

FINAL PROJECT REPORT

FOR

G1400458

Strait Water Quality Partnerships

Clallam County Environmental Health

Total Cost of Project: \$101,765
Grant or Loan Amount: \$76,324

Project Start Date: January 1, 2014
End Date: December 31, 2017

Andy Brastad Dec. 15, 2017
Andy Brastad DATE

Kim Yacklin 12/18/17
Kim Yacklin DATE



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Clallam County
G1400458**

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Final Total Project Cost: \$101,765
Final Ecology Grant Contribution: \$76,324**

Project Description

Pillar Point on the Strait of Juan de Fuca offers recreation such as shellfish harvest, picnicking, fishing, and beach combing.

In 2012 poor water quality stemming from bacterial pollution prompted Washington State Department of Health (DOH) to “downgrade” the classification of shellfish beds from “approved” to “conditionally approved” meaning beaches were closed to shellfish harvest during high risk parts of the year as bacterial pollution can cause illness from contact with the water or from eating shellfish.

Clallam County partnered with DOH, Washington Department of Ecology (ECY), and others to seek out and correct sources of water pollution.

Tools developed to help clean up Pillar Point were expanded to other parts of Clallam County threatened by bacterial pollution, such as Dungeness Bay.



Pillar Point from Highway 112



Butler Creek at Pillar Point

Project Accomplishments

- Water quality data collected for two years
- Conducted survey of Pillar Point uses and conditions
- Supplied “Sani-can” during high-use season
- Installed fencing to deter abuse of sensitive areas
- Developed interpretive signage to encourage park care
- Distributed pet waste information cards and baggies
- Screened pet waste management videos at cinema
- Created RV dump station brochure
- Education/outreach Countywide



Water Quality Improvements

During the course of this project water quality improved markedly. Though observations of park uses coupled with water quality data failed to point out any single primary source of pollution, continued DOH water quality sampling of marine stations indicates a decrease in bacterial pollution. Currently, those marine stations nearest Pillar Point County Park meet or exceed water quality standards.

Given the trend of improving water quality, coupled with improvements to the park and a presence of staff and volunteers keeping tabs on activities in the area, DOH intends to “upgrade” the water quality classification surrounding Pillar Point County Park from “conditionally approved” to “approved.”

Next Steps for Continued Success

Now that water quality measured at marine stations around Pillar Point County Park meets established standards, it is hoped that the continued presence of staff and volunteers in the area will deter abuse of the park and a return to degraded waters. Clallam County Environmental Health (CCEH) staff plans to visit the park periodically through the low-use winter months to document and report on sanitary conditions around facilities and on the beach. DOH will likely continue standard water quality monitoring of marine stations through the commercial shellfish program. Should Clallam Marine Resources Committee volunteers continue a biotoxin monitoring effort at the park in 2018, CCEH will request additional support to keep an eye on sanitary conditions on and around the beach.

Lessons Learned

Through surveys of park uses, observations of sanitary conditions, and water quality monitoring a single “smoking gun” causing polluted water was never discovered. This speaks to the difficulties in dealing with nonpoint sources of pollution. Still, water quality improved during this project and a link may exist between increased attention and the behavior of park users.

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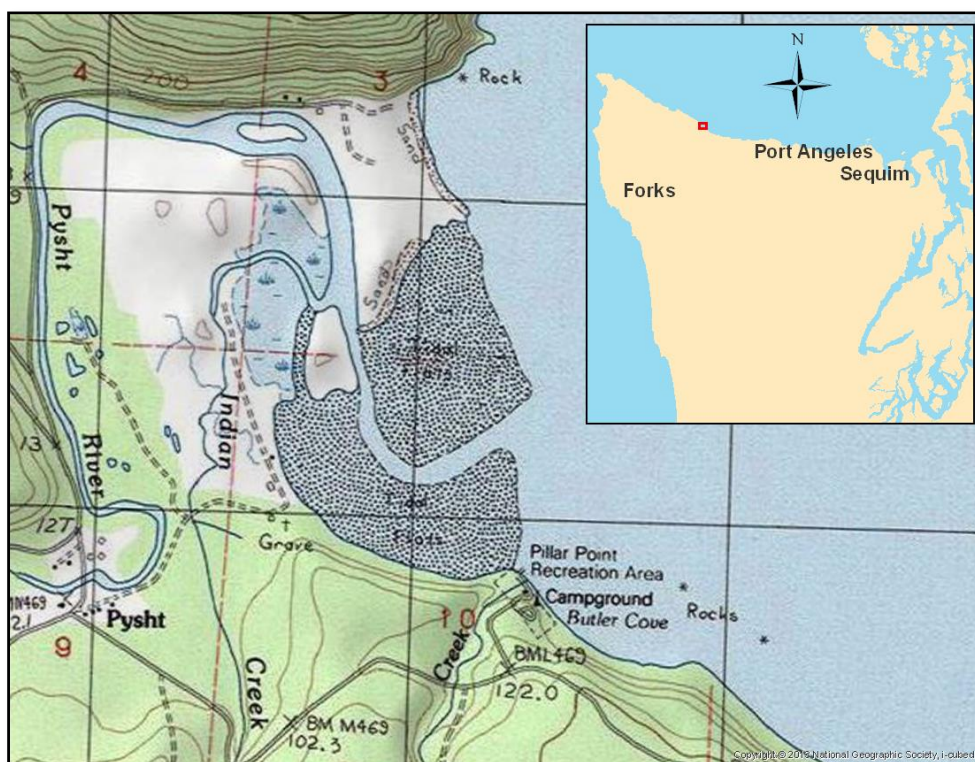
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Pillar Point County Park and the North Olympic Peninsula of Washington State
Map Data from ESRI and Clallam County

Project Overview

Project Area

Pillar Point County Park

Pillar Point County Park occupies approximately 4.3 acres of land along the Strait of Juan de Fuca, near the mouth of the Pysht River on the North Olympic Peninsula of Washington State (48.198703, -124.099770). Visitors generally reach the park via Washington State Highway 112—Port Angeles sits nearly 38 miles to the east, Clallam Bay and Sekiu 13 miles west—or by boat. Some arriving by boat may come from Silver King Resort, a private community of campsites and RV spots two miles to the east.

The recreation area provides an important coastal access point for both Native and non-Native users. Amenities include a pit toilet, day-use picnic area, parking lot, boat launch, and beach access. Here, visitors can harvest Dungeness crabs, horse clams, butter clams, varnish clams, cockles, mussels, and more—even without the use of a boat.

Figure 1. Pillar Point and Butler Bay



View of Pillar Point and Butler Bay from County Park beach access, facing west.

Additionally, 534.7 acres of commercial shellfish beds stretch from Pillar Point east to Butler Bay, including the mouth of the Pysht River. These commercial shellfish beds, classified as inactive, fall within the East Straits Commercial Shellfish Growing Area, a 40-mile section of coast reaching from Pillar Point to Dungeness Spit near Sequim, Washington (Creasey 2014).

Pysht River, Indian Creek, and Butler Creek

The Pysht River, Indian Creek, and Butler Creek make up the primary freshwater inputs to Butler Bay (figure 2). The 17-mile-long Pysht River—by far the largest of the three—drains 30,000 acres of primarily industrial forest lands. Steep slopes confine the upper reaches of the river in the foothills of the Olympic Mountains while the lower river meanders unconstrained through low-gradient valley. The river's discharge follows the trend of other rainfall-dominant watersheds in the area, with highest flows in the fall/winter months and low flows through the summer (Haggerty et al. 2006).

Indian creek makes up a small, floodplain tributary on the right bank of the Pysht. The creek crosses logging roads and Highway 112 and impoundment forms a Merrill and Ring reservoir near the highway (Haggerty et al. 2006).

Meanwhile, Butler Creek, a small independent drainage just to the east, measures approximately one mile in length, crosses Highway 112, and discharges directly into Butler Bay after passing through a culvert under the Pillar Point County Park lower parking lot.

Jones and Stokes Associates (1991) estimated the mean annual precipitation of the Pysht River watershed at 80 inches per year—primarily rain—concentrated between the months of October and March. While elements of this characterization offer some value here, magnitude and distribution of precipitation events are likely shifting with a changing climate (Petersen et al. 2015).

Figure 2. Butler Creek



Butler Creek exits the culvert under the lower parking lot onto the beach at Pillar Point County Park.

Logging activity significantly altered the lower Pysht and estuary with the clearing of old growth conifer stands beginning in the early 1900s. Sections of the lower river were channelized, dredged spoils filled tidal marshes, and log booms were floated in the estuary (Haggerty et al. 2006). Currently, forestry and recreation comprise the dominant land uses in the area with minimal built environment (Creasey 2014).

Water Quality Issues

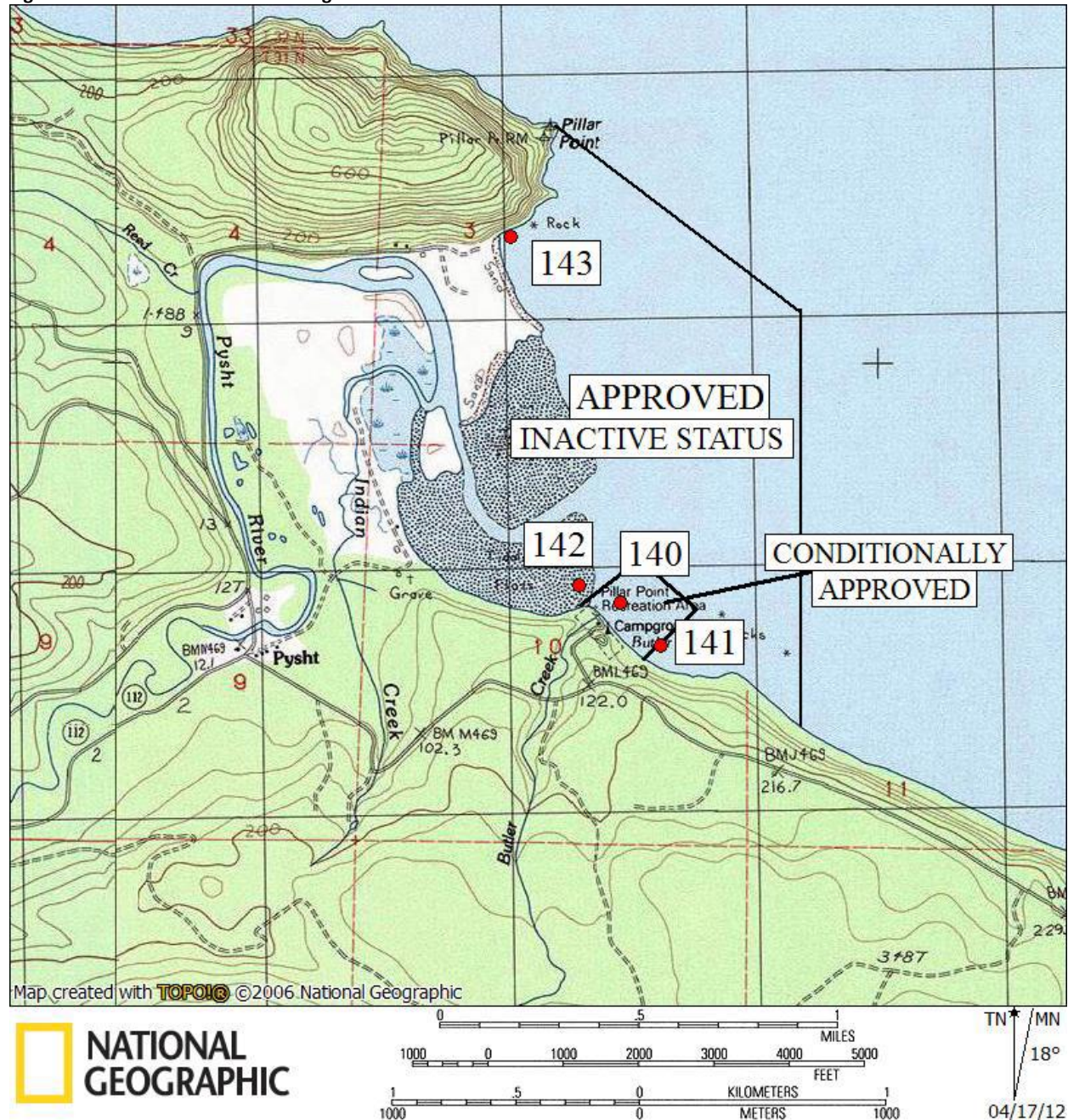
Shellfish Downgrade

In the late 1990s the Point No Point Treaty Council requested that the Washington Department of Health “classify” the previously unclassified shellfish growing area at Pillar Point (Creasey 2014). Washington DOH performs shoreline surveys, marine water quality sampling, and analysis of how weather, tides, currents, and more influence the transport of any pollutants that might make shellfish unsafe to eat. All of these elements factor into a growing area classification. Lack of a growing area classification precludes commercial harvest.

Initially, in 1998, the Pillar Point Shellfish Growing Area received an “approved” classification, meaning no actual or potential health hazards stood in the way of commercial harvest. However, in 2012, the

State moved to downgrade a 21.1 acre portion of the growing area to “conditionally approved,” meaning harvest should not occur during the months of September or October due to observed spikes in bacterial pollution during those months (DOH 2012). This subset of the growing area basically encompasses tidelands from the Pillar Point boat launch, east to the park boundary.

Figure 3. Pillar Point Shellfish Growing Area



Map of Pillar Point Shellfish Growing Area indicating “approved” and “conditionally approved” portions and marine water sampling stations.

Bacterial Pollution

The Washington DOH Commercial Shellfish Program samples marine waters at three stations (called 140, 141, and 142) immediately offshore from Pillar Point County Park, testing for fecal coliform bacteria following the Most Probable Number (MPN) method (figure 3). Fecal coliforms commonly occur in human and animal wastes and their presence gives a good indication that other harmful bacteria and pathogens also show up in the water (DeBarry 2004). Shellfish feed by filtering water and can thus accumulate disease-causing microorganisms. Further, people and animals can get sick from contact with contaminated water.

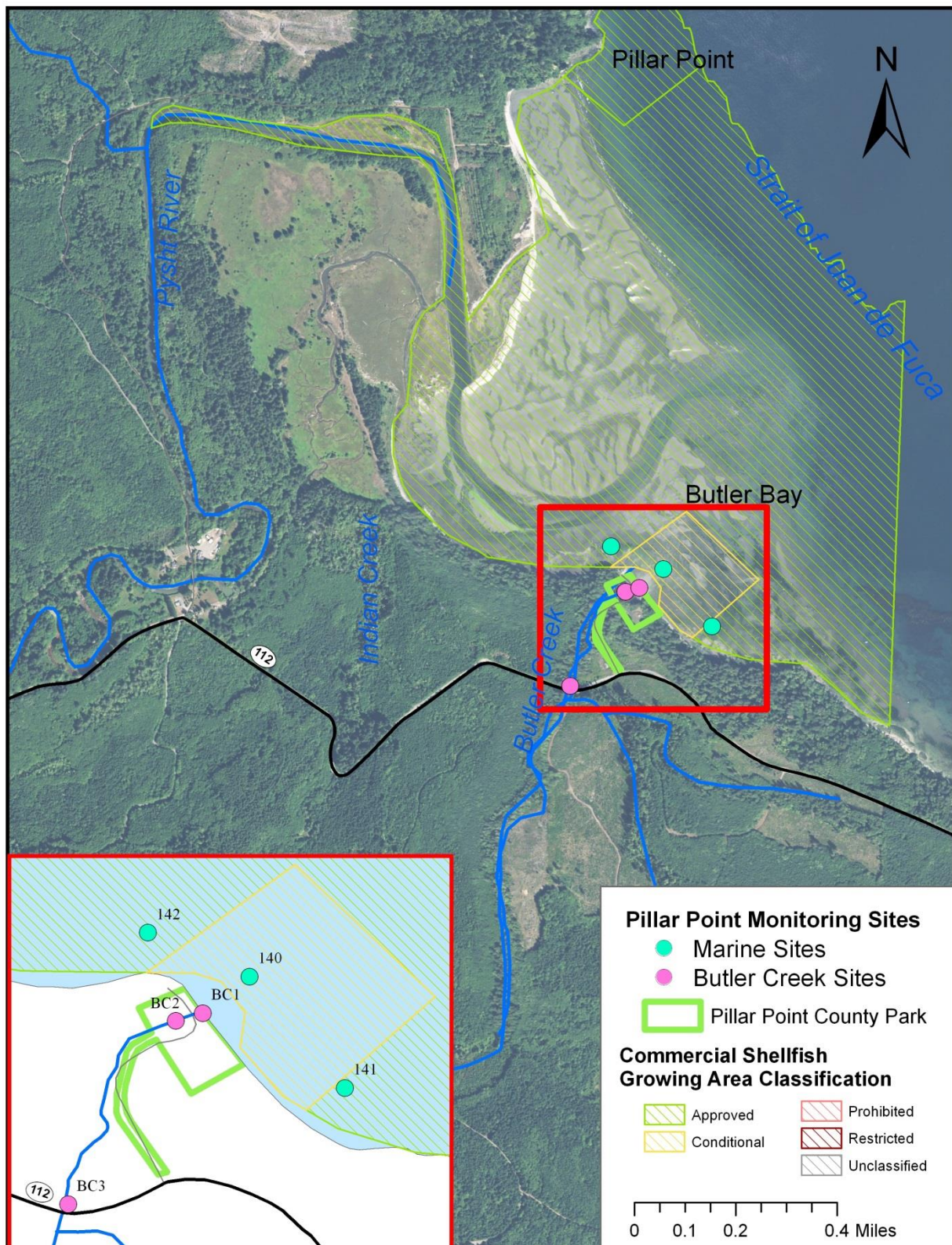
The National Shellfish Sanitation Program (NSSP) sets standards used in the classification of shellfish beds. In order to achieve a status of “approved,” the following conditions must be met:

- Minimum of 30 water samples collected over 5 years
- Geometric mean of coliforms ≤ 14 MPN/100 ml
- 90th percentile of coliforms ≤ 43 MPN/100 ml (US Food and Drug Administration 2015).

According to the 2013 East Straits Annual Growing Area Review, results from Marine Station 140 (nearest the mouth of Butler Creek at Pillar Point County Park) did not meet NSSP standards (DOH 2014). Specifically, the 90th percentile of 51 fecal coliform MPN/100 ml exceeded the limit of 43 MPN/100 ml due to high fecal coliform counts associated with two sampling events in October 2010 and September 2011.

Following the initial 2012 shellfish downgrade notice, Clallam County Environmental Health (CCEH) performed some freshwater sampling in Butler Creek to supplement DOH data. Findings from this cursory investigation pointed toward low coliform concentrations in Butler Creek during low-flow conditions and elevated counts during high-flow conditions or storm events (Creasey 2014).

Figure 4. Project Area Map



Pillar Point, shellfish growing area, and water sampling locations.

Plan of Action

In order to address the apparent bacterial pollution problems at Pillar Point and improve water quality, Clallam County Environmental Health partnered with the Washington State Department of Ecology, Washington State Department of Health, Makah Tribe, and Clallam County Parks Department to seek out and correct any potential pollution sources.

Increased Water Quality Sampling

With the intention of gaining a clearer picture of water quality at Pillar Point County Park, while assessing freshwater inputs to marine waters, CCEH and partners sought to gather a solid baseline of water quality data. This involved two years of:

- Regular water sampling of Marine Stations 140, 141, and 142
 - Parameters measured include fecal coliform counts, water temperature, and salinity
- Water sampling of three sites on Butler Creek (named BC1, BC2, and BC3)
 - Parameters measured include fecal coliform counts, water temperature, and salinity
- Butler Creek flow measurements
 - Intended to explore any correlation between discharge and bacterial pollution

Survey of Park Conditions and Uses

Through frequent visits to Pillar Point, project partners documented beach conditions. Staff and volunteers recorded observations on survey forms, adapted from Washington BEACH Program's *Survey Field Form*, designed to capture any clues that might direct investigators to a particular behavior, activity, use, or condition contributing to water quality degradation. Observations included:

- Tide and weather conditions
- Number of people and activities
- Number of dogs
- Number of birds
- Other wildlife
- Odor or potential pollution sources
- Evidence of pet waste or human waste
- Storm water conditions
- Other pertinent notes

Education and Outreach

An education and outreach effort supplemented activities on the ground at the project site, designed to get the public engaged, versed in topics of water quality, and invested in safeguarding water resources.

A brochure directing RV enthusiasts to approved dump stations was produced to help visitors to the North Olympic Peninsula find locations to vacate onboard holding tanks. CCEH staff hypothesized that the relatively low density of dump stations on the "West End" of the Peninsula could pose a barrier to the safe disposal of sewage to the uninitiated and an informational brochure in the right hands could help remove said barrier.

Early on in the project, pet waste stood out as another potential source of bacterial contamination at Pillar Point County Park. Anecdotal observations described piles of pet waste on the beach and pet owners allowing dogs to run off-leash. As such, an informational rack card was produced to help the public understand the health hazards of pet waste accumulation, and to help illustrate proper pet waste disposal. Rack cards and pet waste bags were made available at the Olympic Peninsula Humane Society and the offices of local veterinarians. Further, CCEH staff distributed these materials at public events such as the Clallam County Fair and Dungeness River Fest while the local volunteer organization “Port Angeles Pet Posse” assisted with distribution at Juan de Fuca Festival of the Arts. Finally, an informational video on the topic of pet waste, using humor as a tool to grab public attention, screened at Deer Park Cinema in Port Angeles before the showing of feature films.

Facility Improvements

Over the course of the Strait Water Quality Partnership Project, various mechanical improvements were installed, designed to nudge citizens to make choices consistent with public health ideals and improved sanitary conditions.

Through visits to the park, staff and volunteers observed evidence of human waste on the ground behind an old concrete building adjacent to the lower parking lot that had previously served as a concessions stand. The provenance of the waste remained unclear, though the problem returned with some regularity. As such a “Sani-can” was placed near the lower parking lot during the high-use fishing seasons of 2014, 2015, and 2016.

In 2017 the Clallam County Department of Parks, Fair, and Facilities had a fence installed to deter people from accessing the area behind the old concessions building and a new sign directed park users to the pit toilets located at the upper parking lot. This interpretive signage flagged the area as important for shellfish resources and underscored the links between park sanitary conditions and shellfish harvest closures due to pollution.

Though project partners never fully understood why people would choose to use the ground as a toilet rather than the nearby pit toilets (perhaps those arriving by boat were unaware of the facilities just up the hill or perhaps they preferred to not walk up the hill), signage and fencing aimed to remove both “skill issues” (I don’t know any better) and will “issues” (I’m not motivated to make the right choice).

Boy Scout Troop 1473 assisted this project by building, installing, and stocking a pet waste bag-dispensing station at Pillar Point County Park with the hope that pet owners caught off guard without pet waste bags would find the barrier to cleaning up after a pet very low. Prior to installation the troop surveyed the beach, picking up garbage, pet waste, and general detritus for proper disposal. The scouts exported this model to further reaches of Clallam County where they also installed pet waste stations at Salt Creek Recreation Area, Port Williams Beach, and Dungeness Landing Park. Dungeness Bay, in the eastern portion of the County, had also suffered from bacterial pollution and undergone a series of shellfish bed classification downgrades and the efforts of Boy Scout Troop 1473 aimed to reduce potential pressures stemming from pet waste.

Outcomes

Bacteriological Sampling

Clallam County Environmental Health Services and project partners made 40 distinct “tours” to Pillar Point for the purpose of collecting water quality data from Butler Creek and adjacent marine stations. Fecal coliforms, temperature, and salinity data were collected for three sample sites on Butler Creek and three marine stations. CCEH staff also collected flow measurements at Butler Creek as conditions permitted. Winter storms and high tides occasionally confounded measurements as did insufficient flow in the summer months. Site BC3 generally became unsafe to access (immediately adjacent to Highway 112, steep slopes, slippery rock scramble) and was largely abandoned as of August 26, 2015. Many of the above sampling events occurred in the form of weekly visits from August 28, 2014 to October 29, 2014 and from August 26, 2015 to November 4, 2015 (the season during which bacterial pollution had previously become a problem).

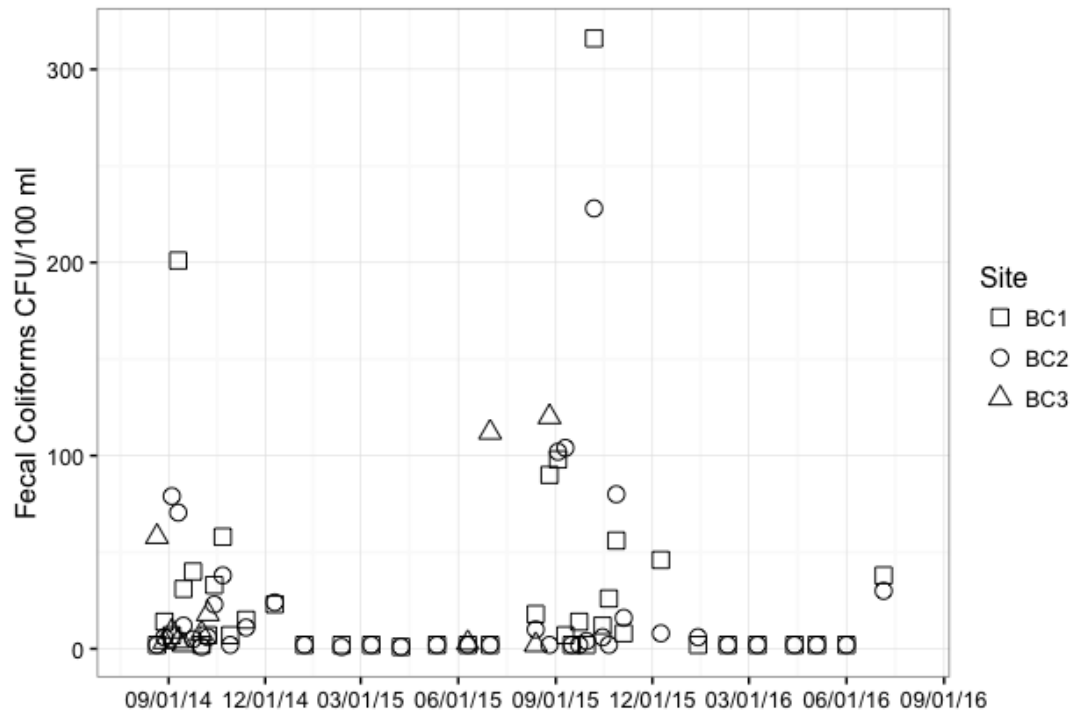
Water grab samples were analyzed at Clallam County Environmental Health Laboratory following the membrane filter method and results were reported in fecal coliform colony-forming units (CFU) per 100 ml sample. Wherever no colonies were observed, the count was reported as the minimum detection limit (MDL) with a “less than” qualifier. For our purposes below, this has been shortened to the MDL, only, to facilitate visualization.

Sampling at marine stations confirmed generally higher bacterial counts once the rains started in the fall of each year, though no results came back exceptionally high. Sampling on October 22, 2014 returned a high count of 124 CFU corresponding to the sample collected at Marine Station 141. Throughout the spring and summer months, very few fecal coliforms were measured at the marine stations with many samples producing results below the MDL (<2 CFU/100ml sample).

Similar spikes in fecal coliform counts appear to occur in freshwater samples collected from Butler Creek coinciding with the start of the fall rainy season. These spikes appear to follow a similar trend as noted previously in the marine samples.

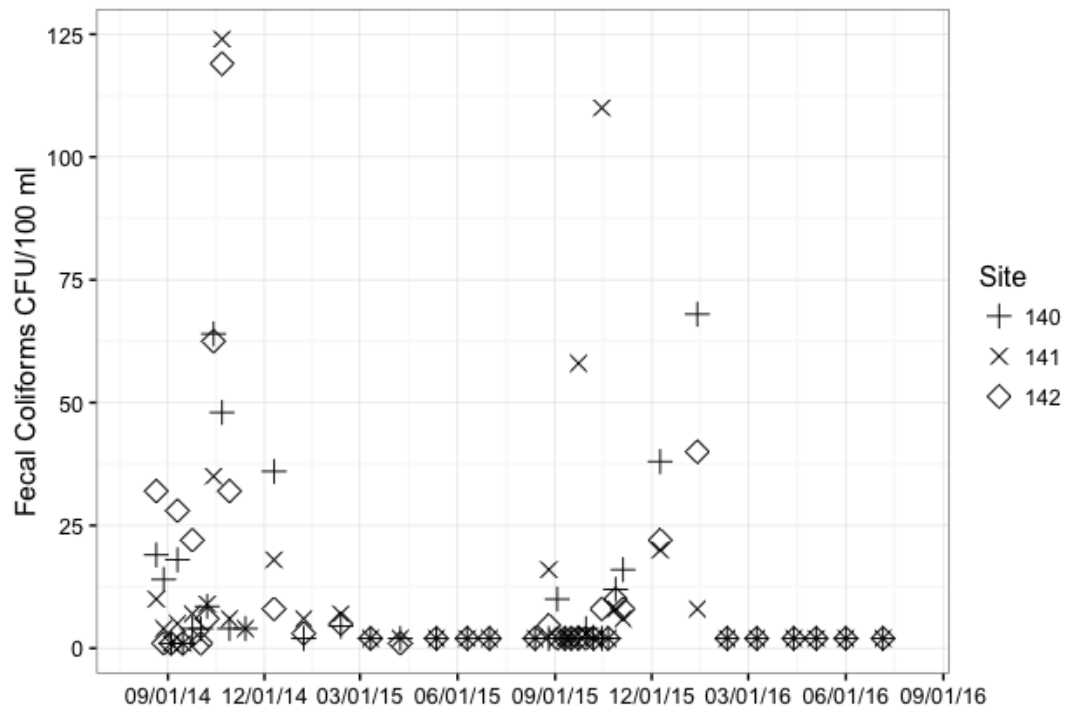
Among the freshwater samples, a highest value of 316 CFU/100 ml sample was recorded on October 17, 2015. Again, many values were reported at or near the minimum detection limit through the spring and summer months.

Figure 5. Butler Creek Fecal Coliforms Graph



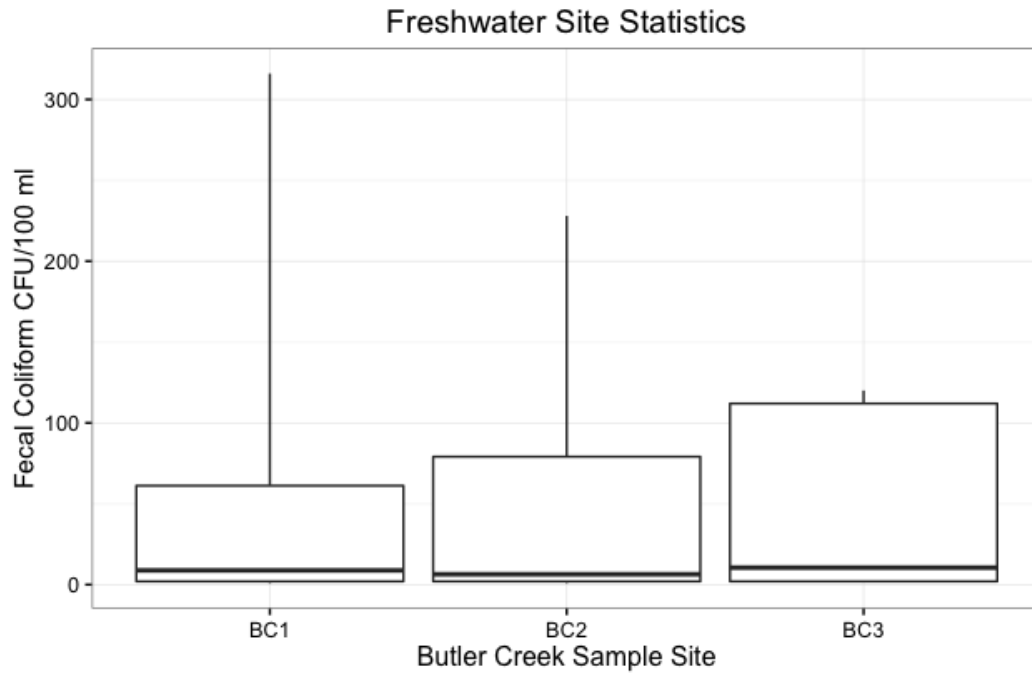
Results of fecal coliform sampling at sites BC1 (n = 40), BC2 (n=40), and BC3 (n = 11) on Butler Creek following membrane filter method.

Figure 6. Marine Stations Fecal Coliforms Graph



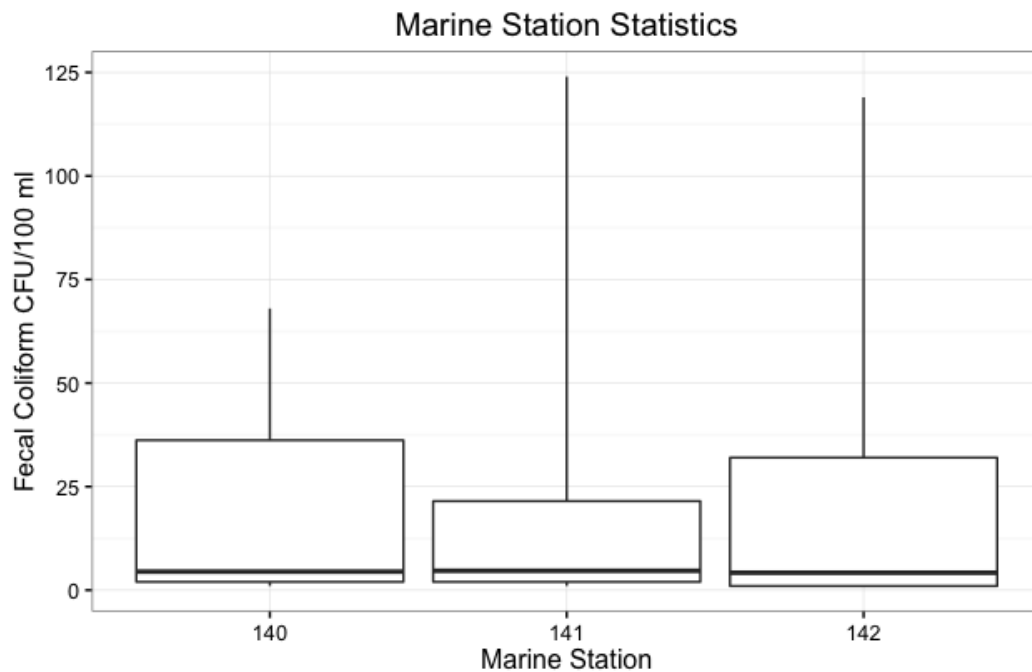
Results of fecal coliform sampling at marine stations 140 (n=40), 141 (n = 40), and 142 (n = 39) following membrane filter method.

Figure 7. Freshwater Bacteria Summary Statistics



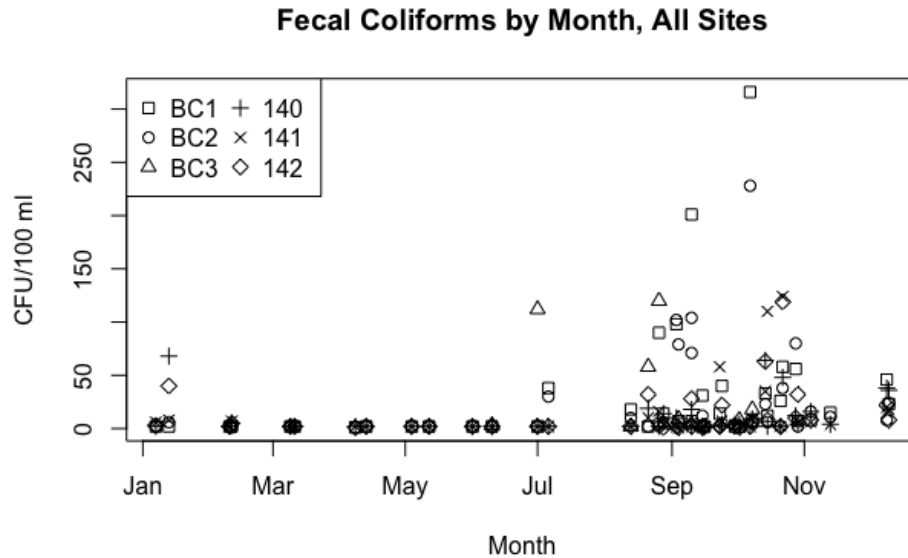
Bacteria summary statistics for freshwater sampling sites on Butler Creek, BC1 (n=40), BC2 (n=40), and BC3 (n=11). Bold lines represent geometric mean, boxes represent 90th percentile, and whiskers represent highest and lowest observed values.

Figure 8. Marine Water Bacteria Summary Statistics



Bacteria summary statistics for marine stations in Butler Bay, 140 (n=40), 141 (n=40), and 142 (n=39). Bold lines represent geometric mean, boxes represent 90th percentile, and whiskers represent highest and lowest observed values.

Figure 9. Fecal Coliforms Plotted by Month



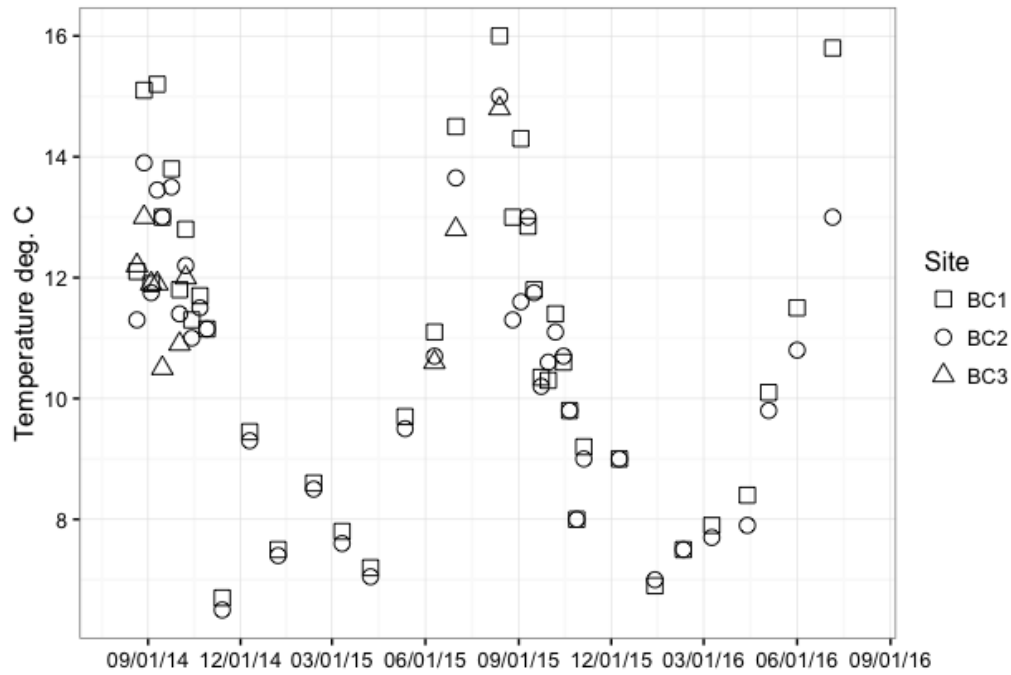
Fecal coliform data grouped by month. Includes data from 40 sampling “tours” to Pillar Point County Park over the course of the two year project (September 2014 to September 2016). Note: sampling generally occurred with increased frequency (weekly visits) through each fall as previous water quality issues had been documented during this part of the year.

Water Temperature and Salinity

Temperature and salinity measurements accompanied water grab sampling at Pillar Point.

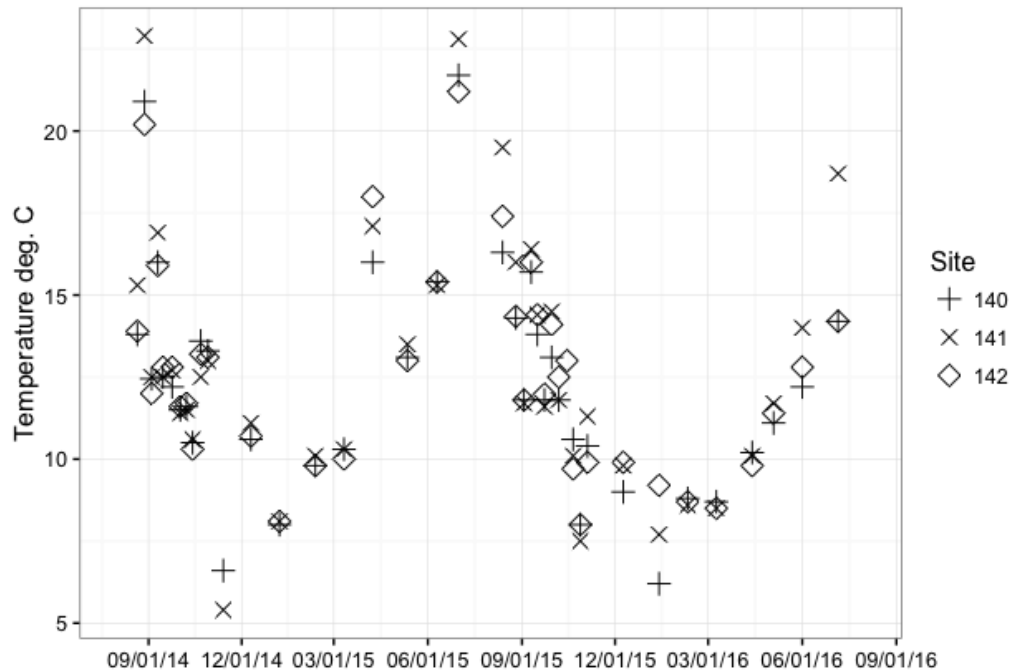
Measurements were gathered in-situ using a multi-meter and probe system. Early in the project, technicians employed a YSI-85 unit though this was phased out in favor of a YSI ProDSS setup. Field equipment was supplied by Streamkeepers of Clallam County and side-by-side measurements were performed using YSI-85 and YSI ProDSS units (as part of other Streamkeepers projects) until Streamkeepers staff was convinced that data collected by the two pieces of equipment were comparable.

Figure 10. Butler Creek Water Temperature



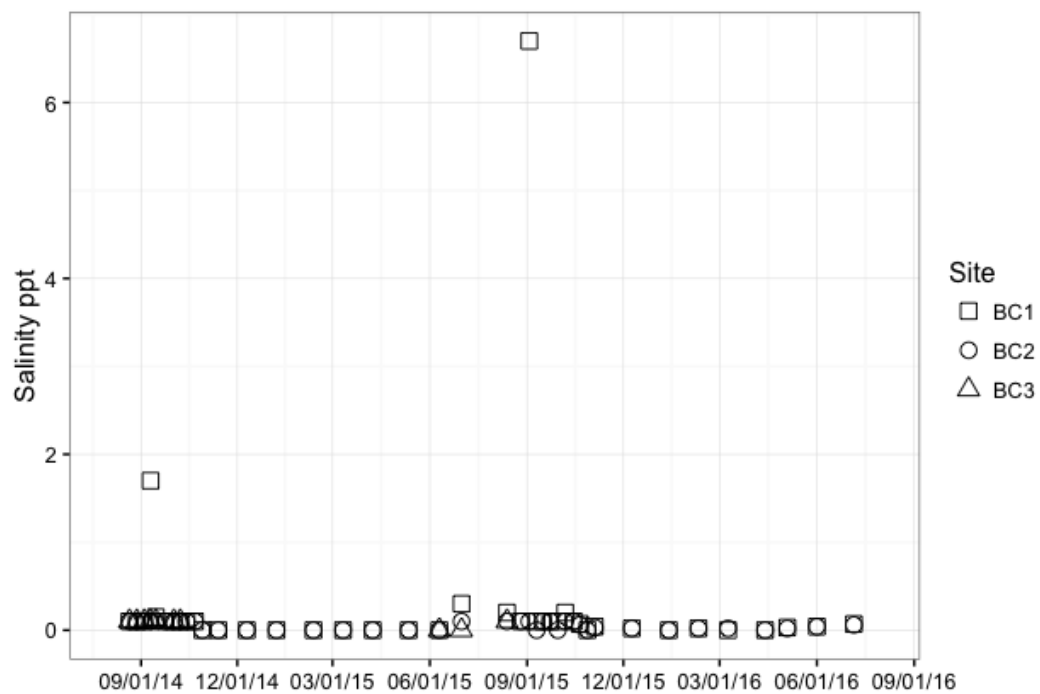
Temperature measurements collected at sites BC1 (n=40), BC2 (n=40), and BC3 (n=10) on Butler Creek.

Figure 11. Marine Station Water Temperature



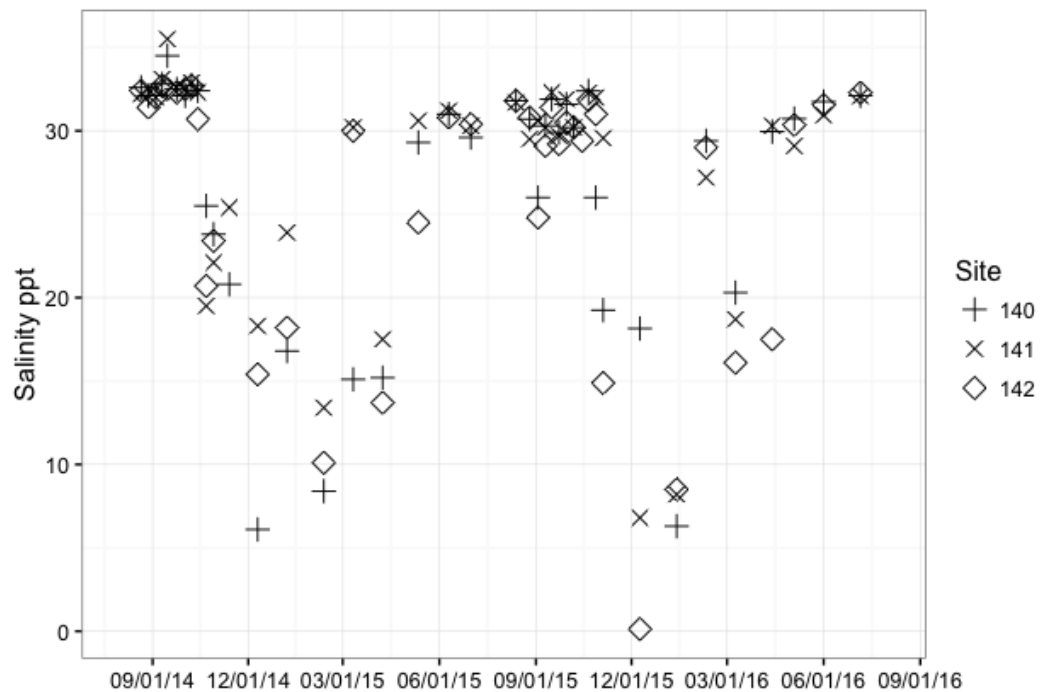
Temperature measurements collected at marine stations 140 (n=40), 141 (n=40), and 142 (n=39).

Figure 12. Butler Creek Salinity



Salinity measurements collected at sites BC1 (n=40), BC2 (n=40), and BC3 (n=10) on Butler Creek.

Figure 13. Marine Stations Salinity



Salinity measurements collected at marine stations 140 (n=40), 141 (n=40), and 142 (n=39).

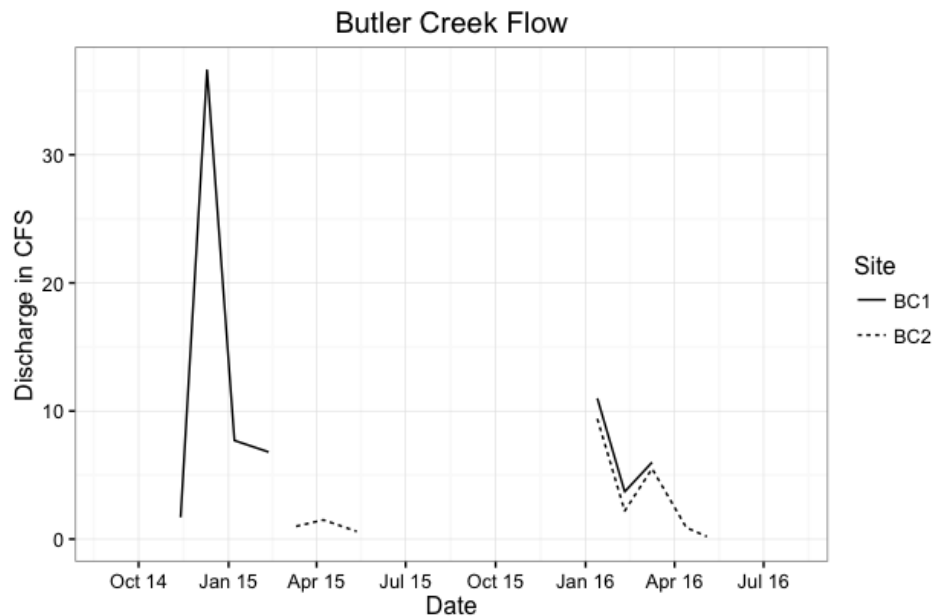
Butler Creek Flow Measurements

CCEH staff collected flow measurements in Butler Creek to gain a picture of stream characteristics and to explore any potential links between bacterial pollution and storm events. Applying the “wade-across method” and “swoffer” units, staff gathered depth, width, and velocity measurements from within the stream channel. Later these measurements were entered into the Clallam County Water Resources Database which computed discharge.

Weather, tides, and general characteristics of the terrain surrounding Butler Creek commonly hampered monitoring, hence, an incomplete record of stream discharge emerges. At least one major storm event was captured on December 10, 2014 where measured discharge exceeded 35 cubic feet per second (CFS). This event does not appear to coincide with exceptionally high levels of bacteria in the creek itself, though water samples from marine stations collected on the same day returned non-negligible counts.

Anecdotal accounts of visits to Butler Creek support its characterization as a “flashy” stream, responding quickly to precipitation events. Field reports describe stream stage rising quickly enough during the course of a single tour to impede monitoring activities.

Figure 14. Butler Creek Flow



Butler Creek flow as measured at sites BC1 and BC2 following the “wade-across method.” Discharge calculations performed by Clallam County Water Resources Database. An incomplete picture of the stream’s hydrograph emerges as field conditions confounded monitoring efforts. At least one storm event appears to have been captured on December 10, 2014 with a discharge of 36.6 CFS.

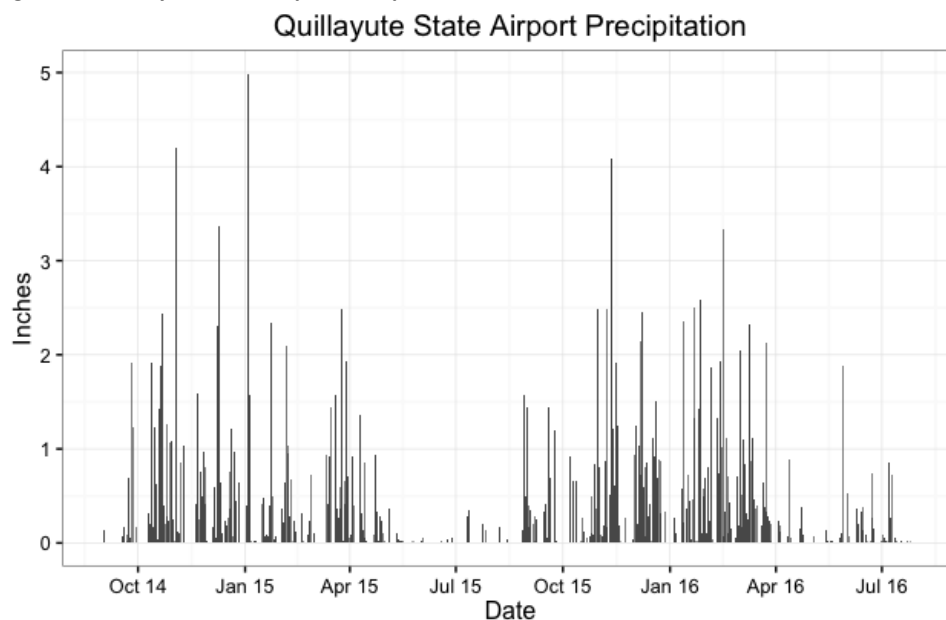
Precipitation

The National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information collect climate and weather data across the United States. Clallam County stations include Sequim, Port Angeles, Forks, and Quillayute State Airport.

In an effort to explore precipitation patterns and any potential links between precipitation, stream discharge, and bacterial concentrations in surface waters, we looked at the western Clallam County weather data from Quillayute State Airport station USW00094240 (47.9375, -124.555). Precipitation data from September 1, 2014 through September 1, 2016 were downloaded from: <https://www.ncdc.noaa.gov/cdo-web/search>.

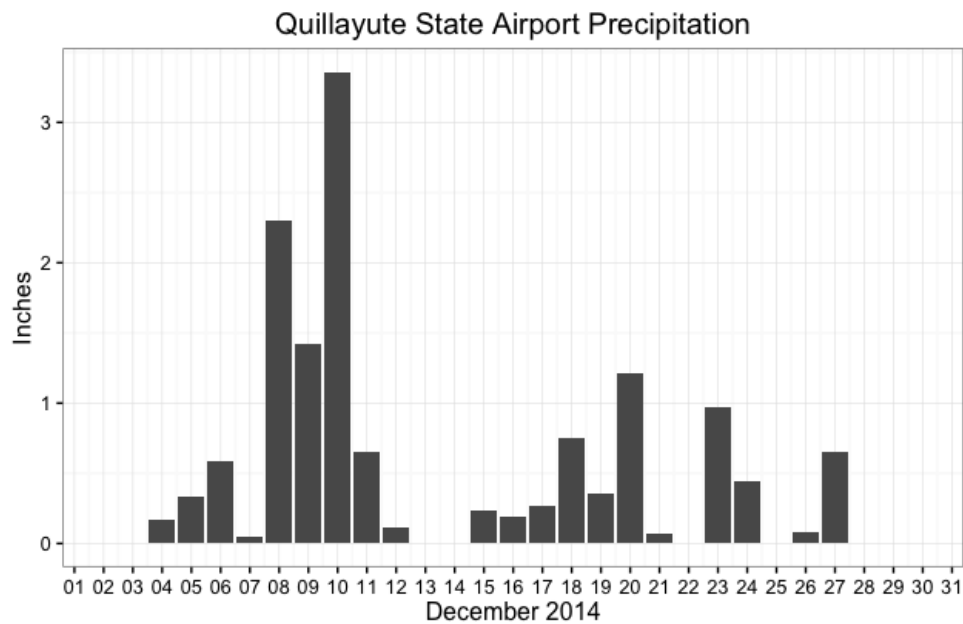
37 miles separate NOAA station USW00094240 and Pillar Point County Park and weather conditions likely differ between the two locations at any given time. However, these data likely capture, with broad strokes, storm events affecting western parts of Clallam County. Further, data from Quillayute State Airport likely provide advantages over Port Angeles and Sequim weather stations (where rain shadow effects come into play) and over Forks stations (where the windward side of the Olympic Mountains wrings moisture out of the air, causing increased precipitation).

Figure 15. Quillayute State Airport Precipitation



Precipitation data from Quillayute State Airport likely capture major storms affecting the western portion of Clallam County. September 1, 2014 through September 1, 2016 data downloaded from NOAA's National Centers for Environmental Information station USW00094240.

Figure 16. December 2014 Precipitation.



Focusing on December 2014 data, precipitation on the order of multiple inches becomes apparent December 8, 9, and 10. A high flow of 36.6 CFS was measured in Butler Creek on December 10, 2014 (Figure 17, above). September 1, 2014 through September 1, 2016 data downloaded from NOAA's National Centers for Environmental Information station USW00094240.

Park Survey

Clallam County Environmental Health staff and project partners collected observations of sanitary conditions at Pillar Point County Park along with descriptions of beach uses/activities and environmental observations. Surveys date as far back as 2012, from an initial response to a shellfish growing area downgrade. U.S. customs and Border Patrol provided some assistance in keeping tabs on the park through occasional surveys until staffing changes shifted agents out of the area. Clallam County Parks, Fair, and Facilities staff also conducted surveys to assist CCEH in park monitoring efforts. The Parks Department regularly spends time in the area maintaining pit toilets, maintaining interpretive displays, mowing, and more. Following the official monitoring period of this project, Clallam County Marine Resources Committee volunteers provided supplemental observations of park conditions when they accessed the beach for a separate biotoxin monitoring effort.

Various sanitary concerns stand out as evidenced by regular surveys throughout the project period. Most notably, human waste and pet waste were observed on the ground in the park, especially in those areas accessible from the lower parking lot. Human waste seemed to appear, on occasion, behind an old concrete concessions building immediately adjacent to the lower parking lot area. Both toilet paper and excrement signaled that humans used the ground in this spot as a toilet. Similar activities were observed next to Butler Creek sampling site, BC2 (near a day-use picnic area off the lower parking lot), though to a lesser degree. This abuse of park areas seemed most prominent during the high-use summer season.

Further, pet waste showed up in Pillar Point County Park surveys with regularity. Dog-walking frequently shows up within written observations and many times owners allow their pets to run off-leash. Pet waste was observed on the ground around parking areas and on the beach itself.

Over the two years of this project no direct evidence of RV holding tank discharge was observed in or around Pillar Point County Park.

Outreach and Education

Outreach and education efforts first and foremost sought to educate Clallam County residents on the issues surrounding bacterial pollution due to pet waste and the links between water quality, shellfish resources, and pet waste.

Washington State Extension Program helped Clallam County Environmental Health develop a pet waste rack card with messages tailored to the rural parts of the County. The primary message underscored how pet waste left on the ground pollutes the environment and degrades resources. Local veterinarians agreed to place this literature in their offices along with free pet waste bags. Olympic Peninsula Humane Society followed suit and the local group, Port Angeles Pet Posse agreed to hand out rack cards and pet waste bags at the 2017 Juan de Fuca Festival of the Arts.

Clallam County Environmental Health had a presence at Clallam County Fair and Dungeness River Fest where staff brought the pet waste message to the public. A collaborative effort with the City of Port Angeles brought a pet waste beanbag toss game to Dungeness River Fest and local school kids on a field trip to the event were drawn to the game. After participating, kids were able to verbalize how pet waste can pollute waterways and how to properly dispose of it.

In an effort to reach the widest audience possible within Clallam County, various informational videos outlining the problems with pet waste were screened at Deer Park Cinema in Port Angeles through 2017. Initially, Clallam County Environmental Health leaned on work produced for Skagit and Snohomish counties until a local videographer helped produce a unique video on pet waste issues that began to show in June, 2017. Our pet waste video used humor to grab viewers' attention while including a serious message about the health concerns associated with pet waste.

Finally, CCEH developed a brochure listing approved recreational vehicle dump stations on the Olympic Peninsula. Though no evidence of illicit RV dumping was recorded in the area over the course of this project, one hypothesis proposed such activity as a potential cause of the extremely high levels of bacterial pollution leading up to the 2012 downgrade of commercial shellfish beds at Pillar Point. Consultations with RV enthusiasts led to a brochure format with valuable information for the end user, and the Port Angeles Visitor Center specifically appreciated the brochure as it provided options that visitor center volunteers had not been aware of, previously. Visitors commonly stop in requesting information on the location of RV dump stations and the visitor center has requested additional brochures due to demand.

Figure 17. Informational Rack Card and Bag Dispenser



Clallam County Humane Society and local veterinarians agreed to help with pet waste outreach efforts.

Facilities Upgrades

Mechanical installations at Pillar Point County Park aimed to deter people from leaving sources of bacterial pollution on or near the beach and helped park users make better decisions regarding sanitary conditions at the beach. Though pit toilets exist just up the hill from the lower parking lot, people still used the ground near the beach as a toilet. CCEH staff hypothesized that people arriving to the beach by boat either didn't know pit toilets were just up the hill, or couldn't be bothered to walk the short distance.

As a temporary measure, "Sani-can" facilities were put in place during the high-use fishing seasons (August-October) of 2014, 2015, and 2016. This seemed to help alleviate the human waste problem somewhat, though a more permanent solution was still needed.

One problem area documented throughout the project involved the use of a grassy area behind an old concessions building as a toilet facility. Here, human waste commonly appeared on the ground as documented through park surveys. In order to increase the difficulty of access to this area, a fence was installed along the building and clearly marked "no trespassing." Fence installation took place in late summer, 2017.

Figure 18. New Fence Installed



In summer, 2017 Clallam County Parks, Fair, and Facilities installed a fence next to an old concessions building at the lower parking lot to deter park users from treating the ground behind the building as a toilet.

While the above fence acted to deter those determined to make poor decisions, interpretive signage at Pillar Point County Park beach reached out to those that simply didn't know any better. Ideally, given increased access to information on the links between sanitary conditions near the beach and water quality, coupled with awareness of facilities (pit toilets) available to the public, many people will make thoughtful decisions.

Figure 19. Beach Signage



A new sign installed in summer, 2017 highlights the connections between park activities and shellfish resources.

Finally, Boy Scout Troop 1473 provided a major boost to this project by coordinating a beach cleanup and installing a pet waste station. Boy Scouts cleaned up pet waste, removed debris and garbage, and installed a pet waste station that they'd built. The Scouts exported this model to Salt Creek Recreation Area, Port Williams Beach, and Dungeness Landing Park where they installed three more pet waste stations. This is particularly significant for the eastern part of Clallam County—especially near Dungeness Bay—where bacterial pollution has contributed to other shellfish growing area downgrades.

Figure 20. Pet Waste Station



Boy Scouts installed pet waste stations at four Clallam County beaches and cleaned up waste and debris.

Evaluation

Water Quality

Two DOH water quality sampling events significantly contributed to the initial downgrade of Pillar Point commercial shellfish growing beds. In October 2010 and September 2011, analysis of marine water samples returned concentrations of greater than 2,400 fecal coliform CFU/100 ml. Such levels would suggest a major nearby pollution source.

Through two years of water quality sampling with significantly increased temporal resolution we never observed a return to these high levels of bacterial pollution. The highest fecal coliform counts occurred on October 7, 2015, when freshwater samples collected from Butler Creek Site BC1 produced a count of 316 CFU/100 ml (figure 5). The highest fecal coliform counts among the marine water samples occurred on October 22, 2014, measuring 124 CFU/100 ml (figure 6). These elevated counts do seem to occur during the late summer/early fall, following the trend previously observed in the seasonality of bacterial pollution problems (figure 9).

Stream flow measurements likely captured a winter storm event on December 10, 2014 with a discharge of over 36 CFS (figure 14). Western Clallam County precipitation data support the characterization of this event as a winter storm with multiple inches of precipitation delivered over a three-day period (figure 16). Very few data points provide an incomplete picture of Butler Creek's hydrograph, though accounts of field staff would characterize the stream as "flashy," responding quickly to rainfall with stream stage increasing rapidly even over the course of a single site visit.

Water quality samples collected on December 10, 2014 did not show exceptionally high levels of fecal coliform bacteria, with a highest count of 36 CFU/100 ml corresponding to marine station 140. As such, it is possible that the *timing* of precipitation events rather than *magnitude* of precipitation most influences observed bacteria levels. Water quality results gathered here likely describe "first flush" phenomena whereby pollution sources that accumulate on the ground through the dry, high-use parts of the year (human waste, pet waste left on the ground through the summer) flush into waterways when the first significant rains arrive in the fall.

Higher fecal coliform counts seem to occur among freshwater samples than among marine water samples (figures 7, 8). This supports the existence of an upland source of bacteria contributing to loads observed in Butler Bay. We can see that freshwater inputs to Butler Bay contribute a major component of bay water, especially during the wet season when salinity drops at marine stations (figure 13). On the other hand, Butler Creek sites generally displayed very low salinity with the exception of BC1—the only sample site influenced by marine waters.

Park Survey

No "smoking gun" or obvious cause of the observed 2010-2011 bacterial pollution levels was uncovered through on-the-ground investigations at Pillar Point County Park. The available evidence points toward links between upland sanitary conditions and water quality in Butler Bay. Possible pollution sources noted through park surveys include: 1) pet waste, 2) human waste, 3) waterfowl, and 4) waste from other wildlife such as elk. While wildlife could potentially contribute some component of the bacteria measured in Butler Creek and Butler Bay, it seems a far reach that this could have been a primary driver of the extraordinarily high levels of fecal coliforms observed in 2010 and 2011. Further, available energy and resources should go toward addressing the entirely controllable unsanitary conditions posed by human and pet waste near our water resources.

Finally, though no evidence of recreational vehicle dumping was observed through surveys of Pillar Point County Park, this does not rule out such an event as having contributed to the shellfish growing area

downgrade of 2012. Such an event could occur as an isolated incident, impact water quality significantly, then not turn up again through any subsequent monitoring or study.

Facilities Upgrades

Pet Waste Stations

Clallam County Parks, Fair, and Facilities puts great care into the maintenance and upkeep of Pillar Point County Park. Pit toilets are regularly cleaned and stocked, parking and picnic areas are kept tidy, and grass areas are mowed. This applies to County facilities at Salt Creek Recreation Area, Dungeness Landing, and Port Williams Beach.

Following installation of the pet waste station at Pillar Point, garbage and other detritus began to accumulate nearby. The problem grew with frequent illegal dumping until the installed pet waste station was eventually vandalized, then disappeared entirely. Similar issues were noted at Port Williams and Dungeness landing with the pet waste stations seen as an invitation to dump household garbage for somebody else to handle. As of late 2017, only the pet waste station at Salt Creek Recreation Area remains. Salvaged supplies from the other three sites have been diverted for use at Salt Creek. The Salt Creek station receives frequent use and maintenance and camp hosts and park staff generally view the station as an asset.

Various factors likely contribute to the failure of three pet waste stations and the success at Salt Creek Recreation area, alone. The remote location of stations coupled with only periodic staff visits and no waste bins nearby may have proved insurmountable barriers to success. Salt Creek Park, meanwhile, enjoys the presence of camp hosts, continuous park ranger presence, and waste disposal areas nearby.

Fence and Signage

Construction of fencing and signage at Pillar Park County Park's lower parking lot only took place in late summer of 2017. Consequently, the effectiveness of these measures in reducing pet waste and human waste in the areas near the shoreline of Butler Bay has not yet become clear. Periodic visits to the site have thus far confirmed no additional human waste behind the old concrete concessions building at least since August, 2017.

Follow-up

In October 2017 Washington State Department of Health began the process to upgrade the commercial shellfish beds at Pillar Point from "conditionally approved" to "approved." Signs posted at the beach announcing the shellfish harvest closure due to seasonal pollution have already been removed. This regulatory decision comes as water quality data have signaled a return to bacteria levels below the threshold for closures. The presence of observers keeping tabs on Pillar Point County Park and monitoring sanitary conditions helped to support the decision to upgrade shellfish beds. In order to keep the current classification in place, park surveys must continue.

Through the winter months, continued park monitoring will likely mean Clallam County Environmental Health Staff will make at least monthly visits to document park activities and sanitary conditions. Much

of the monitoring effort through summer 2017 came from Clallam Marine Resources Committee volunteers who spent time in the area as part of a separate marine biotoxin sampling effort. Volunteers have shown some interest in continuing shellfish collection in 2018 so, ideally, CCEH will request their services for continued park surveys.

Finally, Washington State Department of Health water quality monitoring will likely continue at marine stations in the Eastern Straits growing area as part of the commercial shellfish program.

Acknowledgements

This project benefited from the help of many people and groups and Clallam County Environmental Health would not have been able to accomplish any of the above tasks alone. Special thanks go to Boy Scout Troop 1473 for their beach cleanup efforts and pet waste station installations. Clallam Marine Resources Committee supported the monitoring effort at the beach and volunteers Jeff Ward, Kathy Cooper, Bob Vreeland, Ed Bowlby, and Peggy McClure really saw the project across the finish line with their presence through the summer of 2017. Thanks are due to the Clallam County Parks, Facilities, and Fair Department as well as U.S. Customs and Border Patrol for early support of park monitoring efforts. The Parks Department keeps park grounds in top shape and even installed facilities to improve the sanitary outlook near the beach, without which we likely would not have enjoyed shellfish bed upgrades. Streamkeepers of Clallam County—especially Ed Chadd and Ron Sidwell—made data management and upload to the State’s EIM system a reality. Adar Feller makes the best maps quickly and efficiently. EH staff including Andy Perham and Jess Pankey spent uncomfortable hours collecting data in Butler Creek and Butler Bay (even during winter storms), dodging waves and trying to stay warm. The Makah Tribe has consistently supported water quality sampling of marine stations in the western portion of Clallam County. North Olympic Peninsula Veterinarians and Port Angeles Pet Posse helped distribute pet waste bags and literature on the hazards of pet waste in the environment. Thank you to Washington Department of Ecology and Washington Department of Health for support and oversight. And of course a big “thank you” to Carol Creasey for the vision and drive to get this project up and running. The author joined this project as it neared its end and apologizes if anybody has been left out—many more contributors likely provided support—such as early adopters of pet waste stations.

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Appendix 1—Environmental Data Collected

Site Name	Date	Fecal CFU/100 ml	Flow CFS	Salinity ppt	Water Temp. Deg. C
140	8/21/14	19		32.6	13.8
140	8/28/14	14		32.1	20.9
140	9/4/14	1		32.1	12.4
140	9/10/14	18		32.8	16
140	9/15/14	1		34.5	12.5
140	9/24/14	4		32.5	12.2
140	10/2/14	4		32.1	11.5
140	10/8/14	9		32.8	11.6
140	10/14/14	64		32.4	10.5
140	10/22/14	48		25.5	13.6
140	10/29/14	4		23.8	13.3
140	11/13/14	4		20.8	6.6
140	12/10/14	36		6.1	10.6
140	1/7/15	2		16.8	8
140	2/11/15	5		8.4	9.8
140	3/11/15	2		15.1	10.3
140	4/8/15	2		15.2	16
140	5/12/15	2		29.3	13.1
140	6/10/15	2		31	15.4
140	7/1/15	2		29.6	21.7
140	8/13/15	2		31.8	16.3
140	8/26/15	2		30.7	14.3
140	9/3/15	10		26	11.8
140	9/10/15	2		30.3	15.7
140	9/16/15	2		31.9	13.8
140	9/23/15	2		29.9	11.8
140	9/30/15	4		31.6	13.1
140	10/7/15	2		30.2	11.8
140	10/15/15	2			
140	10/21/15	2		32.4	10.6
140	10/28/15	12		26	8
140	11/4/15	16		19.3	10.4
140	12/9/15	38		18.1	9
140	1/13/16	68		6.3	6.2
140	2/10/16	2		29.4	8.8
140	3/9/16	2		20.3	8.7
140	4/13/16	2		29.9	10.2
140	5/4/16	2		30.7	11.1
140	6/1/16	2		31.8	12.2
140	7/6/16	2		32.1	14.2
141	8/21/14	10		32.2	15.3
141	8/28/14	4		32.5	22.9
141	9/4/14	1		32	12.5
141	9/10/14	5		33.1	16.9
141	9/15/14	1		35.5	12.5
141	9/24/14	7		32.6	12.7
141	10/2/14	2		32.5	11.4
141	10/8/14	9		32.9	11.5
141	10/14/14	35		32.3	10.6
141	10/22/14	124		19.5	12.5
141	10/29/14	6		22.1	13
141	11/13/14	4		25.4	5.4
141	12/10/14	18		18.3	11.1
141	1/7/15	6		23.9	8.1
141	2/11/15	7		13.4	10.1
141	3/11/15	2		30.2	10.3

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Site Name	Date	Fecal CFU/100 ml	Flow CFS	Salinity ppt	Water Temp. Deg. C
141	4/8/15	2		17.5	17.1
141	5/12/15	2		30.6	13.5
141	6/10/15	2		31.2	15.3
141	7/1/15	2		30.3	22.8
141	8/13/15	2		31.7	19.5
141	8/26/15	16		29.5	16
141	9/3/15	2		30.6	11.7
141	9/10/15	2		30.2	16.4
141	9/16/15	2		32.3	14.4
141	9/23/15	58		29.7	11.6
141	9/30/15	3		31.9	14.5
141	10/7/15	2		30.2	11.8
141	10/15/15	110			
141	10/21/15	2		32.3	10.1
141	10/28/15	8		32	7.5
141	11/4/15	6		29.6	11.3
141	12/9/15	20		6.8	9.8
141	1/13/16	8		8.2	7.7
141	2/10/16	2		27.2	8.6
141	3/9/16	2		18.7	8.5
141	4/13/16	2		30.3	10.1
141	5/4/16	2		29.1	11.7
141	6/1/16	2		30.9	14
141	7/6/16	2		32.1	18.7
142	8/21/14	32		32.4	13.9
142	8/28/14	1		31.4	20.2
142	9/4/14	1		32	12
142	9/10/14	28		32.7	15.9
142	9/15/14	1		32.5	12.8
142	9/24/14	22		32.3	12.8
142	10/2/14	1		32.5	11.6
142	10/8/14	6		32.7	11.7
142	10/14/14	63		30.7	10.3
142	10/22/14	119		20.7	13.2
142	10/29/14	32		23.4	13.1
142	12/10/14	8		15.4	10.7
142	1/7/15	3		18.2	8.1
142	2/11/15	5		10.1	9.8
142	3/11/15	2		30	10
142	4/8/15	1		13.7	18
142	5/12/15	2		24.5	13
142	6/10/15	2		30.8	15.4
142	7/1/15	2		30.4	21.2
142	8/13/15	2		31.8	17.4
142	8/26/15	5		30.8	14.3
142	9/3/15	2		24.8	11.8
142	9/10/15	2		29.1	16
142	9/16/15	2		31.4	14.4
142	9/23/15	2		29.2	12
142	9/30/15	2		30.5	14.1
142	10/7/15	2		30.2	12.5
142	10/15/15	8		29.4	13
142	10/21/15	2		31.8	9.7
142	10/28/15	10		31	8
142	11/4/15	8		14.9	9.9
142	12/9/15	22		0.1	9.9
142	1/13/16	40		8.5	9.2
142	2/10/16	2		29	8.7
142	3/9/16	2		16.1	8.5
142	4/13/16	2		17.5	9.8
142	5/4/16	2		30.4	11.4
142	6/1/16	2		31.5	12.8

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Site Name	Date	Fecal CFU/100 ml	Flow CFS	Salinity ppt	Water Temp. Deg. C
142	7/6/16	2		32.3	14.2
BC1	8/21/14	2		0.1	12.1
BC1	8/28/14	14		0.1	15.1
BC1	9/4/14	7		0.1	11.9
BC1	9/10/14	201		1.7	15.2
BC1	9/15/14	31		0.2	13
BC1	9/24/14	40		0.1	13.8
BC1	10/2/14	2		0.1	11.8
BC1	10/8/14	7		0.1	12.8
BC1	10/14/14	33		0.1	11.3
BC1	10/22/14	58		0.1	11.7
BC1	10/29/14	7		0	11.2
BC1	11/13/14	15	1.7	0	6.7
BC1	12/10/14	23	36.6	0	9.4
BC1	1/7/15	2	7.7	0	7.5
BC1	2/11/15	2	6.8	0	8.6
BC1	3/11/15	2		0	7.8
BC1	4/8/15	1	1.1	0	7.2
BC1	5/12/15	2		0	9.7
BC1	6/10/15	2		0	11.1
BC1	7/1/15	2		0.3	14.5
BC1	8/13/15	18		0.2	16
BC1	8/26/15	90		0.1	13
BC1	9/3/15	98		6.7	14.3
BC1	9/10/15	7		0.1	12.8
BC1	9/16/15	2		0.1	11.8
BC1	9/23/15	14		0.1	10.3
BC1	9/30/15	2		0.1	10.3
BC1	10/7/15	316		0.2	11.4
BC1	10/15/15	12		0.1	10.6
BC1	10/21/15	26		0.1	9.8
BC1	10/28/15	56		0	8
BC1	11/4/15	8	2	0	9.2
BC1	12/9/15	46		0	9
BC1	1/13/16	2	11	0	6.9
BC1	2/10/16	2	3.7	0	7.5
BC1	3/9/16	2	6	0	7.9
BC1	4/13/16	2		0	8.4
BC1	5/4/16	2		0	10.1
BC1	6/1/16	2		0	11.5
BC1	7/6/16	38		0.1	15.8
BC2	8/21/14	2		0.1	11.3
BC2	8/28/14	6		0.1	13.9
BC2	9/4/14	79		0.1	11.8
BC2	9/10/14	71		0.1	13.4
BC2	9/15/14	12		0.1	13
BC2	9/24/14	5		0.1	13.5
BC2	10/2/14	1		0.1	11.4
BC2	10/8/14	6		0.1	12.2
BC2	10/14/14	23		0.1	11
BC2	10/22/14	38		0.1	11.5
BC2	10/29/14	2		0	11.2
BC2	11/13/14	11	0.1	0	6.5
BC2	12/10/14	24		0	9.3
BC2	1/7/15	2	9.3	0	7.4
BC2	2/11/15	1		0	8.5
BC2	3/11/15	2	1	0	7.6
BC2	4/8/15	1	1.5	0	7
BC2	5/12/15	2	0.6	0	9.5
BC2	6/10/15	2		0	10.7
BC2	7/1/15	2		0.1	13.7
BC2	8/13/15	10		0.1	15

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Site Name	Date	Fecal CFU/100 ml	Flow CFS	Salinity ppt	Water Temp. Deg. C
BC2	8/26/15	2		0.1	11.3
BC2	9/3/15	102		0.1	11.6
BC2	9/10/15	104		0	13
BC2	9/16/15	2		0.1	11.8
BC2	9/23/15	2		0.1	10.2
BC2	9/30/15	4		0	10.6
BC2	10/7/15	228		0.1	11.1
BC2	10/15/15	6		0.1	10.7
BC2	10/21/15	2		0.1	9.8
BC2	10/28/15	80		0	8
BC2	11/4/15	16	2.3	0	9
BC2	12/9/15	8		0	9
BC2	1/13/16	6	9.4	0	7
BC2	2/10/16	2	2.2	0	7.5
BC2	3/9/16	2	5.5	0	7.7
BC2	4/13/16	2	0.9	0	7.9
BC2	5/4/16	2	0.2	0	9.8
BC2	6/1/16	2		0	10.8
BC2	7/6/16	30		0.1	13
BC3	8/21/14	58		0.1	12.2
BC3	8/28/14	4		0.1	13
BC3	9/4/14	9		0.1	11.9
BC3	9/10/14	4		0.1	11.9
BC3	9/15/14	2		0.1	10.5
BC3	10/2/14	8		0.1	10.9
BC3	10/8/14	18		0.1	12
BC3	6/10/15	3		0	10.6
BC3	7/1/15	112		0	12.8
BC3	8/13/15	2		0.1	14.8
BC3	8/26/15	120			
BC3	9/3/15				

Appendix 2—Select Precipitation Data Downloaded

Station	Name	Lat.	Long.	Elevation	Date	Precip. In.
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-01	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-02	0.14
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-03	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-04	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-05	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-06	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-07	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-08	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-09	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-10	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-11	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-12	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-13	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-14	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-15	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-16	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-17	0.02
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-18	0.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-19	0.17
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-20	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-21	0.08
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-22	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-23	0.69
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-24	0.05
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-25	1.91
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-26	1.23
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-27	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-28	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-29	0.17
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-09-30	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-01	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-02	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-03	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-04	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-05	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-06	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-07	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-08	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-09	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-10	0.32
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-11	0.2
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-12	0.09
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-13	1.92
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-14	0.17
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-15	1.23
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-16	0.32
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-17	0.63
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-18	0.04
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-19	1.42
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-20	1.6
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-21	1.88
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-22	2.44
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-23	0.4
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-24	0.21
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-25	1.26
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-26	0.29

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Station	Name	Lat.	Long.	Elevation	Date	Precip. In.
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-27	0.24
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-28	1.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-29	0.3
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-30	1.08
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-10-31	0.25
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-01	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-02	0.52
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-03	4.2
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-04	0.12
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-05	0.1
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-06	0.86
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-07	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-08	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-09	1.04
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-10	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-11	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-12	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-13	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-14	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-15	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-16	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-17	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-18	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-19	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-20	0.42
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-21	1.59
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-22	0.25
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-23	0.6
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-24	0.75
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-25	0.5
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-26	0.97
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-27	0.81
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-28	0.42
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-29	0.02
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-11-30	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-01	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-02	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-03	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-04	0.17
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-05	0.33
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-06	0.59
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-07	0.05
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-08	2.3
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-09	1.42
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-10	3.36
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-11	0.65
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-12	0.11
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-13	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-14	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-15	0.24
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-16	0.19
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-17	0.27
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-18	0.75
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-19	0.36
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-20	1.21
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-21	0.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-22	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-23	0.97
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-24	0.44
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-25	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-26	0.08
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-27	0.65

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Station	Name	Lat.	Long.	Elevation	Date	Precip. In.
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-28	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-29	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-30	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2014-12-31	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-01	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-02	0.39
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-03	0.06
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-04	4.99
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-05	1.57
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-06	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-07	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-08	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-09	0.03
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-10	0.02
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-11	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-12	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-13	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-14	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-15	0.41
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-16	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-17	0.48
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-18	0.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-19	0.09
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-20	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-21	0.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-22	0.39
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-23	2.34
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-24	0.49
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-25	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-26	0.04
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-27	0.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-28	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-29	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-30	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-01-31	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-01	0.23
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-02	0.37
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-03	0.22
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-04	0.65
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-05	2.1
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-06	1.03
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-07	0.96
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-08	0.29
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-09	0.67
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-10	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-11	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-12	0.23
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-13	0.12
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-14	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-15	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-16	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-17	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-18	0.04
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-19	0.32
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-20	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-21	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-22	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-23	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-24	0.09
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-25	0.24
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-26	0.72
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-27	0

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Station	Name	Lat.	Long.	Elevation	Date	Precip. In.
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-02-28	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-01	0.11
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-02	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-03	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-04	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-05	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-06	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-07	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-08	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-09	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-10	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-11	0.94
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-12	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-13	0.42
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-14	0.92
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-15	1.44
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-16	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-17	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-18	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-19	1.45
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-20	1.57
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-21	0.36
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-22	0.26
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-23	0.59
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-24	0.37
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-25	2.49
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-26	0.03
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-27	0.66
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-28	0.42
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-29	1.93
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-30	0.7
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-03-31	0.05
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-01	0.07
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-02	0.08
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-03	0.92
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-04	0.39
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-05	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-06	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-07	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-08	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-09	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-10	1.36
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-11	0.31
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-12	0.13
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-13	0.86
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-14	0.05
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-15	0.02
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-16	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-17	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-18	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-19	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-20	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-21	0.08
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-22	0
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-23	0.93
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-24	0.34
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-25	0.01
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-26	0.02
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-27	0.28
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-28	0.24
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-29	0.1
USW00094240	QUILLAYUTE STATE AIRPORT, WA US	47.9375	-124.555	56.4	2015-04-30	0

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