are livestock being kept on saturated pastures, poor pasture conditions that lead to runoff, and inconsistent manure collection and storage. Many property owners are reluctant to make changes to their farm management without proof that their property is contributing to the pollution load in nearby waterways, making these situations a significant challenge for us.

During 2019, Skagit County's Onsite Septic Program sent inspection reminders to the owners of nearly 5,400 septic systems that were overdue for inspection throughout the

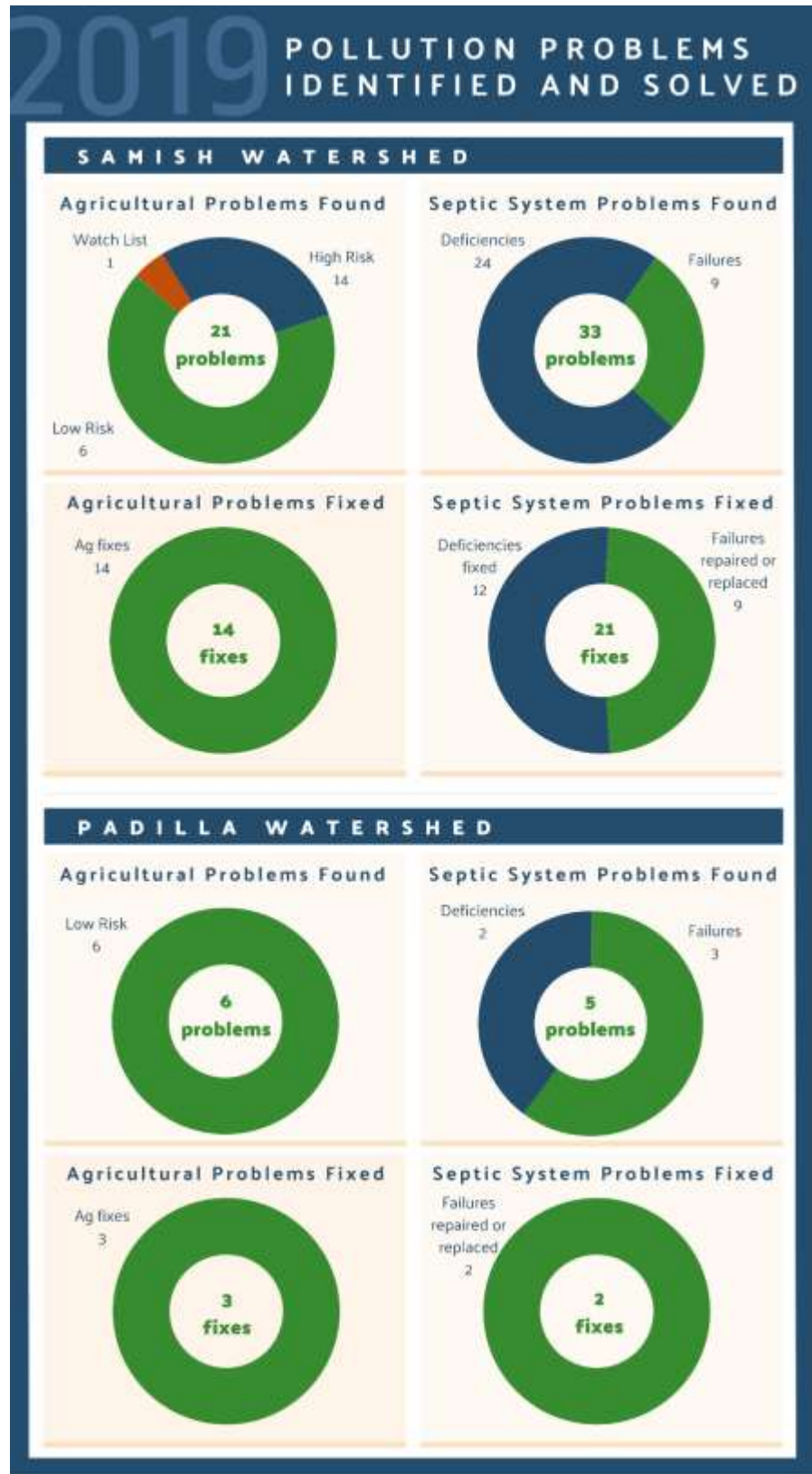


Figure 4. Progress in 2019 finding and fixing pollution problems.

county. Many areas had septic systems that had not been inspected in more than 10 years. Due to this increased enforcement of septic inspection regulations, 59 failed septic systems with surfacing sewage were discovered in Skagit County, and an additional 389 deficiencies were discovered that could lead to failure if not corrected. Forty-six septic systems were repaired or replaced in the county during 2019 (Table 1).

Note that these numbers are only for repairs requiring permits. Many

more small repairs were completed in 2019 that did not require permits or reporting to Skagit County.

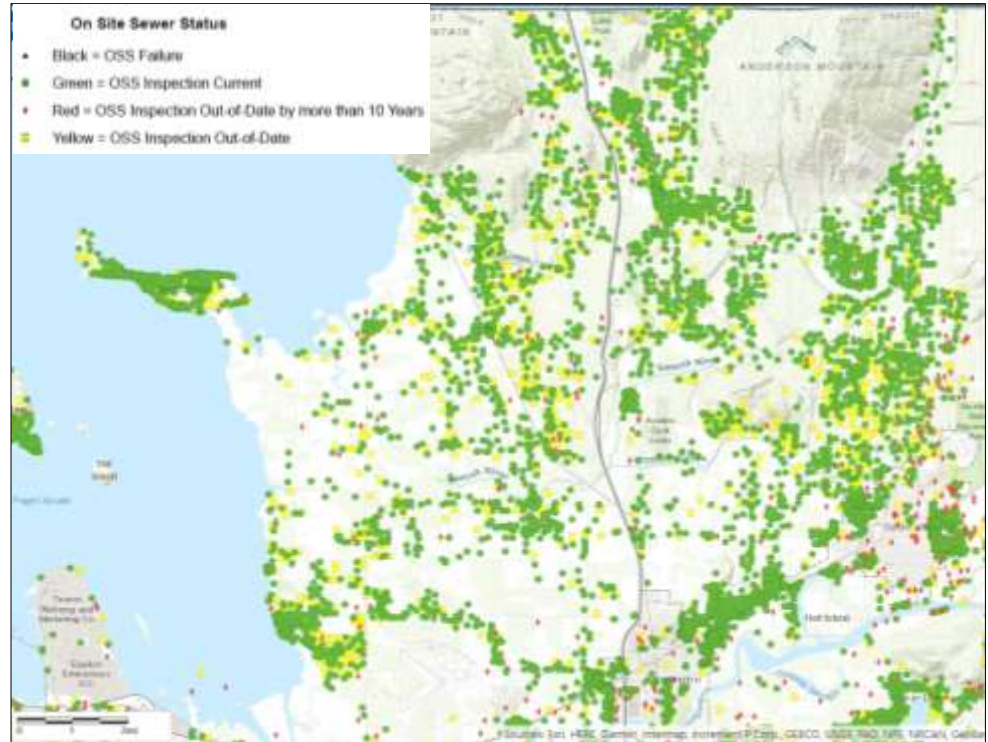


Figure 5. Samish and Padilla watershed inspection status map, as of February 2020.

Table 1. Onsite septic system permitted repairs or replacements in 2019

Area of interest	Number of repairs
Samish Bay	11
Padilla Bay	2
South Skagit Bay	21
Greater Skagit County	12

A significant new challenge that has emerged in recent years is identifying the source of pollution in areas where we find no obvious septic or agricultural sources of pollution and few or no high-risk situations that would cause the pollution we see in the waterways. These areas include those that drain to the South Edison pump station, Butler Creek, Swede Creek, upper Joe Leary Slough, and Little Indian Slough.

We have begun working with the EPA Manchester Laboratory on a two-year project to use microbial source tracking (MST, sometimes called DNA testing) to identify sources of bacterial pollution in several areas where we have been unable to pinpoint the source. This method uses DNA from bacteria unique to the digestive systems of dogs, cattle, ruminants, and humans to indicate where pollution might be coming from. In the first year (the 2019-2020 rainy season), we are focusing on Swede Creek, Thomas Creek, and upper Joe Leary Slough. In the second year, we will focus on Edison Slough drainages, Friday

Creek, and Willard Creek. Results from the study will be available several months after the final sample collection.

In 2019, we also completed 1-year project with the University of Washington, Tacoma's Center for Urban Waters (UW). The project was a continuation of work we started in 2015 to look for chemicals in the water that could indicate the source of pollution. By looking at all chemicals found in samples from a specific source (such as sewage), we were able to develop a "signature" or "fingerprint" of chemicals that are unique to that specific source. This signature can then be compared to samples taken from polluted waterways to understand better where pollution is coming from. To date, the UW has developed unique signatures for sewage, dairy manure, and road runoff. Beginning in 2020, we will work with the UW to test the method in places where we've had trouble pinpointing the source of pollution. We will also work toward developing a signature that's unique to dog poop, because we believe that dogs are a significant source of fecal pollution in some of our trouble spots. For more information on this project, download the Chemical Tracers Study 2019 Update at bit.ly/CleanWaterNews.

Education & Outreach

Education and outreach is a major part of our PIC Program. Skagit County Clean Water staff regularly talk with local news outlets, send mailings, attend events, and manage Facebook, YouTube, and NextDoor social media accounts. Our goal is to update the public about our activities and inspire behavior change for clean water. We also work with other organizations such as Skagit Fisheries Enhancement Group, Coastal Volunteer Partnership, Skagit Conservation District, Skagit Conservation Education Alliance, and Washington State University Extension to ensure that our messages are being shared by a variety of trusted information sources. Quarterly meetings are held with our education and outreach partners to foster collaboration on messaging to the public.

Figures 5 and 6 show highlights of our traditional and social media outreach in 2019. The PIC Program attended three events including the Skagit River Salmon Festival and Mount Vernon Science Night. Newsletters were mailed to approximately 6,300 residents in the Samish and Padilla watersheds. We produced six videos on PIC topics (along with two other videos on other aspects of our Clean Water Program). In addition, we continue to stock pet waste bags at ten pet waste stations around the Samish watershed.

Through a partnership with the Washington Department of Agriculture and Whatcom Conservation District, state and local agencies can share their fecal coliform water quality results on a single online map. Skagit County has been sharing water quality data on the map since 2017. The map has revolutionized our ability to visualize the data, and has been an excellent public outreach tool. It can be found at <http://arcg.is/1irH8i0>.

Throughout 2019, we continued to promote our grant-funded PoopSmart campaign, designed to use social marketing tools to encourage residents to change their behaviors to improve water quality. The campaign takes a lighthearted approach in order to attract attention to the subject. The PoopSmart website (poopsmart.org) is the centerpiece of the campaign, and serves as a central location for links to information from multiple agencies. The site is available in Spanish and English. In 2019, posters, social

Communications Review

2019

Skagit County Clean Water

EARNED MEDIA COVERAGE

Media news stories resulting from social media posts or direct contact between a reporter and Skagit County Clean Water staff. Topics included PoopSmart, New Zealand mud snails, a beach closure at Bay View State Park, Tulip Festival poop problems, and Skagit County programs.



3

Evening news stories

8

News articles in local print and online news sources



10

Radio stories/mentions

TRADITIONAL PUBLIC OUTREACH ACTIVITIES

Events, presentations, newsletters, and mailings.



3

Public presentations

3

Public events attended



8

Videos produced

2

Watershed newsletters



SOCIAL MEDIA OUTREACH

4

Platforms

Skagit County Clean Water has our own Facebook, Next Door, and YouTube. We sometimes use the Skagit County Government Twitter account.



Figure 6. Traditional communications highlights in 2019.

Social Media Review

2019

Skagit County Clean Water



@SkagitCounty
CleanWater

1,166
Followers

45%
Follower growth

Top Locations:
Mount Vernon
Bellingham
Anacortes
Sedro Woolley
Burlington

68% female
male **31%**

310 posts

14 paid ads &
boosted posts

23,527

post engagements -
likes, comments, clicks



32,288

greatest reach



Nextdoor

15,388

members, representing
21% of all households in
Skagit County

20

Total posts

10

PoopSmart
topics

6

Other program
topics

4

Stormwater topics

83,386

impressions

237

Comments

246

Thanks and other
reactions



Skagit County Clean
Water channel

38

Followers

72%

Follower growth

8

Videos posted

365

hours watched

Most popular video

**Septic System
Myths...BUSTED!**

This 2018 video received 7,701 views in 2019



3,261

Followers on the
@SkagitGov Twitter
page

35

Total posts

22

PoopSmart topics

4

Stormwater topics

9

Other program topics

Figure 7. Social media communications highlights in 2019.

media posts on NextDoor, Facebook, and Twitter accompanied the website. Four videos advertised on online streaming services also promoted the website.

The PoopSmart page was visited over 7,700 times in 2019. With the help of advertisements on Facebook, our message has reached more than 32,000 people in and around Skagit County. Our Facebook following increased by 45% in 2019, and our PoopSmart posts were shared more than 500 times on Facebook and Twitter. The four PoopSmart videos, advertised on streaming services and on Facebook, have been viewed more than 271,000 times. All of this work has earned us a significant amount of media attention – eight articles in print media, three television news stories, and five radio stories.

We are currently evaluating the effectiveness of the PoopSmart campaign. Early indications suggest that it has been successful. A review of data in April 2019 showed that in areas where the county was not doing any other outreach or enforcement, the septic inspection rate increased by 48%. Septic program staff also report that they are receiving less resistance from homeowners when they enforce septic inspection requirements. Additionally, the Skagit Conservation District has reported that they have more people coming through their doors seeking help.

With the help of the earned media coverage, the campaign has gotten people talking about poop problems in the county in a way they never have before. Thanks to our social media presence, we're also having more direct conversations with residents over social media about poop than ever before. These conversations give us the opportunity to discuss topics like why we are less concerned about wildlife, how a septic system works, and many other poop-related topics. Direct conversations also provide an opportunity to counter misinformation in the community. These conversations have given us valuable insights that have helped to shape our outreach, such as the realization that many people believe dog poop is a good fertilizer, and thus is ok to leave in places where nobody will step in it.

We plan to continue to expand the PoopSmart outreach campaign into 2020. Plans for new materials currently include creation of radio advertisements, continued advertising with additional content created from existing resources, continued creation of posts on social media, and attendance at the Skagit County Fair.

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