# Big Bend Shellfish Protection District

**A committee of citizens, business and government is launching a plan to:**

- **Reduce water pollution**
- **Meet state and federal water quality standards**
- **Ensure that water quality standards are maintained**

MASON COUNTY
COMMUNITY SERVICES

May 8, 2017

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This document is also available online at:
http://www.co.mason.wa.us/health/environmental/water_quality/big-bend.php

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement PC-00J88801 to Washington Department of Health. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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## Definitions of Acronyms

ECY - Washington State Department of Ecology

FC - Fecal coliform bacteria

FDA - U.S. Food and Drug Administration

HC #6 - Hood Canal #6 commercial shellfish harvest area

HCCC - Hood Canal Coordinating Council

ISSC - Interstate Shellfish Sanitation Conference

LOSS - Large onsite septic system

MC - Mason County

MCD - Mason Conservation District

MCPH - Mason County Public Health

MCPW - Mason County Public Works

NEP - National Estuaries Program

NHD - National Hydrography Dataset

NSSP - National Shellfish Sanitation Program

O&M - Septic system operation and maintenance

OSS - Onsite septic system

PIC - Pollution identification and correction

QAPP - Quality Assurance Project Plan

RCW - Revised Code of Washington

SPD - Shellfish Protection District

WAC - Washington Administrative Code

WDOH - Washington State Department of Health

WSDOT - Washington State Department of Transportation

## A. Purpose of the Big Bend Shellfish Protection District

### Background

In September 2015, the Washington State Department of Health (WDOH) downgraded 17 acres in the Big Bend area of Hood Canal from Approved to Conditionally Approved (Map 1). The recently downgraded areas for commercial shellfish harvest are within the greater Hood Canal #6 growing area. The downgraded sections in question are designated as G and H (Map 2). This classification change is in response to WDOH Marine Station 292, in lower Hood Canal east of Union Cove, failing the National Shellfish Sanitation Program (NSSP) water quality standards for Approved classification. The NSSP is the federal/state cooperative program recognized by the FDA and ISSC for the sanitary control of shellfish produced and sold for human consumption (ISSC, 2015).

The Conditionally Approved classification indicates that harvest of shellfish is not allowed under certain conditions. For Big Bend, 0.75 inches of rainfall in 24 hours will trigger a 5 day closure for both G and H sections. Section G is 10 acres and closes after a rain event of 0.75 inches or more of rainfall. Section H is 7 acres and closes for harvest after a rain event of 0.75 inches or more of rainfall *and* is seasonally closed from May-September due to point source pollution of the nearby marina. Section I overlaps section H and is closed from May-September due to point source pollution of the nearby marina (Map 2). WDOH currently uses the rain gauge at the Taylor Shellfish FLUPSY to measure the rainfall. The FLUPSY is located in Oakland Bay near Shelton WA; 8.3 miles southeast of Station 292 (Table 2).

There are currently 6 commercial shellfish companies affected by this restriction. When a commercial shellfish area's classification is downgraded due to poor water quality, the county authority must create a shellfish protection district (SPD) and implement a program to find and correct the pollution source(s) that are causing water quality to decline. A Shellfish Protection District is a designated region wherein nonpoint pollution threatens the water quality upon which the contamination or restoration of shellfish farming or harvesting is dependant (RCW 90.72, 2008). A Shellfish Protection District program is required to be put in place after a growing area classification is downgraded.

> RCW 90.72.045 - The county legislative authority shall create a shellfish protection district and establish a shellfish protection program to address causes of pollution within one hundred eighty days after the department of health, because of water quality degradation due to ongoing nonpoint sources of pollution, has, after June 11, 1992, closed or downgraded the classification of a recreational or commercial shellfish growing area within the boundaries of the county.

Mason County Public Health developed this Shellfish Protection District, in cooperation with a stakeholder advisory group of those affected by the Big Bend downgrade, to provide leadership, planning, and put into action a shared vision of improving the water quality of Big Bend. Mason County Public Health currently works closely with WDOH and ECY to share water quality efforts including but not limited to delegating area referrals, data sharing, regulation, enforcement, and resource support. This Big Bend Shellfish Protection District plan was developed to identify, investigate, and monitor fecal contamination from adjacent shoreline and upland runoff affecting Big Bend in order to re-classify the downgraded areas to an Approved classification. The

agencies, businesses, organizations, and stakeholders listed below form the Big Bend Shellfish Protection Advisory Committee. This advisory committee adopted no by-laws and established their representation on their presence and involvement within the SPD boundary.

### Stakeholders Represented in the Advisory Committee

- Citizens and businesses of Mason County
- Hood Canal Coordinating Council
- Mason Conservation District
- Mason County Community Services
- Mason County Public Health
- Mason County Shellfish Growers
- Skokomish Tribe
- Washington Sea Grant, University of Washington
- Washington State Department of Ecology
- Washington State Department of Health
- Washington State University- Mason County Extension

## B. Background Information and History

### Physical Description of the Big Bend SPD Watershed

The Big Bend area is located on the South Shore of Hood Canal around the mouth of Big Bend Creek in Union, WA. The marine shoreline is 1.1 miles in length. There are 3 main drainages in the SPD watershed; Big Bend Creek, Dalby Creek, and Alderbrook Ridge Creek (Map 1). The Big Bend Creek is the largest stream in the SPD and is approximately 2.7 miles in length including its major tributaries and the drainage area is about 0.94 square miles. It has an estimated base flow, or the flow of the primary source of running water in a stream during dry season (excluding all runoff), of one cubic foot per second (Aspect Consulting LLC, 2009). The creek starts in a series of wetlands with the upper reaches being mostly forested, undeveloped land. The western Big Bend SPD boundary is directly adjacent to but does not overlap with the Annas Bay Shellfish Protection District but is within the Lower Hood Canal SPD. Depths are up to 150 feet in the main channel of the Hood Canal near Big Bend (Map 2). The Conditionally Approved shellfish areas being targeted do not exceed depths of 30 feet. The boundary of the SPD is based off the hydrologic connectivity of the nearby drainages to Station 292 though investigations and work may cross the boundary line if warranted (Map 3).

### Marine Water Quality Monitoring on the Hood Canal

WDOH evaluates, classifies, and monitors commercial shellfish growing areas. Hood Canal #6 is regularly monitored throughout the year although not all sampling stations are on the same monitoring schedule. Station 292 is currently monitored monthly by marine water sampling for fecal coliform bacteria along with an inventory of environmental conditions.

Fecal coliform bacteria occur naturally in the digestive tracts of warm-blooded animals, such as people, livestock, pets, and wildlife, and aid in the digestion of food. The concentration of FC in water is measured to determine the likelihood of contamination of pathogenic organisms. Environmental factors, including temperature, sunlight, salinity, and available nutrients affect surface water microorganism die-off rates. Mason County Public Health partners with WDOH to secure consolidated contracts for water quality monitoring and pollution identification and correction. WDOH works with MCPH on closures, reclassifications, and areas of concern for further monitoring, investigations, and regulation (Figure 2).

For a sampling station to meet Approved classification standards, Station 292 must have an estimated 90$^{th}$ percentile less than 43 FC/100 mL and a geometric mean less than 14 FC/100 mL (Figures 1 and 2). Station 292 is currently meeting water quality standards with an estimated 90$^{th}$ percentile at 37.2 FC/100 mL and geometric mean of 6.3 FC/100 mL (Table 2). Big Bend is considered a high risk area so an evaluation for reclassification cannot occur until on-the-ground work has been done. Implementation efforts will include bacteriological surface water monitoring, dye testing septic systems, investigating unsatisfactory OSS service reports and educating the public about on-site ownership and maintenance education and livestock management. The constructed stormwater conveyance systems, higher presence of older shoreline OSS, and the overall water quality of the Hood Canal contribute to the need for increased risk mitigation.

MCPH has been working with HCCC since 2012 on a pollution identification and correction project targeting the entire Hood Canal, including this SPD. Funding for the Hood Canal PIC work, currently in Phase III, extends to 2019. Funds from the HC PIC program may be used in this area for further pollution investigation and correction.

### Growth and Development

The Big Bend area is largely developed along the marine shoreline and relatively undeveloped in the upper reaches of the watershed. There are 550 parcels in the shellfish protection district excluding road easements and state lands. The use categories are: 276 (50%) residential, 255 (46%) undeveloped/resource and 19 (4%) commercial/trade/recreational. Big Bend Creek development is mostly located within 1,000 feet of the mouth of the creek. There are 296 parcels with an approved and monitored on-site septic or sewer system. According to the MCPH O&M database there are 215 conventional systems, 34 alternative systems, 22 parcels on the Alderbrook Resort & Spa private sewer, 21 parcels on a LOSS, 3 parcels on a community system, and 1 holding tank (Map 6). Of those OSS that are tracked by MCPH, 45% are less than 20 years old and 63% are less than 30 years old (Map 4) and 65% are in compliance with the WA state OSS maintenance schedule (Map 5 , Table 1).

## History of Shellfish Harvesting and Water Quality in Big Bend

1992 Big Bend area is classified as Prohibited due to Alderbrook Inn waste water treatment plant outfall. Previous classification is not known.

1999 Tertiary treatment (UV disinfection) is added to the Alderbrook wastewater treatment process.

2003 The Alderbrook wastewater treatment plant outfall is extended an additional 1,600 feet out into Hood Canal. This extension creates the potential for a classification upgrade within this portion of the Hood Canal #6 growing area.

2004 Results obtained by EnviroVison during their 2004 evaluation indicate that higher bacteria loading rates occurred in Big Bend Creek during the dry-season sampling events.

2004 *Shoreline Survey of the Hood Canal 6 Shellfish Growing Area* recommends that prior to an upgrade in classification of this area WDOH should evaluate the sampling results and flow measurements from Big Bend Creek and create an appropriate Unclassified area around its discharge to the growing area.

2006 Big Bend Cove is upgraded to Approved.

2008 Big Bend Creek is listed as a 303-d stream.

2010-2013 The *Hood Canal 303(d) Stream Monitoring and OSS validation and verification* study found that Fecal Coliform results from Big Bend Creek did not meet the water quality standard.

2011-2013 Mason County performed dye tests of several of the residences adjacent to Big Bend Creek, none of which were found to be failing.

A Large On-site Septic System transport line that runs through Big Bend creek is investigated. It is found to be cracked. The transport line is approximately one mile long and connects to the Blue Heron Condo's Large On-site Septic System (LOSS). This pipe was repaired.

2015- In *Annual Growing Area Review for 2014,* Marine Station 292 fails to meet NSSP water quality standards.

May 11, 2015 - A rain event produces a significant spike in fecal coliform contributing to an estimated 90$^{th}$ percentile well beyond the NSSP limit.

September 9, 2015- 17 acres around Marine Station 292 downgraded from Approved to Conditionally Approved for shellfish harvest. Rainfall of 0.75 inches or more in 24 hours will trigger a 5 day closure in the Conditionally Approved area of the Hood Canal #6 growing area.

2016- In *Annual Growing Area Review for 2015,* Marine Station 292 now meets NSSP water quality standards for an Approved classification.

## C. Strategy for Improving the Water Quality in the Big Bend Area

**Goal: To take immediate steps to:**

- **Reduce water pollution**
- **Meet state and federal water quality standards**
- **Ensure that water quality standards are maintained**

1. Identify accountable agencies, create a shellfish protection district advisory team
2. Identify the boundary of the Big Bend Area SPD, create a map
3. Create a Draft Closure Response Plan
4. Ordinance creating SPD adopted by Commissioners
5. Monitor Big Bend Area
6. Identify Agriculture sites- currently none known
7. Monitor On-site Sewage Systems
8. Education and Capacity Building
9. Identify and develop strategies to correct other non-point pollution sources
10. Enforcement

## References


Aspect Consulting LLC. WRIA 16 Planning Unit. (2009) River and Stream, Impairment Analysis: WRIA 16 and 14b, Skokomish-Dosiwallips Planning Area. (Project No. 080261-001-03).

"Community and Environment." *Washington State Department of Health.* WDOH, n.d. Web. 04 Apr. 2017.

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RCW 43.70.310. Cooperation with department of ecology. Washington State Legislature: 1987.

RCW 70.118. On-site disposal systems. Washington State Legislature: 1977.

RCW 70.118A. On-site disposal systems-marine recovery areas. Washington State Legislature: 2007.

RCW 70.118B. Large on-site sewage disposal systems. Washington State Legislature: 2007.

RCW 90.72. Shellfish Protection Districts. Washington State Legislature: 2008.

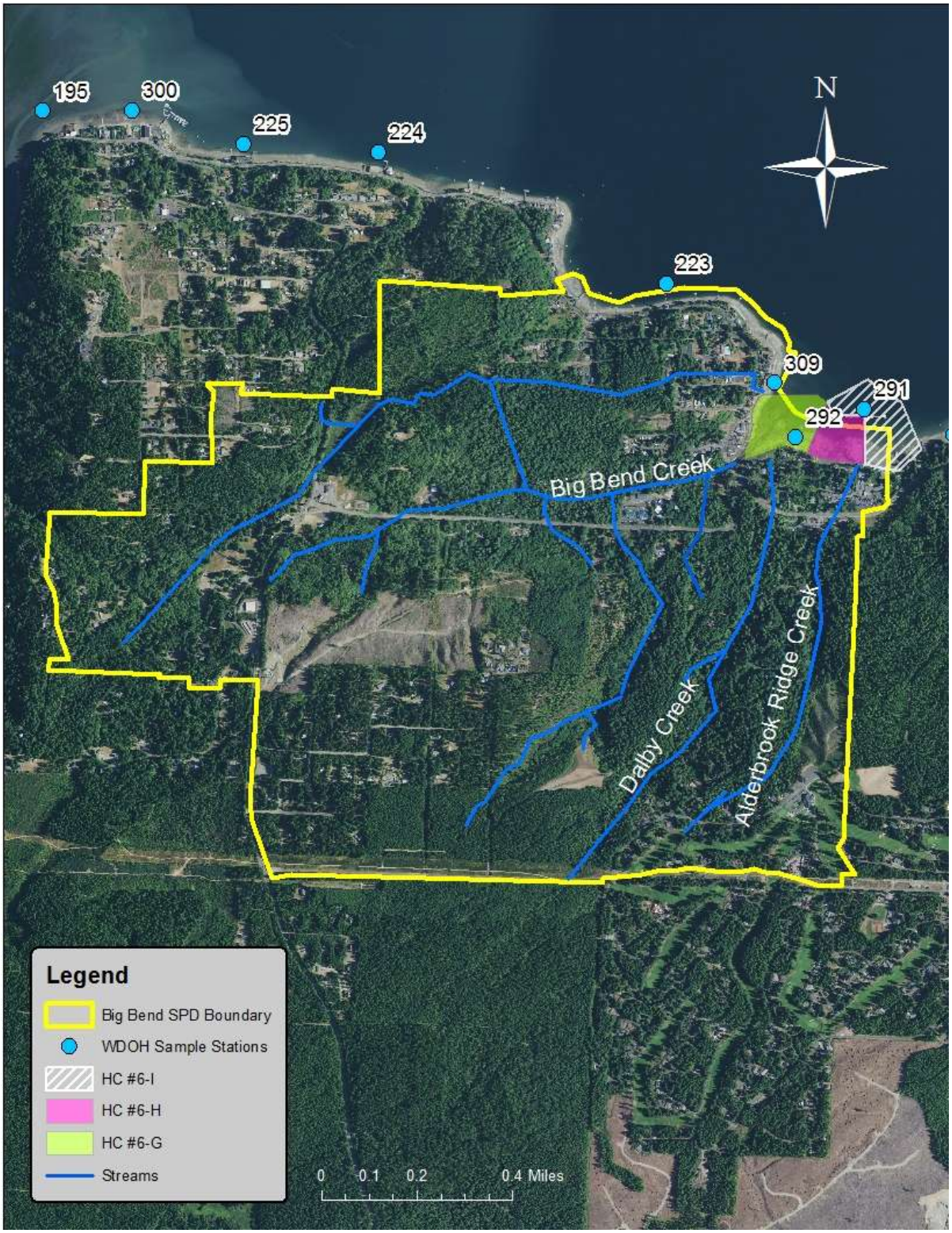
WAC 246-272A. On-site sewage systems. Washington State Legislature: 2010.

WAC 246-272B. Large on-site sewage system regulations. Washington State Legislature: 2011.

WAC 246-272C. On-site sewage system tanks. Washington State Legislature: 2016.

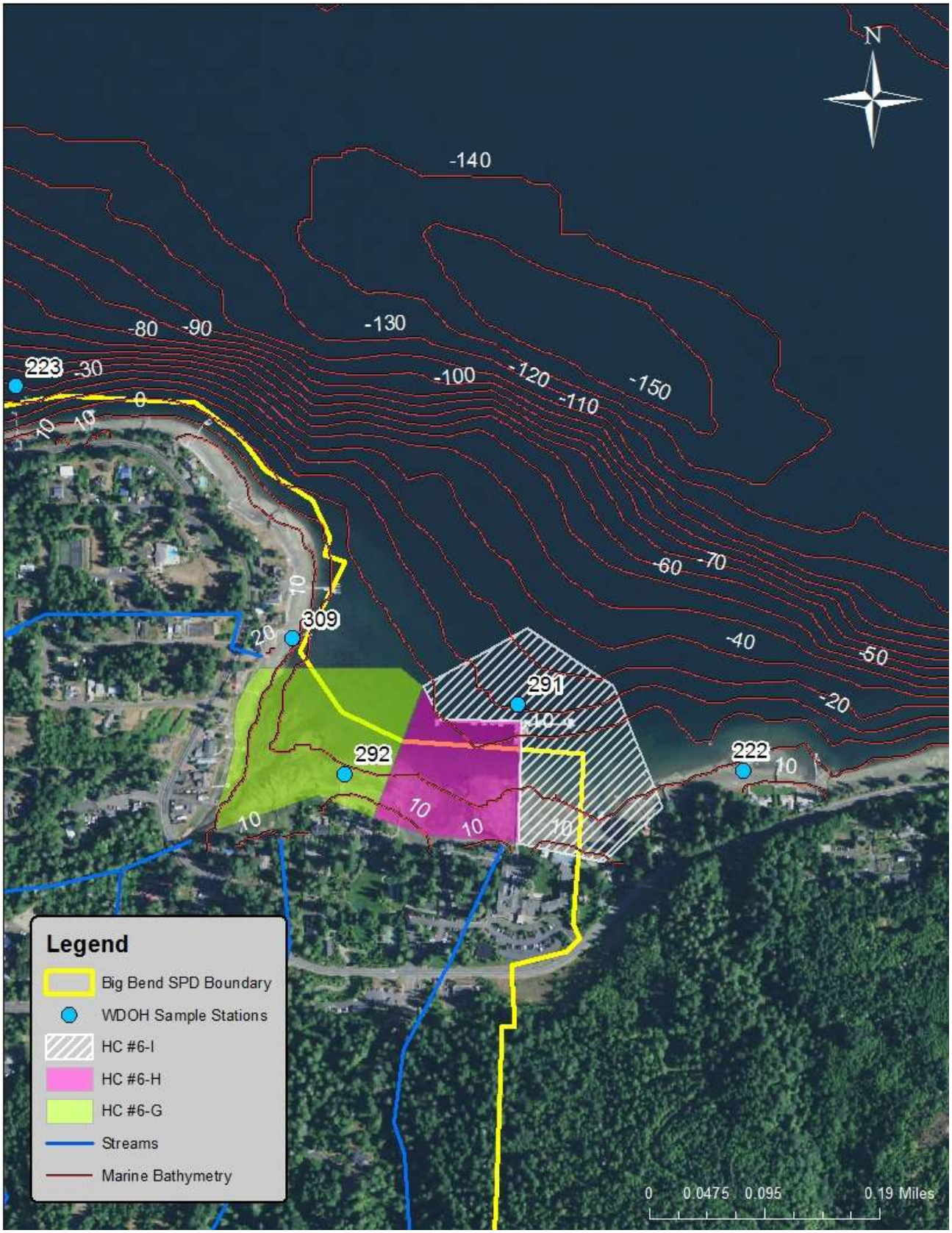
## Appendix A: Maps

**Map 1- Big Bend Area**



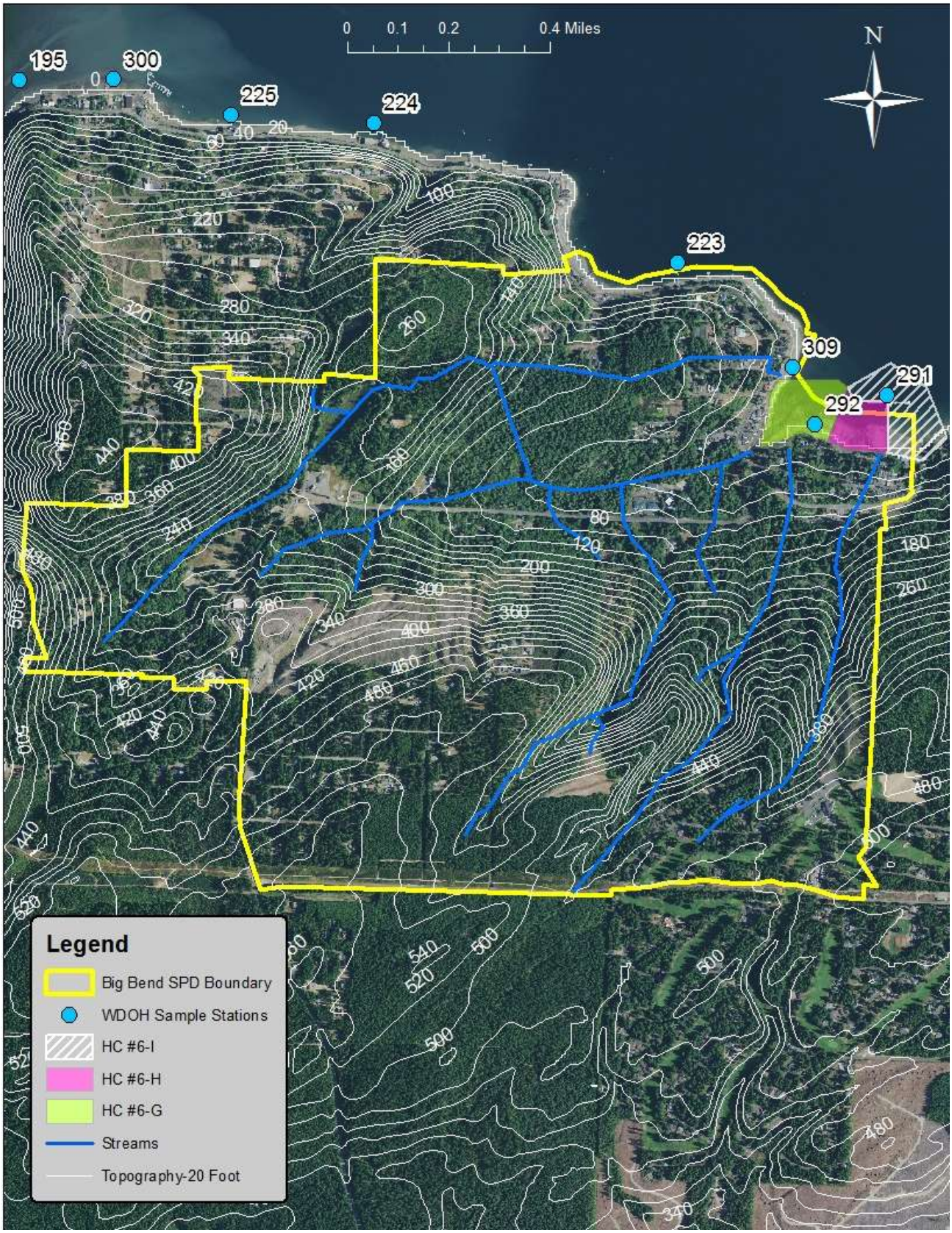

**Note: The SPD boundary lines were determined based on survey information from WDOH and from mapping the drainages that have a hydrologic connection to Station 292.**

**Map 2 – Big Bend Bathymetry – 10 ft contour intervals**



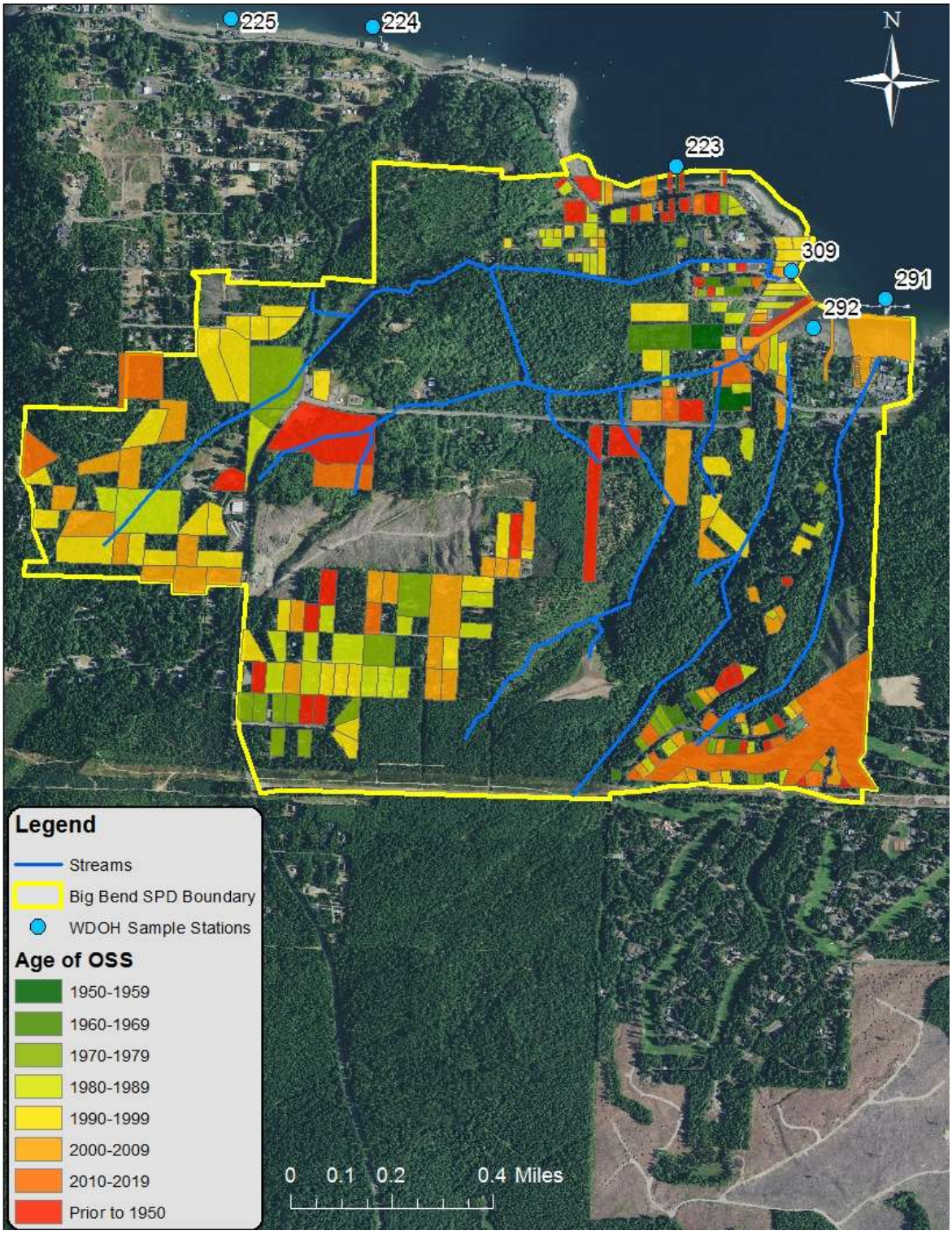

**Note: Bathymetry ranges from sea level to a depth of 150 ft offshore of Station 292.**

**Map 3 – Big Bend Topography – 20 ft contour intervals**




**Note: Elevation ranges from sea level to 540 ft at the SW corner of the district.**

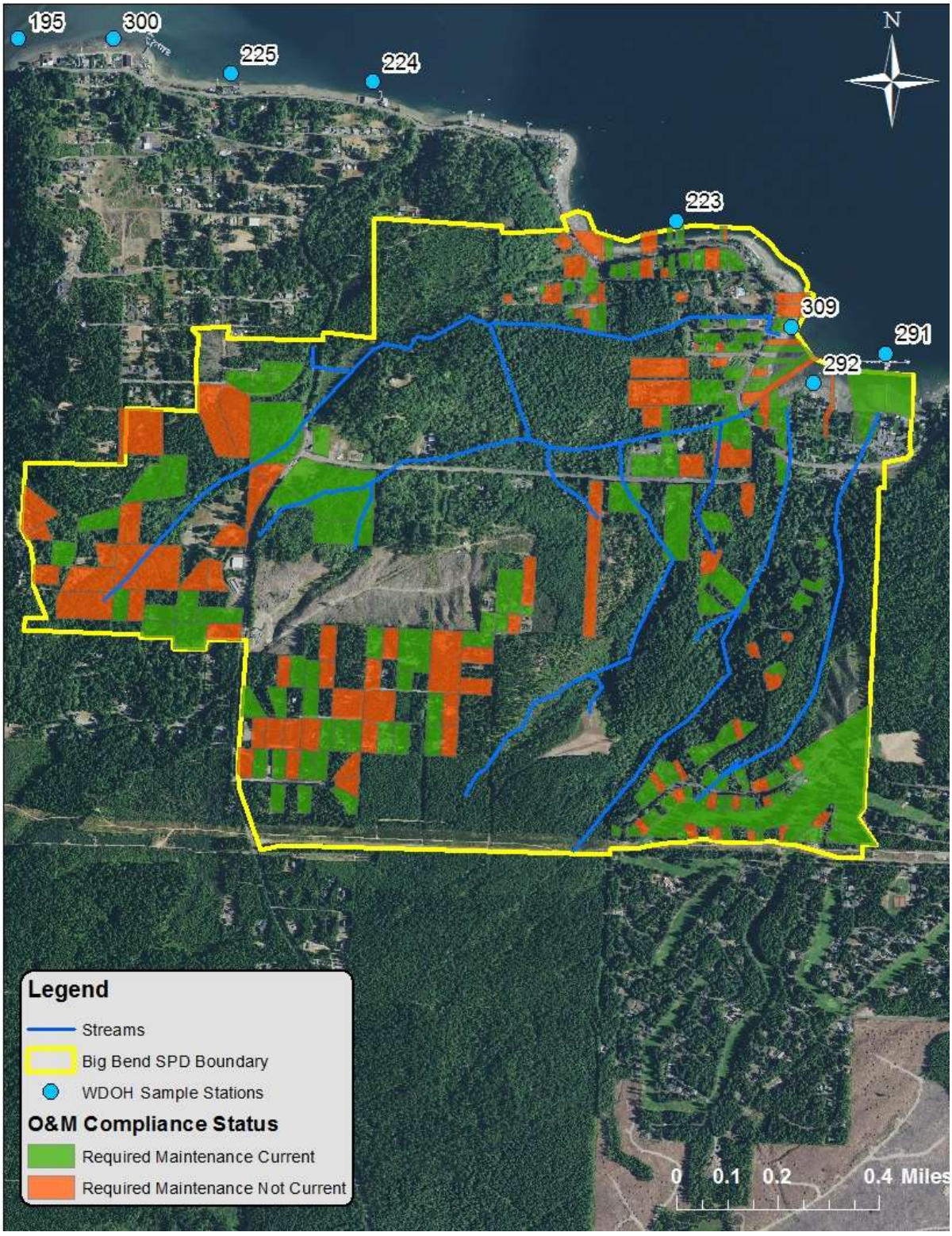
**Map 4 – Big Bend OSS Age**




**Note: The figure above was created from a 4/4/2017 O&M database report.**

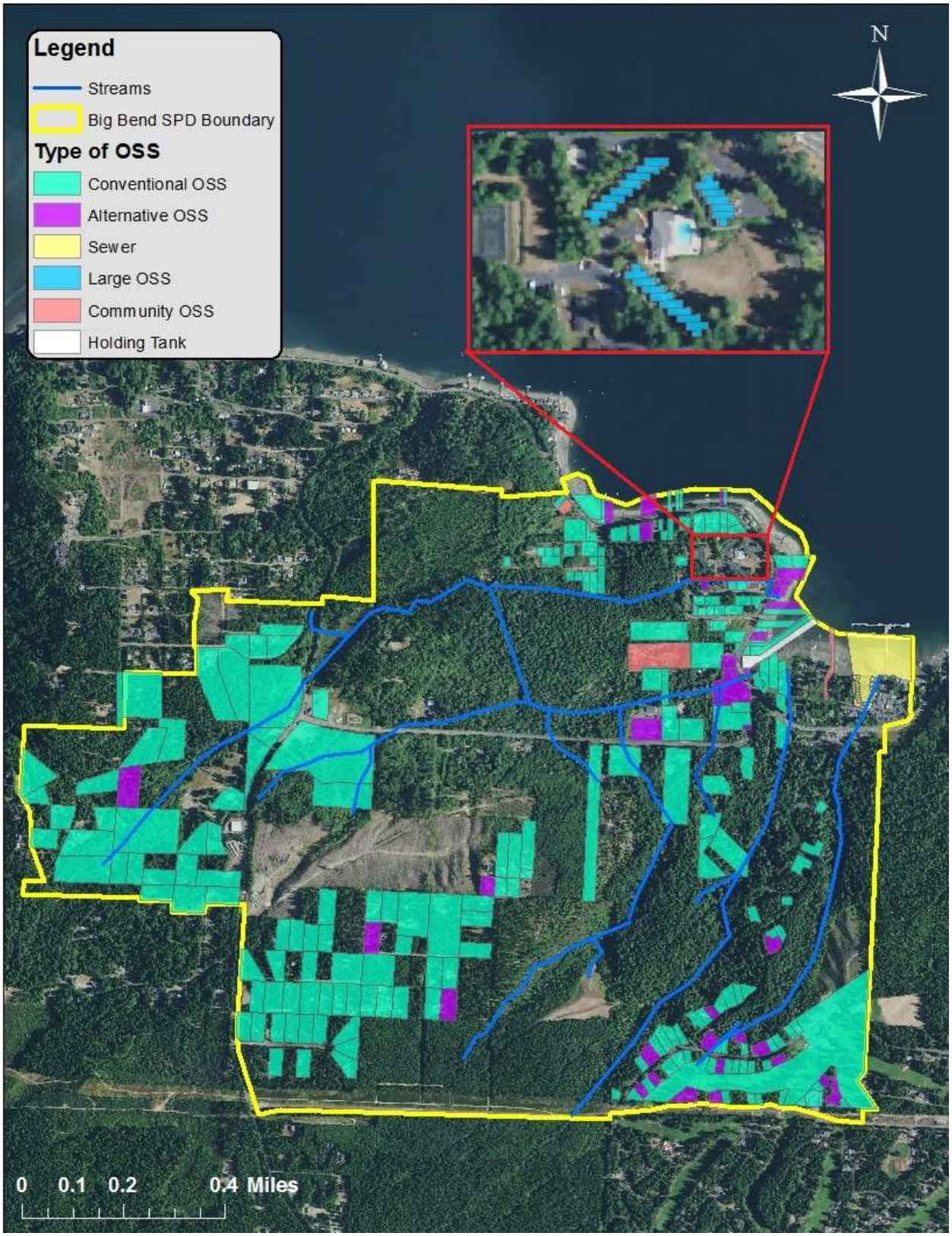
| 2010-2019 | 2000 - 2009 | 1990 - 1999 | 1980 - 1989 | 1970 - 1979 | 1960 - 1969 | 1950 - 1959 | Prior to 1950 |
|---|---|---|---|---|---|---|---|
| 19% | 26% | 18% | 15% | 17% | 4% | 1% | 13% |

**Map 5: Big Bend OSS O&M Status**




**Note: The figure above was created from a 4/4/2017 O&M database report. The schedule, as well as who is authorized to inspect the OSS, is contingent on the type of system.**

**Map 6: Big Bend OSS Type**




**Note: The figure above was created from a 4/4/2017 O&M database report. Conventional OSS's are comprised of a tank and drainfield and often a pressure tank and relies on the availability of soil**

**for effluent treatment. Alternative OSS's are lacking sufficient soil for effluent treatment and must include alternative treatment methods. Community OSS's are individual septic tanks and a shared drainfield. Holding tanks are septic tanks with no drainfield and must be pumped as needed. Large OSS's have individual tanks and a shared drainfield that services over 3,500 gal/day. Large OSSs are regulated by WDOH. The Alderbook Resort & Spa sewer is a private but is regulated by ECY.**

## Appendix B: Tables and Figures

**Table 1: OSS Maintenance Schedule**

| **Septic System Types** | | | | | | |
|---|---|---|---|---|---|---|
| Conventional Gravity | Conventional Pressure & Open Bottom Sand Filter | Mound & Sandfilter | ATU, Glendon, Recirculating Gravel Filter, Sub Surf. Drip & Community Drainfield | Non-Residential & Commercial | Large OSS | Sewer |
| **Inspection Frequency** | | | | | | |
| Every 3 years | Annually | Annually | Annually | Annually, Testing may be required | Annually, Testing may be required | Annually, Testing may be required |
| **Approved Service Providers** | | | | | | |
| Homeowner, Pumper, O&M Specialist | Homeowner, Pumper, O&M Specialist | Homeowner, O&M Specialist | O&M Specialist, Proprietary Device Licensee | O&M Specialist | WDOH | ECY |

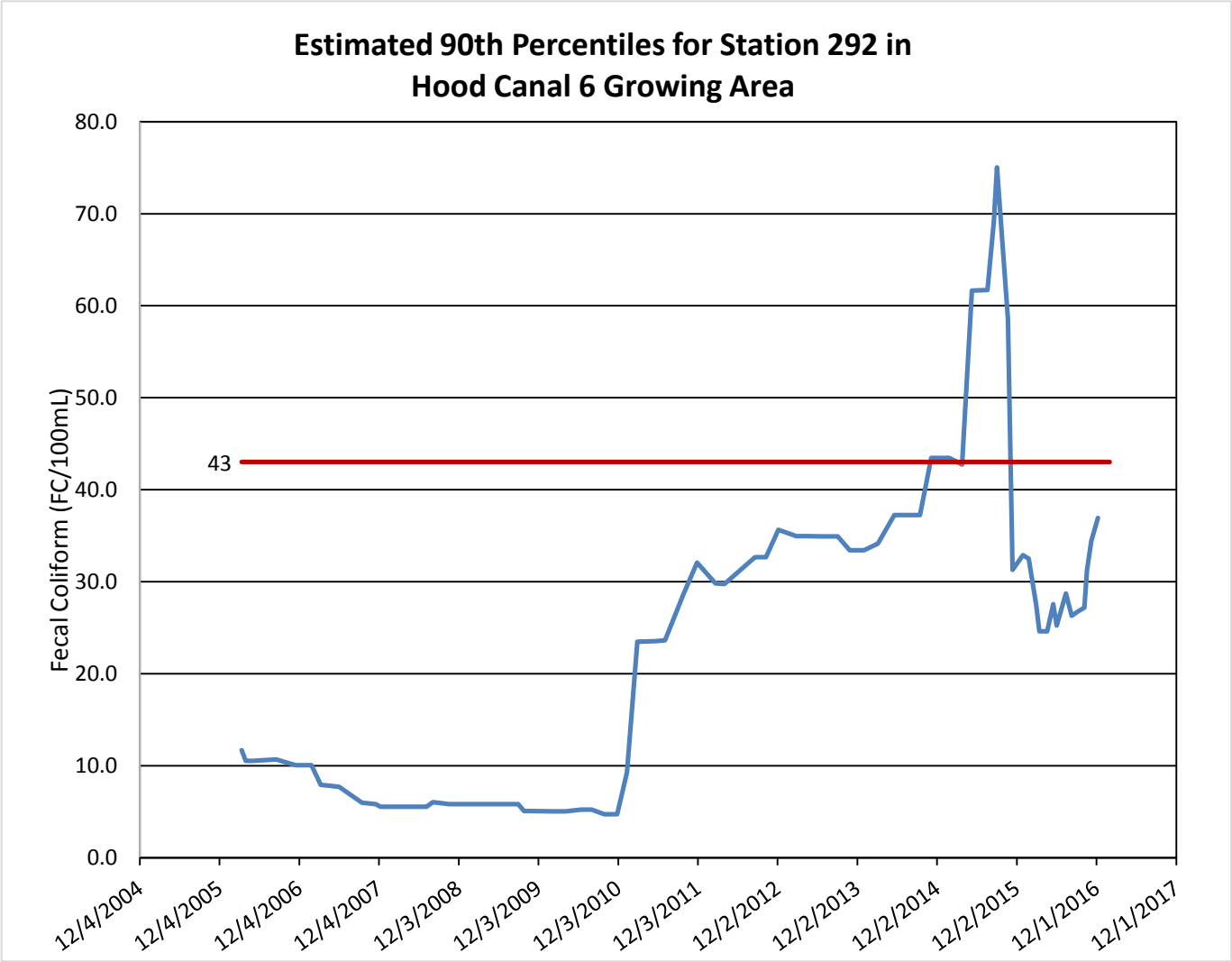
**Table 2: Station 292 Historical Data**

**WDOH Marine Water Quality Summary**
**Growing Area: Hood Canal #6**

**Station: 292** **Classification: *Conditionally Approved*** **Method: SRS**
**Total Samples: 30** **Date Range: 01/02/2014 – 01/12/2017**
**Range (FC/100 mL): 1.7-350.0** **E90th (FC/100 mL): 37.2**
**Geometric Mean (FC/100 mL) 6.3** **Meets Standards: Y**

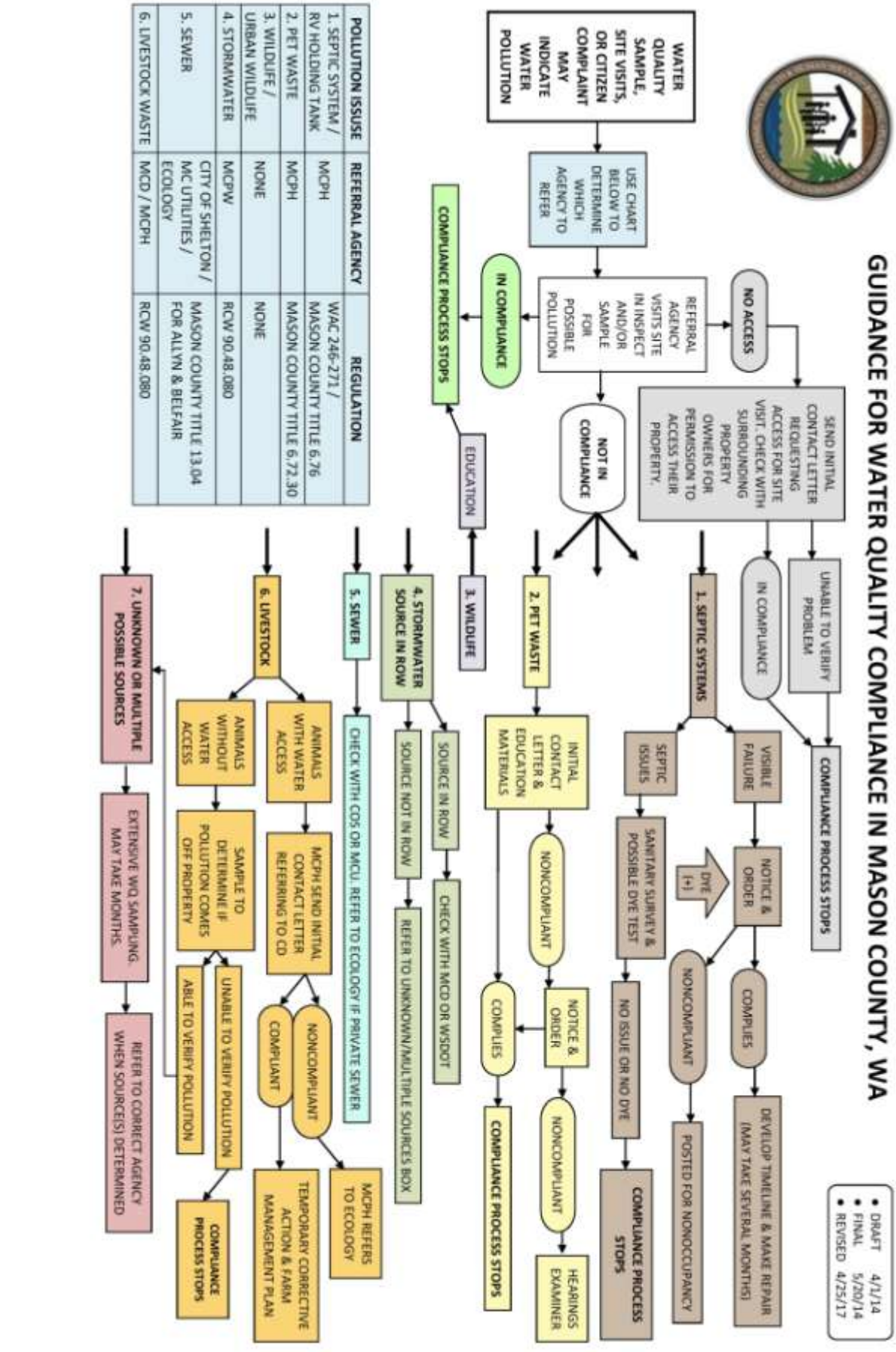
| Sample Date | Event Type | Time | Tide | SWT | Salinity | Fecal Coliform | Rainfall | Classification |
|---|---|---|---|---|---|---|---|---|
| 01/02/2014 | Regulatory | 10:33 | Ebb | 9 | 22 | 2 | 0.04 | Approved |
| 03/06/2014 | Regulatory | 11:02 | Ebb | 9 | 14 | 4.5 | 1.31 | Approved |
| 05/20/2014 | Regulatory | 11:06 | Ebb | 16 | 13 | 17 | 0 | Approved |
| 06/09/2014 | Regulatory | 14:31 | Flood | 19 | 20 | 1.7 | 0 | Approved |
| 07/22/2014 | Regulatory | 12:56 | Flood | 18 | 20 | 1.7 | 0 | Approved |
| 09/15/2014 | Regulatory | 09:31 | Flood | 15 | 18 | 2 | 0 | Approved |
| 11/05/2014 | Regulatory | 10:35 | Flood | 11 | 5 | 49 | 0.02 | Approved |
| 01/27/2015 | Regulatory | 09:44 | Flood | 10 | 14 | 1.7 | 0 | Approved |
| 03/26/2015 | Regulatory | 11:34 | Ebb | 11 | 20 | 1.8 | 0.42 | Approved |
| 05/11/2015 | Regulatory | 13:08 | Ebb | 15 | 11 | 350 | 0 | Approved |
| 07/21/2015 | Regulatory | 11:31 | Ebb | 19 | 28 | 2 | 0 | Approved |
| 08/19/2015 | Regulatory | 10:56 | Ebb | 20 | 15 | 33 | 0 | Approved |
| 09/02/2015 | Regulatory | 10:44 | Ebb | 14 | 25 | 23 | 0.32 | Approved |
| 10/22/2015 | Regulatory | 13:15 | Flood | 13 | 13 | 4.5 | 0.03 | Conditionally Approved |
| 11/12/2015 | Regulatory | 09:29 | Ebb | 11 | 8 | 6.8 | 0 | Conditionally Approved |
| 12/30/2015 | Regulatory | 11:03 | Ebb | 5 | 10 | 11 | 0 | Conditionally Approved |
| 01/25/2016 | Regulatory | 12:11 | Ebb | 8 | 5 | 2 | 0 | Conditionally Approved |
| 02/29/2016 | Regulatory | 10:40 | Ebb | 10 | 14 | 2 | 0.59 | Conditionally Approved |
| 03/15/2016 | Regulatory | 12:23 | Ebb | 9 | 15 | 1.7 | 0.54 | Conditionally Approved |
| 04/19/2016 | Regulatory | 14:25 | Flood | 17 | 17 | 1.8 | 0 | Conditionally Approved |
| 05/17/2016 | Regulatory | 11:36 | Flood | 17 | 9 | 23 | 0 | Conditionally Approved |
| 06/01/2016 | Regulatory | 13:17 | Flood | 19 | 18 | 2 | 0 | Conditionally Approved |
| 07/14/2016 | Regulatory | 11:21 | Flood | 18 | 17 | 33 | 0 | Conditionally Approved |
| 08/09/2016 | Regulatory | 10:43 | Flood | 18 | 25 | 2 | 0 | Conditionally Approved |
| 09/07/2016 | Regulatory | 12:23 | Ebb | 16 | 20 | 4.5 | 0 | Conditionally Approved |
| 10/06/2016 | Regulatory | 11:09 | Ebb | 14 | 20 | 4.5 | 0.05 | Conditionally Approved |
| 10/18/2016 | Regulatory | 10:34 | Ebb | 12 | 12 | 33 | **0.77** | Conditionally Approved |
| 11/07/2016 | Regulatory | 11:18 | Ebb | 12 | 3 | 23 | 0.48 | Conditionally Approved |
| 12/08/2016 | Regulatory | 11:04 | Flood | 4 | 7 | 17 | 0 | Conditionally Approved |
| 01/12/2017 | Regulatory | 13:08 | Flood | 7 | 0 | 4.5 | 0 | Conditionally Approved |

**Figure 1: Rolling Estimated 90th Percentile of Marine Station 292 from 2005-2017**




**Note: The above graph shows the water quality at Station 292 compared to the NSSP Limit of 43 FC/100 mL from 2004-present. The calculation is "rolling" because it is based off of the most current, 30 samples (See Table 2). An estimated 90th percentile is used instead of an average because it is a statistical calculation that doesn't hide or is skewed by outliers while still maintaining the original population of events.**

**Figure 2. Guidance for Water Quality Compliance in Mason County**




| POLLUTION ISSUSE | REFERRAL AGENCY | REGULATION |
|---|---|---|
| 1. SEPTIC SYSTEM / RV HOLDING TANK | MCPH | WAC 246-271 / MASON COUNTY TITLE 6.76 |
| 2. PET WASTE | MCPH | MASON COUNTY TITLE 6.72.30 |
| 3. WILDLIFE / URBAN WILDLIFE | NONE | NONE |
| 4. STORMWATER | MCPW | RCW 90.48.080 |
| 5. SEWER | CITY OF SHELTON / MC UTILITIES / ECOLOGY | MASON COUNTY TITLE 13.04 FOR ALLYN & BELFAIR |
| 6. LIVESTOCK WASTE | MCD / MCPH | RCW 90.48.080 |

## Appendix C: Work Plan Matrix

| Task | Subtasks | Lead group/agency | Participating groups/agencies | Deliverable | Progress | Due date | Date completed | Comments |
|---|---|---|---|---|---|---|---|---|
| **1. Identify accountable agencies and create a SPD advisory team** | **1.1** Identify stakeholders for initial meeting | MCPH | | List of stakeholders | Completed | 11/15/2015 | 2/1/2016 | |
| | **1.2** Set date for first meeting | MCPH | | Meeting date | Completed | | 3/3/2016 | |
| | **1.3** Agree upon representation | MCPH | Advisory committee | Description of representation | Completed | | 3/3/2016 | |
| | **1.4** Create membership list | MCPH | | Membership list | Completed | | 3/3/2016 | |
| **2. Identify the boundaries of the Big Bend SPD, create map** | **2.1** Identify drainage area | MCPH | Advisory Committee | Boundary area | Completed | 11/15/2015 | 3/3/2017 | Completed |
| | **2.2** Take map to Commission for adoption | MCPH | | map | Completed | | 2/16/2016 | Completed |
| **3. Create a Draft Closure Response Plan** | **3.1** Create first draft | MCPH | | Draft Plan | Completed | 2/16/2016 | | |
| | **3.2** Review and revise drafts with Advisory Committee Meeting | MCPH | Advisory Committee | | On-going at SPD meetings | | | |
| | **3.3** Bring draft to vote, approve final version | MCPH | Advisory Committee | | | 5/1/2017 | | |
| | **3.4** Take final version to Commissioners | MCPH | | | | | | |

| Task | Subtasks | Lead group/agency | Participating groups/agencies | Deliverable | Progress | Due date | Date completed | Comments |
|---|---|---|---|---|---|---|---|---|
| **4. Ordinance creating SPD adopted by Commissioners** | Take draft ordinance to commissioners for approval | MCPH | | | Completed | 12/1/2015 | Passed 2/9/16 | |
| **5. Monitor Big Bend** | **5.1** WDOH will collect marine samples monthly | WDOH | | Data set | Ongoing | 10/30/2017 | | WDOH will notify MCPH when sample results are greater than 100 FC/ 100 mL |
| | **5.2** Mason County will sample Big Bend, Dalby and Alderbrook Ridge Creeks in coordination with WDOH marine sampling during dry season | MCPH | WDOH | Data set | Starting May 2017 | 10/30/2017 | | Funding from this project will be released after SPD plan is approved. Includes bracket sampling, rainfall events, and peak use sampling |
| | **5.3** Mason County will sample bulkhead and shoreline seeps | MCPH | | Data set | Starting May 2017 | 10/30/2017 | | Will use 2016 data for prioritizing monitoring and collect a minimum of 3 samples per site for dry season |
| | **5.4** WDOH assess the feasibility of installing a Hood Canal based rain gauge | WDOH | | Feasibility Report | | 10/30/2017 | | |
| **6. Identify Agricultural sites, referral to MCD for correction** | **6.1** Financing to MCD for conservation plans | MCPH | MCD | Number plans implemented with funding | | 10/30/2017 | | |

| Task | Subtasks | Lead group/agency | Participating groups/agencies | Deliverable | Progress | Due date | Date completed | Comments |
|---|---|---|---|---|---|---|---|---|
| | **6.2** Reporting | MCD | | a) Number of farm plans and conservation plans implemented through referrals<br><br>b) Number of BMP installed | | 10/30/2017 | | Conservation plans information can be shared. Farm plans are confidential |
| | **6.3** Post correction sampling after installed BMPs | MCPH | | Data set | | 10/30/2017 | | |
| | **6.4** Farm inventory | MCPH | MCD | Data set of number of parcels with presence and type of agricultural activity | | 10/30/2017 | | |
| **7. Monitor Individual On-site sewage systems** | **7.1** Mailings | MCPH | | Number of mailings | Summer 2017 | 10/1/2017 | | Mailing can include O&M reminders, educational materials or events and will prioritize OSS with out of date/no service and shoreline and stream parcels |
| | **7.2** Incentives | MCPH | | Number of rebates used | Summer 2017 | 10/1/2017 | | MCPH will offer a $200 rebate for O&M or pumping and a second $200 for installing risers or filters |

| Task | Subtasks | Lead group/agency | Participating groups/agencies | Deliverable | Progress | Due Date | Date completed | Comments |
|---|---|---|---|---|---|---|---|---|
| | **7.3** Create current (less than 2 years old) evaluations /surveys of all shoreline and Big Bend Creek OSS parcels in SPD and dye tests as needed | MCPH | | a) Number of parcel Evaluations<br><br>b) Number of dye tests | Summer 2017 | 10/1/2017 | | Identifying: system uses, land use, OSS age, compliance, presence of sani-cans, etc. |
| | **7.4** As-built creation | MCPH | | Number of after-the-fact as-built submitted | Summer 2017 | 10/1/2017 | | |
| | **7.5** Post correction sampling | MCPH | | Data set | Summer 2017 | 10/1/2017 | | |
| **8. Education** | MCPH will participate in 2 educational events in the SPD. Sea Grant and WSU will participate as their schedule allows | MCPH | Sea Grant/WSU | Number of events MCPH, Sea Grant, and WSU participated in | | 10/30/2017 | | O&M classes, shoreline living classes, educational booths, etc. Sea Grant and WSU schedule not available at this time |
| **9. Identify other non-point water quality contamination sources. Develop strategies to correct** | **9.1** MCPH will coordinate with Mason County Public Works and WA DOT on stormwater improvement projects and historical data | MCPH/MCPW /WSDOT | | a) Number of non-point pollution issues referred to MCPW and WSDOT<br><br>a) Report on stormwater efforts by MCPW and WSDOT | | 10/30/2017 | | |

| Task | Subtasks | Lead group/agency | Participating groups/agencies | Deliverable | Progress | Due date | Date completed | Comments |
|---|---|---|---|---|---|---|---|---|
| | **9.2** MCPH will offer up to 10 pet waste stations to SPD | MCPH | | Number of pet waste stations installed | | 10/30/2017 | | Offer will extend to businesses, HOA, etc. |
| | **9.3** MCPH will inventory wildlife sighted | MCPH | Sea Grant | | | 10/30/2017 | | Sea Grant will provide MCPH with seal and bird inventories |
| **10. Enforcement** | **10.1** Onsite and Non-point pollution enforcement | MCPH | ECY | a) Number of ECY enforcement cases<br>b)Number of houses posted for non-occupancy by MCPH | | 10/30/2017 | | MCPH will enforce on-site regulations and ECY will enforce non-point source pollution |
| | **10.2** LOSS enforcement | WDOH | | Number of enforcement cases | | | | |
| | **10.3** Sewer enforcement | ECY | | Number of enforcement cases | | | | |