Henderson Inlet Closure Response Plan

March 2019 – December 2020

Prepared by the Nisqually Reach and Henderson Inlet Shellfish Protection District Combined Stakeholder Advisory Committee

for the Thurston County Board of Commissioners & Washington State Department of Health

"When the native Olympia oyster all but disappeared, a victim of overharvesting and water pollution, immigrants from Japan came to the rescue…Masahide Yamashita, who came to the United States in 1902 at the age of 19, played a pivotal role in establishing the Pacific oyster in Washington in the 1930s. He found ways to shorten the oysters' journey from Japan and formed a cooperative of Japanese growers that set a consistent price. "It pulled people out of poverty," Solomon said. "He was considered a hero in Japan."

In the United States, though, Yamashita faced discrimination. Under the Asian Exclusion Act of 1924, he was denied citizenship. When World War II broke out, he was confined to an internment camp. At first, Jerry Yamashita and the rest of the family tried to maintain the business. When he tried to stop a man from stealing oysters, Yamashita says in the film, '*Ebb and Flow*', "He said, 'You won't be around much longer, anyway.' It was a sad time."

That was true. The entire family was confined for several years in a camp in Tule Lake, California, and had to struggle to rebuild the oyster business after the war. It was then that the oysters, formerly known as Japanese oysters, were renamed Pacific oysters. By whatever name, they've been a success. They're the most widely cultivated oysters in Washington and along the West Coast, according to the Pacific Shellfish Institute.

They're also regarded as the most delicious.

In the film, Elliott Bay Oyster House executive chef Robert Spaulding describes tasting oysters from all over the country at a festival in Alabama. "Everybody there — chefs, food writers, food critics — was in agreement that the Pacific oyster was by far the best," he said. "Just amazing oysters."

Although introducing a nonnative species isn't considered an environmentally friendly choice, the Pacific oyster has helped the environment by cleaning Puget Sound. Oysters filter water as they feed, and each can clean up to 50 gallons a day. These days, the shells of Pacific oysters are being used in efforts to restore the native Olympia oyster. The shells provide a sturdy structure on which the larvae of the smaller and more fragile Olympia oysters can grow. "It's unheard of for a nonnative species to help in the recovery of a native species," Solomon said.

"This is an immigrant family that helped to build America and an immigrant oyster that's helping in recovery efforts," she said."

-Molly Gilmore, *The Olympian*, March 23, 2017

-Cover photo courtesy of the Nisqually Indian Tribe

Did you know that other Shellfish Protection Districts look to Thurston County Districts as a model for community-minded stewardship? The most successful strategies for shellfish protection seem to focus on community buy-in, and other WA counties look to Thurston as a model.

Thurston County Board of Commissioners

John Hutchings	Gary Edwards	Tye Menser
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Nisqually Reach and Henderson Inlet Shellfish Protection Districts
Combined Stakeholder Advisory Committee

Members	Representing
Tris Carlson, Chair	Nisqually Reach, Shellfish Industry
Mary Catherine McAleer	Henderson Inlet Resident
Margaret Homerding	Nisqually Indian Tribe
Emily Watts	City of Lacey
Allison Osterberg	SPD Advisory Committee Coordinator, Thurston County
Amber Fisher	Shellfish Protection District Intern

Agency Guests	Representing
Jean Frost, Dave Kangiser	Washington State Department of Health
Donovan Gray, Ruth Piccone	Washington State Department of Ecology
Sarah Moorehead	Thurston Conservation District
Jane Mountjoy-Venning, Art Starry	Thurston County Environmental Health

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Nisqually Reach and Henderson Inlet Shellfish Protection Districts

Addendum | March 2019 | Henderson Inlet Closure Response Plan

Approved June 25, 2019 by the Thurston County Board of County Commissioners

APPENDICES

BACKGROUND

Purpose of this Plan

In the event of water quality degradation due to ongoing nonpoint sources of pollution or downgrade in the classification of a recreation or commercial shellfish growing area, RCW 90.72.045 requires the county legislative authority shall initiate the implementation of a shellfish protection program or "Closure Response Plan."

In May 2018, approximately 30 acres of Henderson Inlet Growing Area were reclassified from Approved to Restricted. The 2018 Henderson Inlet Annual Report identified Marine Water Station 189 as failing the National Shellfish Sanitation Program (NSSP) water quality standard for an Approved classification with an estimated 90th percentile of 61.1 FC/100mL. In addition, marine water stations 187, 190, 195, and 197 have an estimated 90th percentiles greater than 29 FC/100 mL, identifying them as "Threatened" according to the DOH's Shellfish Early Warning System. Data from Appendix A shows fecal coliform levels have been steadily increasing at marine water stations 189, 190, 195, and 197 since early 2016.

As a result, this Henderson Inlet Closure Response Plan was developed by the Nisqually Reach and Henderson Inlet Shellfish Protection Districts Combined Stakeholder Advisory Committee. This committee is made up of stakeholders within the district including residents, shellfish industry representatives, the Nisqually Tribe and the City of Lacey in cooperation with the Washington State Department of Health (DOH), Washington State Department of Ecology (Ecology), Thurston Conservation District (TCD), and Thurston County Environmental Health (TCEH). This plan is a working document intended to focus on restoring and protecting water quality in Henderson Inlet and the recently downgraded area.

The Henderson Inlet downgrade is an immediate problem. The holistic nature of environmental remediation means that the Shellfish Protection District and its partners will abide by this plan addendum for the immediate two years; over which investigation will direct long-term remediation activity.

Our Shellfish Protection District

The Nisqually Reach and Henderson Inlet Shellfish Protection District (SPD) Combined Stakeholder Advisory Committee is a collection of shellfish growers, local governments, tribal governments and state governments singularly focused on the environmental heath, economic productivity, and community impact of every shellfish bed along Nisqually Reach and Henderson Inlet.

In 2001, the Henderson and Nisqually Reach Shellfish Protection Districts were formed and shortly thereafter community advisory committees were appointed. Work done in the areas to restore clean water has been guided by the Shellfish Protection District Advisory Committee's recommendations. Thousands of samples have been analyzed to rule out various non-point source pollutants, and remediation activities conducted amongst SPD partners have been successful in reducing overall pollution sources to Henderson Inlet. The City of Lacey has implemented many stormwater treatment improvements and a series of reclamation projects, Thurston County Public Health and Social Services implemented a septic operations and maintenance program that finds failing and deficient septic systems and ensures they are repaired, livestock and pet owners have changed manure management practices, and Woodland Creek Estates converted from inadequate septic systems to sewer to prevent pollution.

It may seem that we deal only in shorelines, but our work impacts every portion of Thurston County's economic sector. We use Thurston Conservation District assessments, stormwater charges, septic system rates and charges, and grants to help residents monitor and maintain their septic systems and to identify and replace failing septic systems to maintain our shellfish beds. The SPD makes recommendations to funding bodies regarding how their programs will align with SPD implementation plans. The same funds assist agency scientists in

monitoring tidelands' water quality, and our governments in coordinating with upstream stormwater testing. Our shellfish growers and harvesters employ hundreds locally to market our prized shellfish toward Olympia tourism and global export. The data we collect and the work we do supports Thurston County's economic relevance in local, regional and international business. Most importantly, shellfish aquaculture allows our community to steward a healthy, natural environment that we can all enjoy.

We are public- and private-sector employees, scientists, volunteers, and industry experts. Among us are managers, tidelands owners, planners, communications professionals and concerned citizens of all ages. At our core, we are a team of neighbors and constituents with the vigorous intent to ensure that shellfish thrive along our shorelines; affording all of Thurston County both economic wellbeing and ecological fortitude.

History of Henderson Inlet Classification Changes

Henderson Inlet has experienced water quality upgrades and downgrades in recent history. After a series of shellfish area closures between 1984 and 2005, southern Henderson Inlet saw water quality improvements that led to the reopening of more than 300 acres of commercial shellfish harvest areas between 2010 and 2015. Since early 2016, water quality has steadily degraded to now include a "Restricted" area along the eastern side of Henderson Inlet between water quality stations 189 and 190. The individual station data (Appendix B) shows that Marine Water Station 189 fails the NSSP water quality standard for an "Approved" classification with an estimated 90th percentile of 61.1 Fecal Coliform /100mL (approved is 43/100 ml). In addition, marine water stations 187, 190, 195 and 197 have estimated 90th percentiles greater than 29 FC/100mL, identifying them as "Threatened" according to DOH's Shellfish Early Warning System. Appendix B also shows fecal coliform levels have been steadily increasing at marine water stations 189, 190, 195 and 197 since early 2016. Stations 188 and 212 in the "Prohibited" area have consistently failed to meet the estimated 90th percentile, while stations 185 and 186 in the "Prohibited" area have consistently failed to meet both the estimated 90th percentile as well as the geometric mean of 14 FC/100mL.

DOH staff evaluated environmental conditions (rainfall and the seasonality of elevated bacteria levels) that potentially impact the Henderson Inlet Growing Area. In a few cases, elevated fecal coliform samples at Marine Water Station 189 are associated with rainfall events, such as March 3, 2016 and November 6, 2017 when 1.68 inches and 0.62 inch of precipitation were recorded in the 24 hours prior to sampling, respectively. In other cases, such as June 9, 2016 and July 13, 2018, elevated fecal coliform levels were measured, and no precipitation fell prior to sampling. The evaluation showed no pattern of elevated fecal coliform levels related to a predictable environmental condition.

Challenges to Maintaining Water Quality

Overall, water quality has been improving in Henderson Inlet since the early 2000s, but the recent downgrade highlights the need to maintain focus on potential sources of pollution, including those that have been addressed in the past and those that affect the specific areas identified in the latest downgrade.

Henderson Inlet Circulation

DOH conducted a hydrographic study during 1999-2000 to better understand the circulation patterns in the southern portion of the Henderson Inlet growing area. The study found that the main pathway of Woodland Creek in the southern portion of Henderson Inlet, during ebb tide, lies along the eastern shoreline near marine water stations 188 and 189. Woodland Creek is the largest potential pollution source in the southern portion of the growing area. Due to the circulation pattern and potential pollution sources, elevated bacteria levels are occurring along the eastern shoreline at Marine Water Stations 188 and 189 versus Marine Water Station 187, which is further south and along the western shoreline.

Drainages, Shoreline Discharges, Freshwater Quality

In 2007, DOH identified 78 drainage/discharge points throughout Henderson Inlet (Determan, 2011). Ecology's 2017 *TMDL Water Quality Effectiveness Monitoring Report* found that bacteria levels have declined in freshwater sources across the watershed overall, but identified two small streams where bacteria levels have been increasing over time: Dobbs Creek and Fleming Creek. In addition, that same report identified an ongoing pollution source at a stormwater discharge from Interstate-5 to Woodland Creek. In 2018, DOH completed an updated Shoreline Survey of Henderson Inlet – the results of this survey may identify additional areas of concern.

Urban Growth

Thurston County is one of the fastest growing areas of Washington State, projected to grow by more than 100,000 new residents between 2017 and 2040. The headwaters of the two largest freshwater sources to Henderson Inlet are in highly urbanized areas within the cities of Lacey and Olympia. Thurston County's expected population growth creates several challenges including long-term maintenance of stormwater infrastructure, failing septic systems, and pet waste. Although stormwater treatment facilities and education programs implemented in both Lacey and Thurston County have greatly reduced the contaminants that enter Henderson Inlet, runoff from urban stormwater is an ongoing issue. For these investments to remain effective, stormwater facilities will need to be regularly maintained, and outreach programs should continue to educate new residents and remind the existing population of best practices for maintaining clean water. Some older developments within the urban areas were constructed with septic systems that need regular maintenance and can fail over time – as these areas continue to develop at greater densities, incentive programs and outreach can help to encourage homeowners with septic systems to connect to a public sewer.

Rural Areas

Residential development in rural areas typically relies on an on-site septic system to manage waste. The existing septic operation and maintenance program managed by Thurston County has dramatically reduced the number of failing systems throughout the watershed, but ongoing maintenance and repairs to older systems are necessary to catch septic failures before they affect water quality. Older development that was permitted under less protective regulations than those that exist for new development can also contribute to water quality issues. A densely developed not-for-profit campground near Dobbs Creek was identified as a potential source of bacteria.

Agricultural Activities

Although generally small in scale, agricultural activities in this watershed continue to pose an issue for maintaining water quality. A Windshield Survey conducted by the Thurston Conservation District in 2006 estimated that there were 156 farms in Henderson Inlet; of those, approximately 17 of have farm plans with TCD. Ecology's 2017 *TMDL Water Quality Effectiveness Monitoring Report* stated that there were several small hobby farms that could be potential sources of pollution, including around the Dobbs Creek drainage.

Boating/Recreation

There has been an increase in the number of people living aboard boats in Henderson Inlet, and waste disposal from those boats could contribute to water quality problems. Enforcement to regulate this issue is a challenge.

Other Potential Sources

Wildlife is a potential concern in the Henderson Inlet area; in particular, racoons in Fleming Creek were identified as a potential source of bacterial pollution by Ecology's *TMDL Water Quality Effectiveness Monitoring Report*. Racoons are an issue because they tend to defecate in the same location. Seal haul outs on log booms are another concern that have been reported north of Station 193. Both types of wildlife activity are cause for concern because they create concentrated areas of waste.

Goals, Objectives and Strategies

Our goal is to take immediate steps to:

- Protect public health
- Reduce water pollution
- Meet state and federal marine water quality standards for commercial shellfish harvesting
- Ensure that marine water quality is maintained

Objective 1.	Plan, Coordinate, and Report
Objective 2.	Monitor Water Quality
Objective 3.	Control Sources (OSS, Agriculture, Stormwater, Point Sources)
Objective 4.	Educate/Conduct Outreach to Stakeholders

STRATEGY 1: PREVENT SOURCES OF WATER POLLUTION

This goal means that the Partners will proactively pursue risk reduction strategies that address potential pollution sources.

STRATEGY 2: IDENTIFY SOURCES OF WATER POLLUTION

The Partners will implement strategies that aid in locating and quantifying existing pollution sources.

STRATEGY 3: CORRECT SOURCES OF WATER POLLUTION

Actions will be taken to rectify pollution sources once they have been found.

Past Successes, Forward Focus

Significant community and individual investment has been made to protect Henderson Inlet. More work remains. The SPD is unsure whether a small number of individual areas in close proximity to the Inlet are significant sources as a result of inadequate human and animal waste containment.

Whereas in past work the SPD has outlined goals such as "land use" and "wildlife," you will find in this plan a narrow, targeted approach toward a strong focus on a few opportunities for remediation and a new, community-minded outreach approach designed to foster a sense of local ownership over our neighborhoods' environmental health.

Now we know what we know: this plan is not a novel formula intended to spend years monitoring the condition of a closed inlet. Our actions table was refined rigorously to define only the actions necessary to scientifically inform the few next steps necessary to remediating Henderson Inlet.

Next Steps

This SPD and its county, tribal and local government partners and residents have implemented effective community-based behavior change and education programs focused on actions residents can take to protect and improve the health of Henderson Inlet. SPD partners have historically drawn funds from 28 percent of the Thurston County Conservation District's property assessment that were set aside in a Shellfish Protection District Fund. In 2018, the Shellfish Protection District Fund was discontinued.

Initial efforts to implement this plan will be funded by National Estuary Program grants and limited Pollution Identification and Correction (PIC) funding included in the Henderson SPD septic system rates and charges. However, to remediate Henderson Inlet's closure, our SPD and its members will need to harness a sustainable source of funding to continue targeting problem pollution and assisting vulnerable neighbors with expensive septic maintenance.

With minimal funding, we plan to begin a community-based grassroots approach around "targeted stewardship." With this approach, we will personally deliver a Henderson Inlet Closure Plan brochure, neighbor letter, best management practices and resources packet. The goal of Targeted Stewardship is to continue the strength of Thurston County's SPDs: foster a sense of community amongst neighbors to lift our environmental sentiment toward a community prerogative.

We have succeeded with these strategies in Henderson Inlet in the past and we believe they will prevail again.

Henderson Inlet Shellfish District Actions & Strategies Table

	Objective & Task	Lead Agency/Partner	Timeline	Funding Source	Priority	Status	Actions/Products/ Outcomes	Comments/Challenges/ Resources Needed
Objective 1.	Plan, Coordinate, Report							
1.A	Update Henderson-Nisqually Implementation Plan	Shellfish Protection District	2020	Thurston Conservation District, Thurston County, NEP	High	Developing strategies	Assess status of 2019-2020 Henderson Plan against current data, and develop new watershed-scale implementation plan	Analyze monitoring data to resulting from this plan to influence 2020 update
1.B	SPD Combined Advisory Committee	All	Began in 2001	Thurston County	Medium	Ongoing	Continue to meet as needed to coordinate on water quality improvement actions	Funding for coordination/facilitation of meetings
1.C	Reinstate devoted funding through Conservation District	TCD, Thurston County	2019	TCD	High	Not started	Work to reestablish agreement for water quality improvement funding through TCD rates and charges	
Objective 2.	Monitor Water Quality							
2.A	Water Quality Investigation of Dobbs Creek	Thurston County Environmental Health	Began Jan 2018, ongoing	NEP, DOH	High	Ongoing	Implementing survey plan as approved by DOH and DOE	Adequate resources through 2019
2.B	Water Quality Investigation of Flemming Creek	Thurston County Environmental Health	Began Jan 2018, ongoing	NEP, DOH	High	Ongoing	Implementing survey plan as approved by DOH and DOE	Adequate resources through 2019
2.C	DOH Sanitary Survey	DOH	ETA 2019	DOH	Medium	Ongoing	Sanitary survey	Identify potential sources of pollution
2.D	DOH Shoreline Surveys & Water	DOH	Began mid	DOH	Medium	Ongoing	Shoreline survey, ongoing water quality testing results	Identify potential sources of pollution

	Objective & Task	Lead Agency/Partner	Timeline	Funding Source	Priority	Status	Actions/Products/ Outcomes	Comments/Challenges/ Resources Needed
	Quality Monitoring		2018, Ongoing					
Objective 3.	Control Sources (OSS, Agriculture, Stormwater, Point Sources)							
3.A	Water Quality Investigation of Pleasant Forest Camping Club	Thurston County Environmental Health	Began mid 2018, ongoing	NEP, DOH	High	Ongoing	Conversion of unpermitted wastewater holding tanks to approved wastewater management system	Lacks funding. Seeking additional funding from NEP for corrective action
3.B	Swayne Road	Thurston County Environmental Health	Began 2016, complete 2018	Thurston Conservation District	High	Complete	Repair of a problematic septic system	Monitoring complete
3.C	Implement Ag BMPS	Thurston County Environmental Health / Thurston Conservation District	Focus on hot spots in 2019	Thurston Conservation District	High	Developing strategies	Better agriculture waste practices/small farm plans Focus proactive outreach in bacterial hot spots (Chicken & Duck farm on South Bay Road); follow-up with previous landowners receiving tech assistance to evaluate implementation effectiveness	Conservation District funding

	Objective & Task	Lead Agency/Partner	Timeline	Funding Source	Priority	Status	Actions/Products/ Outcomes	Comments/Challenges/ Resources Needed
3.D	Thurston County O & M Program	Thurston County Environmental Health	Began 2007, on-going	Henderson Shellfish Protection District rates and charges	High	Ongoing. Program reinstated for 10 years ending 2027.	Onsite monitoring and maintenance of septic systems, education & outreach including homeowner inspection program	Reinstated until 2028. Incentives are based in part on Conservation District assessment. It is unknown if these funds will be available in the future
3.E	Construct Stormwater Retrofit Facilities	Thurston County Stormwater Utility	Began in 2018	Stormwater Utility fees	Medium	Projects are identified on Thurston County Capital Facilities Program	Construct high priority stormwater retrofit projects near Woodard Creek, including improving management of roadside stormwater	Ensuring projects remain a county priority
Objective 4.	Educate/Conduct Outreach to Stakeholders							
4.A	Targeted Stewardship Campaign	Thurston County Environmental Health	2019	NEP, DOH	High	Developing strategies	Identify waterfront and watershed stakeholders. Conduct door to door campaign regarding wildlife, agricultural, septics and pet sources	ID stakeholders Develop handout material

Thurston County

Nisqually Reach and Henderson Inlet Shellfish Protection Districts

March 2019 | Henderson Inlet Closure Response Plan – Appendices

Appendix A: Boundaries | Description of Area

Henderson Inlet is located in South Puget Sound north of Lacey and Olympia. Commercial shellfish growing areas occur throughout most of the Henderson Inlet. **Figures 1 & 2** are maps showing the various classification boundaries established by the Washington State Department of Health (DOH) Office of Environmental Health and Safety. Each of the numbered sites represents a DOH sampling station. Within each classification area is the most recent status as of July 2018. The watershed encompasses about 26,500 acres with several sub-areas, including Henderson, Woodard, and Woodland (**see Figure 2**).

Figure 1

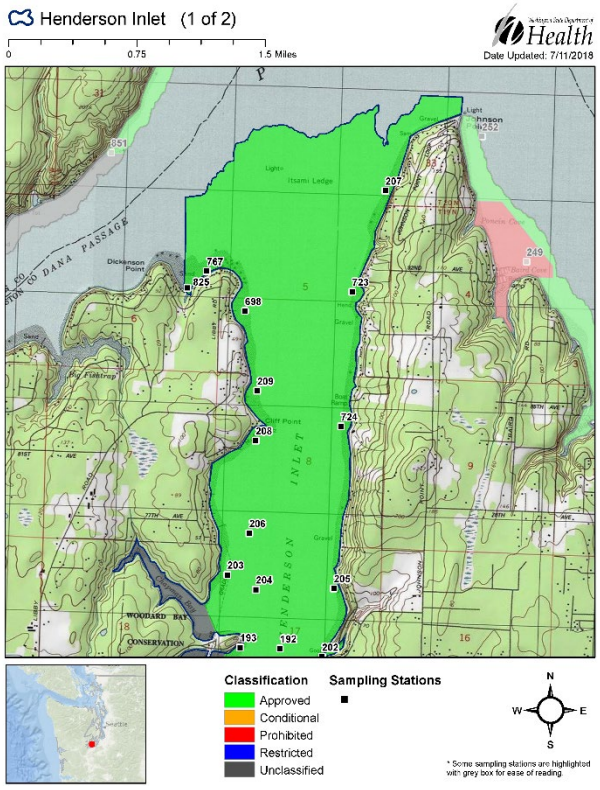
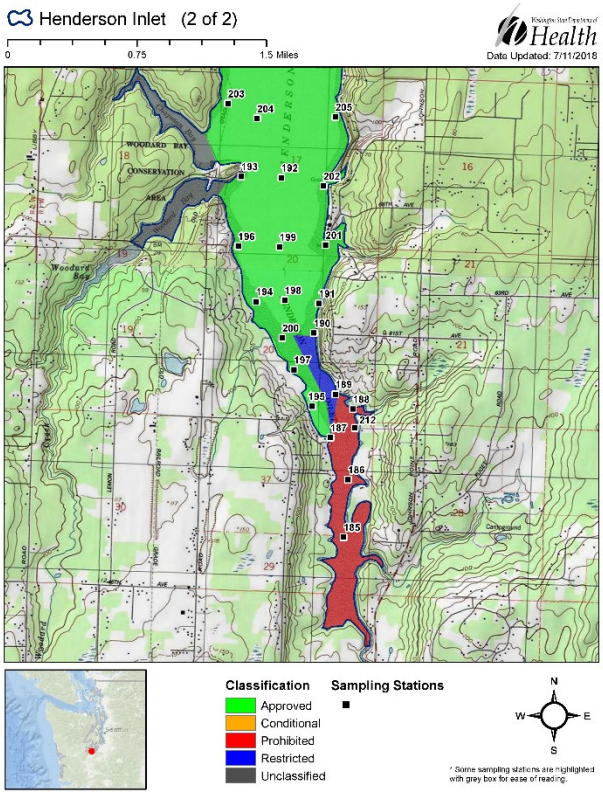
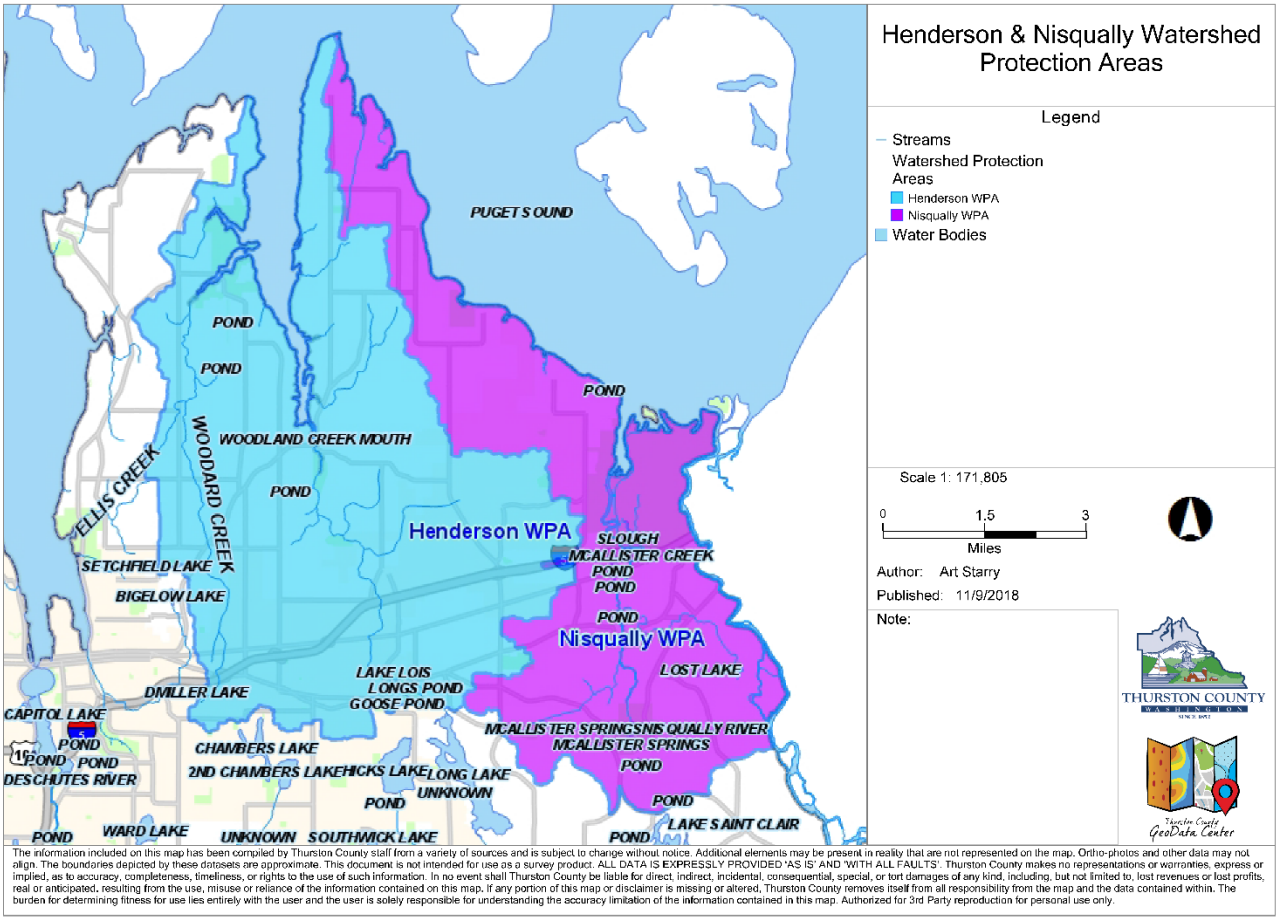


Figure 2



Figure


Henderson & Nisqually Watershed Protection Areas
Legend
Streams
Watershed Protection Areas
Henderson WPA
Nisqually WPA
Water Bodies
Scale 1: 171,805
0
1.5
3
Miles
Author: Art Starry
Published: 11/9/2018
Note:
THURSTON COUNTY
GeoData Center
PUGET SOUND
POND
WOODLAND CREEK MOUTH
ELLIS CREEK
WOODARD CREEK
Henderson WPA
SLOUGH
MCALLISTER CREEK
SETCHFIELD LAKE
BIGELOW LAKE
Nisqually WPA
LOST LAKE
LAKE LOIS
LONGS POND
GOOSE POND
MILLER LAKE
CAPITOL LAKE
MCALLISTER SPRINGSNISQUALLY RIVER
MCALLISTER SPRINGS
CHAMBERS LAKE
2ND CHAMBERS LAKE
HICKS LAKE
LONG LAKE
UNKNOWN
DESCHUTES RIVER
WARD LAKE
UNKNOWN
SOUTHWICK LAKE
LAKE SAINT CLAIR
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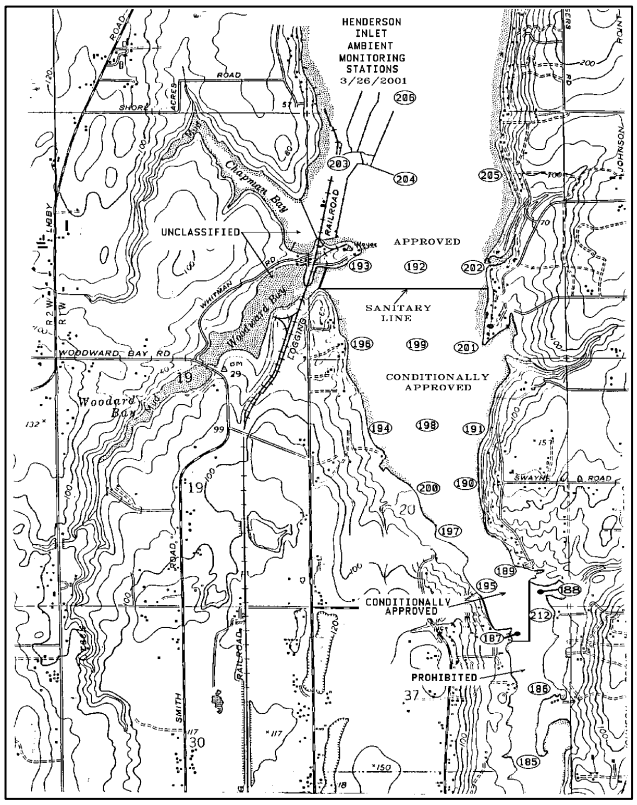
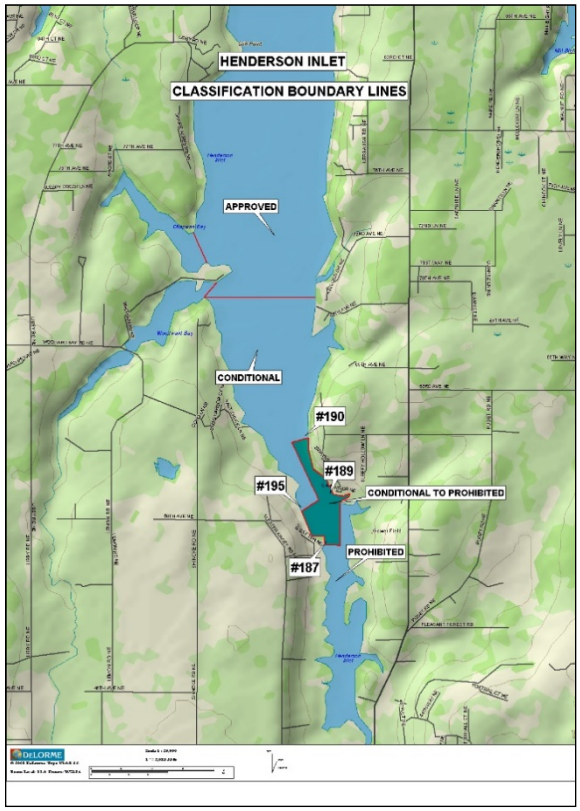
Appendix B: Shellfish Upgrades and Downgrades

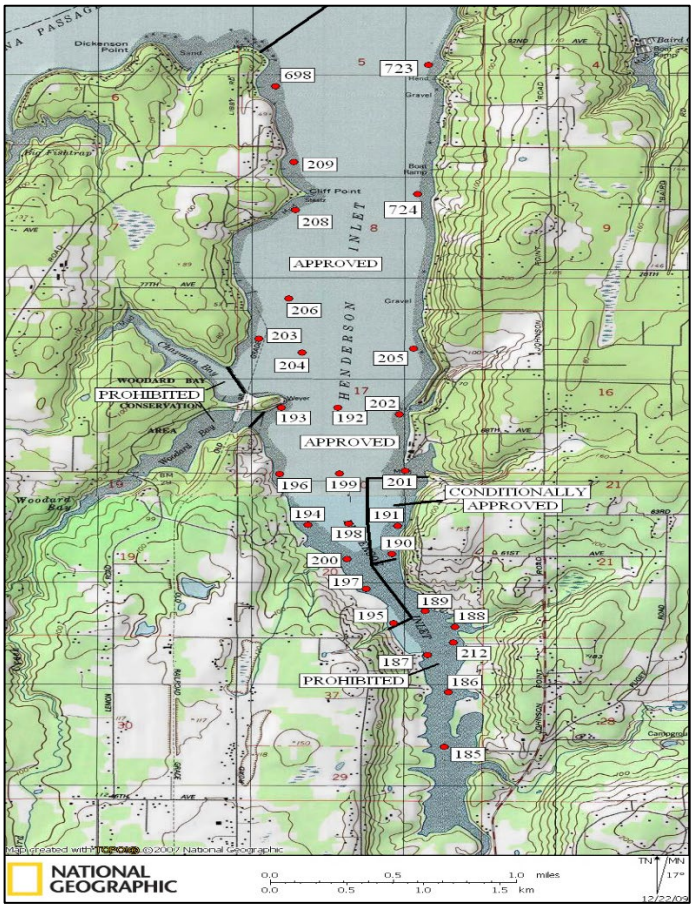
Henderson Inlet has been subject to several downgrades and upgrades over the past 18 years. Through this time period, water monitoring stations 188 and 189 have continuously been subject to bacterial fluctuations but tend to respond positively when efforts are made to improve water quality near those stations. Based on past accomplishments, continued efforts in Henderson Inlet to improve On Site Septic Operations and Maintenance as well as targeted stewardship efforts towards hobby farmers and pet owners would most likely improve water quality for commercial shellfish harvest.

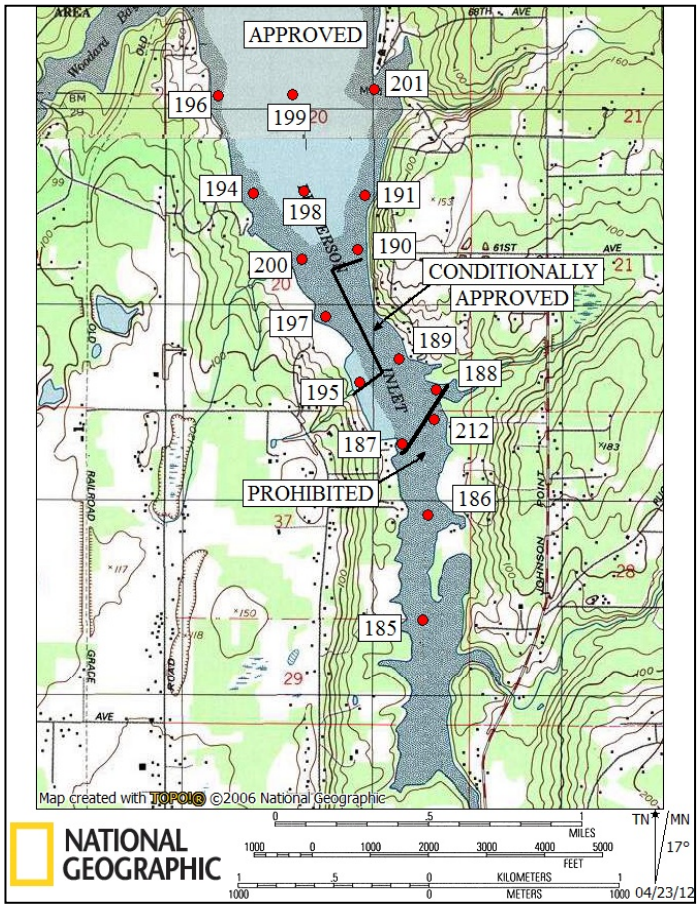


2001 – About 300 acres of Henderson Inlet downgraded from "Approved" to "Conditionally Approved." The "Conditionally Approved" portion of Henderson Inlet is closed to shellfish harvest following 24-hour rainfall totals of 0.50 inches or more.



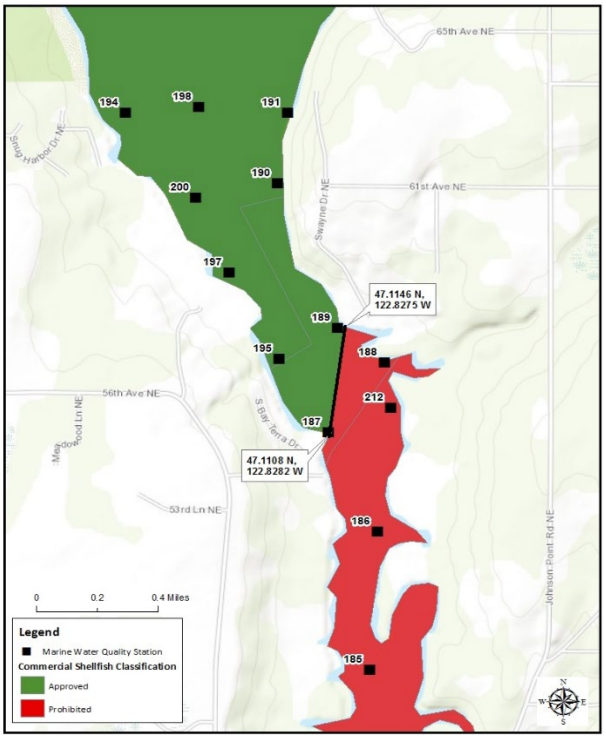
2005 – A portion of the "Conditionally Approved" area of Henderson Inlet is downgraded from "Conditionally Approved" to "Prohibited." Water Monitoring Stations #187 and #189 fail to meet National Shellfish Sanitation Program water quality standard for conditional approval.

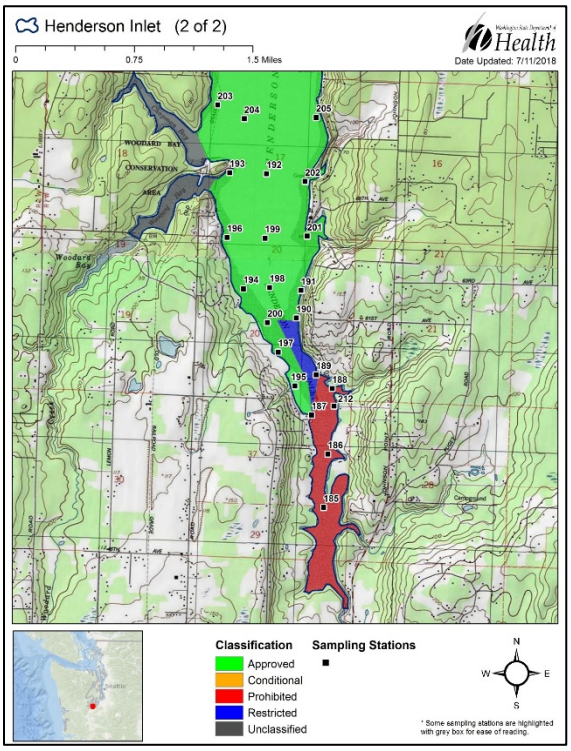




2010 – DOH reclassifies a portion of Henderson Inlet from "Conditionally Approved" to "Approved" due to improvements in water quality in the western side of the inlet. Most notably, Thurston County implemented the Henderson Inlet Watershed Protection area septic operation and maintenance program to address human sources of fecal coliform. The Henderson Inlet Shellfish Protection District also used outreach and education efforts to educate the residents of the watershed about water quality problems in the area from livestock and pets.

2012 – 50 Acres of Henderson Inlet are upgraded from "Conditionally Approved" to "Approved" and 50 acres from "Prohibited" to "Conditionally Approved." The new Conditionally Approved area is closed for five days after 0.75 inches of rain at the Olympia Airport in a 24 hour period. The upgrades are the result of Thurston County and other partners' continued work on septic systems and education efforts to watershed residents.





2015 – Conditionally Approved Area Management Plan (CAAMP) updated to reflect a change in conditional rainfall criteria from 0.75 inches of rain in a 24-hour period to 0.50 inches of rainfall in a 24 hour period. Map remains unchanged from 2012.

2016 – DOH downgrades approximately 10 acres of the Henderson Inlet growing area near Station 188 from "Conditionally Approved" to "Prohibited" and upgrades 36 acres from "Conditionally Approved" to "Approved."

June 2018- 30 acres of Henderson Inlet reclassified from "Approved" to "Restricted" due to water monitoring station 189 failing to meet National Shellfish Sanitation Program Standards. DOH staff evaluated environmental conditions (rainfall and seasonality of elevated fecal coliform levels) that potentially impact portions of the Henderson Inlet Growing Area. This evaluation showed no clear correlation between elevated fecal coliform levels and an environmental condition (rainfall or season) around Marine Water Station 189. All product commercially harvested from the Restricted area must be relayed to an approved grow-out site.

Appendix C: Monitoring Data

Henderson Inlet Summary of Marine Water Data- 30 Samples

Station Number	Classification	Date Range	Range (FC/100 mL)	GeoMean (FC/100 mL)	Estimated 90th (FC/100 mL)	Meets Standard
187	Approved	5/10/2016 - 10/1/2018	1.7 - 110.0	8.5	35.1	Y
190	Approved	5/10/2016 - 10/1/2018	1.7 - 79.0	9.1	34.0	Y
191	Approved	5/10/2016 - 10/1/2018	1.7 - 49.0	6.9	26.7	Y
192	Approved	2/4/2014 - 9/13/2018	1.7 - 33.0	3.5	10.5	Y
193	Approved	2/4/2014 - 9/13/2018	1.7 - 33.0	3.7	10.0	Y
194	Approved	5/10/2016 - 10/1/2018	1.7 - 17.0	3.4	9.1	Y
195	Approved	5/10/2016 - 10/1/2018	1.7 - 49.0	7.7	27.5	Y
196	Approved	4/28/2016 - 10/1/2018	1.7 - 94.0	4.6	17.9	Y
197	Approved	5/10/2016 - 10/1/2018	1.7 - 79.0	5.6	23.2	Y
198	Approved	5/10/2016 - 10/1/2018	1.7 - 23.0	3.6	10.7	Y
199	Approved	5/10/2016 - 10/1/2018	1.7 - 23.0	3.0	7.8	Y
200	Approved	5/10/2016 - 10/1/2018	1.7 - 49.0	4.3	13.7	Y
201	Approved	5/10/2016 - 10/1/2018	1.7 - 49.0	4.4	15.5	Y
202	Approved	2/4/2014 - 9/13/2018	1.7 - 33.0	4.2	15.0	Y
203	Approved	2/4/2014 - 9/13/2018	1.7 - 11.0	2.6	5.4	Y
204	Approved	2/4/2014 - 9/13/2018	1.7 - 49.0	2.5	6.1	Y
205	Approved	2/4/2014 - 9/13/2018	1.7 - 49.0	3.6	12.4	Y
206	Approved	2/4/2014 - 9/13/2018	1.7 - 46.0	2.5	6.8	Y
207	Approved	2/4/2014 - 9/13/2018	1.7 - 7.8	2.1	3.5	Y

208	Approved	2/4/2014 - 9/13/2018	1.7 - 110.0	4.0	16.1	Y
209	Approved	2/4/2014 - 9/13/2018	1.7 - 7.8	2.1	3.6	Y
698	Approved	4/7/2014 - 9/13/2018	1.7 - 33.0	2.0	4.3	Y
723	Approved	4/7/2014 - 9/13/2018	1.7 - 13.0	2.7	6.1	Y
724	Approved	2/4/2014 - 9/13/2018	1.7 - 70.0	3.7	13.4	Y
767	Approved	12/1/2014 - 9/13/2018	1.7 - 13.0	2.0	3.8	Y
825	Approved	2/10/2015 - 9/13/2018	1.7 - 11.0	2.0	3.5	Y
185	Prohibited	5/10/2016 - 10/1/2018	2.0 - 240.0	17.3	91.2	N
186	Prohibited	5/10/2016 - 10/1/2018	1.8 - 130.0	14.3	55.0	N
188	Prohibited	5/10/2016 - 10/1/2018	1.7 - 240.0	13.0	66.8	N
212	Prohibited	5/10/2016 - 10/1/2018	1.7 - 240.0	9.8	48.4	N
189	Restricted	5/10/2016 - 10/1/2018	1.7 - 110.0	9.7	45.8	N
210	Unclassified	8/4/1999 - 9/16/1999	1.8 - 4.5	2.8	6.5	*N/A
211	Unclassified	8/4/1999 - 9/16/1999	1.8 - 1.8	1.8	1.8	*N/A

Station: 187 **Classification: Approved** **Method: SRS**

Total Samples: 30

Range (FC/100 mL): 1.7 - 110.0

GeoMean (FC/100 mL): 8.3

Date Range: 04/28/2016 - 09/13/2018

E90th (FC/100 mL): 34.3

Meets Standard: Y

Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
04/28/2016	Regulatory	09:32	Flood	14	23	6.8
05/10/2016	Regulatory	08:40	Flood	13	25	4.5
06/09/2016	Regulatory	09:20	Flood	14	27	13.0
07/26/2016	Regulatory	09:51	Flood	18	30	23.0
08/09/2016	Regulatory	09:59	Flood	15	30	4.5
09/08/2016	Regulatory	09:57	Flood	15	28	6.1
10/04/2016	Regulatory	10:15	Ebb	14	29	11.0
11/08/2016	Regulatory	09:47	Flood	12	27	11.0
12/05/2016	Regulatory	10:17	Flood	10	29	6.1
01/03/2017	Regulatory	10:26	Ebb	4	24	7.8
02/02/2017	Regulatory	09:55	Flood	4	25	1.7
03/06/2017	Regulatory	10:17	Flood	7	24	33.0
04/05/2017	Regulatory	10:10	Flood	10	6	49.0
05/17/2017	Regulatory	09:57	Flood	12	22	1.7
06/28/2017	Regulatory	10:05	Ebb	15	25	33.0
07/13/2017	Regulatory	09:23	Ebb	17	27	6.8
08/29/2017	Regulatory	11:15	Flood	17	28	4.5
09/12/2017	Regulatory	09:55	Flood	16	28	13.0
10/10/2017	Regulatory	09:53	Flood	13	29	2.0
11/06/2017	Regulatory	09:51	Ebb	9	26	49.0
12/12/2017	Regulatory	10:12	Flood	7	22	9.3
01/23/2018	Regulatory	10:20	Flood	8	26	2.0
02/05/2018	Regulatory	10:01	Ebb	8	20	4.5
03/06/2018	Regulatory	10:21	Ebb	7	26	1.7
05/03/2018	Regulatory	09:49	Ebb	14	25	2.0
06/04/2018	Regulatory	09:39	Flood	15	26	22.0
06/18/2018	Regulatory	10:16	Ebb	16	26	4.5
08/01/2018	Regulatory	09:51	Ebb	18	27	110.0

08/29/2018	Regulatory	09:09	Ebb	17	28	7.8
09/13/2018	Regulatory	10:00	Ebb	15	27	17.0

Station: 190 **Classification: Approved** **Method: SRS**

Total Samples: 30

Range (FC/100 mL): 1.7 - 79.0

GeoMean (FC/100 mL): 9.1

Date Range: 04/28/2016 - 09/13/2018

E90th (FC/100 mL): 34

Meets Standard: Y

Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
04/28/2016	Regulatory	09:44	Flood	13	20	2.0
05/10/2016	Regulatory	08:53	Ebb	13	25	7.8
06/09/2016	Regulatory	09:32	Ebb	14	28	6.8
07/26/2016	Regulatory	10:07	Flood	19	28	49.0
08/09/2016	Regulatory	10:10	Flood	16	29	17.0
09/08/2016	Regulatory	10:10	Flood	15	29	17.0
10/04/2016	Regulatory	10:29	Ebb	14	30	11.0
11/08/2016	Regulatory	09:58	Flood	11	26	13.0
12/05/2016	Regulatory	10:27	Flood	9	30	7.8
01/03/2017	Regulatory	10:46	Ebb	4	25	7.8
02/02/2017	Regulatory	10:12	Ebb	5	26	9.3
03/06/2017	Regulatory	10:29	Flood	7	21	79.0
04/05/2017	Regulatory	10:27	Flood	9	10	13.0
05/17/2017	Regulatory	10:12	Flood	11	17	11.0
06/28/2017	Regulatory	10:25	Ebb	15	27	23.0
07/13/2017	Regulatory	09:36	Ebb	17	25	23.0
08/29/2017	Regulatory	10:56	Flood	17	27	4.0
09/12/2017	Regulatory	10:11	Flood	16	27	2.0
10/10/2017	Regulatory	10:07	Flood	13	28	13.0
11/06/2017	Regulatory	10:09	Ebb	9	28	7.8
12/12/2017	Regulatory	10:27	Flood	7	28	7.8
01/23/2018	Regulatory	10:35	Ebb	7	23	2.0
02/05/2018	Regulatory	10:14	Ebb	8	28	70.0
03/06/2018	Regulatory	10:44	Ebb	7	27	1.7
05/03/2018	Regulatory	10:05	Ebb	12	25	1.7
06/04/2018	Regulatory	09:53	Flood	14	23	2.0
06/18/2018	Regulatory	10:40	Ebb	16	26	9.3

08/01/2018	Regulatory	10:06	Ebb	18	27	13.0
08/29/2018	Regulatory	09:31	Ebb	17	29	17.0
09/13/2018	Regulatory	10:18	Ebb	15	28	6.8

Station: 195 **Classification: Approved** **Method: SRS**

Total Samples: 30

Range (FC/100 mL): 1.7 - 49.0

GeoMean (FC/100 mL): 7.9

Date Range: 04/28/2016 - 09/13/2018

E90th (FC/100 mL): 27.3

Meets Standard: Y

Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
04/28/2016	Regulatory	09:29	Flood	13	22	4.5
05/10/2016	Regulatory	08:38	Flood	13	19	17.0
06/09/2016	Regulatory	09:18	Flood	14	28	49.0
07/26/2016	Regulatory	09:49	Flood	18	30	13.0
08/09/2016	Regulatory	09:57	Flood	15	30	22.0
09/08/2016	Regulatory	09:55	Flood	15	29	1.7
10/04/2016	Regulatory	10:07	Ebb	14	30	4.5
11/08/2016	Regulatory	09:44	Flood	13	29	22.0
12/05/2016	Regulatory	10:15	Flood	10	29	4.0
01/03/2017	Regulatory	10:22	Ebb	4	25	2.0
02/02/2017	Regulatory	09:51	Flood	4	24	1.7
03/06/2017	Regulatory	10:15	Flood	7	25	23.0
04/05/2017	Regulatory	10:08	Flood	10	14	13.0
05/17/2017	Regulatory	09:54	Flood	11	19	11.0
06/28/2017	Regulatory	10:02	Ebb	15	28	7.8
07/13/2017	Regulatory	09:20	Ebb	17	25	49.0
08/29/2017	Regulatory	11:19	Flood	17	27	4.5
09/12/2017	Regulatory	09:53	Flood	16	27	4.5
10/10/2017	Regulatory	09:50	Flood	13	29	4.5
11/06/2017	Regulatory	09:48	Ebb	10	29	13.0
12/12/2017	Regulatory	10:10	Flood	7	27	13.0
01/23/2018	Regulatory	10:17	Flood	8	27	17.0
02/05/2018	Regulatory	09:58	Ebb	8	28	1.7
03/06/2018	Regulatory	10:19	Ebb	7	27	1.7
05/03/2018	Regulatory	09:46	Ebb	13	24	4.5
06/04/2018	Regulatory	09:36	Flood	15	24	7.8
06/18/2018	Regulatory	10:12	Ebb	18	22	17.0

08/01/2018	Regulatory	09:47	Ebb	18	28	4.5
08/29/2018	Regulatory	09:05	Ebb	17	29	13.0
09/13/2018	Regulatory	09:57	Ebb	15	29	11.0

Station: 197 **Classification: Approved** **Method: SRS**

Total Samples: 30

Range (FC/100 mL): 1.7 - 79.0

GeoMean (FC/100 mL): 5.8

Date Range: 04/28/2016 - 09/13/2018

E90th (FC/100 mL): 24.1

Meets Standard: Y

Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
04/28/2016	Regulatory	09:26	Flood	13	23	11.0
05/10/2016	Regulatory	08:35	Flood	14	26	1.7
06/09/2016	Regulatory	09:14	Flood	14	29	2.0
07/26/2016	Regulatory	09:46	Flood	19	29	11.0
08/09/2016	Regulatory	09:55	Flood	16	30	17.0
09/08/2016	Regulatory	09:52	Flood	15	29	2.0
10/04/2016	Regulatory	10:04	Ebb	14	30	21.0
11/08/2016	Regulatory	09:42	Flood	13	25	4.5
12/05/2016	Regulatory	10:13	Flood	10	30	4.5
01/03/2017	Regulatory	10:19	Ebb	5	26	13.0
02/02/2017	Regulatory	10:22	Ebb	5	25	1.7
03/06/2017	Regulatory	10:12	Flood	8	23	7.8
04/05/2017	Regulatory	10:05	Flood	10	12	33.0
05/17/2017	Regulatory	09:51	Flood	11	23	4.0
06/28/2017	Regulatory	10:00	Ebb	15	25	14.0
07/13/2017	Regulatory	09:17	Ebb	17	25	79.0
08/29/2017	Regulatory	11:23	Flood	17	29	2.0
09/12/2017	Regulatory	09:50	Flood	16	28	33.0
10/10/2017	Regulatory	09:48	Flood	13	28	4.5
11/06/2017	Regulatory	09:44	Ebb	10	28	17.0
12/12/2017	Regulatory	10:08	Flood	8	29	11.0
01/23/2018	Regulatory	10:15	Flood	8	27	1.7
02/05/2018	Regulatory	09:55	Ebb	8	28	1.7
03/06/2018	Regulatory	10:15	Ebb	7	28	1.7
05/03/2018	Regulatory	09:43	Ebb	13	20	4.5
06/04/2018	Regulatory	09:32	Flood	14	26	1.7
06/18/2018	Regulatory	10:08	Ebb	16	27	11.0

08/01/2018	Regulatory	09:44	Ebb	17	29	1.7
08/29/2018	Regulatory	09:03	Ebb	16	29	7.8
09/13/2018	Regulatory	09:53	Ebb	15	30	1.7

Station: 189 **Classification: Restricted** **Method: SRS**

Total Samples: 30

Range (FC/100 mL): 1.7 - 110.0

GeoMean (FC/100 mL): 10.1

Date Range: 04/28/2016 - 09/13/2018

E90th (FC/100 mL): 45.7

Meets Standard: N

Sample Date	Event Type	Time	Tide	SWT	Salinity	Fecal Coliform
04/28/2016	Regulatory	09:42	Flood	13	15	6.8
05/10/2016	Regulatory	08:51	Ebb	14	26	4.5
06/09/2016	Regulatory	09:30	Ebb	14	26	49.0
07/26/2016	Regulatory	10:05	Flood	17	30	23.0
08/09/2016	Regulatory	10:09	Flood	15	27	17.0
09/08/2016	Regulatory	10:07	Flood	15	29	7.8
10/04/2016	Regulatory	10:26	Ebb	14	29	23.0
11/08/2016	Regulatory	09:56	Flood	13	28	13.0
12/05/2016	Regulatory	10:26	Flood	9	27	4.0
01/03/2017	Regulatory	10:44	Ebb	4	26	2.0
02/02/2017	Regulatory	10:08	Ebb	5	26	1.7
03/06/2017	Regulatory	10:27	Flood	7	20	33.0
04/05/2017	Regulatory	10:24	Flood	10	8	33.0
05/17/2017	Regulatory	10:10	Flood	11	10	7.8
06/28/2017	Regulatory	10:17	Ebb	15	26	22.0
07/13/2017	Regulatory	09:33	Ebb	17	24	79.0
08/29/2017	Regulatory	10:59	Flood	17	28	4.5
09/12/2017	Regulatory	10:08	Flood	16	28	33.0
10/10/2017	Regulatory	10:05	Flood	13	28	4.5
11/06/2017	Regulatory	10:06	Ebb	8	24	110.0
12/12/2017	Regulatory	10:25	Flood	6	20	4.5
01/23/2018	Regulatory	10:32	Ebb	8	27	2.0
02/05/2018	Regulatory	10:12	Ebb	8	17	6.1
03/06/2018	Regulatory	10:32	Ebb	7	24	1.7
05/03/2018	Regulatory	10:02	Ebb	13	22	2.0
06/04/2018	Regulatory	09:50	Flood	15	21	7.8
06/18/2018	Regulatory	10:38	Ebb	18	22	14.0

08/01/2018	Regulatory	10:03	Ebb	18	23	49.0
08/29/2018	Regulatory	09:23	Ebb	16	29	4.5
09/13/2018	Regulatory	10:15	Ebb	15	28	13.0

Appendix D: Shellfish Protection Districts in the Puget Sound

The Washington State Legislature created Shellfish Protection Districts in 1992 with the following findings at Revised Code of Washington 90.72.030:

> "The legislature finds that shellfish harvesting is important to our economy and way of life. Washington state is an international leader in the cultivation and production of shellfish. However, large portions of the state's productive recreational and commercial shellfish beds are closed to harvesting, and more are threatened, because of water pollution. The legislature finds that the problem of shellfish bed closures demands a public policy solution and that the state, local governments, and individuals must each take strong and swift action or this precious resource will be lost.
>
> It is the goal of the legislature to prevent further closures of recreational and commercial shellfish beds, to restore water quality in saltwater tidelands to allow the reopening of at least one restricted or closed shellfish bed each year, and to ensure Washington state's commanding international position in shellfish production.
>
> The legislature finds that failing on-site sewage systems and animal waste are the two most significant causes of shellfish bed closures over the past decade. Remedial actions at the local level are required to effectively address these problems.
>
> The legislature finds that existing entities, including conservation districts and local health departments, should be used by counties to address the water quality problems affecting the recreational and commercial shellfish harvest.
>
> The legislature finds that local action in each watershed where shellfish are harvested is required to protect this vital resource. The legislature hereby encourages all counties having saltwater tidelands within their boundaries to establish shellfish protection districts and programs designed to prevent any further degradation and contamination and to allow for restoration and reopening of closed shellfish growing areas."

With this landmark legislation, shoreline counties were tasked with developing Shellfish Protection Districts (SPD) to advocate for and oversee the health of local shellfish industries. The same statute requires state agencies and local governments to participate in the SPDs to share data, collaborate with stakeholders on remediation strategies, and approve downgrade and closure plans among other responsibilities. SPDs must be formed when shellfish bed downgrades occur, and this requirement triggered the formation of the Henderson-Nisqually Shellfish Protection District.

By design, the 1992 bipartisan agreement invited stakeholders including shellfish growers, tribal governments, shoreline property owners, and concerned citizens to join SPDs in combatting local sources of water pollution to protect the environmental and economic benefits of shellfish production. The legislation's authors—some Eastern Washington livestock farmers among their ranks—recognized the need for a collaborative, community-based approach to environmental protection. The SPDs continue to embody this spirit and letter of the law in partnership with our respective county government.

Appendix E: Further Reading

1. Shellfish Protection District: Henderson Inlet and Nisqually Reach Shellfish Protection District Implementation Work Plan – March 1, 2005. (https://www.co.thurston.wa.us/planning/natural-res/docs/shellfish-henderson-inlet-nisqually-reach-implementation-plan.pdf)

2. Washington State Department of Ecology: Henderson Inlet Fecal Coliform Total Maximum Daily Load Water Quality Effectiveness Monitoring Report – January 2017. (https://fortress.wa.gov/ecy/publications/documents/1703001.pdf)

3. *Henderson Watershed Protection Area Onsite Sewage System Operation & Maintenance Program Five-Year Review - July 2013.* (https://www.co.thurston.wa.us/health/ehrp/pdf/Henderson/5-YearHendersonReview_7-2013.pdf)

ORDINANCE NO. 15790

AN ORDINANCE amending the Henderson Inlet Shellfish Protection District and Nisqually Reach Shellfish Protection District Consolidated Work Program.

WHEREAS, the Board of County Commissioners adopts the following findings:

1. Henderson Inlet is an important shellfish growing area in Thurston County.

2. In 2001, after the Washington State Department of Health downgraded hundreds of acres of commercial shellfish growing areas in Henderson Inlet in Thurston County because of bacterial contamination in Henderson Inlet, the Henderson Inlet Shellfish Protection District was created by Ordinance No. 12679, dated December 17, 2001, and, as required by RCW 90.72.045, a shellfish protection work program was adopted.

3. The shellfish protection work program was amended in 2003, 2005, 2007, and 2017 to incorporate new elements and adapt to changing conditions within the watershed.

4. Improvements in water quality allowed the Washington State Department of Health to reopen 366 acres to commercial shellfish harvesting in 2010, 2012 and 2016.

5. In May 2018, the Washington State Department of Health downgraded approximately 30 acres of commercial shellfish area from "approved" to "restricted." Declining water quality caused Marine Water Station 189 to "fail" and nearby stations 187, 190, 195 and 197 to be listed as "threatened."

6. The *2017 Henderson Inlet Fecal Coliform Total Maximum Daily Load Water Quality Effectiveness Monitoring Report* found fecal coliform levels were increasing in Dobbs Creek and Fleming Creek which discharge near the failing and threatened marine water stations.

7. In response to the downgrade, the Nisqually Reach and Henderson Inlet Shellfish Protection Districts Combined Stakeholder Advisory Committee prepared a *Henderson Inlet Closure Response Plan* recommending actions and strategies to address the downgrade in an effort towards restoring and protecting the water quality in Henderson Inlet.

8. The actions and strategies in the closure response plan are appropriate and should be implemented as resources allow to improve and maintain water quality, protect public health, and to provide good stewardship of our water and natural resources.

9. A number of the actions and strategies recommended by the stakeholder committee to address the recent downgrade are planned or in progress, and are included in the existing Henderson Inlet Shellfish Protection District and Nisqually Reach Shellfish Protection District Consolidated Work Program, which was last amended September 12, 2017 by Ordinance No. 15514.

10. Additional actions and strategies that should be incorporated into the work program include updating the 2005 Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan; completing water quality investigations of Dobbs and Fleming Creeks begun in 2018 and seeking corrective action where needed; working to provide funding for water quality improvement; identifying and implementing needed storm water improvements along Woodard Creek; implementing agricultural best management practices including plans for small farms and for waste management; and creating and implementing a stewardship campaign to teach pollution reduction practices.

NOW, THEREFORE, the Board of Thurston County Commissioners hereby ordains as follows:

Section 1. Work Program. The Henderson Inlet Shellfish Protection District and Nisqually Reach Shellfish Protection District Consolidated Work Program is amended to read as set forth in Attachment A.

Section 2. Severability. If any term or provision of this Ordinance, or its application to any person or circumstance, is held to be invalid, illegal or unenforceable by any court or agency of competent jurisdiction, the remaining terms and provisions of this Ordinance, and the application of the provision to other persons or circumstances, shall not be affected thereby, but each remaining term and provision shall be valid and enforceable to the fullest extent permitted by law.

Section 3. Effective Date. This ordinance shall take effect on the date adopted below.

ADOPTED: June 25, 2019.

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:

JON TUNHEIM
PROSECUTING ATTORNEY

Jane Futterman
Sr. Deputy Prosecuting Attorney

BOARD OF COUNTY COMMISSIONERS
Thurston County, Washington

Chair

Vice-Chair

Commissioner

Henderson Inlet Shellfish Protection District
And
Nisqually Reach Shellfish Protection District
Consolidated Work Program

The Henderson Inlet and Nisqually Reach Shellfish Protection District Work Programs are a first step leading to the development of a long-term strategy addressing fecal coliform contamination of recreational and commercial shellfish beds in the Nisqually Reach and Henderson Inlet. The Consolidated work program outlines the necessary steps needed to accomplish the requirements of RCW 90.72.030.

The Consolidated Work Program utilizes a phased approach in addressing the causes of fecal coliform contamination.

Phase 1: The first phase of the Consolidated Work Program includes the following activities within the authority of Thurston County:

I. Continue Public Involvement:

- A. Build a public-involvement strategy that ensures the public remains involved in the decision making process.
- B. In concert with the public, develop a long-term strategy in the Phase 2 Work Program that includes but is not limited to:
  1. Defining the problem.
  2. Goals and objectives to address the problem.
  3. Actions necessary to address fecal contamination in the Nisqually Reach and Henderson Inlet.
  4. A timeline for implementation.
  5. Funding options, if needed, to implement the long-term strategies in the Phase 2 Work Program.
- C. Route land-use development proposals within the Nisqually Reach and Henderson Inlet Shellfish Protection District boundaries to interest groups for review and comment.
- D. Decide how to continue public involvement during implementation of Phase 2.

II. Efforts to correct known sources of fecal coliform utilizing existing programs, regulations, and resources will include recognition and implementation of the "Response Strategy For Shellfish Growing Area Downgrades in Henderson Inlet and the Nisqually Reach" as funding and resources allow.

- A. Failing Septic Systems: The Environmental Health Division will continue its current programs.
  1. Identify and seek corrections to failing systems by using complaints, evidence of failed systems, voluntary inspections, and existing permit-review processes.

2. Provide loans to help qualified homeowners repair failing septic systems.

3. Ensure that certified septic system owners are properly operating and maintaining their systems in accordance with their operational certificates.

B. Stormwater: The Thurston County Storm and Surface Water Utility will, in coordination with other jurisdictions:

1. Continue building capital projects within shellfish watersheds and continue to operate and maintain existing county-owned stormwater facilities within the watersheds to address water quality and stormwater discharges.

2. Focus public information and education programs on methods residents can use to help reduce the amount of fecal coliform bacteria that ends up in stormwater runoff.

3. Explore innovative project solutions aimed at reducing the amount of fecal coliform bacteria that is transported in stormwater.

C. Land-Use enforcement: The Board of County Commissioners is committed to continue improving enforcement to seek compliance with existing land-use regulations and permit conditions, Critical Areas Ordinance, Sanitary Code and Building Code

D. Agriculture: The Thurston Conservation District and the Thurston County Environmental Health Division will coordinate in performing the following activities.

1. Encourage farm owners to voluntarily use best management practices.

2. Promote compliance with existing regulations and the county's nonpoint pollution ordinance by following up on complaints and acting upon existing agreements between the Thurston Conservation District, the state Department of Ecology, and Thurston County.

E. Water Quality Testing: The Environmental Health Division will perform the following activities to gain more information to assist in developing the Phase 2 Work Program. The following water quality-testing program will occur.

1. Sample storm events in the McAllister Creek, Nisqually Reach and Henderson Inlet watersheds.

2. Sample McAllister, Woodard and Woodland Creeks.

3. Help identify fecal coliform source types through DNA testing.

4. Ecology and the county will coordinate water quality studies to support developing total maximum daily loads and wasteload allocations for bacteria in Nisqually Reach and Henderson Inlet.

5. Report test results to assist in developing the Phase 2 Work Program.

III. Continued coordination of the work of the district with the Thurston Conservation District; City of Lacey; City of Olympia; Washington State Departments of Ecology, Health, and Transportation; tribal governments; Thurston County Departments of Water

and Waste Management; Public Health and Social Services; Roads and Transportation Services; and Office of Program and Budget and Development Services.

Phase 2: Phase 2 will utilize the information and outcomes from Phase 1 to implement programs to achieve the goals and objectives developed through the public involvement process in Phase 1.

I. Continue public involvement:

A. Combine the two shellfish district stakeholder groups into one committee for both districts; and

B. Operate in an advisory role to the Board of County Commissioners and City Councils; and

C. Assist in developing a Phase 2 implementation work plan; and

D. Track completed actions with effectiveness in improving water quality; and

E. Meet only when necessary; and

F. The Board of County Commissioners will annually evaluate whether to continue the committee.

II. The county and cities will continue their normal work programs that address bacteria loading in water.

A. Activities in Phase I, Section II will continue while the implementation work plan is being developed.

B. Implementation work plans will be submitted to the Board of County Commissioners for consideration as project details are identified.

III. Continue to coordinate with other agencies identified in Phase 1, Section III.

IV. Work Program Implementation.

In June 2003, the Board asked the Combined Shellfish Protection Districts' Stakeholder Group to develop an Implementation Work Plan. While doing this work the committee has recognized that there is a tremendous amount of work occurring that will help reduce the bacterial loading in Henderson Inlet and the Nisqually Reach. The Stakeholder Group recommends continuing with the same level of the current work and has provided a list of additional actions that are needed.

The following items are adopted to carry out recommendations of the Stakeholder Committees set forth in the "Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan" report dated March 1, 2005.

A. Septic System Additional Work Needed:

Failed onsite sewage systems (OSS) contribute fecal coliform bacteria and other forms of harmful contamination into the Henderson Inlet and the Nisqually Reach. There is currently no adequate mechanism in place by Thurston County to monitor or control the operation and maintenance of all onsite systems. Additional work is still needed to address the contribution of bacteria by on-site septic systems including:

1. Approve the continuation of staff working on developing a Septic System Operation and Maintenance Proposal for the Henderson Inlet Watershed. Prepare appropriate documents to implement the program for consideration of adoption by the Board of Health.

2. Consider expanding the program into the Nisqually Reach District once the O&M program is implemented in Henderson Inlet Watershed.

3. With approval of an On-site Sewage System Operation and Maintenance program for the Henderson Inlet watershed in the Sanitary Code for Thurston County, Henderson Inlet Shellfish Protection District rates and charges will be an appropriate mechanism to provide a consistent funding source. Rates and charges should be established at a reasonable level to carry out an operation and maintenance program for on-site sewage systems in areas that may be contributing to the fecal coliform contamination of Henderson Inlet.

4. With establishment of the Nisqually Reach Watershed Protection Area as a Marine Recovery Area and Area of Special Concern in the Sanitary Code for Thurston County, Nisqually Reach Shellfish Protection District rates and charges will be an appropriate mechanism to provide a consistent funding source to fund an on-site sewage system operation and maintenance program. Rates and charges should be established at a reasonable level to carry out an operation and maintenance program for on-site sewage systems in areas that may be contributing to the fecal coliform contamination of Nisqually Reach

B. Stormwater Additional Work Needed:

Henderson Inlet and the Nisqually Reach receive stormwater runoff from urban portions of Lacey and Olympia, rural and agricultural portions of Thurston County, and Interstate 5. Stormwater runoff from urban areas and roads has been well documented to capture and convey bacteria. Stormwater and urban stream fecal coliform bacteria concentrations routinely exceed the shellfish standard (14 bacteria per 100 milliliters) by one to three orders of magnitude. During major storm events, when stormwater dominates stream flows, travel times between the urban environment and shellfish beds are short (a few hours or less), resulting in limited dilution and bacteria die-off. Under low slack tide conditions, brackish water containing a high percentage of stormwater covers shellfish beds.

1. Consider adopting the revised Regional Stormwater Manual.

2. Consider the continuation of developing Low Impact Development regulations and standards.

3. Direct staff to consider using proven innovative technology in County stormwater facilities if they effectively remove bacteria from the discharge.

4. Provide the recommendation of not allowing urban densities in the rural area to the cluster development task force.

5. Direct staff to seek funding opportunities to expand the current program in providing pet waste supplies to more subdivisions.

C. Land Use Additional Work Needed:

Water quality is a land use issue. With the possible exception of bacteria from wildlife, the contamination that has produced the downgrades of shellfish beds has resulted entirely from land development. This impact will increase as growth continues. Governments have a direct influence through regulations and policies on how land will be used. However, even though the government may have regulatory authority over some of the many types of land uses, citizens still need to have a sense of stewardship and take personal responsibility for the activities they engage in on their private and public lands.

1. Provide the Shellfish Protection Districts' land use recommendations to those groups working on Low Impact Development and the LAMIRD (Limited Area of More Intensive Rural Development) work groups.

2. Assess the effectiveness of existing County land use regulatory enforcement in coordination with other projects by:

   a. Reviewing and identifying specific regulations that warrant penalty adjustments.

   b. The review should include an evaluation of the need, efficacy, and potential funding sources for additional enforcement officers.

D. Adaptive Management Additional Work Needed:

Adaptive management is an ongoing process for continually improving management policies and practices by learning from the outcomes of program activities. It is a way to treat those policies and practices as experiments, and improve surface water management by learning from the ecosystems being affected. Adaptive management is most accurately defined as a strategy that actively incorporates scientific experimentation into management, however, most often in real-world practices; it is limited to incorporating performance assessments that rely on scientific methods to evaluate how well the actions achieved their objectives.

Develop an adaptive management strategy once the TMDL process is completed and as major categories of recommendations are approved and implemented.

E. Governance:

The stakeholders have invested a lot of personal time and energy in developing the Reports and Recommendations and the Implementation Work Plan and are interested in their implementation. They would also like to participate in providing input into further work needed and oversight in the implementation of those recommendations accepted by the Board of County Commissioner.

Direct the Shellfish Protection District Stakeholder Committee to continue to meet as necessary to:

1. Recommend to the Board the Annual Shellfish Protection Fund Work Plan.
2. Provide oversight in implementation of the plan.
3. Annually, determine whether the implementation of the recommendations is achieving the necessary reduction in bacteria. If the water quality does not improve, then recommend to the Board further actions necessary to do so.

Phase 3 for Henderson Inlet Shellfish Protection District:

The Septic System Operation and Maintenance Program has shown to be effective in reducing the contribution of bacteria by on-site sewage systems. Beginning January 1, 2018, the on-going programs performed in Phase 2 will be continued along with additional water quality monitoring to include the following elements:

1. Identify and seek corrections to failing on-site sewage systems.
2. Ensure that on-site sewage system owners are properly operating and maintaining their systems in accordance with their operational certificates.
3. Provide education and outreach opportunities for on-site sewage system owners to learn how to maintain and operate their systems.
4. Develop and implement a pollution identification and correction strategy to include more intensive water quality monitoring in areas with documented water quality problems. The strategy will seek to identify the sources of the pollution and take appropriate and effective actions to correct the pollution problem.
5. Ordinance changes needed to implement the programs and strategies will be presented for consideration of adoption by the Board of Health.

In response to the 2018 shellfish harvest downgrade the following elements are added to Phase 3 of this work program:

6. Update the 2005 Henderson Inlet and Nisqually Reach Shellfish Protection Districts Implementation Work Plan and include phases 2 and 3 of this work plan.
7. Work to provide a dedicated, sustainable funding source for water quality improvement funding within the Henderson Inlet and Nisqually Reach Shellfish Protection Districts.
8. Monitor water quality within Henderson Inlet and its tributaries and work to identify sources of surface water pollution with a focus on Dobbs and Fleming creeks.
9. Work to implement agricultural best management practices including plans for small farms and for waste management, emphasizing sites where water quality degradation has been documented.

10. Seek funding for corrective actions needed to correct sources of water quality pollution.

11. Work with partners to identify areas along Woodard Creek that are most impacted by storm water runoff and complete storm water system improvements that will improve water quality and the management of roadside storm water.

12. Create and implement a stewardship campaign that teaches residents how to reduce pollution from pets, septic systems, agriculture, and land management practices.