

**LUMMI NATION  
NONPOINT SOURCE POLLUTION  
MANAGEMENT PLAN:  
2021-2025 MILESTONE SCHEDULE UPDATE**

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Lummi Indian Business Council  
(LIBC)



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## Summary

The primary goal of the Lummi Nation Nonpoint Source (NPS) Pollution Management Program is to effectively and efficiently control NPS pollution on the Lummi Indian Reservation (Reservation) and to coordinate with appropriate jurisdictions to control NPS pollution in the watersheds that discharge to the Reservation.

Two key elements of the NPS Pollution Management Program are the *Lummi Nation Nonpoint Source Pollution Assessment Report: 2015 Update* (LWRD 2015; hereafter NPS Pollution Assessment Report) and the *Lummi Nation Nonpoint Source Pollution Management Plan: 2015-2020* (LWRD 2015a; hereafter NPS Pollution Management Plan). The NPS Pollution Assessment Report evaluates the current and potential impairments of Reservation waterbodies due to NPS pollution, identifies the primary nonpoint sources responsible for this pollution, and lists the resources available to address NPS pollution. The findings of the NPS Pollution Assessment Report provide the technical underpinnings of the NPS Pollution Management Plan. The objectives of the NPS Pollution Management Plan are the following:

1. To identify management practices that will reduce NPS pollution on the Reservation;
2. To identify and implement on-the-ground projects that protect or restore water quality on the Reservation and in the watersheds that discharge to the Reservation;
3. To encourage public involvement and education directed toward reducing or eliminating NPS pollution sources; and
4. To coordinate with appropriate jurisdictions to reduce off-Reservation NPS pollution that adversely affects Reservation surface and ground water resources.

The NPS Pollution Assessment Report and NPS Pollution Management Plan were developed to cover the 2015-2020 period. As that period has nearly concluded, the Lummi Water Resources Division (LWRD) evaluated both documents to determine if an update to either document would be warranted at this time. If found to be warranted, the LWRD was to complete the necessary updates; in lieu of this finding, the LWRD was to simply update the milestone schedule contained in the NPS Pollution Management Plan to cover the next 5-year planning period (2021-2025). As detailed in the sections below, the latter was determined to be sufficient. This document, the *Lummi Nation Nonpoint Source Pollution Management Plan: 2021-2025 Milestone Schedule Update* (hereafter 2021-2025 Milestone Update) provides the outcomes of this evaluation.

This document is organized as follows:

- This summary provides a brief introduction to the 2021-2025 Milestone Update.
- Section 1 summarizes the findings of the NPS Pollution Assessment Report and NPS Pollution Management Plan document review.
- Section 2 contains the updated NPS Pollution Management Plan milestone schedule.

- Section 3 contains an updated table listing Lummi Natural Resources Department (LNR) lead agency staff.
- Section 4 contains references.

## **Section 1. Review of the NPS Pollution Assessment Report and NPS Pollution Management Plan**

The Lummi Nation NPS Pollution Assessment Report and NPS Pollution Management Plan were reviewed to determine if they required revision due to substantive changes in the character of NPS pollution types and impacts and/or changes in the NPS management programs (i.e., Best Management Practices [BMPs]). The types of impairments to surface and ground water quality, or designated and existing uses, under the Clean Water Act, have not changed. Land use practices, BMPs, and Best Available Science (BAS) have not substantially changed. The framework for, and approach to, NPS pollution assessment and management contained in both reports have proven valuable and remain valid. The NPS Pollution Assessment Report and NPS Pollution Management Plan will not be updated at this time. However, work remains. The milestones in the NPS Pollution Management Plan need to be updated for the 2021-2025 period. The updated milestones are provided in Section 2.

## **Section 2. Updated NPS Pollution Management Program Milestone Schedule: 2021-2025**

The action plan for the Lummi Nation NPS Pollution Management Program is focused on addressing the three current impairments of greatest concern: (1) loss of salmonid habitat in the Nooksack River watershed and estuary; (2) restrictions to ceremonial, subsistence, and commercial shellfish harvests in Portage Bay; and (3) saltwater intrusion and other contamination of the Reservation aquifers; and a potential impairment of most concern: restrictions to ceremonial, subsistence, and commercial shellfish harvests in Lummi Bay. Nonpoint source pollution control measures are required to restore or maintain desired water uses and to meet or maintain water quality standards in affected waterbodies. Although the NPS Pollution Assessment Report evaluated all of the currently and potentially significant sources of NPS pollution and all of the current types of NPS pollutants in the Reservation and Nooksack River watersheds, the applicable primary sources of the three current and one potential major impairments of concern were the priority targets for the NPS Pollution Management Plan.

This 2021-2025 Milestone Update identifies specific actions that Lummi Indian Business Council (LIBC) departments will undertake between 2021 and 2025 to address the current and potential impairments of concern and the associated primary sources of impairment. The criteria that will be used to evaluate the effectiveness of this plan are also described.

### **Section 2.1. Salmonid Habitat Degradation in the Nooksack River Watershed and Estuary**

The Water Resources; Watershed Restoration; Endangered Species Act (ESA); Timber, Fish, and Wildlife (TFW); and Harvest Management Divisions of the Lummi Natural Resources Department (LNR) are involved in many of the on-the-ground activities that address degradation of salmonid habitat in the Nooksack River watershed and estuary.

This 2021-2025 Milestone Update builds on the successes of 2015-2020 action plan in the NPS Pollution Management Plan. Successful activities implemented from 2015 through 2020 include, but are not limited to: the engineered logjam projects at the Skookum, Dye's Canyon, Larson's Bridge, Lyman Pass, and Elk Flats reaches of the South Fork Nooksack River, and Porter Reach of the Middle Fork Nooksack River; riparian enhancements on-Reservation and in the upper watershed; working with state and federal agencies to address legacy issues (e.g., abandoned and inactive logging roads); as well as providing input on proposed land use activities that have the potential to impact salmonid habitat on- and off-Reservation. On-Reservation efforts continue to improve estuarine habitat, such as the Smuggler's Slough Restoration Project and ongoing implementation of Phase 1A of the Lummi Nation Wetland Habitat and Mitigation Bank.

Table 1 summarizes the actions and implementation schedule for the 2021-2025 period to address sources that have led to degradation of salmonid habitat. The effectiveness of the action plan to address degradation of salmonid habitat will be evaluated in terms of salmonid production from the Nooksack River watershed. If salmon production and harvests increase to levels that occurred in the mid-1980s by 2025, the action plan will be judged to be effective. However, it is recognized that this is an ambitious goal, and that habitat protection and restoration activities can take years to result in measurable improvements in salmonid habitat. For example, revegetation of a riparian buffer may take several years to complete substantial lengths of stream, and 10 to 15 or more years to mature. Further, the positive habitat effects of a functioning riparian zone may then take many years to manifest in the form of increased salmonid populations.

**Table 1.** Action Plan to Address Salmonid Habitat Degradation 2021 to 2025

Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Agriculture, Hydromodification	Enhance riparian buffers	Lummi Wetland and Habitat Mitigation Bank tree planting and habitat enhancement	■	■	■	■	■	Funded through Lummi General Fund appropriations and/or various federal and state grant programs; including Section 319 for the South Fork Lower Fobes Phase 2.
		Elk Flats Property (upper Nooksack Watershed) tree planting and maintenance	■	■				
		South Fork Nooksack Skookum-Edfro Phase 2 maintenance	■					
		South Fork Nooksack Lower Fobes Phase 2 tree planting and maintenance			■	■		
		Middle Fork Nooksack Porter Reach Phase 2 tree planting and maintenance				■	■	
		Coordinate with NRCS to assist with buffer strip planting through the CREP program throughout the Nooksack River Watershed	■	■	■	■	■	
		Upper Smuggler’s Slough tree planting and maintenance	■	■	■			
Silviculture	Continue to implement the Lummi Nation Forestry Management Plan	Implement BMPs during on-Reservation timber harvests	■	■	■	■	■	Funded through LIBC appropriations.
Hydromodification	Improve or Remove Culvert/Crossing	Evaluate culvert and/or tidegate removal and/or replacement in Lummi River Delta.	■	■	■	■	■	Funded through Lummi General Fund appropriations and/or various federal and state grant programs; future funding through Section 319 possible.
		Evaluate culvert removal and/or replacement throughout Nooksack River basin	■	■	■	■	■	Funded through Lummi General Fund appropriations and/or various federal and state grant programs; future funding through Section 319 possible.
Hydromodification	Install Engineered Logjams	Planning and implementation South Fork Nooksack Lower Fobes Phase 2	■	■				Funded through various federal and state grant programs; including Section 319 for the South Fork Lower Fobes Phase 2.
		Planning and implementation South Fork Nooksack Upper Fobes Phase 2	■	■	■	■	■	
		Planning and implementation South Fork Nooksack Cavanaugh Phase 2	■	■	■	■	■	
		Planning and implementation Skookum Edfro Phase 3	■	■	■	■	■	
		Planning and implementation Middle Fork Nooksack Porter Reach Phase 2	■	■	■	■	■	

**Table 1.** Action Plan to Address Salmonid Habitat Degradation 2021 to 2025

Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Hydromodification	Continue to implement Smuggler's Slough, Lummi Wetland and Habitat Mitigation Bank, and Nooksack Estuary Recovery Project	Land acquisition in the Lummi River Delta	■	■	■	■	■	Funded through Lummi General Fund appropriations and/or various federal and state programs.
		Water quality and/or flow regime monitoring of Smuggler's Slough project area, including beaver dam monitoring and maintenance	■	■	■	■	■	
		Hydraulic modeling, preliminary design, and implementation of measures to improve connectivity and water quality in Kwina and Smuggler's sloughs	■	■	■	■	■	
Hydromodification	Continue to implement Lummi Wetland and Habitat Mitigation Bank	Land acquisition in the Lummi River and Nooksack River deltas	■	■	■	■	■	Funded through Lummi General Fund appropriations.
		Riparian vegetation monitoring in Phase 1A of the Nooksack Delta site	■	■	■	■	■	
		Tree planting in Phase 1A of the Nooksack Delta site	■	■	■	■	■	
		Invasive species control in Phase 1A of the Nooksack Delta site	■	■	■	■	■	
Agriculture, Hydromodification/ Habitat modification, Urban runoff	Monitor and protect estuarine water quality and habitat via the Surface Water Quality Monitoring Program, Comprehensive Water Resource Management Program, Coastal Zone Management Program, and Tidelands Management	Update of the Coastal Zone Management Program	■	■				Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Submit biennial Water Quality Assessment Reports and export annual monitoring data to the EPA	■	■	■	■	■	
Agriculture, Hydromodification, Urban runoff	Continue to implement the Wellhead Protection, the Wetland Management, and the Storm Water Management regulations and education programs	Continue reviewing on-Reservation Storm Water Pollution Prevention Plans for Construction Sites	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Conduct storm water construction site visits	■	■	■	■	■	
		Continued update of the 1999 Wetland Inventory	■	■	■	■	■	
Marinas and Recreational boating, Spills	Continue to implement Spill Prevention and Response Plan	On the water spill drills semi-annually	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Participation in table top spill drills	■	■	■	■	■	
		Implement Lummi Spill Prevention Response Plan	■	■	■	■	■	
Agriculture, Silviculture, Hydromodification/ Habitat modification, Urban runoff	Conduct case-specific investigations of water quality problems	Conduct additional sampling of on-Reservation waterbodies and/or waterbodies discharging to Lummi Nation waters as needed	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Hydromodification/ Habitat modification	Continue studies to identify ecological flow regime needs	WRIA 1 Watershed Management Project	■	■	■	■	■	Funded through local funding sources and various federal and state grant programs.

**Table 1.** Action Plan to Address Salmonid Habitat Degradation 2021 to 2025

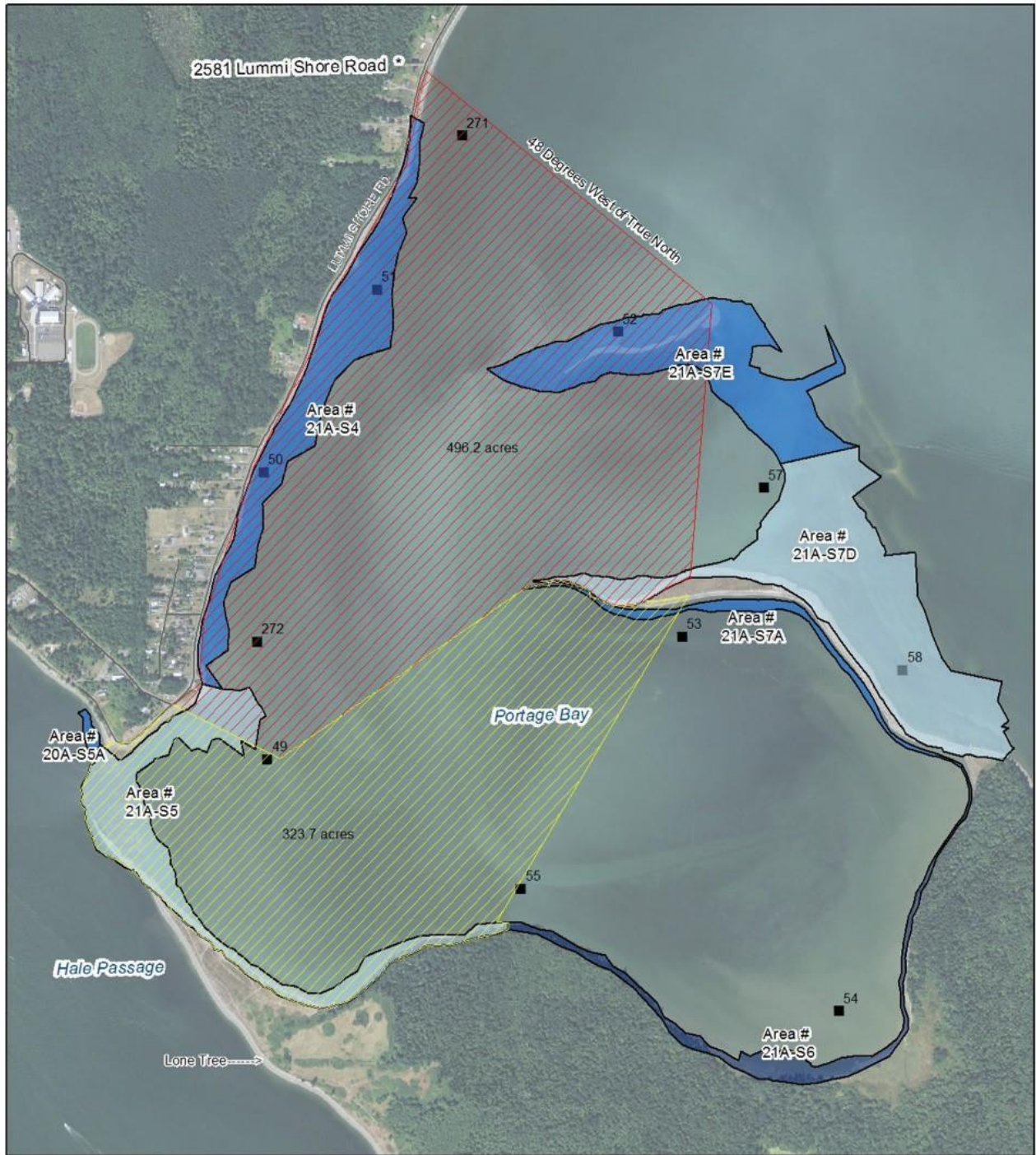
Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Agriculture, Silviculture, Hydromodification/Habitat modification	Stream temperature monitoring	Continuous water temperature loggers at up to ten (10) samples sites throughout the Reservation.	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Agriculture, Silviculture, Hydromodification/Habitat modification, Urban runoff	Continue to coordinate with other federal, tribal, state, and local agencies and private interests	WRIA 1 Salmon Recovery Plan Implementation	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP), other federal and state grant programs, and LIBC appropriations.
		WRIA 1 Watershed Management Project	■	■	■	■	■	
		Nooksack Estuary Recovery Project	■	■	■	■	■	
		National Shellfish Sanitation Program in coordination with Washington Department of Health	■	■	■	■	■	
		Whatcom Clean Water Program	■	■	■	■	■	
		Puget Sound Nearshore Ecosystem Restoration Project (PSNERP)	■	■	■	■	■	
		Lower Nooksack River Comprehensive Flood Hazard Management Plan (CFHMP) Update. Includes System Wide Improvement Framework (SWIF) and Floodplain Integrated Planning Team (FLIP) processes.	■	■	■	■	■	
		Monitor and provide feedback for off-Reservation land use projects that potentially impact salmonid habitat	■	■	■	■	■	



## **Section 2.2. Threat of Shellfish Harvest Closures in Portage Bay and Lummi Bay**

Substantial shellfish beds used for ceremonial, subsistence, and commercial harvest purposes are located in and adjacent to both Portage Bay and Lummi Bay on the Reservation. Water quality monitoring stations in both bays are regularly sampled by the Washington State Department of Health (DOH) in consultation with the Lummi Nation under the Shellfish Consent Decree (Order Regarding Shellfish Sanitation, *United States v. Washington [Shellfish]*, Civil Number 9213, Subproceeding 89-3, Western District of Washington, 1994). The purpose of this monitoring is to ensure that the National Shellfish Sanitation Program (NSSP) standards for certification by the federal Food and Drug Administration are met. Certification of commercial shellfish beds is based on both the quality of surface waters over the growing areas and land use practices in the watersheds that discharge to the growing areas. The Lummi Nation also has a treaty right to harvest shellfish throughout their Usual and Accustomed grounds and stations including within Drayton Harbor and Birch Bay.

In September 2014, when NSSP standards were not achieved at two water quality monitoring stations in Portage Bay, in order to protect public health and safety, the Lummi Nation, in consultation with DOH, voluntarily closed 335 acres of the shellfish growing area. After poor water quality affected additional stations in November 2014 and April 2016, the Lummi Nation and DOH reclassified a total of 820 acres from “Approved” to “Conditionally Approved” (Figure 1). The conditional closure classification prohibited shellfish harvest from the affected areas from April 1 through June 30, and from October 1 through December 31 annually. Following measured water quality improvements coupled with documented on-the-ground improvements during the spring season, all of Portage Bay was reopened to shellfish harvest from April 1 through June 30 beginning in 2019. Poor water quality persists during the fall season and the affected 820 acre area of Portage Bay remains closed to commercial, ceremonial, and subsistence shellfish harvest from October 1 through December 31 annually.



**Portage Bay Shellfish Closure Areas**  
3/8/2016



-  Closed January, 2015
-  Closed March, 2016
-  Roads (Lummi)
-  DOH Water Sample Sites



**Figure 1.** Conditionally Closed Portage Bay Shellfish Growing Area

This 2021-2025 Milestone Update builds on the 2015-2020 action plan in the NPS Pollution Management Plan. The 2015-2020 action plan proved to be a robust framework for addressing shellfish closures, but was not completely successful – as 820 acres of shellfish growing beds in Portage Bay remain seasonally closed. In addition, deteriorating water quality at the NSSP sample site located near the mouth of Jordan Creek in Lummi Bay lead to this site being placed in “Concerned” status in 2016 and in “Threatened” status in 2017; subsequent improvements in water quality lead this site to be listed as “Approved” in 2019. Though this issue appears to have been at least temporarily resolved, it illustrates the vulnerability of Lummi Bay to potential future shellfish growing area closures.

Over the 2015-2020 period, NPS management actions undertaken by LWRD staff included increased frequency of water quality sampling over the shellfish growing areas; increased source identification sampling; application of Best Available Science (described in more detail below); and, perhaps most importantly, coordination with other federal, tribal, state, and local agencies. This focus on interagency collaboration occurred because the source of contamination largely originates off-Reservation.

The Whatcom Clean Water Program (WCWP) is the primary means of locally coordinating agency efforts. Recent actions of the WCWP include, but are not limited to: increased public outreach about fecal coliform contamination of surface waters and readily available information on recent water quality sampling results (e.g., online mapping of preliminary water quality sampling results, shared water quality sampling results database); increased coordination of water quality sampling efforts in the watershed with water quality sampling over the shellfish growing areas to better understand upstream pollution sources and their impacts on downstream waters; and designation of Jordan Creek and Lummi River watersheds as a focus area for the WCWP, including new off-Reservation sample stations monitored by state and local agencies (including ambient [monthly], storm, and source identification sampling regimes) in coordination with LWRD sampling of on-Reservation sites, windshield surveys, landowner contacts, septic system evaluation requirement notification, community outreach, and enforcement actions (e.g., warning letters).

Of note, a new activity, “Best Available Science” (BAS) was added to the action plan under the NPS Pollution Category “*Continue coordination with other federal, tribal, state, and local agencies.*” Below is a brief description of the types of activities that occurred under this category over the 2015-2020 period; LWRD staff will continue to pursue similar actions over the 2021-2025 timeframe.

- Evaluation of an emerging technology (ZAPS Technologies LiquiD Station) that could provide real-time information about *E. coli* levels in the Nooksack River watershed. Initially this was a cooperative agreement between the Lummi Nation and the EPA, which subsequently grew to include several local and state agencies with ultimate deployment of five ZAPS Stations. Unfortunately, and despite the commitment of significant federal, tribal, state, and local resources, the emerging technology was not able to provide the needed information.

- Different methods of utilizing bacteria genetic information are being pursued with the goal to link bacteria contamination to specific sources.

Table 2 summarizes the actions and implementation schedule to both reopen the currently closed shellfish beds in Portage Bay and to prevent additional closures of tribal shellfish beds to ceremonial, subsistence, and commercial harvest for the 2021-2025 period. The effectiveness of the 2021-2025 action plan will be evaluated in terms of the classification status of tribal shellfish beds. If the currently closed shellfish beds are reopened and if there are no further closures of tribal commercial shellfish beds on- and off-Reservation during the duration of the management program, the action plan will be judged to be effective. If not successful, subsequent versions of the management program will have to incorporate additional or more effective actions.

**Table 2.** Action Plan to Address Actual and Potential Closures of Tribal Shellfish Beds 2021 to 2025

Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Agriculture, Silviculture, Urban runoff	Continue on-Reservation Surface Water Quality Monitoring Program	Collect samples at approximately 62 sites on or near the Reservation at least six times per year per station.	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Agriculture, Silviculture, Urban runoff	Continue assisting Washington State Department of Health with surface water quality sampling for National Shellfish Sanitation Program	Collect marine water samples at 12 DOH sample sites in Lummi Bay at least six times a year and 12 DOH sample sites in Portage Bay six times a year.	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Agriculture, Silviculture, Urban runoff	Continue Lummi Natural Resources Department participation on the Technical Review Committee	Provide written comments for Lummi Land Use Applications	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Waste Storage/Storage Tank Leaks	Ensure continued coordination of spill response with Lummi Sewer District for collection and treatment system	Annually review adopted written procedures between the Lummi Tribal Sewer and Water District and Lummi Natural Resources Department for sewer spill notifications.	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Agriculture	Removal of creosote-treated pilings from within Seaponds Aquaculture Facility, Lummi Bay, Nooksack River delta	Secure funding for creosote-treated piling removal within the Lummi Aquaculture Facility, Lummi Bay, and the Nooksack River delta	■	■	■	■	■	Future funding through either Section 319 and/or General Assistance Program (GAP) grants and LIBC appropriations
	Removal of creosote-treated wood debris from Reservation shorelines	Partner with Washington Department of Natural Resources to remove and properly dispose of creosote-treated wood debris found along Reservation shorelines	■	■	■	■	■	Funded through LIBC appropriations
Agriculture, Silviculture, Urban runoff	Continue implementation of Lummi Water Quality Standards	Complete Lummi Administrative Regulation for Section 401 certification process	■	■				Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Tri-Annual review of the Lummi Water Quality Standards	■	■				
Agriculture, Silviculture, Urban runoff	Continue to implement Wellhead Protection, Storm Water Management, and Wetland Management regulations and public education programs	Continue reviewing on-Reservation Storm Water Pollution Prevention Plans for Construction Sites	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC
		Conduct storm water construction site visits	■	■	■	■	■	
		Continued update of the 1999 Wetland Inventory	■	■	■	■	■	
Agriculture, Silviculture, Hydromodification/Habitat modification, Urban runoff, Best Available Science	Continue coordination with other federal, tribal, state, and local agencies	WRIA 1 Watershed Management Project	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP), other federal and state grant programs, and LIBC appropriations.
		Nooksack Estuary Recovery Project	■	■	■	■	■	
		National Shellfish Sanitation Program in coordination with Washington Department of Health	■	■	■	■	■	
		Whatcom Clean Water Program	■	■	■	■	■	
		Ensure use of Best Available Science	■	■	■	■	■	

**Table 2.** Action Plan to Address Actual and Potential Closures of Tribal Shellfish Beds 2021 to 2025

Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Urban Runoff, Land Disposal	Continue to implement the Lummi Nation Integrated Solid Waste Management Plan	Obtain funding and implement the 2014 Lummi Nation Integrated Solid Waste Management Plan	■	■	■	■	■	Seek funding through EPA Grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Increase enforcement to control illegal dumping	■	■	■	■	■	
Agriculture	Implement on-farm monitoring and BMPs to eliminate fecal coliform contamination of surface and ground water	Research and implement methods to eliminate fecal coliform contamination of surface and ground water under the Portage Bay Partnership	■	■	■	■	■	Agricultural community, other funding sources as available and appropriate.

### **Section 2.3. Saltwater Intrusion and Contamination of Reservation Aquifers**

The primary cause of saltwater intrusion into Reservation aquifers is excessive pumping, which is being addressed through negotiations and, as necessary, through litigation. Substantial progress was made to address excessive pumping of the Lummi Peninsula Aquifer in the settlement negotiated to resolve the federal groundwater lawsuit regarding the Lummi Peninsula Aquifer (*United States, Lummi Nation v. Washington State Department of Ecology, et al*, Civ. No. 019047Z [W.D. Wash.]). Implementation of this settlement continues. However, this lawsuit did not address groundwater management in the Northern Lummi Aquifer and conflict over water allocation in this separate aquifer continues.

There are several efforts underway to address groundwater quality as part of the Comprehensive Water Resources Management Program (CWRMP). Table 3 summarizes the activities and implementation schedule for the 2021-2025 period to address NPS pollution sources that have led to saltwater intrusion into Reservation aquifers. The effectiveness of the action plan to address saltwater intrusion and other contamination of Reservation aquifers was and will continue to be evaluated based on the results of the groundwater monitoring program and monitoring results from the Lummi Tribal Sewer and Water District's Safe Drinking Water Act sampling. For the 2015-2020 period, chloride and other contaminant levels did not increase in Reservation aquifers above historical background levels. However, recent data indicates that there may be a slight increase in chloride levels at several wells. This is under investigation and mitigation measures will be implemented as necessary. This approach indicates that the existing action plan is effective and does not require a substantive update. However, if the chloride or contamination levels in monitoring wells continue to increase over time or with increasing aquifer pumping within the duration of this NPS Pollution Management Plan implementation update, subsequent versions of the management program will have to incorporate additional or more effective actions to minimize saltwater intrusion and other contamination into Reservation aquifers.

**Table 3.** Action Plan to Address Saltwater Intrusion and other Contamination of Reservation Aquifers 2021 to 2025

Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Groundwater Withdrawal	Continue on-Reservation Groundwater Monitoring Program	Collect samples at 24 well locations throughout the Reservation 4 to 5 times per year	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Coordinate with LTSWD to prevent saltwater intrusion	■	■	■	■	■	
Silviculture, Urban runoff	Continue Lummi Natural Resources Department participation on the Technical Review Committee	Provide written comments for Lummi Land Use Applications	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Groundwater Withdrawal	Implement the Water Conservation Plan in conjunction with the Lummi Tribal Sewer and Water District	Water Resources Division review water reclamation plans and rainwater catchment systems	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Obtain funding to update and implement a Water Conservation Plan	■	■				
		Publish water conservation educational information in the Squol Quol annually	■	■	■	■	■	
Groundwater Withdrawal	Implement the settlement agreement negotiated to resolve the federal groundwater lawsuit regarding the Lummi Peninsula Aquifer ( <i>United States, Lummi Nation v. Washington State Department of Ecology, et al</i> , Civ. No. 019047Z [W.D. Wash.])	Chloride sampling at LTSWD production wells at least three times a year.	■	■	■	■	■	Funded through LIBC appropriations.
		Yearly chloride sampling and reporting of all wells in the Settlement Area	■	■	■	■	■	
		Continued connection of settlement parties to Lummi Tribal Water System	■	■	■	■	■	
Hydromodification	Ensure EPA oversight of Safe Drinking Water Act compliance of non-tribal water associations on the Reservation	Continue to coordinate with the EPA regarding Safe Drinking Water Act compliance of non-tribal water associations on the Reservation	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations
Hydromodification	Potential purchase of wells that threaten aquifer water quality	Obtain funding for land acquisition.	■	■	■	■	■	Seek funding through LIBC appropriations.
Hydromodification	Continue the decommissioning of wells that are no longer in use and potentially threaten aquifer water quality	Obtain funding for well decommissioning	■	■	■	■	■	Future funding through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Agriculture, Hydromodification/Habitat modification, Urban runoff	Pursue negotiated or litigated resolution of conflicting claims over water rights to Reservation groundwater	Work with Washington State Department of Ecology and other parties to resolve long-standing dispute of water allocation in the Northern Lummi Aquifer	■	■	■	■	■	Being addressed through actions independent of NPS Pollution Management Plan.



**Table 3. Action Plan to Address Saltwater Intrusion and other Contamination of Reservation Aquifers 2021 to 2025**

Nonpoint Source Pollution Category	BMPs	Activity	Year					Potential/Existing Funding Sources
			2021	2022	2023	2024	2025	
Agriculture, Hydromodification, Urban runoff	Continue to implement Wellhead Protection, Wetland Management, and Storm Water Management regulations and education programs	Continue reviewing on-Reservation Storm Water Pollution Prevention Plans for Construction Sites	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Conduct storm water construction site visits	■	■	■	■	■	
		Continued update of the 1999 Wetland Inventory	■	■	■	■	■	
Marinas and Recreational boating, Spills	Continue to implement Spill Prevention and Response Plan	Conduct on-water spill drills with boom deployment two times per year	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
		Participate in two table top spill drill exercises per year with local industries and response community.	■	■	■	■	■	
Groundwater Withdrawal	Incorporate the results of the Lummi Tribal Water District sampling program into the Lummi Water Resources Division database	Integrate data collection systems.	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Waste Storage/Storage Tank Leaks	Ensure continued coordination of spill response with Lummi Sewer District for collection and treatment system	Annually review adopted written procedures between the Lummi Tribal Sewer and Water District and Lummi Natural Resources Department for sewer spill notifications	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP) and LIBC appropriations.
Agriculture, Silviculture, Hydromodification/Habitat modification, Urban runoff	Continue coordination with other federal, tribal, state, and local agencies	WRIA 1 Watershed Management Project	■	■	■	■	■	Funded through EPA Performance Partnership grants (Section 106, Section 319, GAP), other federal and state grant programs, and LIBC appropriations.
		Nooksack Estuary Recovery Project	■	■	■	■	■	
		National Shellfish Sanitation Program in coordination with Washington Department of Health	■	■	■	■	■	
Urban Runoff/Storm Sewers, Land Disposal	Continue to implement the Lummi Integrated Solid Waste Management Plan	Obtain funding and implement the 2014 Lummi Integrated Solid Waste Management Plan	■	■	■	■	■	Seek funding through federal and state grant programs and LIBC appropriations.
		Increase enforcement of illegal dumping	■	■	■	■	■	

### Section 3. Lummi Nation NPS Pollution Management Program Lead Agency Staff

Table 4 below is an update to Table 2.1 from the NPS Pollution Management Plan.

**Table 4.** Lummi Nation NPS Pollution Management Program Lead Agency Staff

<b>Name</b>	<b>Title</b>	<b>Background/Qualifications</b>
Leroy Deardorff, Sr.	LNR Deputy Director	B.S. degree in Environmental Sciences and over 30 years of experience in administrative, technical, and policy positions with the Lummi Nation.
<b>Lummi Water Resources Division (Lead Agency)</b>		
Kara Kuhlman, CFM	Water Resources Manager	B.S. and M.S. degree in Environmental Science and a Certified Floodplain Manager with nearly 15 years of professional experience; has worked for the Lummi Nation since 2013.
Gerry Gabrisch, GISP	GIS Manager	B.A. and M.S. degree in Geography, is a Geographic Information System Professional and has nearly 20 years of experience in natural resources management; has worked for the Lummi Nation since 2005.
Craig Dolphin	Database Manager	B.S. degree in Zoology, M.S. degree in Zoology (Aquatic Ecology), and a Postgraduate Diploma in Applied Science and has over 20 years of experience in natural resources management; has worked for the Lummi Nation since 2001.
Frank Lawrence III	Natural Resources Specialist II/Policy Representative I	B.S. Degree in Native Environmental Science and has over 15 years of experience in natural resource management; has worked for the Lummi Nation since 2003.
Andy Ross, LG, LHg, CFM	Water Resources Specialist III/Hydrologist	B.S. degree in Geology, M.S. degree in Environmental Science, Washington Licensed Geologist and Hydrogeologist, and a Certified Floodplain Manager with nearly 35 years of experience in natural resources management; worked for the Lummi Nation from 1993 to 2005, and again since 2018.
Jamie Mattson	Water Resources Specialist II/Planner, Stormwater Compliance Officer	B.S. degree in Environmental Science with a minor in Geology and nearly 15 years of experience in natural resource management; has worked for the Lummi Nation since 2007.
Hanna Winter	Water Resources Specialist II	B.S. and M.S. degree in Environmental Science with nearly 15 years of professional experience; has worked for the Lummi Nation since 2014.
Shamania James	Water Resources Technician II	Associate's Degree in Arts and Sciences, currently pursuing a B.S. degree, and has over 5 years of experience with natural resources management; has worked for the Natural Resources Department since 2017.
Jeff Solomon	Water Resources Technician II	Currently pursuing a B.S. degree and has nearly 5 years of experience in natural resources management; has worked for the Lummi Natural Resources Department since 2016. Jeff is also a 14-year veteran of the U.S. Army Corps of Engineers.

#### **Section 4. References**

Lummi Water Resources Division (LWRD). 2015. *Lummi Nation Nonpoint Source Assessment Report: 2015 Update*. Prepared for Lummi Indian Business Council, Bellingham, Washington. March.

Lummi Water Resources Division (LWRD). 2015a. *Lummi Nation Nonpoint Source Pollution Management Plan: 2015-2020*. Prepared for Lummi Indian Business Council, Bellingham, Washington. September.