

LUMMI NATION TRIBAL ENVIRONMENTAL PLAN 2016 – 2021

Prepared For:
Lummi Indian Business Council
(LIBC)



Funded By:
U.S. Environmental Protection Agency
(Assistance Agreement No. BG-00J13401-3)
and
Lummi Indian Business Council

Prepared By:
Water Resources Division
Lummi Natural Resources Department

Contributors:
Jeremy Freimund P.H., Water Resources Manager
Kara Kuhlman, Deputy Water Resources Manager
Gerald Gabrisch GISP, GIS Manager

Date
November 2016

This project has been funded in part by the United States Environmental Protection Agency under Assistance Agreement No. BG-00J13401-3 to the Lummi Nation. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

TABLE OF CONTENTS

1. INTRODUCTION.....	3
1.1. Goals and Objectives of the Lummi Nation TEP	3
1.2. Lummi Nation TEP Organization	4
2. DESCRIPTION OF THE LUMMI INDIAN RESERVATION.....	7
2.1. Climate	7
2.2. Topography	9
2.3. Geology	11
2.4. Soils	12
2.5. Reservation Watersheds	15
2.6. Surface Water Resources.....	17
2.6.1. Rivers, Sloughs, Streams, and Ditches	17
2.6.2. Springs and Wetlands	19
2.6.3. Marine and Estuarine Waters	22
2.7. Groundwater Resources.....	22
2.8. Land Use and Socioeconomic Conditions	25
2.8.1. Historic Land Use	25
2.8.2. Current Land Use	27
2.8.3. Future Land Use.....	30
2.8.4. Population	32
2.8.5. Socioeconomic Conditions	32
3. GOVERNMENT ROLES, RESPONSIBILITIES, AND REGULATIONS	37
3.1. Lummi Nation Government.....	37
3.2. The 1855 Treaty of Point Elliott.....	37
3.3. Environmental Protection Agency.....	38
3.4. National Guidance on Indian Policy	38
3.5. Roles and Responsibilities of the Environmental Protection Agency and Lummi Nation	39
3.6. Environmental Laws and Regulations.....	40
3.6.1. Federal Laws.....	40
3.6.1.1. Clean Water Act (CWA)	41
3.6.1.2. Safe Drinking Water Act (SDWA).....	41
3.6.1.3. Clean Air Act (CAA)	42
3.6.1.4. Resource Conservation and Recovery Act (RCRA)	42
3.6.1.5. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	43
3.6.1.6. Emergency Planning and Community Right-to-Know Act (EPCRA)	43
3.6.1.7. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	44
3.6.1.8. Toxic Substances Control Act (TSCA)	44
3.6.1.9. Pollution Prevention Act (PPA).....	44
3.6.1.10. Other Laws	45
3.6.2. Lummi Nation Code of Laws.....	45
3.6.2.1. Natural Resources Code (LCL Title 10)	45
3.6.2.2. Tidelands Code (LCL Title 13)	46
3.6.2.3. Land Use, Development, and Zoning Code (LCL Title 15)	46
3.6.2.4. Flood Damage Prevention Code (LCL Title 15A)	46
3.6.2.5. Sewer and Water District Code (LCL Title 16).....	46
3.6.2.6. Water Resources Protection Code (LCL Title 17).....	47

3.6.2.7. Solid Waste Control and Disposal Code (LCL Title 18)	47
3.6.2.8. Building Code (LCL Title 22)	47
3.6.2.9. Cultural Resources Preservation Code (LCL Title 40)	47
4. ENVIRONMENTAL AND HUMAN HEALTH ASSESSMENTS	49
4.1. Water Resources	49
4.1.1. Lummi Nation Wellhead Protection Program (2011)	49
4.1.2. Lummi Nation Storm Water Management Program Technical Background Document (2011)	53
4.1.3. Lummi Indian Reservation Wetland Management Program Technical Background Document (2000)	56
4.1.4. Lummi Nation Nonpoint-Source Pollution Assessment Report (2015)	57
4.1.5. Lummi Nation Nonpoint-Source Pollution Management Plan: 2015-2020 (2015)	60
4.1.6. Lummi Nation Water Quality Monitoring Strategy (2007)	61
4.1.7. Water Quality Standards for Surface Waters of the Lummi Indian Reservation (2008)	63
4.1.8. Evaluation Report on the Development and Implementation of a Lummi Nation NPDES Program (2005)	64
4.1.9. Evaluation Report on the Development and Implementation of a Lummi Nation Safe Drinking Water Management Program (2004)	65
4.1.10. Water Conservation Plan for the Lummi Indian Reservation (2004)	66
4.1.11. Lummi Nation Water Reclamation and Reuse (1998)	68
4.1.12. Lummi Nation Spill Prevention and Response Plan (2005)	68
4.1.13. Water Resources Inventory Area 1 (WRIA 1) Watershed Management Plan (2005)	71
4.2. Land Resources	76
4.2.1. Comprehensive Land Use Plan (2015)	76
4.2.2. Lummi Nation Integrated Solid Waste Management Plan: 2014-2024 (2014)	77
4.2.3. Lummi Nation Forest Management Plan (2011)	80
4.2.4. Upper South Fork Nooksack River Habitat Assessment (2007)	81
4.2.5. Nooksack River Estuary Habitat Assessment (2005)	82
4.2.6. Lummi Intertidal Baseline Inventory (2010)	83
4.2.7. Lummi Coastal Zone Management Plan (1988)	85
4.3. Other Resources	85
4.3.1. Lummi Nation Multi-Hazard Mitigation Plan: 2015 Update (2015)	86
4.3.2. Lummi Nation Strategic Energy Plan: 2016-2026 (2016)	92
4.3.3. Wind Resource and Feasibility Assessment Report for the Lummi Indian Reservation (2012)	94
4.3.4. Lummi Nation Seafood Consumption Study (2012)	95
4.3.5. Lummi Nation Atlas (2016)	97
4.3.6. Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026 (2016)	98
5. LUMMI NATION PROGRAMS AND PRIORITIES	101
5.1. Divisions of the Lummi Natural Resources Department	101
5.1.1. Water Resources Division	101
5.1.2. Watershed Restoration Division	103
5.1.3. Forestry Division	103
5.1.4. Harvest Management Division	104
5.1.5. Stock Assessment Division	104

5.1.6. Salmon Enhancement Division	105
5.1.7. Shellfish Hatchery Division	105
5.1.8. Endangered Species Act Coordination Division.....	106
5.1.9. Geographic Information Systems Division	106
5.1.10. Timber, Fish, and Wildlife – Forests and Fish Rules Division.....	107
5.2. Environmental Program Priorities	107
5.3. Plan to Address Environmental Program Priorities	108
5.3.1. Comprehensive Water Resources Management Program.....	108
5.3.1.1. Wellhead Protection Program	108
5.3.1.2. Storm Water Management Program	110
5.3.1.3. Wetland Management Program	111
5.3.1.4. Nonpoint-Source Management Program.....	113
5.3.1.5. Water Quality Standards Program	114
5.3.2. Watershed Management Programs	116
5.3.2.1. Water Resources Inventory Area 1 Watershed Management Project...	116
5.3.2.2. Puget Sound Partnership.....	118
5.3.3. Integrated Solid Waste Management Program	119
5.3.4. Lummi Technical Review Committee.....	120
5.3.5. Lummi Nation Multi-Hazard Mitigation Plan	122
5.3.6. Lummi Nation Spill Prevention and Response Program	123
5.3.7. Coastal Zone Management Program.....	125
5.3.8. Climate Change Mitigation and Adaptation Program	127
5.4. Approximate Financial Needs.....	128
5.5. Other Environmental Program Needs	130
5.5.1. Air Quality Management Program.....	130
5.5.1.1. Outdoor Air Quality Management.....	130
5.5.1.2. Indoor Air Quality Management.....	130
5.5.2. Safe Drinking Water Management Program	131
6. FEDERAL PROGRAMS ON THE RESERVATION.....	133
6.1. Lummi Nation Role in Program Implementation.....	133
6.1.1. Current Programs.....	133
6.1.2. Recommended Programs.....	135
6.1.3. Programs Not Currently Being Pursued.....	136
6.2. Inventory of Regulated Entities	136
6.2.1. CWA Inventory	137
6.2.2. SDWA Inventory.....	143
6.2.3. CAA Inventory	145
6.2.4. RCRA Inventory	145
6.2.5. CERCLA Inventory	148
6.2.6. EPCRA Inventory	148
6.2.7. FIFRA Inventory	149
6.2.8. TSCA Inventory	149
6.2.9. PPA Inventory	150
6.3. Administrative/Fiscal Assessment	150
7. CONCLUSION.....	151
8. REFERENCES.....	153
9. ACRONYMS AND ABBREVIATIONS	161

List of Figures

Figure 2.1 Regional Location of the Lummi Indian Reservation	8
Figure 2.2 Topography of the Lummi Indian Reservation and Adjacent Areas	10
Figure 2.3 Lummi Indian Reservation Soils	13
Figure 2.4 Lummi Indian Reservation Watersheds from the 2010 Delineation.....	16
Figure 2.5 Lummi Indian Reservation Watersheds, Streams, Rivers, and Sloughs	18
Figure 2.6 Lummi Indian Reservation Wetland Areas.....	21
Figure 2.7 Lummi Indian Reservation Groundwater Characteristics	24
Figure 2.7 Households on the Lummi Indian Reservation 1910–2010.....	28
Figure 2.8 Upland Use/Land Cover of the Lummi Indian Reservation Watersheds.....	29
Figure 2.9 Current Land Use Zones on the Reservation.....	31
Figure 5.1 Current Lummi Natural Resources Department Organization Chart	102

List of Tables

Table 2.1 Descriptions of Hydrologic Soil Groups of the Lummi Indian Reservation Watersheds.....	14
Table 2.2 Current Land Cover/Land Use Types on the Lummi Indian Reservation.....	27
Table 2.3 Employment Status of Lummi Tribal Members, 2003.....	35
Table 4.1 Lummi Nation Environmental and Human Health Assessments	50
Table 5.1 Estimated Annual Cost to Implement the Tribal Environmental Plan.....	129
Table 5.2 Annual Funding Currently Provided by the EPA	129
Table 6.1 Federal Environmental Programs and the Role of the Lummi Nation.....	134
Table 6.2 Inventory of Regulated Entities under NPDES Permits.....	139
Table 6.3 Inventory of Construction Storm Water Coverage Under NPDES Construction General Permit WAR10000I.....	140
Table 6.4 Inventory of Industrial Storm Water Coverage Under NPDES Multi-Sector General Permit WAR05000I.....	142
Table 6.5 Inventory of Unpermitted Facilities Subject to EPA Inspection under the CWA..	142
Table 6.6 Inventory of Public Water Systems	144
Table 6.7 Inventory of Class V Underground Injection Wells	145
Table 6.8 Inventory of Underground Storage Tanks (USTs)	147

Appendices

Appendix A: EPA Region 10 Programs and Priorities

EXECUTIVE SUMMARY

The purpose of the Lummi Nation Tribal Environmental Plan (TEP) is to (1) develop and implement a standalone environmental plan that addresses all media (water, land, air) on the Lummi Indian Reservation (Reservation) and associated tribal lands and (2) serve as the basis for an intergovernmental environmental agreement between the Lummi Nation and the Environmental Protection Agency (EPA) for the 2016-2021 period.

The Lummi Indian Business Council (LIBC) is responsible for the protection, restoration, enhancement, and management of the natural resources within the boundaries of the Reservation and throughout the Lummi Nation's usual and accustomed (U&A) hunting, fishing, and gathering grounds and stations and traditional territories. The Lummi Natural Resources Department (LNR), administratively within the LIBC, is the caretaker of the Lummi Nation natural resources and is responsible for developing and implementing LIBC policies related to natural resources.

Pursuant to LIBC policy directives, the LNR identifies and addresses actual or potential environmental and human health issues that affect the political integrity, economic security, and the health and welfare of the Lummi Nation, its members, and all persons present on the Reservation and associated tribal lands. To date, the LNR has developed several environmental and human health assessments specific to a particular environmental concern, natural resource, or region, but the Lummi Nation does not have a standalone environmental plan that addresses all media (water, land, air). The TEP provides a summary and overview of the environmental programs currently underway in the LNR and is intended to serve as a guide for future program development. This goal will be attained through the achievement of the following objectives:

1. Recognize the Lummi Nation's existing environmental programs, identify and prioritize environmental and human health issues of concern to the Lummi Nation, and develop a plan on how to address the identified priorities in the 2016-2021 period, including capacity building and program implementation goals.
2. Review the federal environmental programs that the Lummi Nation and/or EPA are implementing on the Reservation and associated tribal lands, including an inventory of regulated entities on the Reservation to determine which federal environmental statutes are applicable.

Additionally, the TEP serves as the basis for a cooperative agreement between the Lummi Nation and the EPA that clearly reaffirms tribal sovereignty and ensures the development and implementation of tribal and federal environmental protection policies and programs. The intent of this Lummi Nation–EPA agreement is to clearly define the mutual roles and responsibilities of the Lummi Nation and the EPA, to help the EPA assist the Lummi Nation in building its capacity and capability to assume regulatory and program management responsibilities for priorities identified by the Lummi Nation, and to identify funding and technical support for managing tribal environmental priorities and increase the flexibility in implementing grants for existing environmental programs. These goals will be attained through the development of an agreement in support of the following principles:

1. Recognize and affirm the government-to-government relationship by clarifying the roles, responsibilities, and relationships of the EPA and the Lummi Nation and, to the extent practicable, by clarifying the environmental roles and responsibilities of other federal agencies, the state, and local governments.
2. Protect the Reservation environment and Lummi resources, including spiritual and cultural sites, to meet or exceed applicable federal, tribal, and state standards. This protection includes, but is not be limited to, effective implementation and enforcement of regulatory programs.
3. Promote tribal stability in funding, regulatory capacity, administrative infrastructure, and other such factors that lead to long-term program implementation by the Lummi Nation.
4. Promote the implementation of the EPA National Indian Policy, guidance, and direction, with due consideration of the Lummi Nation's views.

1. INTRODUCTION

The purpose of this section is to describe the goals of the Lummi Nation Tribal Environmental Plan (TEP) and to summarize the TEP organization. This TEP has been prepared by the Lummi Nation as a guide to develop and implement effective, integrated environmental programs specific to the needs of the Lummi Nation. This TEP was developed by the Water Resources Division of the Lummi Natural Resources Department (LNR).

1.1. Goals and Objectives of the Lummi Nation TEP

The Lummi Indian Business Council (LIBC) is responsible for the protection, restoration, enhancement, and management of the natural resources within the boundaries of the Lummi Indian Reservation (Reservation) and throughout the Lummi Nation's usual and accustomed (U&A) hunting, fishing, and gathering grounds and stations and traditional territories. The Lummi Natural Resources Department (LNR), administratively within the LIBC, is the caretaker of the Lummi Nation natural resources and is responsible for developing and implementing LIBC policies related to natural resources. Pursuant to LIBC policy directives, the LNR identifies and addresses actual or potential environmental and human health issues that affect the political integrity, economic security, and the health and welfare of the Lummi Nation, its members, and all persons present on the Reservation and associated tribal lands. To date, the LNR has developed several environmental and human health assessments specific to a particular environmental concern, natural resource, or region, but the Lummi Nation does not have a standalone Tribal Environmental Plan that addresses all media (water, land, air).

Developing and implementing a comprehensive environmental plan and entering into intergovernmental environmental planning agreements has been a goal of the Lummi Nation since at least 2003, when the LNR completed a draft Tribal Environmental Agreement (TEA) and work plan. A TEA is a cooperative agreement between a tribal government and the Environmental Protection Agency (EPA) that clearly reaffirms tribal sovereignty, and ensures the development and implementation of tribal environmental protection policies and programs. The draft TEA was intended to help the EPA assist the Lummi Nation in building its capacity and capability to assume regulatory and program management responsibilities for priorities identified by the Tribe, and to identify funding and technical support for managing tribal environmental priorities and increase the flexibility in implementing grants for existing environmental programs.

The primary goals and objectives outlined in the draft TEA were to:

1. Recognize and affirm the government-to-government relationship by clarifying the roles, responsibilities, and relationships of the EPA and the Lummi Nation and, to the extent practicable, by clarifying the environmental roles and responsibilities of other federal agencies, the state, and local governments.
2. Protect the Reservation environment and Lummi resources, including spiritual and cultural sites, to meet or exceed applicable federal, tribal, and state standards. This

protection includes, but is not be limited to, effective implementation and enforcement of regulatory programs.

3. Promote tribal stability in funding, regulatory capacity, administrative infrastructure, and other such factors that lead to long-term program implementation by the Lummi Nation.
4. Promote the implementation of the EPA National Indian Policy, guidance, and direction, with due consideration of the Lummi Nation's views.

Although the EPA requested that the LIBC evaluate the development of a TEA between the Lummi Nation and the EPA, which the LIBC determined to be of benefit to the Lummi Nation and directed the LNR to develop, changes in EPA policy de-emphasized TEAs and no further progress was made after the Lummi Nation submitted the draft TEA for EPA review in June 2003. Despite the initial failure to implement an intergovernmental environmental planning agreement, the Lummi Nation and EPA both recognize the importance of working together to address the Lummi Nation's environmental priorities and to ensure that federal programs are fully implemented on the Reservation. As such, one task identified in the Indian General Assistance Program (GAP) grant from the EPA to the Lummi Nation in FY13 was to develop a Tribal Environmental Plan (TEP) that identifies environmental and human health issues on the Reservation and develops a plan to address the priorities identified in the assessment.

This Lummi Nation TEP builds on the framework established in the draft TEA and in addition to the goals and objectives listed above is intended to:

5. Recognize the Lummi Nation's existing environmental programs, identify and prioritize environmental and human health issues of concern to the Lummi Nation, and develop a plan on how to address the identified priorities in the 2016-2021 period, including capacity building and program implementation goals.
6. Review the federal environmental programs that the Lummi Nation and/or EPA are implementing on the Reservation, including an inventory of regulated entities on the Reservation to determine which federal environmental statutes are applicable.

This Lummi Nation TEP will also include an administrative/fiscal assessment to ensure that the Lummi Nation's financial systems meet the requirements of the federal Office of Management and Budget (OMB) guidance on Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal awards (a.k.a., the December 26, 2013 "Super Circular").

1.2. Lummi Nation TEP Organization

The Lummi Nation TEP is organized into the following sections:

- Section 1 is this introductory section.
- Section 2 describes the physical characteristics, land use, and socioeconomic conditions of the Reservation.

- Section 3 describes the roles and responsibilities of the Lummi Nation and the EPA and provides an overview of the environmental laws and regulations that address environmental protection and management on the Reservation.
- Section 4 presents an overview of the Lummi Nation's existing environmental and human health assessments.
- Section 5 discusses the Lummi Nation's programs to address environmental and human health issues, prioritizes which issues to address first, and establishes a plan on how to address the identified priorities.
- Section 6 discusses federal environmental programs that are implemented on the Reservation and includes a list of federally regulated entities and a description of how the Lummi Nation's financial systems meet the requirements of the federal Office of Management and Budget (OMB).
- Section 7 presents a summary and conclusion.
- Section 8 is the list of references cited in this Lummi Nation TEP.

The acronyms and abbreviations used in this Lummi Nation TEP and appendices follow Section 8.

(This page intentionally left blank)

2. DESCRIPTION OF THE LUMMI INDIAN RESERVATION

The Lummi Indian Reservation (Reservation) is located in northwest Washington State, approximately eight miles west of Bellingham, Washington (Figure 2.1). The Reservation is located along the western border of Whatcom County and at the southern extent of Georgia Strait and the northern extent of Puget Sound. Approximately 38 miles of highly productive marine shoreline surround the Reservation uplands on all but the north and northeast borders. The Reservation includes approximately 12,500 acres of uplands and 7,000 acres of tidelands. The Nooksack River drains a watershed of approximately 786 square miles, flows through the Reservation near the mouth of the river, and discharges to Bellingham Bay (and partially to Lummi Bay during high flows). The Reservation is comprised of a five-mile long peninsula (Lummi Peninsula), which separates Lummi Bay on the west and Bellingham Bay on the east; a northern upland area and the smaller Sandy Point peninsula that separates Georgia Strait on the west and Lummi Bay on the east; the floodplains and deltas of the Lummi River and the Nooksack River; Portage Island; and associated tidelands.

The climate, topography, geology, soils, surface and ground water resources, and land use affect and are affected by the natural resources management on the Reservation. This section briefly describes each of these elements. More detailed descriptions can be found in the following documents: Lummi Nation Wellhead Protection Program 2011 Update (LWRD 2011b); Lummi Reservation Storm Water Management Program Technical Background Document 2011 Update (LWRD 2011a); Lummi Indian Reservation Wetland Management Program Technical Background Document (LWRD 2000); the Lummi Nation Nonpoint Source Pollution Management Plan: 2015-2020 (LWRD 2015), and the Lummi Nation Nonpoint Source Pollution Assessment Report 2015 Update (LWRD 2015).

2.1. Climate

The Pacific Northwest climate and ecology are largely shaped by the interactions that occur between seasonally varying precipitation patterns and the region's mountain ranges. Approximately 75 percent of the regions precipitation occurs in just half the year (October – April) when the Pacific Northwest is on the receiving end of the Pacific storm track. Based on climate data collected at the nearby Bellingham International Airport, the average annual precipitation on the Reservation is approximately 36 inches. On average, November, December, and January are the wettest months; June, July, and August are the driest months.

Temperature on the Reservation is relatively mild year round. Temperature data collected at the Bellingham Airport from 1949 – 2005 indicate that the warmest months are July and August. During these months the average maximum daily temperature is approximately 71 degrees Fahrenheit (°F). December and January are the coldest months when the average minimum daily temperatures are about 32°F. The growing season is “the portion of the year when soil temperature (measured 20 inches below the surface) is above biological zero (5°Celsius [C] or 41°F)”. May through September is the approximate growing season for agricultural crops in the area (Gillies 1998).

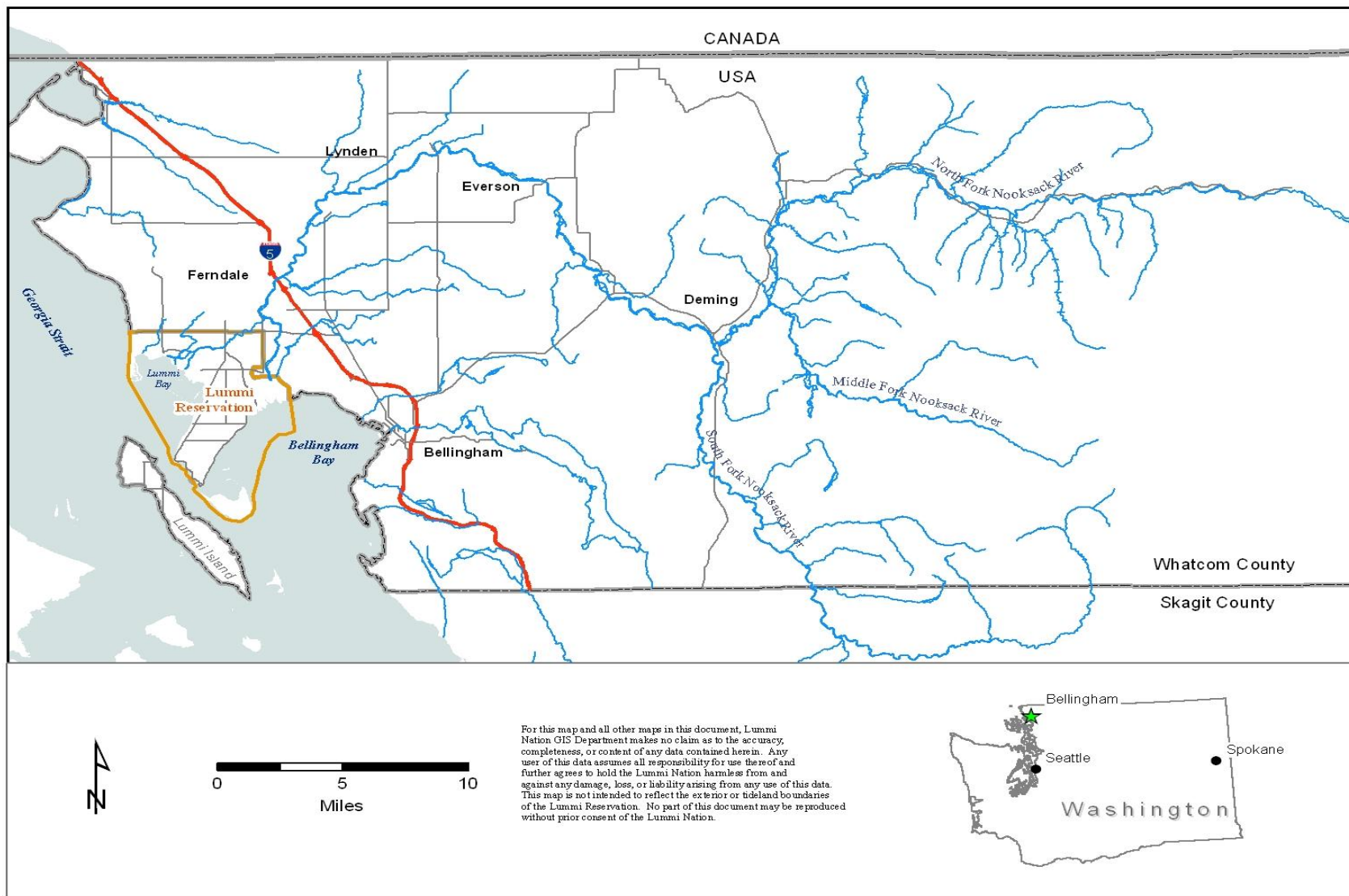


Figure 2.1 Regional Location of the Lummi Indian Reservation

Wind data for Bellingham indicate that the prevailing wind direction on the Reservation is from the south and southeast with gusts upward of 80 miles per hour. Winds from the west are not as common and generally not as strong (Corps 1997). Wind roses developed from meteorological data collected at two locations on the Reservation as part of a wind energy development feasibility assessment over the January 2011 through January 2012 period indicate that the wind direction is from the south-southeast or south about 50 percent of the time and from the north or northeast about 15 percent of the time (DNV KEMA 2012).

The Reservation experiences a variety of infrequent weather patterns. A typical but infrequent weather pattern is generated from the northeast by cold air masses moving down the Fraser River valley. Strong winds from this pattern, blowing across the Fraser and Nooksack river basins, have caused damage to the residents and businesses of the Reservation (USDA 1992). Another typical but infrequent weather pattern involves continental air masses from the east that bring unusually dry weather that can last a few days or weeks (USDA 1992). During the summer, these air masses bring unusually warm temperatures (mid to upper 90s Fahrenheit). During the winter, these air masses usually bring cold temperatures (0°F and colder).

2.2. Topography

The Lummi Indian Reservation is comprised of two relatively large upland areas, a smaller upland area on Portage Island, and the two distinct lowland areas (the floodplains) of the Lummi and Nooksack rivers and the Sandy Point Peninsula as shown in Figure 2.2. The maximum elevation of the northwestern upland area of the Reservation is about 216 feet above the North American Vertical Datum 1988 (ft NAVD88). The southern upland area is the Lummi Peninsula with a maximum elevation of about 178 ft NAVD88. The floodplain of the Lummi and Nooksack rivers, with an average elevation of approximately 10 ft NAVD88, lies between the northern and southern upland areas. The Nooksack River and the Nooksack River delta are located along the northeastern extent of the Reservation. The Sandy Point Peninsula lies to the southwest of the northwestern upland. Portage Island lies at the southeastern tip of the Lummi Peninsula and has a maximum elevation of approximately 209 feet NAVD88.

The upland and lowland areas of the Reservation total about 12,500 acres; the associated Reservation tidelands total approximately 7,000 acres. Individual tribal members or the Lummi Indian Business Council (LIBC) own more than 75 percent of the upland area; 100 percent of the tideland areas are held in trust by the United States for the Lummi Nation.

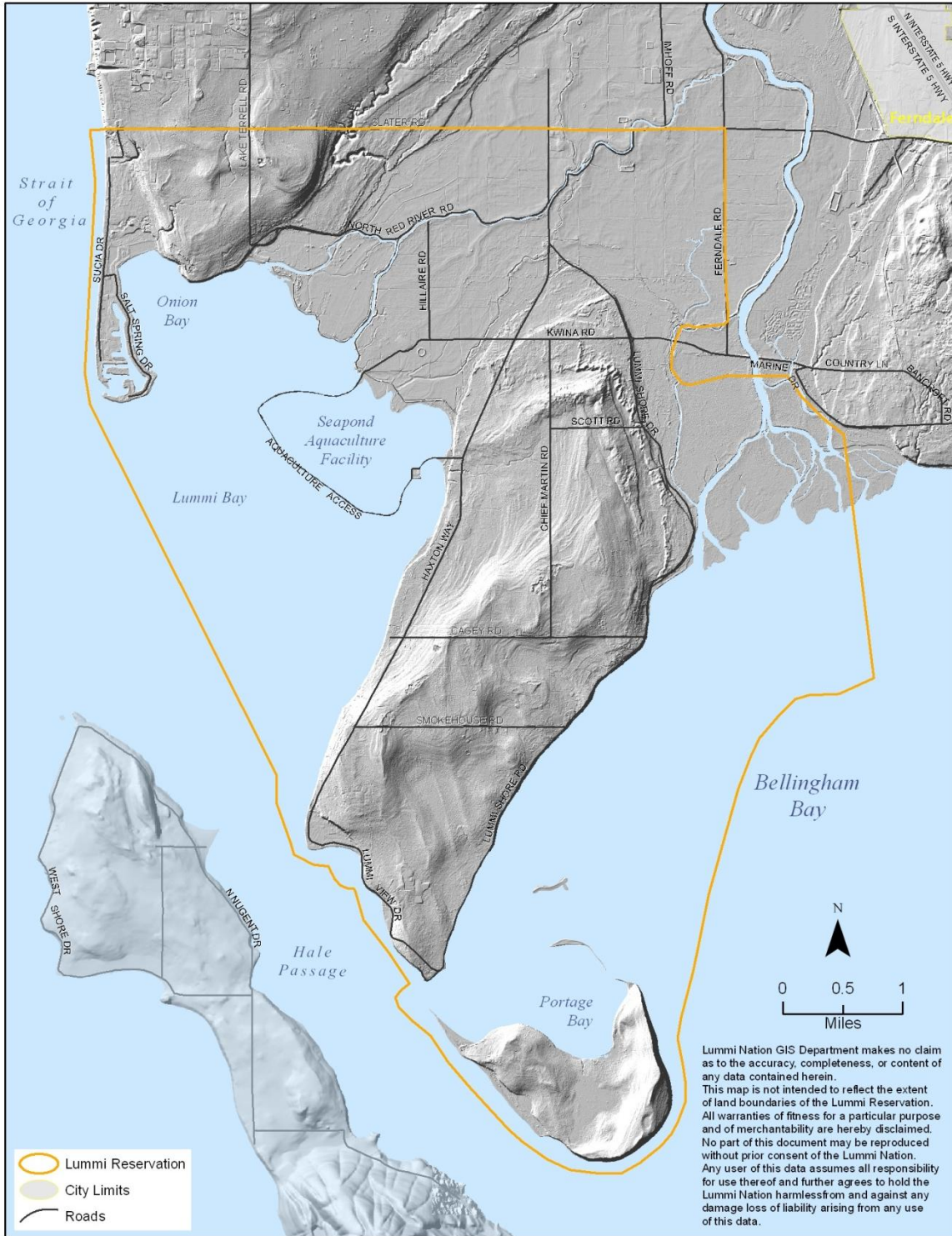


Figure 2.2 Topography of the Lummi Indian Reservation and Adjacent Areas

2.3. Geology

The Reservation is underlain by unconsolidated sediments deposited as glacial outwash, glaciomarine drift, glacial till, and floodplain or delta deposits of Quaternary age (Washburn 1957). During the Pleistocene, the sea level rose and fell dramatically as the climate changed and the earth's crust warped. Inundation by seawater caused the glaciers to float and deposit layers of clay, silt, sand, gravel, and boulders. After the glacier receded, the Nooksack River occupied an old channel formed by the glacial melt-water and began depositing material on either side of the Lummi Peninsula (then an island). As the river delta grew, it connected the Lummi Peninsula to the mainland.

The sediment units that occur on the Reservation, as described by Cline (1974) and Easterbrook (1976) in order from youngest to oldest, are summarized below.

- **Alluvium:** The alluvium is derived from sediment carried by the Lummi and Nooksack rivers and deposited on the floodplain. It is comprised mostly of clay, silt, sand, and some gravel.
- **Beach Deposits:** The beach deposits are laid by littoral drift processes. The deposits are mostly sand with some gravel and occur mainly at the western part of the Reservation from Neptune Beach to Sandy Point and at Gooseberry Point.
- **Older Alluvium:** The older alluvium was deposited by the Lummi River and Nooksack River when the valley floor was relatively higher than at present. The unit consists mostly of fine sand with some silt and clay located on stream terraces flanking the uplands above the floodplain. These deposits occur along the southeast flank of the Mountain View Upland and the northeast flank of the Lummi Peninsula.
- **Gravel:** A thin unsaturated gravel unit is exposed at the surface at several locations on the Reservation. The unit consists of gravel and sand/gravel. In places, this unit appears to have been reworked by beach processes during post-glacial uplift and overlies glaciomarine drift.
- **Glaciomarine Drift:** The Glaciomarine Drift unit was deposited late in the Fraser Glaciation (from about 20,000 years ago to about 10,000 years ago [Easterbrook 1973]). The drift is comprised of unsorted clay, silt, sand, gravel, and some cobbles and boulders. The deposits include both Kulshan and Bellingham drifts.
- **Glacial Till:** The glacial till from the Vashon Stade of the Fraser Glaciation is comprised of poorly sorted clay, silt, sand, gravel, and some cobbles and boulders. Because the presence of till is noted in only a few well logs and has been observed at only a few locations along the Lummi Peninsula bluffs, the occurrence of till is believed to be limited.
- **Esperance Sand:** The Esperance Sand unit, formerly named Mountain View Sand and Gravel, is advance outwash comprised of stratified beds of sand and gravel with stratified lenses of sand. The unit overlies the Cherry Point Silt unit and underlies the glaciomarine drift and till; it is the major water-yielding unit beneath the Reservation (Easterbrook 1976).

- **Cherry Point Silt:** The Cherry Point Silt unit is the oldest known unconsolidated stratigraphic unit in the northern Puget Sound lowland. The unit is comprised of a thick sequence of blue to brownish gray stratified clay and silt with minor sandy beds.
- **Bedrock:** The bedrock underlying the Reservation consists mostly of sedimentary rocks such as sandstone, siltstone, shale, and conglomerate. The bedrock is deeply buried by unconsolidated glacial deposits.

2.4. Soils

Soil scientists have identified 17 general soil units in Whatcom County, eight of which are found on the Lummi Indian Reservation (Figure 2.3). The United States Department of Agriculture (USDA) – Natural Resource Conservation Service (NRCS) has further identified and described forty different soil types on the Reservation from the general soil units (USDA 1992). The eight general soil units are:

- **Mt. Vernon-Puyallup:** Very deep, moderately well drained, nearly level soils; located on river terraces and floodplains covered with shrubs or conifers.
- **Eliza-Tacoma:** Very deep, very poorly drained, level soils that generally have been artificially drained; located on floodplains, deltas, and tidal flats lower than 20 feet of elevation.
- **Kickerville-Barston-Everett:** Very deep, well drained and somewhat excessively drained, level to very steep soils; located on outwash terraces and glacial moraines.
- **Lynden-Hale-Tromp:** Very deep, well drained to somewhat poorly drained, level to generally sloping soils; located on outwash terraces at 50 to 300 hundred feet in elevation.
- **Whatcom-Labounty:** Very deep, moderately well drained and poorly drained, level to very steep soils; located dominantly on glaciomarine drift.
- **Birchbay-Whitehorn:** Very deep, moderately well drained and poorly drained, level to gently sloping soils; located on glaciomarine drift plains.
- **Estuarine Unit:** Very deep, poorly drained, level, located on tidal flats.
- **Unstable Soil Unit:** Moderately deep to very deep, well drained soils, very steep slopes, located on mountainsides, canyonsides, and ridges.

As part of the characterization, each soil type was assigned to one of four hydrologic soil groups based on their runoff-producing characteristics (USDA 1992). The hydrologic soil group, along with the cover type, drainage area, channel length, and land slope, can be used in the USDA Curve Number Method to estimate runoff volumes, peak discharge, and hydrographs for specified storms (USDA 1970). The primary consideration in assigning a soil to a hydrologic soil group is the inherent infiltration capacity of the soil with no vegetation (USDA 1992). The hydrologic soil groups, which are labeled A, B, C, or D, are described in Table 2.1. In essence, Group A soils have a low runoff potential and a high infiltration potential whereas Group D soils have a high runoff potential and a low infiltration potential.

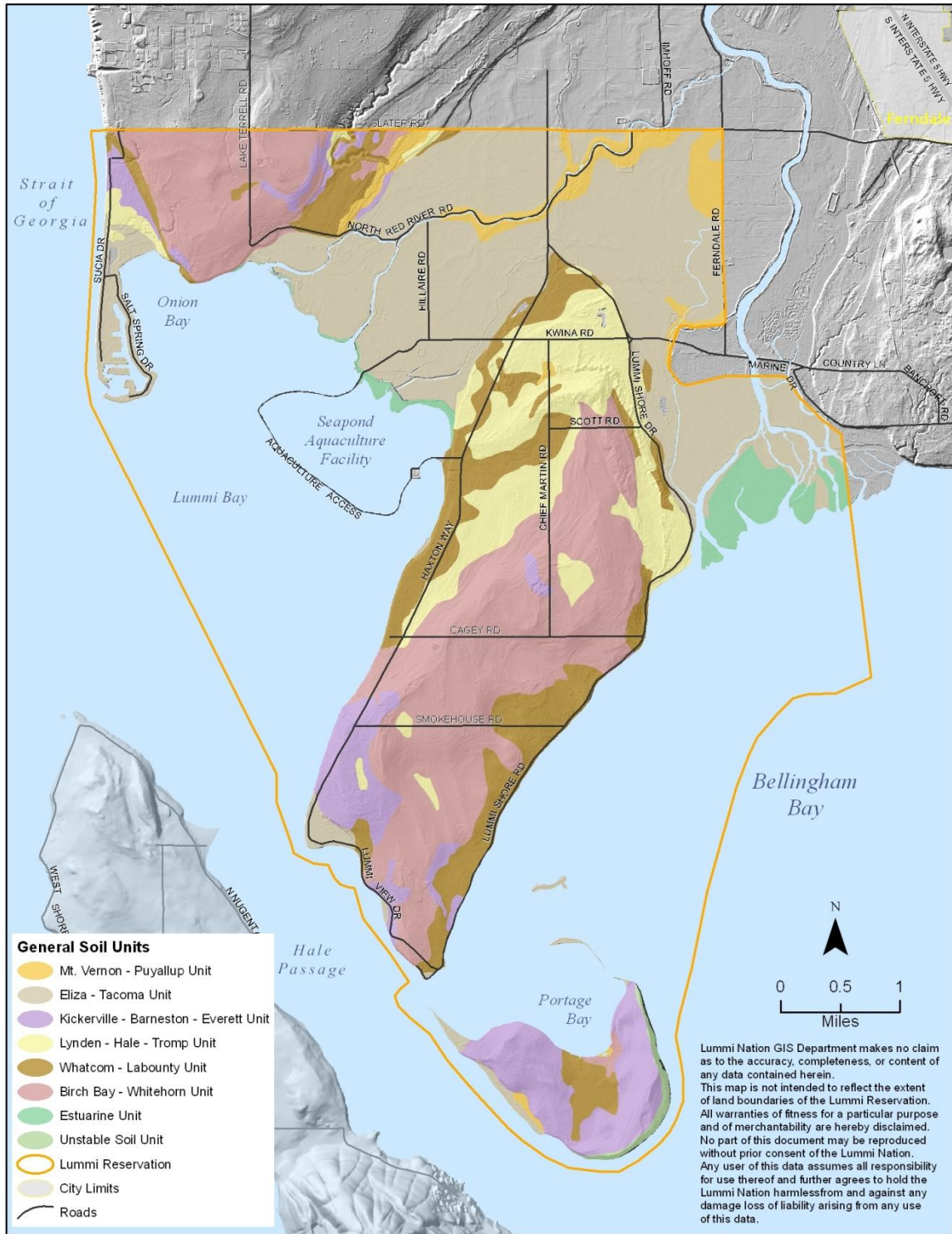


Figure 2.3 Lummi Indian Reservation Soils

Table 2.1 Descriptions of Hydrologic Soil Groups of the Lummi Indian Reservation Watersheds¹

Hydrologic Soil Group	Description²	Percent of Reservation Soils
A	Soils having high infiltration rates even when thoroughly wetted, consisting chiefly of deep (3 to 6+ feet), well to excessively drained sands (loamy sands, sandy loam, and sands) and/or gravel. These soils have a high rate of water transmission and a low runoff potential.	2.0
B	Soils having moderate infiltration rates when thoroughly wetted; consisting chiefly of moderately deep (20+ inches) and moderately well to well drained soils with moderately fine to moderately coarse textures (loam, silt loam). These soils have a moderate rate of water transmission and a moderately low runoff potential.	7.5
C	Soils having slow infiltration rates when thoroughly wetted; consisting chiefly of: 1) soils with a layer that impedes the downward movement of water, and 2) soils with moderately fine to fine texture (sandy clay loam) and slow infiltration rates. These soils have a slow rate of water transmission and a moderately high runoff potential.	45.3
D	Soils having slow infiltration rates when thoroughly wetted; consisting chiefly of: 1) clay soils with high swelling potential, 2) soils with a high permanent water table, 3) soils with clay pan or clay layer at or near the surface, and 4) shallow soils over nearly impervious materials. These soils have a very slow rate of water transmission and a high runoff potential.	45.2

¹Not including the off-Reservation extent of Watershed S (Nooksack River watershed)² USDA 1992

2.5. Reservation Watersheds

Reservation watersheds were initially delineated and mapped during the development of the 1998 Lummi Reservation Storm Water Management Program (SWMP) Technical Background Document based on available 7.5 minute quadrangle mapping with a 20-foot contour interval and field observations. The watershed boundary map developed as part of the SWMP is a working map that was intended to change as new information is acquired. The initial map was first modified to account for field observations made during the field verification element of the comprehensive wetland inventory of the Reservation (Harper 1999; LWRD 2000). During 2010 the watershed delineation map was modified to incorporate the results of a Light Detection and Ranging (LiDAR) data collection effort and the resultant digital elevation models of the Reservation and the areas adjacent to the Reservation (Figure 2.4) (LWRD 2011a).

Alphabetic letters A through S identified the Reservation watersheds that resulted from the initial evaluation. The watershed delineations that resulted from the LiDAR based digital elevation models resulted in the incorporation of two of the initial watersheds (Watershed N and Watershed M) into other watersheds (Figure 2.4). It is anticipated that names will be assigned to each watershed over time. Seventeen watersheds drain the Reservation uplands into Lummi and Bellingham bays, Hale Passage, and Georgia Strait. The watersheds vary in size from 134 acres up to 4,097 acres not including the Nooksack River watershed. The Nooksack River discharges to Reservation tidelands, but most of the approximately 786 square mile (503,040 acres) Nooksack River watershed is upstream of the Reservation. Seven of the watersheds originate off-Reservation and the remaining ten occur entirely within the Reservation.

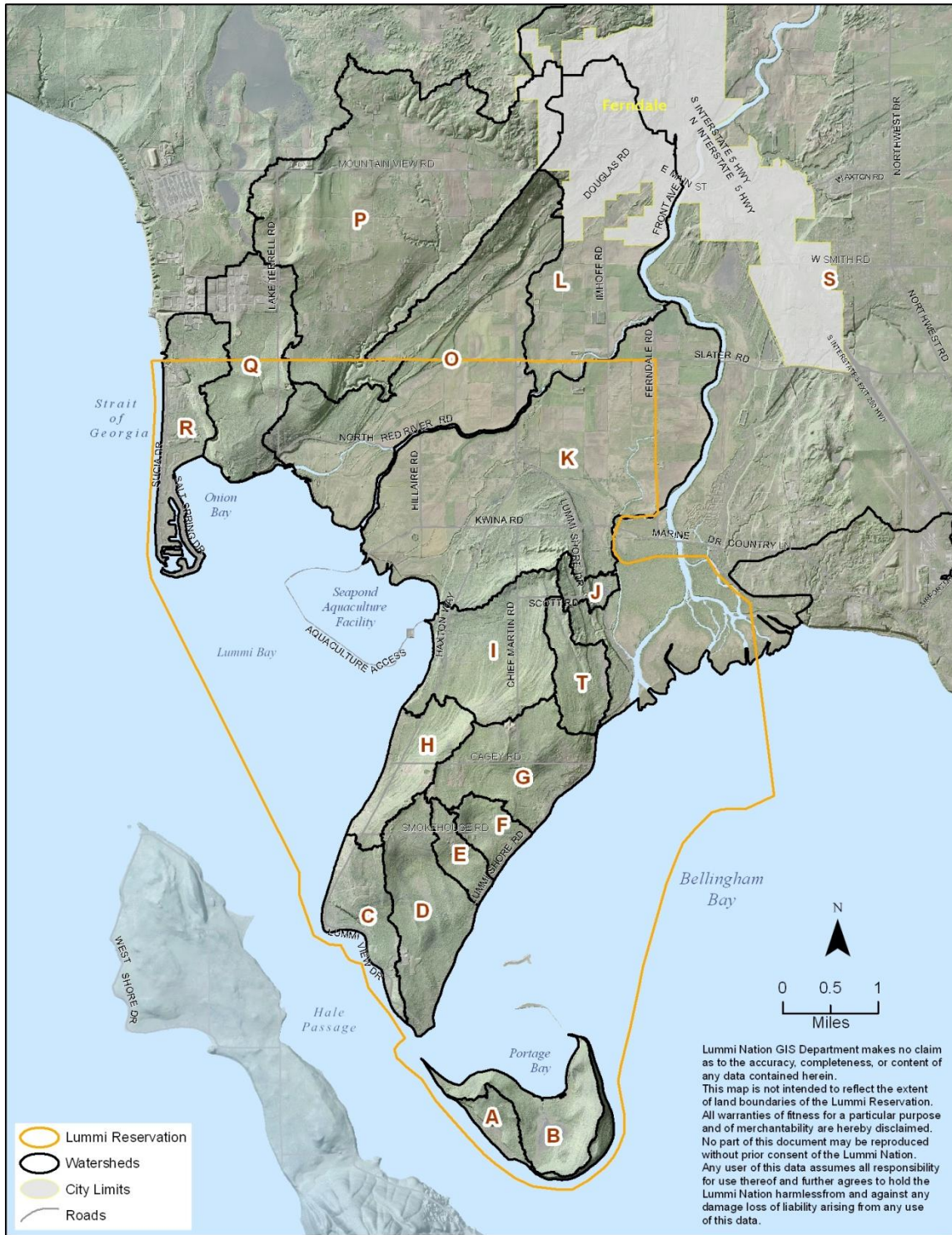


Figure 2.4 Lummi Indian Reservation Watersheds from the 2010 Delineation

2.6. Surface Water Resources

The Lummi Nation is the largest fishing tribe in the Puget Sound in terms of pounds of fish landed and number of species fished (NWIFC 2012), and has relied on their water resources since time immemorial for ceremonial, subsistence, and commercial purposes. Surface waters in the study area include the Nooksack River, the Lummi River, sloughs, small streams, roadside and agricultural ditches, springs, wetlands, estuaries, and marine waters. There are approximately 38 miles of marine shoreline surrounding the Reservation (except along portions of the east boundary and the northern boundary). The associated tidelands extend from the Georgia Strait to Lummi Bay, Hale Passage, Portage Bay, and Bellingham Bay. In addition to marine waters, there are approximately 24.4 miles of rivers, streams, sloughs, and drainages on the Reservation including the multiple distributary channels of the Nooksack River delta (Figure 2.5). There are no lakes on the Reservation, but there are approximately 13 ponds. Finfish and shellfish spawn, incubate, and grow within and adjacent to Lummi Nation Waters (LNR 2010).

2.6.1. Rivers, Sloughs, Streams, and Ditches

The Nooksack River drains most of western Whatcom County and currently flows through the Reservation and discharges into the marine water of Bellingham Bay near the eastern extent of the Reservation. The Nooksack River reach located on the Reservation is tidally influenced. Streamside levees are in place to protect adjacent lands from flooding and agricultural lands from saline water. Several named sloughs, which are remnants of former river channels, have been incorporated into the agricultural drainage network built on the floodplain of the Lummi and Nooksack rivers.

The Lummi River currently carries storm water runoff from the Ferndale upland as well as the drainage from a complex network of agricultural ditches in the floodplain. Tidal waters enter the Lummi River from Lummi Bay twice daily and during the late dry season saline water extends upstream to at least Slater Road. Although Nooksack River water currently flows through a collapsed four-foot diameter culvert into the Lummi River channel only during high-flow events (greater than approximately 9,600 cubic feet per second [cfs]), available data indicate that the Lummi River flow was around 200 cfs as recently as June 1955 (WSDC 1964), when a 5-foot culvert allowed freshwater to flow from the Nooksack River into the Lummi River channel (Deardorff 1992).

There are several mapped and previously unmapped streams on the Reservation. Most of the unmapped streams have poorly defined channels and contain surface flow only during the October through May period (wet season). The approximate locations of these streams were identified as part of the inventory of storm water facilities. No flow conditions were observed in all of the streams during a field survey of all Reservation streams in late August 1996.

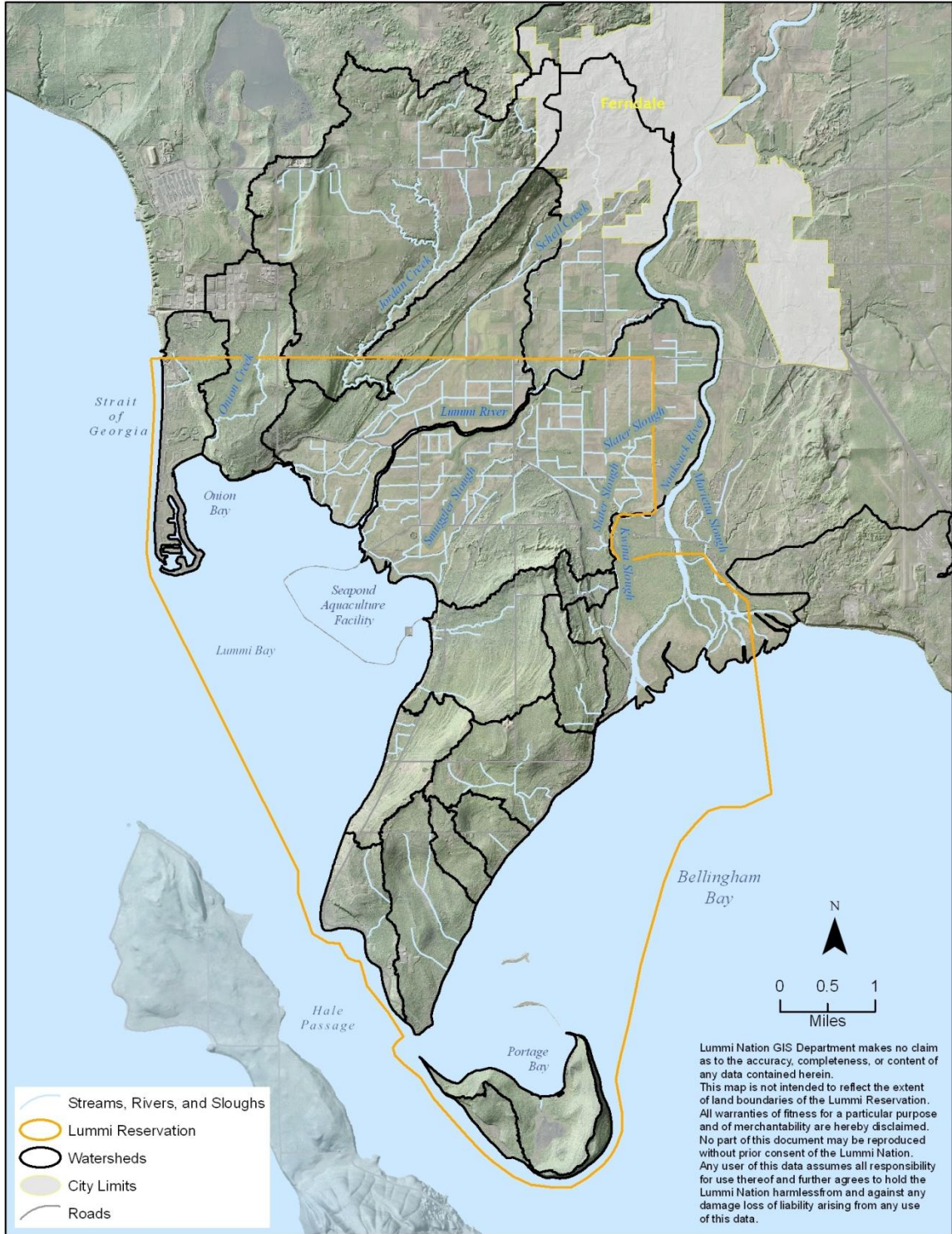


Figure 2.5 Lummi Indian Reservation Watersheds, Streams, Rivers, and Sloughs

2.6.2. Springs and Wetlands

Upland springs are found throughout the Reservation and are commonly groundwater discharge zones for shallow, perched aquifers. A seep or spring occurs if the land surface intercepts the aquifer, and wetlands may occur at the seep or spring if conditions are favorable (e.g., clayey soils, shallow slope). In addition to upland springs, springs occur along the shoreline or below the ordinary high water line (vegetation line) at numerous locations on the Reservation.

Historically, springs emerging in the uplands served as a water supply for the Lummi people. In many cases, the springs are part of a wetland system in which the water reinfilters along the lower terraces to return to groundwater. The springs are important for wildlife habitat and for aquifer recharge and protection. Upland aquifers, which provide the primary Reservation drinking water supply and water for salmon egg incubation and rearing in the hatchery program, have experienced depletion and saltwater intrusion. Where it occurs, the infiltration of freshwater above the shorelines provides a buffer against saltwater intrusion.

The 1999 comprehensive inventory of Reservation wetlands indicated that approximately 43 percent of the Reservation land area is either wetlands or wetland complexes (Harper 1999, LWRD 2000). Wetland complexes are areas where wetlands and uplands form a highly interspersed mosaic. During the wetland inventory, boundaries were drawn around the outer edges of the mosaic of upland and wetland areas and the entire area was labeled as a “wetland complex”. Consequently, the estimated total wetland area identified in the inventory represents more wetland area than actually exists. Approximately 60 percent of the floodplain on the Reservation was classified as wetlands or wetland complexes (Lynch 2001). An update to the 1999 wetlands inventory is currently underway. The update includes using Global Positioning System (GPS) technology to refine the locations and extent of all wetlands on the Reservation and the collection of additional information on the functions and classifications of these wetlands. As of December 31, 2015 approximately 297 wetlands and 3,533 acres of wetland area have been evaluated as part of the update to the 1999 wetland inventory (LWRD 2015). Figure 2.6 presents the results of the 1999 wetland inventory as currently updated by the ongoing GPS-based wetland inventory.

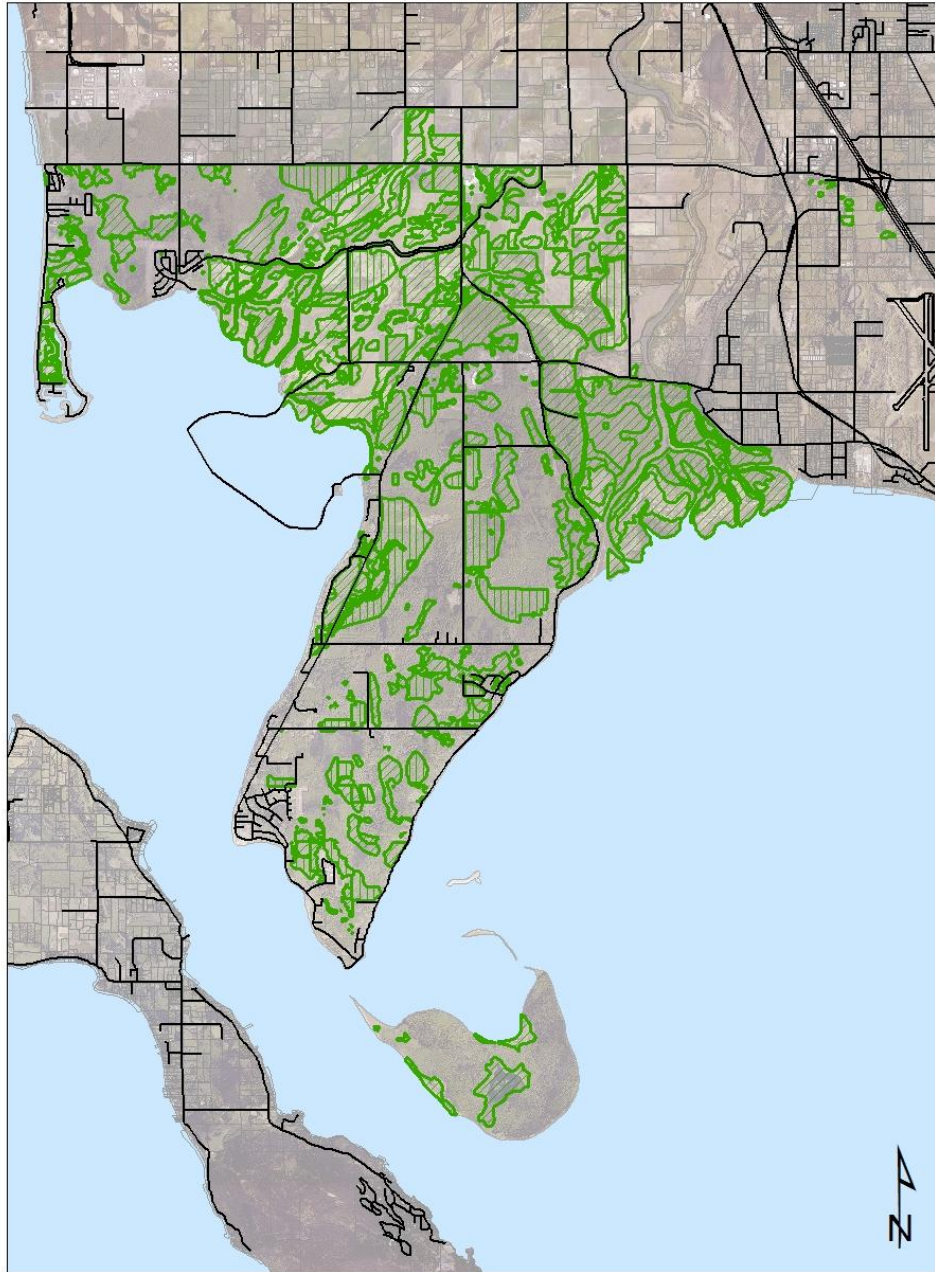
Most of the once extensive floodplain wetlands of the Lummi and Nooksack rivers have been diked, drained, filled, and cultivated since the late 1800s. Low areas near some of the sloughs still reflect the rich and complex wetland habitat that likely covered most of the lower floodplain before human alteration. Small estuarine wetlands lie in sheltered, low energy areas at Onion Bay, Neptune Beach, Portage Island, the Lummi River floodplain, the Nooksack River delta, and adjacent to the Seaponds Aquaculture Facility dike. Road construction and agricultural activity have altered the wetlands that are north of Marine Drive and adjacent to the Nooksack River. South of Marine Drive, many of the wetlands in the Nooksack River delta have been physically altered by the accumulation of sediment deposited by the Nooksack River as it discharged to the marine waters of Bellingham Bay. The Nooksack River delta was identified as the fastest growing delta relative to its basin size in Puget Sound, with a progradation of approximately one mile over the 1888-1973 period (Bortleson et al. 1980). Consequently, a large area that was once intertidal is now supratidal and new wetlands have been formed. In addition to the delta progradation, the wetlands of





the Nooksack River delta are likely affected by the low instream flows and poor water quality that characterizes the river during some summer months.

The majority of the estuarine wetlands of the Lummi and Nooksack rivers will be protected and functionally improved in the future through the implementation of the Lummi Nation Wetland and Habitat Mitigation Bank. The mitigation bank will be developed in phases. Phase 1A, which encompasses most of the Nooksack River estuary, became operational during 2012. The area will be protected into perpetuity through a conservation easement and enhancement measures like invasive species control and under planting with conifers will improve the ecological functions of the estuary. The mitigation bank will be used to mitigate unavoidable impacts to habitat and wetlands on the Reservation, but credits will also be available to buyers in the service area surrounding the Reservation (LWRD 2008b).

Remnants of what were once extensive high-value wetlands are located on the Sandy Point Peninsula between Sucia Drive and the private Sandy Point marina. The private Sandy Point marina and its associated canal system were excavated in the 1960s from uplands that were periodically inundated by marine waters. Road construction, dense residential development and associated shore defense works, and drainage facilities now limit tidal inundation, but wildlife and wetland vegetation is abundant. Plants of traditional cultural significance have been identified in this area. Further north along Sucia Drive, formerly dry and seasonally wet areas are now permanently flooded as a result of road construction that blocked natural drainage.

These palustrine/estuarine emergent wetlands of the lowlands/floodplains are significant for storm water attenuation, floodwater storage, water quality enhancement, fish habitat, wildlife habitat, and for plants with traditional cultural importance. The estuarine wetlands provide critical rearing habitat for migrating salmon, herring, smelt, and other finfish and shellfish. The significance of these wetlands is increasing as wetlands upstream from the Reservation are altered and destroyed. These Reservation wetlands reduce the water quality impacts of land uses on Lummi commercial, ceremonial, and subsistence shellfish growing areas in Portage and Lummi bays. Protecting and enhancing floodplain and estuarine wetlands is essential to preserving and/or restoring interdependent fish, shellfish, and wildlife habitats in addition to reducing flood damage.



-  Wetland
-  Wetland Complex
-  Roads
-  Parcels

Lummi Nation makes no claim as to the accuracy, completeness, or content of any data contained herein. This map is not intended to reflect the extent of land boundaries of the Lummi Reservation. All warranties of fitness for a particular purpose and of merchantability are hereby disclaimed.

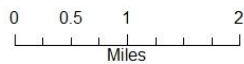


Figure 2.6 Lummi Indian Reservation Wetland Areas

2.6.3. Marine and Estuarine Waters

Brackish estuarine waters grade to marine waters of the Reservation in Lummi Bay, Portage Bay, portions of Bellingham Bay and Hale Passage, and the shoreline along Georgia Strait. Saline water moves across tideflats and into the Lummi and Nooksack river channels twice daily with the tidal cycle. The saltwater underlies the less dense freshwater and moves as a wedge upstream. Saltwater has been observed upstream as far as Slater Road in the Lummi River but has not been observed along Marine Drive in the Nooksack River. Tidal effects on the water level (backwater effects) in the Nooksack and Lummi rivers have been observed even further upstream and possibly occur as far upstream as Ferndale during certain flow and tidal conditions.

Estuarine waters of the Nooksack and Lummi river deltas form the interface between marine and freshwater. Estuarine waters are important habitat for juvenile and adult salmon as they acclimate to either saline or freshwaters during their seaward and landward/spawning grounds migrations, respectively. Estuaries also serve as habitat for juvenile and adult individuals of many other important aquatic species (LNR 2010).

The complex and rich aquatic resources that provide feeding grounds for fish also attract a large variety of wildlife. The estuaries of the Lummi and Nooksack rivers are a part of the Pacific Coast flyway for ducks, geese, swans, and shorebirds. These estuaries are also habitat for peregrine falcon and bald eagle; both formerly listed species under the Endangered Species Act (ESA). Estuarine wetland ecosystems in general, including saltwater marshes, are considered among the most productive (in biomass production per unit area) natural ecosystems on earth. In addition to providing rearing habitat for juvenile salmonids and other species, these ecosystems export a large amount of biomass to estuaries. This biomass can form a large portion, sometimes the majority, of the base of the estuarine food web (Mitsch and Gosselink 1993).

Lummi Bay tideflats are extensive and rich in resources for tribal commercial, subsistence, and ceremonial purposes and as feeding areas for wildlife. Less extensive tideflats at Gooseberry Point, the Stommish Grounds, and Portage Bay are also important to the tribal economy and culture. The Lummi Intertidal Baseline Inventory (LIBI) was completed in 2010 in order to document the existing diversity, abundance, distribution, and habitats of the biological resources that are found on the Reservation tidelands. The LIBI integrates the results from six surveys that were conducted in 2008 and 2009 with compatible pre-existing information. Over 242 separate taxa were documented on the Reservation during the LIBI (LNR 2010).

2.7. Groundwater Resources

Groundwater in Reservation aquifers is obtained primarily from outwash deposits of sand and gravel in the unconsolidated glacial sediments, which are recharged by local precipitation. Glaciomarine drift is at or near the ground surface over much of the upland areas on the Reservation. The glaciomarine drift overlays the outwash deposits and contains substantial amounts of clay. This clay restricts the recharge to the underlying aquifer and promotes storm water runoff.

Two (apparently separate) potable groundwater systems occur on the Reservation. One system is located in the northern upland area (Figure 2.7). This northern system appears to flow onto the Reservation from the north and drains to the west, south, and east. The second potable groundwater system is located in the southern upland area of the Reservation (Lummi Peninsula) and is completely contained within the Reservation boundaries (LWRD 2011b). The floodplain of the Lummi and Nooksack rivers, which contains a surface aquifer that is saline, separates the two potable water systems (Cline 1974). A third potable water system may exist on Portage Island, but information on the water quality and the potential yield of this system is limited and inconclusive (LWRD 2011b).

In general, both the northern and southern groundwater systems contain two aquifer types (Washburn 1957, Easterbrook 1976). The upper aquifer type is comprised primarily of lenses of sand or sand and gravel that are in or above the glaciomarine drift. These relatively permeable lenses are not continuous throughout the area. The lower aquifer layer is comprised of advance outwash sand and gravel. The thickness of the lower aquifer, which appears to be semi-confined in places and unconfined in other places, is not known. The pebbly clay in the drift sediments and scattered deposits of till greatly slow the downward percolation of water to the lower aquifer and may act locally as a confining layer.

Because the hydrogeologic conditions on the Reservation vary considerably over short vertical and horizontal distances, the precise locations of the aquifer recharge zones are not definitively known at this time. It is likely that aquifer recharge areas are distributed over the upland areas. However, given the low infiltration potential of the glaciomarine drift that covers much of the Reservation upland, it is also possible that aquifer recharge areas are of limited areal extent and are located primarily in only a few locations around the Reservation. Until information that is more precise is developed, all of the northern and southern upland areas on the Reservation are assumed to be aquifer recharge zones.

As a finite resource, groundwater is one of the most important and critical of the Lummi Nation's resources. Over 95 percent of the residential water supply for the Reservation is pumped from local groundwater wells. Reservation groundwater resources are particularly vulnerable to pollution due to geographic and hydrogeologic conditions, which may be exacerbated by future growth and development on the Reservation. The Reservation is located in a coastal area along the inland marine waters of the Puget Sound and Georgia Strait. Most of the existing water supply wells on the Reservation are located within a half mile of marine waters. Progressive saltwater intrusion has already led to the closure of several public water supply wells. Increased pumping, possible future reductions in groundwater recharge areas as the forested uplands of the Reservation are converted to residential or municipal uses, and rapid economic and population growth could further threaten the Lummi Nation's groundwater resources if such activities are not managed effectively.

Groundwater resources are vulnerable to contamination by pollutants introduced on or near the ground surface by human activities (e.g., illegal solid or hazardous waste dumping). Agricultural, residential, municipal, commercial, and industrial land uses increase the

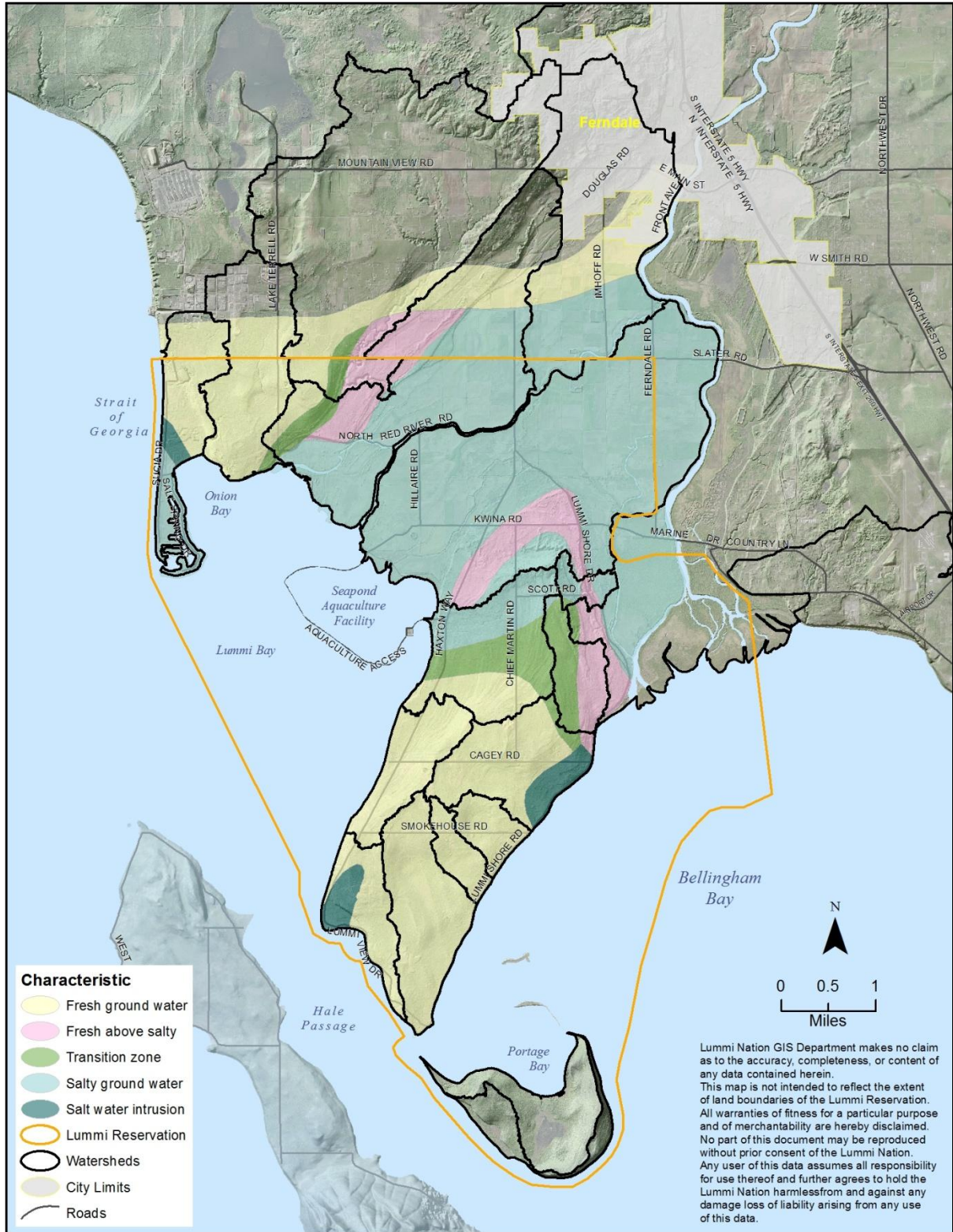


Figure 2.7 Lummi Indian Reservation Groundwater Characteristics

potential for groundwater contamination. Groundwater contamination could lead to the loss of the primary water supply source for the Reservation because water supply wells are difficult to replace, groundwater contamination is very expensive to treat, and some damages to groundwater caused by contamination may be impossible to mitigate.

2.8. Land Use and Socioeconomic Conditions

Like most places, land use changes on the Reservation have been associated with changes in vegetation types, decreases in the areas covered by vegetation, changes in natural drainage patterns, and increases in impervious surfaces. With the arrival of Euro-Americans, forested land was logged, cleared, and drained for agriculture development, homes, municipal development, and commercial enterprises. Historic and current land uses in the Reservation watersheds and socioeconomic conditions on the Reservation are described below. Much of the information about historic land uses and socioeconomic conditions comes from the *Lummi Nation Comprehensive Environmental Land Use Plan: Background Document* (LIBC 1996).

2.8.1. Historic Land Use

Before the arrival of Euro-Americans, the Lummi people were a fishing, hunting, and gathering society. Based on the accounts of Lummi Elders, early European explorers, and early photographs of the region, before 1850 old-growth forests of massive Douglas fir, western hemlock, spruce, and western red cedar dominated what was to become the Lummi Reservation. Deciduous trees such as western big leaf maple, black cottonwood, red alder, and western paper birch were also likely present along the rivers, streams, and open areas. Understory vegetation probably included vine maple, Oregon grape, several different willows, ocean spray, salmon berry, thimbleberry, soapberry, and many others. Wetlands, streams, and rivers supported a unique array of plants adapted to wet environments. The marine shoreline was also a unique environment, where only plants adapted to a saltwater-influenced environment thrived.

The forces that shaped vegetation patterns in the Northwest before the arrival of Euro-Americans were forest succession, fires, windstorms, ice storms, floods, and traditional use of natural vegetation by the indigenous peoples. Native American uses of vegetation included the gathering of medicinal plants, the use of willows and other shrubs for fishing, and the extensive use of western red cedar trees for many things, including clothing, baskets, buildings, and canoes. Many plants were also sources of food to complement the traditional diet of fish, shellfish, elk, and deer. Native Americans cultivated some of these plants, such as ferns, camas, and wapato, in prairies along the Nooksack River.

Similar to most areas in the lower Nooksack River watershed downstream from Everson, conversion of forestland to agricultural land occurred on the Lummi Reservation following the arrival of Euro-Americans. In 1896, approximately 1,222 acres were reportedly under cultivation on the Reservation. Along with clearing the forested land for agriculture, Euro-Americans constructed ditches, drained wetland areas, cleared logjams, diverted the Nooksack River to drain into Bellingham Bay, built a levee that cut off the Lummi River delta from the Nooksack River, and built a seawall along Lummi Bay. These changes in the natural hydrology of the Lummi Reservation changed the distribution and patterns of

watercourses and of wetland- and riparian-associated plant communities. Figure 2.5 shows the extent of the agricultural drainage network on the Reservation in the Lummi and Nooksack river floodplain.

Much of the cedar on the Reservation was cut into shingle bolts and shipped to local shingle mills. The old-growth trees on Portage Island were cut down to fuel steamboats traveling the Nooksack River. One or more large fires swept through the Reservation area between 1850 and 1900. These fires destroyed nearly all of the remaining old-growth forests. Since reforestation was not practiced during the early logging period and did not begin until approximately 1980, pioneer tree species, such as alder, willows, and cottonwood, soon replaced the conifer forests and dominated the landscape (Leckman 1990).

Historically, the Nooksack River flowed (alternately or simultaneously) to both Lummi and Bellingham bays (effectively making the Lummi Peninsula an “island”). Before 1860, the Nooksack River discharged primarily into Lummi Bay by way of the present Lummi River channel, with smaller distributaries flowing into Bellingham Bay (WSDC 1960; Deardorff 1992). In 1860 a logjam blocked the Nooksack River near present day Ferndale and diverted it to a small stream that flowed into Bellingham Bay (WSDC 1960). Since that time, considerable effort has been expended to keep the Nooksack River discharging into Bellingham Bay because of the increased commercial value of the river that resulted from its proximity to sawmills along Bellingham Bay (Deardorff 1992). Until the early 1900s, the Nooksack River was also the primary transportation corridor to as far upstream as present day Lynden. The water body remaining in the old channel of the Nooksack River has been called the Lummi River or the Red River (WSDC 1960).

In the 1920s, a reclamation project was initiated both to construct a dike/seawall to keep back the sea along the shore of Lummi Bay and to construct a levee along the west side of the Nooksack River (Deardorff 1992). This project, which was started in 1926 and completed in 1934, initially resulted in the nearly complete separation of the Lummi River from the Nooksack River. However, when saltwater intrusion onto the newly reclaimed farmlands and damage to the dam at the head of the Lummi River occurred during flooding, the dam was replaced with a dam and spillway structure (Deardorff 1992). This spillway structure was also damaged over the years during high-flow conditions and was replaced in 1951 by a five-foot-diameter culvert that allowed flow from the Nooksack River into the Lummi River (FEMA 2004). Currently a partially collapsed four-foot diameter culvert allows flow to the Lummi River only during relatively high-flow conditions (approximately 9,600 cfs) (Deardorff 1992). Levees were also constructed along the Lummi River to prevent saltwater from Lummi Bay from flowing onto adjacent farmlands during higher tides. The dike and levee construction activities were accompanied by agricultural ditching to drain fields and wetland areas. Based on 1887-88 topographic surveys, Bortleson et al. (1980) estimated that wetlands located landward of the general saltwater shoreline in the lower Lummi River watershed have decreased from approximately 2.0 square miles to 0.1 square miles (approximately 95 percent) over the 1888-1973 period.

Between 1920 and 1960 several new public roads providing access to Ferndale and Bellingham as well as a toll ferry to Lummi Island were constructed and led to an increase in development on the Reservation. Since 1960 there has been a significant increase in the total

population on the Reservation and the number of tribal members living on the Reservation. The increase in the number of enrolled Lummi tribal members living on the Reservation has been attributed to improved economic conditions within the community, the beginning of tribal self-governance, the increased availability of housing and utilities, and a renewed sense of Lummi cultural identity.

2.8.2. Current Land Use

Over the last century, the increase in population, the construction of extensive road networks, development of wastewater collection and treatment systems, the construction of the Sandy Point Marina, and several tribal housing projects have fostered a trend towards higher density neighborhoods throughout the Reservation. Several distinct residential neighborhoods now exist, mainly along the shores of the Reservation including Sandy Point, Neptune Beach, Sandy Point Heights, and Gooseberry Point (Figure 2.7). Higher density residential neighborhoods can also be accessed from the numerous spur roads along Haxton Way and Lummi Shore Road, which are the primary roads along the perimeter of the Lummi Peninsula. Lummi Nation Geographic Information Systems (GIS) analysis identified 1,975 addressed structures on the Reservation in 2009. Although increased residential and commercial development has occurred on the Reservation in the last few decades, the majority of the Reservation remains rural.

The approximation of the current land cover and land use in the Reservation watersheds is shown in Figure 2.8. This map was derived from the 2006 National Oceanic and Atmospheric Administration (NOAA) database, Classification of Coastal Washington, which is part of the Coastal Change Analysis Program (C-CAP) of the NOAA Coastal Services Center (NOAA 2006). The map gives an overview of the extent of forest and agricultural lands, residential areas, and wetlands in these watersheds. The estimated distribution of land cover/land use types within the Reservation boundaries is summarized in Table 2.2.

Table 2.2 Current Land Cover/Land Use Types on the Lummi Indian Reservation

Land Cover/Land Use	Percent of Area ¹
Residential	2.59
Forest	20.88
Scrub-Shrub	47.79
Wetlands	3.46
Cultivated Land/Grassland	25.28

¹ Does not include the off-Reservation portions of the Lummi Watersheds or tribal tidelands

The majority of the forested areas are on the Lummi Peninsula, Portage Island, and the Northwest Uplands. Although there are some conifer groves and Douglas fir plantations, the 2007 inventory of Reservation forests showed that present day forests are largely comprised of deciduous trees, with some mixed deciduous/conifer stands (International Forestry Consultants, Inc. 2007).

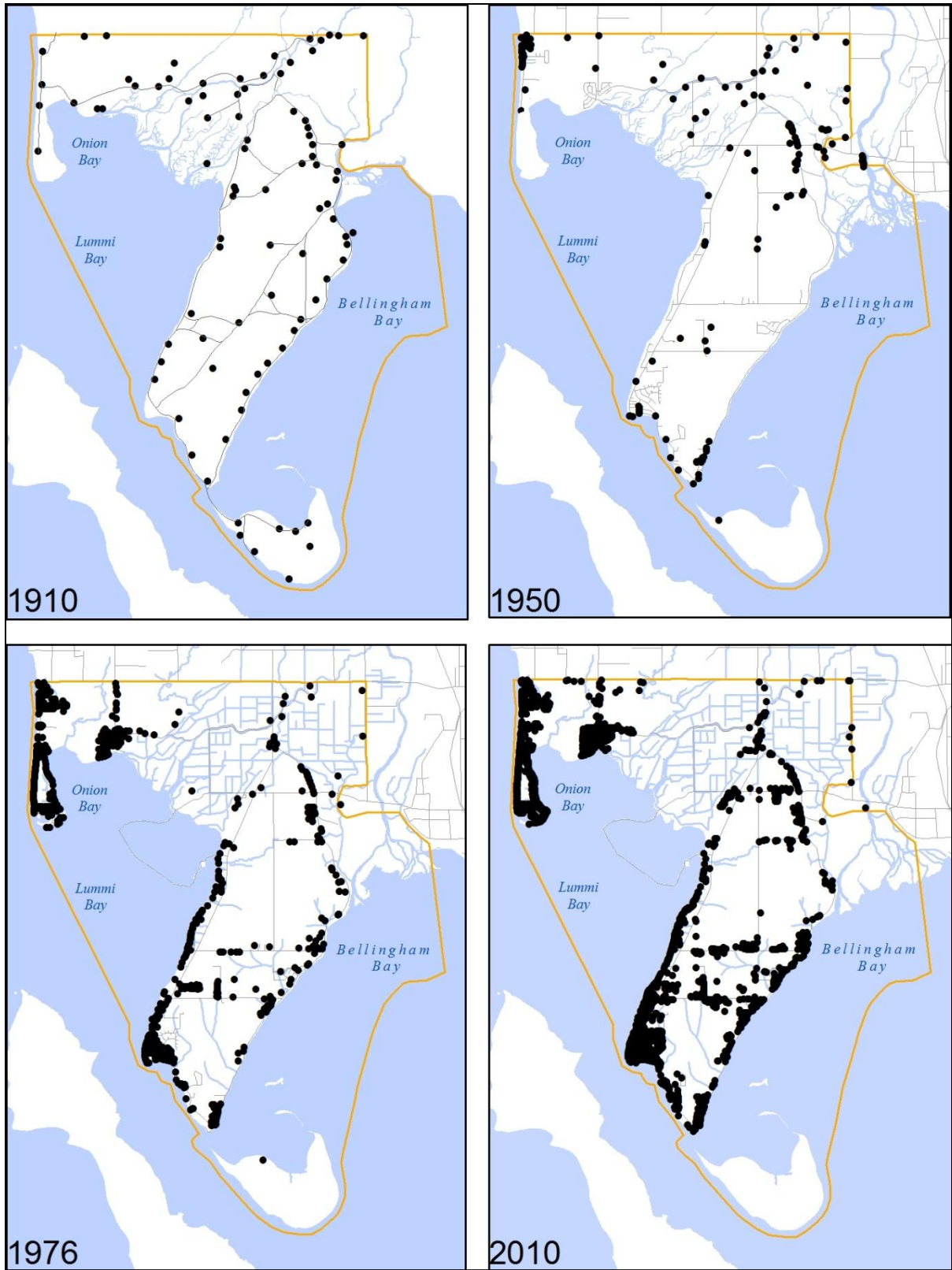


Figure 2.7 Households on the Lummi Indian Reservation 1910–2010

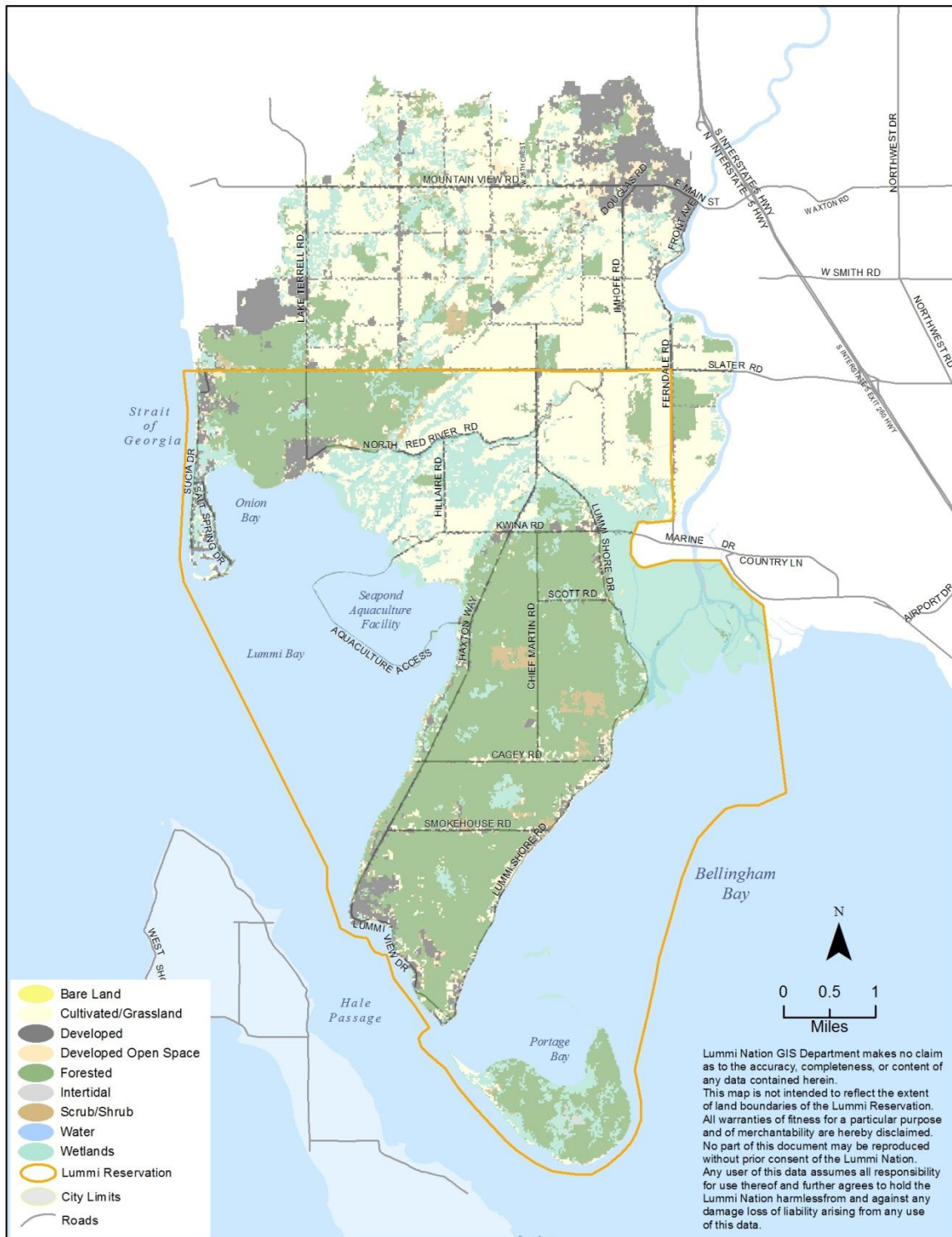


Figure 2.8 Upland Use/Land Cover of the Lummi Indian Reservation Watersheds

The floodplains of the Lummi and Nooksack Rivers are sparsely developed. The most important commercial enterprise in the floodplains is the Silver Reef Hotel, Casino & Spa and the adjacent gas station and mini-mart. This commercial center is located at the

intersection of Haxton Way and Slater Road. The floodplains are dominated by agricultural lands and wetlands, both freshwater and estuarine. The tribal center along Kwina Road includes the LIBC offices and the Northwest Indian College (NWIC). The NWIC and the LIBC offices are undergoing an expansion along the south side of Kwina Road.

Wetlands are underrepresented on the C-CAP map, as the remote sensing analysis did not recognize large swathes of forested and scrub-shrub wetlands, but counted them towards forests and scrub-shrub. Based on the 1999 Reservation-wide wetland inventory, the percentage of the Reservation land base that is wetland is closer to 40 percent than the 3.46 percent listed in Table 2.2 (LWRD 2000).

Based on estimates of land cover in Whatcom County, land cover/use in the Nooksack River watershed is generally dominated by forested areas upstream from the town of Deming and agricultural lands downstream from Deming (Whatcom County 2005). The agricultural lands in the lowlands were largely forested before the arrival of Euro-Americans and had been largely denuded of trees by 1925 (Pierson 1953, as cited in Smelser 1970). Population centers such as Ferndale, Lynden, Everson, and Deming are located adjacent to the Nooksack River.

2.8.3. Future Land Use

Future development on the Reservation is guided by a number of tribal laws (Lummi Code of Laws [LCL]) and associated regulations including:

- LCL Title 15: Land Use, Development, and Zoning Code
- LCL Title 15A: Flood Damage Prevention Code
- LCL Title 16: Sewer and Water District Code
- LCL Title 17: Water Resources Protection Code
- LCL Title 22: Building Code
- LCL Title 40: Cultural Resources Preservation Code

Figure 2.9 shows the current official zoning map of the Lummi Indian Reservation. This zoning map was revised and adopted by the LIBC in 2004 as part of the comprehensive planning effort currently underway by the Planning and Public Works Department. The zoning update incorporated comments from tribal departments and commissions and from public comments received during four community meetings.

The Lummi Planning and Public Works Department is developing a Comprehensive Plan for the Lummi Reservation. The plan will show, in general, how land on the Reservation will be used over the next 20 years. The Comprehensive Plan will identify areas that will be developed for residential, commercial, mixed uses, industrial, and agricultural purposes, as well as show areas that require protection (e.g., Special Flood Hazard Areas, wetlands, and aquifer recharge zones). To date, a technical background document (LIBC 1996) has been developed, public opinion surveys conducted, drafts of the Comprehensive Plan and maps developed, and focused planning workshops and meetings with commissions and community

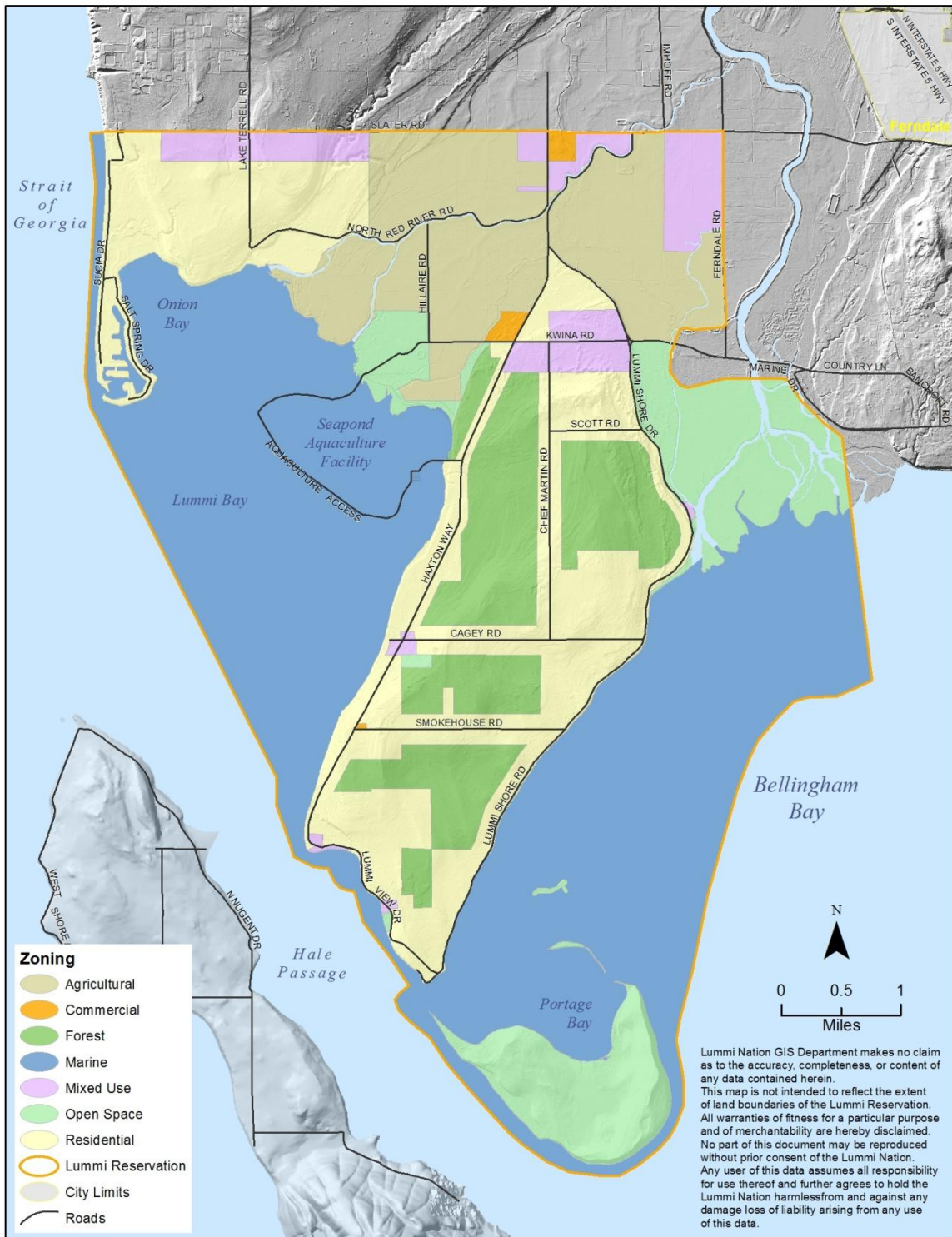


Figure 2.9 Current Land Use Zones on the Reservation

groups have occurred. The Comprehensive Plan is codified in LCL Title 15 (Land Use, Development, and Zoning Code). Title 15 also formalizes an environmental review process that was already largely in place pursuant to LIBC resolutions.

2.8.4. Population

According to the 2010 Census, a total of 4,706 people lived on the Reservation during 2010, which is an 11 percent increase from the 2000 Census population of 4,193. In the 2010 Census, 2,643 people (56.2 percent) on the Reservation identified themselves as American Indian and Alaska Native (Indian) alone or in combination with other races. Corrected by the 2010 undercount rate (4.9 percent), approximately 2,772 American Indians or Alaska Natives are currently living on the Reservation. Population projections from a 2003 study by Northwest Economic Associates suggest that the number of American Indians living on the Reservation would increase from 2,346 persons in 2000 to 3,767 persons in 2020 and to 15,451 persons in 2100. Including the non-Indian population, which was predicted to grow at a slower rate, the Reservation population is estimated to reach 5,800-6,800 persons by 2020. In 2011, the Lummi Enrollment Office reported that there were approximately 4,650 enrolled Lummi tribal members living on- and off-Reservation (Kamkoff 2011).

2.8.5. Socioeconomic Conditions

Fishing, logging, farming, and other natural resource work have historically provided most of the jobs for Lummi tribal members. Until the 1974 Boldt Decision, Lummi tribal members were systematically precluded from the profitable salmon fishery in Puget Sound. Once the treaty fishing right was upheld by the U.S. Supreme Court, commercial fishing and fish processing began to expand on the Reservation resulting in increasing numbers of fishermen, fish processing, and increased overall tribal revenue from salmon fisheries.

The Lummi Nation is the largest fishing tribe in the Puget Sound in terms of pounds of fish landed and number of species fished (NWIFC 2012). However, the recent declines in salmon stocks have dramatically altered the tribal reliance on salmon fishing as an economic mainstay. In 1985, the average Lummi fisherman made \$22,796 (\$49,000 in 2011 dollars). In 1993, the average income from fishing was only \$5,555 (\$8,500 in 2011 dollars). During this period, about 30 percent of the tribal work force relied on fishing for their sole source of income (LIBC 1996). In the 10 year period between 1995 and 2005, there were an average of 592 fishing registrations and 126 crabbing registrations each year. During the 2012-2013 harvest management year (July 1 – June 30) there were 404 vessels registered with the Lummi Nation.

Over the last ten years, the crab fishery has provided the largest percentage of the yearly fishery revenue followed by sockeye salmon and manila clams. Since 1993, further reductions in salmon stocks have resulted in closure of some fisheries and a further reduction in tribal fishery incomes (LIBC 1996). During 1999, 2007, 2009, and 2013 the sockeye salmon fishery was closed entirely due to low fish runs. The loss or reduction of a fishery increases the importance of the other fisheries to the Lummi economy. Although there are annual variations, 2001 is representative of the most recent 10 years. In 1985, the Lummi Fishing Fleet landed about 15.3 million pounds of finfish and shellfish. In 2001, the combined harvest was about 3.9 million pounds of finfish and shellfish.

In addition to catching fish and harvesting shellfish, the Lummi Nation owns and operates three salmon hatchery facilities. These facilities produce millions of young salmon each year and help offset the decline of fish stocks due to loss of natural habitat and historic over-fishing. The tribe also owns an on-Reservation shellfish hatchery, producing over one billion oyster and clam seeds annually. The tribe owns 7,000 acres of tidelands, much of which is suitable for productive shellfish beds (LIBC 1996). All of these tidelands are held in trust by the United States for the exclusive use of the Lummi Nation.

The tribal commercial shellfish enterprise and the commercial, subsistence, and ceremonial harvest of shellfish by the Lummi Nation and individual tribal members was severely impacted by the closure of 60 acres of tidelands in 1996 and 120 additional acres in 1997. These closures occurred in Portage Bay and were largely attributed to poor dairy waste management practices in the Nooksack River watershed (DOH 1997). Not considering the multiplier effects on the economy, the lost value of the shellfish products alone was estimated to be approximately \$825,000 per year. In response to the 1996 closure, the EPA conducted compliance enforcement inspections of dairy operations in the Nooksack River watershed starting in 1997, the State of Washington passed the 1998 Dairy Nutrient Management Act (RCW 90.64), and dairy farmers developed and implemented nutrient management plans (a.k.a. farm plans). As a result of these reactions and additional compliance inspections by the Washington State Department of Ecology (Ecology), water quality in the Nooksack River improved. In November 2003, approximately 75 percent of the previously closed shellfish beds in Portage Bay were reopened to commercial harvest. In May 2006, the remaining closed shellfish growing areas were reclassified as “approved” for harvest.

Increasing fecal coliform bacteria levels indicating that animal waste management practices off-Reservation are no longer effectively reducing fecal coliform contamination in the Nooksack River watershed became apparent soon after the shellfish beds were re-opened. Continuing elevated fecal coliform levels resulted in the Nooksack River watershed being designated as one of two focus areas of the Washington Governor’s Shellfish Initiative in November 2011. Despite increased efforts to manage nonpoint source pollution, the National Shellfish Sanitation Program (NSSP) standards were not achieved at three of the sampling stations in Portage Bay, a failure that led the Lummi Nation to voluntarily close 335 acres of growing area to harvest during September 2014. However, water quality in Portage Bay continued to deteriorate through 2014 resulting in additional sampling stations no longer attaining the NSSP standards. In consultation with the Lummi Nation, the Washington Department of Health issued an administrative order on March 19, 2015 that conditionally closed 496 acres of shellfish growing areas. Harvest of shellfish in these growing areas is prohibited from April through June and from October through December. Water quality degradation continued during 2015 resulting in an additional sampling station no longer achieving the NSSP standards, which has led to the conditional closure of an additional 325 acres of the Portage Bay Shellfish Growing area during 2016, for a total closure area of approximately 820 acres.

The Lummi Casino project began in 1983 in an effort to diversify the Reservation economy. The casino operation was upgraded significantly in 1994 with the opening of the Lummi Casino at Fisherman’s Cove. The casino flourished initially, employing approximately 400

people, 65 percent of whom were Native American (LIBC 1996). However, competition and changing economic conditions resulted in the closure of the casino on August 26, 1997. With 238 workers losing their jobs, the Lummi unemployment rate grew to approximately 50 percent.

A new casino opened in April 2002 at a new location (the corner of Haxton Way and Slater Road) closer to the Interstate 5 highway. The new casino (the Silver Reef Casino) initially was 28,000 square feet and employed approximately 200 people. The casino was expanded in 2004 (Phase II) to a total of 55,000 square feet with the addition of additional gaming space, a restaurant, and a 400 seat pavilion. The casino was expanded again in 2006 (Phase III) to 135,000 square feet with the addition of restaurant, additional gaming space, a spa and fitness room, and a six floor, 109 room hotel (NEI 2005). Following this expansion, the Silver Reef Casino was renamed the Silver Reef Hotel, Casino & Spa. A smaller expansion (Phase IV) of approximately 9,000 square feet occurred in 2008 to add gaming space and an additional restaurant. The Phase V expansion was additional parking only. The most recent expansion was completed in 2013 (Phase VI) and included the addition of 50,000 square feet of additional gaming area, a new restaurant, theater, and event center. In 2005, after the first expansion, the casino employed 382 workers of which 274 were full-time employees and 108 were part-time employees (NEI 2005). In 2007, after the addition of the hotel and spa, the casino employed 500 people (Werner 2007). By 2010, the Silver Reef Hotel, Casino & Spa employed 550 people; following the opening of the Phase VI expansion in 2013 there are 675 employees. Construction of a second hotel tower began during 2014 and was completed in October 2015. The LIBC operates a gas station and mini-mart adjacent to the Silver Reef Hotel, Casino & Spa.

Other employment opportunities for Reservation residents exist at the two oil refineries and the aluminum smelter just north of the Reservation and nearby in the communities of Ferndale and Bellingham. In 2004, 40.8 percent (131) of the 321 businesses licensed to operate on the Reservation were owned by enrolled tribal members (NEI 2005). These businesses included fireworks sales, food preparation and retail, wholesale, and trade businesses. In 2009, 249 businesses were licensed to operate on the Reservation according to the LIBC Accounting Department. These businesses range from large employers (Silver Reef Hotel, Casino & Spa) to long established fish buying and processing enterprises, trades, native arts, and food catering.

In 2011, the LIBC was the 10th largest employer in Whatcom County and the Silver Reef Hotel, Casino & Spa was the 13th largest employer (WWU 2011). Most of the LIBC and Northwest Indian College (NWIC) employees are tribal members. In 2003, native employees made up 70 percent of LIBC staff (55 percent enrolled Lummi tribal members) and 61 percent of NWIC staff (33 percent enrolled Lummi tribal members) (Valz 2003). The LIBC provides community, administrative, education, and health services to the tribal population in order to help achieve the tribal economic and social development goals. These goals include job creation for tribal members, income generation to fund community development programs, and diversification and stabilization of the local economy by creating alternatives to fishing. Revenue generation is needed in order for the Lummi Nation to develop economic self-sufficiency.

In 1993, 56 percent of the 2,500 working-age Lummi tribal members were unemployed, under employed, full-time students, or no longer seeking work (LIBC 1996). Since 1993, the combined effect of the decline in the fishery and the closure of the original casino have had a substantial negative impact on the Lummi economy. The BIA reported that the unemployment rate on the Reservation in 1999 was 21 percent (BIA 1999). Table 2.3 presents the results of a survey of 2,054, over the age of 18, enrolled tribal members conducted by the LIBC Statistics Office in 2003. This survey indicates that 28 percent of adult tribal members were unemployed and up to 14 percent may have been underemployed (part-time, seasonally employed) (LIBC 2003). In 2004, 74.6 percent of enrolled Lummi tribal members in Whatcom County ages 18 through 64 were employed and 15.9 percent were unemployed (NEI 2005).

Table 2.3 Employment Status of Lummi Tribal Members, 2003¹

Employment Status	Number in Status	Percentage of Survey Individuals
Employed full-time	825	40.2
Employed part-time	156	7.6
Employed seasonally	133	6.5
Self-employed	84	4.1
Retired	127	6.2
Unemployed	567	28.0
Not available for employment	153	7.4

¹LIBC 2003

(This page intentionally left blank)

3. GOVERNMENT ROLES, RESPONSIBILITIES, AND REGULATIONS

The United States government has a unique legal relationship with tribal governments based on the U.S. Constitution, treaties, statutes, executive orders, and court decisions. Indian tribes have sovereign powers separate and independent from federal and state governments. Tribal sovereignty refers to the inherent authority of indigenous tribes to govern themselves, thus tribes have the same power as the federal and state governments to regulate their internal affairs, with a few exceptions. For example, tribes have the power to form a government, to decide their own membership, the right to regulate property, the right to maintain law and order, and the right to regulate commerce. As a result of inherent tribal sovereignty, specific federal legislation, and the trust responsibility of the United States that resulted from treaties, various federal government agencies are involved in assisting tribal governments.

3.1. Lummi Nation Government

The Lummi Tribe of the Lummi Reservation is a federally recognized Tribe of Indians (78 FR 26386) that is governed by an elected 11-member council, the Lummi Indian Business Council (LIBC), and the General Council, which consists of all enrolled tribal members of voting age (18 years old). A LIBC resolution (No. 90-23) changed the name to the “Lummi Nation” on April 3, 1990. The Lummi Nation is a signatory of the 1855 Treaty of Point Elliot, and is a federally recognized sovereign Indian Tribe organized pursuant to an order approved on November 13, 1947 by the Acting Commissioner of Indian Affairs. The LIBC is administratively organized into a number of departments including Planning and Public Works, Economic Development, Police, Office of the Reservation Attorney, Cultural Resources, and Natural Resources. The LIBC is responsible for the protection, restoration, enhancement, and management of the natural resources within the boundaries of the Lummi Indian Reservation (Reservation) and throughout the Lummi Nation’s usual and accustomed (U&A) hunting, fishing, and gathering grounds and stations and traditional territories. The Lummi Natural Resources Department (LNR) is the caretaker of the Lummi Nation natural resources and is responsible for developing and implementing LIBC policies related to natural resources.

3.2. The 1855 Treaty of Point Elliott

The 1855 Treaty of Point Elliott (Treaty) promulgated articles of agreement between the United States and the Lummi Tribe (now the “Lummi Nation” pursuant to Lummi Indian Business Council [LIBC] Resolution No. 90-13). The Treaty is superior to any conflicting state laws or state constitutional provisions under the Supremacy Clause of the U.S. Constitution. Under the articles of the Treaty, the Lummi Nation ceded certain areas of its aboriginal lands to the United States and reserved for its use and occupation certain lands, rights, and privileges; the United States assumed fiduciary obligations, including, but not limited to, legal and fiscal responsibilities to the Lummi Nation.

An aboriginal right retained under the Treaty includes the time immemorial custom and practice to hunt, fish, and gather within all usual and accustomed (U&A) grounds and stations and traditional territories. These customs and practices are the basis of the Tribe's source of food and culture. This reserved right is found under Article 5 of the Treaty, which states that the Tribe has "the right of taking fish at all usual and accustomed grounds and stations ... and of erecting temporary houses for the purpose of curing, together with the privilege of hunting and gathering roots and berries on open and unclaimed lands." Treaty-reserved resources situated on- and off-Reservation ("Lummi resources") include, but are not limited to, fishery resources situated within the Lummi Nation's adjudicated U&A fishing area. The Lummi Nation U&A includes the marine areas of northern Puget Sound from the Fraser River south to the present environs of Seattle, particularly Bellingham Bay. Freshwater fisheries include the river drainage systems, especially the Nooksack, emptying into the bays from Boundary Bay south to Fidalgo Bay.

3.3. Environmental Protection Agency

The Environmental Protection Agency (EPA) leads the United States' environmental science, research, education, and assessment efforts. The goal of the EPA is to protect human health and the environment. The EPA works with federally recognized tribes on a government-to-government basis to ensure special consideration of tribal interests in making EPA policy, and to ensure the close involvement of tribal governments in making decisions and managing environmental programs affecting reservation lands. In 1984, the EPA became the first federal agency to formally adopt an Indian Policy, called the Policy for the Administration of Environmental Programs on Indian Reservations, which was intended to recognize tribes as the primary decision-makers for environmental matters on Reservation lands, to help tribes assume program responsibility for Reservations, to remove existing legal and procedural impediments to tribal environmental programs, to encourage tribal, state, and local government cooperation in areas of mutual concern, and to provide guidance to EPA staff and managers in dealing with tribal governments and in responding to the challenge of environmental management on Indian reservations. Every administrator has reaffirmed the Indian Policy since its adoption in 1984.

Region 10 of the EPA is responsible for the execution of the Agency's programs within the boundaries of Alaska, Idaho, Oregon, and Washington. The Region 10 Tribal Operations Office is responsible for assisting Region 10 in meeting its commitment to work with the federally recognized tribes of the Pacific Northwest and Alaska, on a government-to-government basis, to protect, restore, and preserve the environment for present and future generations. Additional information about EPA Region 10 programs and priorities is provided in Appendix A.

3.4. National Guidance on Indian Policy

This Tribal Environmental Plan is intended to advance a number of national guidances on Indian Policy including:

1. Consultation and Coordination with Indian Tribal Governments, Executive Order 13175, November 6, 2000 – Pursuant to Executive Order No. 13175 federal

departments and agencies are required to consult with Indian tribal governments when considering policies that would impact tribal communities.

2. Environmental Justice, Executive Order No. 12898, February 11, 1994 – Pursuant to Executive Order No. 12898, former EPA Administrator Carol Browner convened an interagency federal working group to establish the National Environmental Justice Advisory Council, including, but not limited to, tribal government representatives.
3. Reinventing Environmental Regulations, March 16, 1995 – Former President Clinton and former Vice-President Gore recognize as a principle for reinventing environmental protection that, “federal, state, tribal, and local governments must work as partners to achieve common environmental goals, with non-federal partners taking the lead when appropriate.”
4. Indian Sacred Sites, Executive Order No. 13007, May 24, 1996 – Executive Order No. 13007 stipulates that, “in managing Federal lands, each executive branch agency with statutory or administrative responsibility for the management of Federal lands shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites.” Procedures for implementing Executive Order No. 13007 include, but are not limited to, complying with the Executive Memorandum of April 29, 1994, “Government-to-Government Relations with Native American Tribal Governments.”

3.5. Roles and Responsibilities of the Environmental Protection Agency and Lummi Nation

The EPA and the Lummi Nation will work to fulfill the roles and responsibilities described here, and to protect tribal health and environments, to the best of our abilities with available resources.

A. EPA

1. EPA will support the tribe in developing the capacities to build environmental protection programs and to assume authorities for direct implementation of programs as set forth in this Plan and consistent with EPA’s authorities, statutory and regulatory provisions, and resources.
2. EPA will make all efforts to provide the tribe with timely notice of available grants and other sources of funding, training, technology transfer, and meetings that may enhance the tribe’s capacity to meet environmental program objectives and address environmental priorities.
3. EPA will implement the federal environmental programs for which it is responsible and will oversee those programs which states and tribes are authorized to implement on EPA’s behalf.

4. EPA will provide enforcement assistance to tribal programs that have received authorization for direct implementation as set forth in authorization agreements and this Plan.
5. EPA will support and promote the principles of tribal self-government and government-to-government relations in the implementation and administration of environmental programs, as described in EPA's Indian Policy and Implementation Guidance (1984).
6. EPA will consult on a government-to-government basis when Agency actions or decisions may affect tribal interests, as described in the EPA's Consultation and Coordination Policy (2011) and in Region 10's Consultation and Coordination Procedures (2012).
7. EPA will work to make a visible difference in communities and to enhance state, tribal, local, and international partnerships as described in EPA's 2014-2018 Strategic Plan.
8. EPA will work to consider and address environmental justice concerns as described in EPA's Environmental Justice Plan and Policy for Tribes and Indigenous Peoples (2014).
9. EPA recognizes tribal cultural concerns such as subsistence needs, traditional uses of natural resources, and areas of cultural significance. To the degree that EPA can address these concerns when making decisions and implementing programs, it will do so.

B. Lummi Nation

1. The tribe will work to develop the capacities to build environmental protection programs and to assume authorities for direct implementation of programs as set forth in this Plan and the GAP Workplan, and consistent with its authorities and statutory and regulatory provisions.

C. Mutual

1. The tribe and EPA will review this Plan and progress under GAP workplans in conjunction with developing new GAP proposals and agreements and will update this Plan as necessary.

3.6. Environmental Laws and Regulations

This section gives a brief overview of the federal and tribal laws and regulations that address environmental protection and management on the Lummi Indian Reservation and associated tribal lands.

3.6.1. Federal Laws

Summarized below are the primary objectives of the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), the Clean Air Act (CAA), the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Emergency Planning and Community Right-to-Know Act

(EPCRA), the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Toxic Substances Control Act (TSCA), and the Pollution Prevention Act (PPA), as well as the role that tribal governments play in implementing these acts.

Congress has amended several of the acts identified above to clarify the role of tribal governments and enhance their ability to participate in the federal environmental regulatory scheme (EPA 2014a, EPA 2014b). These amendments are consistent with the EPA's Indian Policy, which sets forth nine principles by which the EPA will pursue its objective. Among the principles are a commitment to work with Indian tribes and nations on a government-to-government basis, to recognize tribes as the primary decision-makers for environmental matters on Reservation lands, to help tribes assume program responsibility for Reservations, to remove existing legal and procedural impediments to tribal environmental programs, and to encourage tribal, state, and local government cooperation in areas of mutual concern. As such, federally recognized tribes with delegated jurisdiction over their lands and sufficient capacity may apply for Treatment in the Same Manner as a State (TAS) and, if approved, may implement some of the EPA's regulatory programs (EPA 2014a, EPA 2014b).

Additionally, the EPA is authorized to award Direct Implementation Tribal Cooperative Agreements (DITCAs) to tribes that would like to participate in EPA programs but do not have an EPA-approved tribal program. These agreements are intended to encourage tribal participation, particularly when application for TAS exceeds tribal capacity.

3.6.1.1. Clean Water Act (CWA)

The overall objective of the Clean Water Act (CWA), formerly the Federal Water Pollution Control Act until it was expanded in 1972, is to restore and maintain the chemical, physical, and biological integrity of "waters of the United States". The CWA establishes the framework for regulating discharges of pollutants into surface waters and setting water quality standards for all contaminants in surface waters. For example, the CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under the provisions of the CWA. In 1987, Congress added Section 518 to the CWA authorizing the EPA to delegate certain CWA programs to tribal governments in the same way that such programs can be delegated to individual states (Treatment in the Same Manner as a State [TAS]). Federally recognized tribes may now seek delegated authority to administer many CWA programs, including Section 106 (Water Pollution Control Program Grants), Section 303(c) (Water Quality Standards), Section 319 (Nonpoint Source Management Program), Section 401 (Water Quality Certifications), Section 402 (National Pollutant Discharge Elimination System [NPDES] Permits), Section 404 (Dredge and Fill Permits), and Section 405 (Sewage Sludge Maintenance Program) of the CWA. Section 518 also directed the EPA to institute a system for resolving disputes arising from the establishment of different water quality standards by parties that share a common body of water.

3.6.1.2. Safe Drinking Water Act (SDWA)

Originally passed in 1974, the overall objective of the Safe Drinking Water Act (SDWA) is to protect public health by regulating the drinking water supply of the United States and ensuring that all citizens served by public water systems are provided water supplies of high quality. The SDWA gives the EPA authority to set enforceable maximum contaminant levels

(MCLs) for contaminants in drinking water and establish requirements for contaminant removal through water treatment. In addition, the SDWA establishes restrictions on the underground injection of hazardous and non-hazardous waste and efforts are required to protect sole-source or principal source aquifers. A 1986 amendment to the SDWA provides a role and some assistance to federally recognized tribes in implementing the national water quality goals embodied in the SDWA. The amendment empowers the EPA to delegate TAS and primary enforcement authority (“primacy”; under Section 1413(a)) to tribes for the Public Water System Supervision (PWSS) Program and the Underground Injection Control (UIC) Program.

3.6.1.3. Clean Air Act (CAA)

The Clean Air Act (CAA), enacted in 1963 and most recently amended in 1990, is intended to reduce air pollution emissions nationwide. The CAA authorizes the EPA to develop National Ambient Air Quality Standards (NAAQS) for six principle air pollutants (“criteria pollutants”) that are harmful to public health, including sensitive populations (e.g., children, asthmatics, and the elderly), and may damage the environment and decrease visibility. The NAAQS designate the maximum allowable concentration of pollutants in the atmosphere. Amendments to the CAA make tribes expressly eligible for TAS and administration of virtually all CAA programs, including monitoring ambient air quality, providing facility inspections, and enforcing regulations. Section 302 of the CAA requires states to develop and implement EPA-approved State Implementation Plans (SIPs) for maintaining the NAAQS; tribes may elect to develop Tribal Implementation Plans (TIPs), although no tribes in Washington, Oregon, or Idaho have done so to date. In the absence of TIPs, the EPA adopted the Federal Air Rules for Reservations (FARR) in 2005, which applies a set of basic air quality regulations to 39 Indian reservations in Washington, Oregon, and Idaho and is under the sole enforcement of the EPA. When EPA-approved TIPs are developed, they will apply to all areas within the boundaries of an Indian reservation, regardless of whether lands are in fee or trust ownership status.

3.6.1.4. Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Solid Waste Disposal Act Amendments of 1980, is intended to protect human health and the environment by ensuring the responsible management of hazardous and non-hazardous waste. The RCRA authorizes the EPA to regulate hazardous waste from “cradle-to-grave,” including waste generation, transportation, treatment, storage, and disposal. Non-hazardous wastes, including municipal solid waste and industrial waste, are also regulated by the EPA. For example, the design, operation, groundwater monitoring, corrective action, closure, and post-closure of solid waste disposal facilities must meet minimal EPA standards. Regulation of underground storage tanks (USTs) and aboveground storage tanks are also under the purview of the RCRA. While states may be delegated authority to administer RCRA programs, the RCRA defines tribes as “Municipalities” and the courts have ruled that the EPA cannot approve tribal solid waste programs. This does not prevent a tribe from using its own sovereignty to develop a solid waste program providing that the standards are at least equal to or exceed the minimal federal standards.

3.6.1.5. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, commonly known as “Superfund,” provides for a federal response to uncontrolled releases or threatened releases of hazardous substances from a vessel or from any onshore facility. The CERCLA accomplishes this through a scheme of strict liability imposed upon a broad class of potentially responsible parties, backed up with funding that enables the government to either order the responsible parties to clean up the spill or do the job itself and bill the responsible parties for the cost. The CERCLA also established requirements for closed or abandoned hazardous waste sites. Amendments made to CERCLA in 1986 contain provisions to maximize tribal participation. Tribal governments are authorized to recover costs incurred in carrying out response actions from persons responsible for releases and to act as trustees to recover damages for tribal natural resources. Indian tribes are also provided a direct role in submitting nominations of toxic waste sites on their lands for EPA consideration as priorities for cleanup (i.e., listing on the National Priorities List [NPL]), without having to go through the state government and without being subject to restrictions on the number of sites nominated. There is nothing in CERCLA that addresses tribal liability, and no court has yet held that CERCLA liability may be imposed on tribes.

The EPA’s Brownfields Program, started in 1995, is tasked with preventing, assessing, safely cleaning up, and sustainably reusing brownfields (areas proposed for redevelopment that may be contaminated with hazardous substances). Policies developed by the Brownfields Program were passed into law in 2002 by the Small Business Liability Relief and Brownfields Revitalization Act (“Brownfields Law”), which amended the CERCLA to provide funding and assistance to promote brownfields cleanup and reuse.

3.6.1.6. Emergency Planning and Community Right-to-Know Act (EPCRA)

The overall objective of the Emergency Planning and Community Right-to-Know Act (EPCRA; Title III of the Superfund Amendments and Reauthorization Act [SARA]) of 1986 is to facilitate government and industry development of chemical emergency response plans and to improve the public’s access to information concerning hazardous and toxic chemicals present in their community. The EPCRA authorizes the EPA to maintain a national database, called the Toxics Release Inventory (TRI), which tracks the disposal and release of certain toxic chemicals by regulated facilities annually. In the event of an accidental hazardous substance release above threshold quantities, the EPCRA requires the responsible party to immediately make emergency notifications to the appropriate state, local, and tribal governments and make information regarding the release publicly available. Other provisions of the EPCRA require facilities that manufacture, process, or store certain hazardous chemicals to develop, maintain, and make available to government officials Material Safety Data Sheets (MSDSs) that describe the properties and health effects of the chemicals. Although the EPCRA does not explicitly authorize TAS, tribes can seek EPA-approval to implement certain provisions of the Act. For example, tribes may coordinate emergency response planning activities through tribal emergency response commissions (TERCs) and tribal emergency planning committees (TEPCs) in a manner similar to requirements for state emergency response commissions (SERCs) and local emergency planning committees (LEPCs).

3.6.1.7. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947, as amended by the Federal Environmental Pesticide Control Act (FEPCA) of 1972 and the Food Quality Protection Act (FQPA) of 1996, provides a framework for regulating the sale, distribution, and use of pesticides nationwide and establishes requirements for certification and training of pesticide applicators. New pesticides that are intended for sale or use in the U.S. must first be registered the EPA. Pesticide licenses are awarded only if applicants can demonstrate that their product will not cause “unreasonable adverse effects” to human health or the environment. The EPA is also authorized to require pesticide labeling that includes directions for pesticide transportation, storage, application, disposal, and any warnings or cautions. Pesticides used in manners inconsistent with their labeling are used in violation of FIFRA. Amendments to Section 23 of FIFRA contain provisions to maximize tribal participation by recognizing EPA-Tribal cooperative agreements for the development of tribal pesticide programs and joint management of FIFRA enforcement.

3.6.1.8. Toxic Substances Control Act (TSCA)

The overall goal of the Toxic Substances Control Act (TSCA) of 1976 is ensure that the production, sale, use, and disposal of chemicals in the United States do not pose an unreasonable risk to human health and the environment. The TSCA authorizes the EPA to inventory and evaluate chemicals and chemical mixtures, excluding food, drugs, cosmetics, and pesticides. If a chemical is determined to pose an unreasonable risk, then the EPA may ban the manufacture and distribution of, limits the use of, require the labeling of, or otherwise place restrictions on the chemical. Asbestos, chlorofluorocarbons (CFCs), polychlorinated biphenyls (PCBs), and lead-based paint are examples of chemicals that are regulated under the TSCA. Although the TSCA does not explicitly authorize TAS, tribes can seek EPA-approval to implement certain provisions of the Act.

Subchapter II of the TSCA (also called the Asbestos Hazard Emergency Response Act [AHERA]) describes asbestos hazard emergency response. The AHERA authorizes the EPA to implement regulations requiring local agencies to inspect schools for asbestos-containing building materials, to prepare asbestos management plans, and to undertake actions to prevent or reduce asbestos hazards.

3.6.1.9. Pollution Prevention Act (PPA)

Rather than rely on an “end-of-pipe” approach to pollution control and waste management, the Pollution Prevention Act (PPA) of 1990 is focused on source reduction. The PPA establishes a framework for waste management that places high priority on pollution prevention and reduction whenever feasible, accomplished through changes in production, operation, and raw material use. In this management hierarchy, prevention is followed by recycling, treatment, and release in an environmentally safe manner. Applied to the agricultural sector, pollution prevent practices could include reducing water and chemical use, adopting less harmful pesticides, and protecting sensitive areas. The PPA authorizes the EPA to establish source reduction programs and initiatives (e.g., Energy Star, Design for Environment) and partnerships with federal, state, tribal, and local governments and industry to implement these programs. The PPA addresses all media (water, land, air) and has requirements for the CWA, CAA, FIFRA, and TSCA.

3.6.1.10. Other Laws

Congress has also promulgated four federal acts to protect tribal cultural resources. The National Historic Preservation Act (NHPA) of 1966 is intended to protect historic and cultural properties. The NHPA sets forth procedures for federal agencies to follow in consulting with Indian tribes for the identification, evaluation, and protection of historic properties. The American Indian Religious Freedom Act (AIRFA) of 1978 states that it is the policy of the United States Government “to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions [...]” The AIRFA “requires federal agencies to evaluate their policies and procedures with the aim of protecting Indian religious freedom, to refrain from prohibiting access, possession, and use of religious objects and performance of religious ceremonies, and to consult with Indian organizations in regard to proposed action.” The Archaeological Resources Protection Act (ARPA) of 1979 provides for “[...] the protection of archaeological resources and sites which are on public lands and Indian lands [...]” from vandalism and unauthorized collection. The ARPA specifies terms and conditions for a federal land manager to issue a permit for the excavation and removal of archaeological resources and the need to notify and consult with Indian tribes for sites having religious or cultural importance or situated on Indian lands. Finally, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 assigns ownership or control of Native American human remains and other cultural items that are excavated or discovered on federal or tribal lands to the lineal descendant or the applicable tribe. The NAGPRA specifies procedures for federal agencies and museums to follow for the expeditious repatriation of cultural items to the appropriate Native American.

3.6.2. Lummi Nation Code of Laws

Summarized below are the primary objectives of Titles of the Lummi Code of Laws (LCL) that are intended to protect human health and the environment. These Titles include the Natural Resources Code (LCL Title 10), the Tidelands Code (LCL Title 13), the Land Use, Development, and Zoning Code (LCL Title 15), the Flood Damage Prevention Code (LCL Title 15A), the Sewer and Water Code (LCL Title 16), the Water Resources Protection Code (LCL Title 17), the Solid Waste Control and Disposal Code (LCL Title 18), the Building Code (LCL Title 22), and the Cultural Resources Protection Code (LCL Title 40).

3.6.2.1. Natural Resources Code (LCL Title 10)

The Natural Resources Code (LCL Title 10) establishes “[...] the institutional framework to govern and regulate fishing, hunting, and other natural resources related activities under the jurisdiction of the Lummi Nation in accordance with cultural tradition and the best available scientific information.” Title 10 is also intended “[...] to protect the environment required to sustain high levels of production of those resources to ensure maximum sustainable harvest from the fish, game, and other natural resources in conformity with the accepted standards of international law and specifically as reserved and secured to the Lummi Nation by the Treaty of Point Elliot.” Provisions of Title 10 include requirements for fishers and hunters (e.g., identification cards, vessel registration), regulations on finfish and shellfish harvest (e.g., legal gear, management regimes), regulations on hunting, regulations on forest resource extraction (e.g. timber harvest permits, firewood permits), regulations on outdoor burning

(e.g., burn bans, burn permits), and authorizes the Lummi Natural Resources Enforcement Patrol, a division of the Lummi Police Department, to enforce the provisions of Title 10.

3.6.2.2. Tidelands Code (LCL Title 13)

The Tidelands Code (LCL Title 13) defines trespass on Reservation tidelands. The Lummi tidelands are “[...] reserved for the exclusive use of members of the Lummi Nation by the Treaty of 1855. The Lummi tidelands are closed to persons who are not members of the Lummi Nation, in the absence of a lease permitting non-member use of the tidelands, or use permits issued pursuant to this Title.” Without a permit, prohibited uses of the Lummi Nation tidelands include construction of any buildings, obstructions, or barriers (e.g., seawalls), deposition of debris or solid waste, destruction of natural beauty, removal of rocks, driftwood, marine growth, fish, or wildlife, setting fires, overnight camping, and parking or operating a motor vehicle.

3.6.2.3. Land Use, Development, and Zoning Code (LCL Title 15)

The Land Use, Development, and Zoning Code (LCL Title 15) “[...] provides controls for land use, development, and zoning for all lands within the exterior boundaries of the Lummi Reservation and to all lands held in trust for the Lummi Nation by the United States outside the boundaries of the Reservation in order to promote the health, safety, and general well being of all residents of the Lummi Nation and the political and economic integrity of the Lummi Nation, and to promote harmony between the many interests on Reservation....” Title 15 authorizes the Lummi Planning and Public Works Department and the Lummi Planning Commission to determine land use classifications (e.g., permitted use, accessory use) and zone districts (e.g., residential, commercial, light industrial) and require permits for land use development activities. Title 15 also forms the Technical Review Committee (TRC), which reviews land use permit applications and stipulates project design standards and best management practices to reduce the potential for environmental degradation, hazardous material spills, and solid waste accumulation.

3.6.2.4. Flood Damage Prevention Code (LCL Title 15A)

The Flood Damage Prevention Code (LCL Title 15A) regulates Special Flood Hazard Areas (SFHAs) on the Reservation and establishes standards for development and construction in those areas to “[...] promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions.” Title 15A adopts the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRMs) by reference and authorizes the Lummi Planning and Public Works Department to require floodplain development permits for construction and development activities located in the SFHA delineated on the FIRM. Title 15A contains provisions for flood hazard reduction including freeboard, flood openings, anchoring, flood resistant materials, and utility design.

3.6.2.5. Sewer and Water District Code (LCL Title 16)

The Sewer and Water District Code (LCL Title 16) establishes the Lummi Tribal Sewer District and the Lummi Water District, which encompass all lands and waters on the Lummi Indian Reservation, and the two boards responsible for administering the Title, the Sewer Board and the Water Board. Title 16 makes it unlawful to “[...] to discharge into any natural watercourse within the District, or in any area under the jurisdiction of that District, any

sewage, industrial wastes, or other polluted waters, except where suitable treatment has been provided in accordance with the provisions of this Ordinance.” As such, Title 16 regulates public and private sewage disposal, sewers and waterline connections, and the use of public water systems.

3.6.2.6. Water Resources Protection Code (LCL Title 17)

The Water Resources Protection Code (LCL Title 17) protects “[...] Lummi Nation waters from over-appropriation, contamination, degradation, and any acts injurious to the quantity, quality, or integrity of the water.” Title 17 establishes a permit system for water use on the Reservation and includes wellhead protection, storm water management, stream and wetland management, and water quality standards. On August 20, 2007 the LIBC adopted the Water Quality Standards for Surface Waters of the Lummi Indian Reservation. These water quality standards were approved by the U.S. Environmental Protection Agency on September 30, 2008. On June 15, 2010 the LIBC adopted the following additional administrative regulations associated with Title 17: Well Construction Standards for Wellhead Protection, Storm Water Management Regulations, Wetland Management Regulations, Civil Fines Assessment for Violation of Lummi Code of Laws Title 17.

3.6.2.7. Solid Waste Control and Disposal Code (LCL Title 18)

The Solid Waste Control and Disposal Code (LCL Title 18) provides “[...] the policy framework and delegation of administrative authority for a coordinated program to address the accumulation, collection, and disposal of solid waste; the resource recovery, recycling, and utilization of recyclable materials; and the creation and operation of disposal sites and transfer stations.” Title 18 authorizes the Lummi Planning and Public Works Department to conduct inspections to determine whether the requirements of Title 18 are being fulfilled, to declare an area a health and safety hazard, and to remove or abate nuisances as described in Title 18. Provisions of Title 18 provide for proper control and disposal of solid wastes on the Reservation, make dumping of solid waste into water unlawful, and prohibit the accumulation of solid waste.

3.6.2.8. Building Code (LCL Title 22)

The Building Code (LCL Title 22) is intended to “[...] protect public safety, health and welfare by ensuring that homes and other buildings within the Lummi Indian Reservation are installed and constructed in a safe manner.” Title 22 authorizes the Lummi Planning and Public Works Department to issue building permits for any construction project or home installation. Title 22 adopts the Uniform Codes, including the Uniform Building Code, the Uniform Mechanical Code, the Uniform Plumbing Code, the Uniform Fire Code, and the Uniform Code for the Abatement of Dangerous Buildings, and some Washington Administrative Codes, including the Washington State Energy Code and the Washington State Ventilation and Indoor Air Quality Code, by reference.

3.6.2.9. Cultural Resources Preservation Code (LCL Title 40)

The Cultural Resources Preservation Code (LCL Title 40) provides a framework for protecting and preserving the cultural resources of the Lummi Nation that are, and have since time immemorial been, essential to the *Sche'lang'en* (“way-of-life”) of the Lummi people. Title 40 establishes the *Sche'lang'en* Department and the Cultural Resources Preservation

Commission, which are authorized to enforce the Cultural Rights and Resources Checklist Policy, to manage the Lummi Cultural Resources Register, to make nominations to the National Register of Historic Places, and to issue cultural resource permits for persons proposing to inspect, alter, collect, or in any way adversely affect cultural resources.

4. ENVIRONMENTAL AND HUMAN HEALTH ASSESSMENTS

This section reviews existing environmental and human health assessments developed by the Lummi Nation (Table 4.1). These assessments were largely developed by the Lummi Natural Resources Department (LNR), although one assessment was completed in partnership with the Water Resources Inventory Area 1 (WRIA 1) Watershed Management Project. The environmental and human health assessments are categorized as appropriate into water resources, land resources, and other resources and an executive summary of each assessment is presented. Unless otherwise noted, the documents described below are available on the Lummi Natural Resources Department website through the following link: <http://lummi-nsn.gov/Website.php?PageID=1>.

4.1. Water Resources

Existing environmental and human health assessments pertaining to the Lummi Nation's water resources have addressed issues including wellhead protection, storm water management, wetland management, nonpoint-source pollution management, water quality standards, the National Pollutant Discharge Elimination System (NPDES), safe drinking water management, water conservation, water reclamation and reuse, spill prevention and response, and watershed management.

4.1.1. Lummi Nation Wellhead Protection Program (2011)

The overall purpose of the Lummi Nation Wellhead Protection Program, which was initiated in 1996, is to protect groundwater within the Lummi Indian Reservation ("Reservation") from contaminants. The Program is intended to reduce the risk of the Lummi Nation's groundwater resources becoming impaired or otherwise unusable as the primary water supply for the Lummi Nation and residents of the Reservation.

As described in the Lummi Nation Water Resources Protection Code (Lummi Code of Laws [LCL] Title 17), the Lummi Nation finds that contamination of groundwater resources on the Reservation has a direct, serious, and substantial effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation. Further, the Lummi Nation finds that those activities posing threats of contamination, if left unregulated, could cause adverse effects. Accordingly, the Lummi Natural Resources Department, in conjunction with the Lummi Planning Department, has developed and will implement the wellhead protection program for the Reservation.

The program is based on the foregoing findings and the following considerations:

- As a finite resource, groundwater is one of the most important and critical of the Lummi Nation's resources.

Table 4.1 Lummi Nation Environmental and Human Health Assessments

Assessment	Published
WATER RESOURCES	
Lummi Nation Wellhead Protection Program 2011 Update	2011
Lummi Nation Storm Water Management Program Technical Background Document 2011 Update	2011
Lummi Indian Reservation Wetland Management Program Technical Background Document	2000
Lummi Nation Nonpoint-Source Pollution Assessment Report	2015
Lummi Nation Nonpoint-Source Pollution Management Plan: 2015-2020	2015
Lummi Nation Water Quality Monitoring Strategy	2007
Water Quality Standards for Surface Waters of the Lummi Indian Reservation	2008
Evaluation Report on the Development and Implementation of a Lummi Nation NPDES Program	2005
Evaluation Report on the Development and Implementation of a Lummi Nation Safe Drinking Water Management Program	2004
Water Conservation Plan for the Lummi Indian Reservation	2004
Lummi Nation Water Reclamation and Reuse	1998
Lummi Nation Spill Prevention and Response Plan	2005
Water Resource Inventory Area 1 (WRIA 1) Watershed Management Plan	2005
LAND RESOURCES	
Comprehensive Land Use Plan	2015
Lummi Nation Integrated Solid Waste Management Plan: 2014-2024	2014
Lummi Nation Forest Management Plan	2011
Upper South Fork Nooksack River Habitat Assessment	2007
Nooksack River Estuary Habitat Assessment	2005
Lummi Intertidal Baseline Inventory	2010
Lummi Coastal Zone Management Plan	1988
OTHER RESOURCES	
Lummi Nation Multi-Hazard Mitigation Plan: 2015 Update	2015
Lummi Nation Strategic Energy Plan: 2016-2026	2016
Wind Resource and Feasibility Assessment Report for the Lummi Reservation	2012
Lummi Nation Seafood Consumption Study	2012
Lummi Nation Atlas	2016
Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026	2016

- Over 95 percent of the residential water supply for the Reservation is currently pumped from local groundwater wells; contamination of wellheads carries the risk of adversely affecting the health of persons drinking or using water from these supplies.
- The salmon hatchery program, which is culturally and economically significant to the Lummi Nation and its members, is dependent on groundwater. No suitable alternative water sources exist on or near the Reservation for the salmon egg incubation program and salmon rearing operation.
- Ample supplies of high quality groundwater are essential to serve the purposes of the Reservation as a permanent, economically viable homeland of the Lummi Nation and its members.
- Groundwater resources of the Reservation are vulnerable to pollution through saltwater intrusion.
- Groundwater resources are vulnerable to contamination by pollutants introduced on or near the ground surface by human activities. Agricultural, residential, community, commercial, and industrial land uses increase the potential for groundwater contamination.
- Groundwater contamination could lead to the loss of the primary water supply source for the Reservation because water supply wells are difficult to replace, groundwater contamination is expensive to treat, and some damages to groundwater caused by contamination may be irreversible.
- Alternative water sources to serve the needs of the Reservation are expensive and may not be available in amounts sufficient to replace existing supplies and to provide for anticipated tribal economic and residential growth in the future.

The Lummi Nation Wellhead Protection Program was originally developed in three phases. The Wellhead Protection Program Phase I included a susceptibility assessment and development of contingency and public involvement plans. Phase II included implementing the community involvement plan, spill prevention and response planning, and the development of protection measures. Phase III included the development and adoption of the Lummi Nation Water Resources Protection Code (LCL Title 17) and associated regulations.

The 2011 update of the 1997 Wellhead Protection Program documents included the following primary changes to the earlier version:

- Combined the information from Phase I, Phase II, and Phase III into a single updated document.
- Updated the delineated wellhead protection areas.
- Updated the inventory of potential pollutant sources.
- Updated water supply replacement options.
- Added a new section describing on-Reservation wellhead protection programs.
- Updated the community outreach and education program for wellhead protection.

In the susceptibility assessment, the vulnerability of groundwater wells to contamination is evaluated by characterizing the hydrogeologic setting, conducting an inventory of the water

supply wells, delineating wellhead protection areas, and conducting an inventory of potential contamination sources in each wellhead protection area.

Two wellhead protection areas were delineated based on the flow boundaries approach and available hydrogeologic mapping. Wellhead Protection Area 1 (Area 1) is the southern upland area of the Reservation and includes most of the Lummi Peninsula and Portage Island. Wellhead Protection Area 2 (Area 2) is the northern upland area and extends north of the Reservation boundary.

As part of the susceptibility assessment, potential sources of aquifer contaminants from agricultural, residential, municipal, commercial, and industrial land uses in each of the wellhead protection areas were inventoried. Available literature and emissions inventories were used to identify potential aquifer contaminants associated with each source. Based on the location of each potential contaminant source, the quantity of potential contaminants associated with the source, and the hazard represented by the contaminants, each potential source was assigned a potential hazard rating of low, moderate, or high.

Saltwater intrusion caused by over pumping is a major threat to the Lummi Nation's groundwater resources in both Area 1 and Area 2. The Reservation is located in a coastal area and most of the existing water supply wells on the Reservation are within a half mile of marine waters. Progressive saltwater intrusion induced by over pumping of nearshore wells has already led to the closure of several wells on the Reservation. Other major threats to the groundwater supply in Area 1 include: horses and goats fenced within residential areas near Hermosa Beach, single family residential units relying on private water supply wells and/or septic systems, and an abandoned landfill along Chief Martin Road. In Area 2, the major threats to the groundwater supply (after saltwater intrusion) include: single family residential units relying on private water supply wells and/or septic systems, roadways (i.e., transportation corridors for the Cherry Point Heavy Impact Industrial Zone), manure lagoons north of the Reservation, and the Phillips 66 petroleum oil refinery.

Using current water price information and a simplified equation, it was determined that obtaining water from Bellingham costs about six times more than obtaining water from local groundwater wells. At current prices, every 20 gallons per minute (gpm) of lost pumping capacity would cost about \$3,280 per month to obtain the same amount of water from the City of Bellingham. To recover this increased cost, the Lummi Tribal Water District's rates would have to be raised an average of \$3.33 per month for the current 986 residential customers if one 20 gpm well was lost. This increase represents about a 15 percent increase over the current average monthly Lummi Water District residential customer bill of \$22.00. However, the simplified equation used to estimate the water replacement cost does not address the cost to the Lummi Nation of depleting a groundwater resource in a region with a limited water supply. It is impossible to put a true value on a resource that is essential to life, is finite, and is irreplaceable.

4.1.2. Lummi Nation Storm Water Management Program Technical Background Document (2011)

The goals of the Lummi Reservation Storm Water Management Program are to: 1) minimize the opportunities for storm water to wash pollutants into aquifer recharge zones and resource rich estuaries and tidelands of the Reservation, 2) minimize the downstream impacts of development on storm water quantity and quality, and 3) maximize the opportunities for infiltration and aquifer recharge. These goals are similar to and consistent with the Lummi Nation Wellhead Protection Program goals.

The Lummi Nation finds that contamination of surface waters on the Reservation, tidelands and estuaries, wellhead protection areas, and groundwater resources has a direct, serious, and substantial effect on the political integrity, economic security, and the health and welfare of the Lummi Nation, its members, and all persons present on the Reservation, and that those activities posing threats of such contamination, if left unregulated, also could cause such adverse impacts. Accordingly, the Lummi Natural Resources Department, in conjunction with the Lummi Planning Department, developed a storm water management program for the Reservation based on the foregoing findings and the following considerations:

- With the exception of water discharged through outfalls into Washington State aquatic lands from two wastewater treatment plants, all water that falls onto or passes through the Lummi Reservation discharges to resource rich tidelands and/or estuaries of the Lummi Nation. These resources, which are culturally and economically important to the Lummi Nation and its members, surround the Reservation uplands. Tideland resources include salmon, shellfish, extensive eel grass beds, herring spawning grounds, surf smelt, sand lance, wildlife, and water supply intakes for a salmon and shellfish hatchery.
- A goal of the Lummi Nation is for waters of the Reservation to comply with the federal Clean Water Act as development occurs.
- Population projections, planned economic and institutional growth on the Reservation, and the small percentage of Reservation land that has been developed all suggest that portions of existing forested and agricultural lands will be converted to residential, commercial, or community uses in the coming years. Land use changes where forested or agricultural lands are converted to residential, commercial, or community uses can be expected to affect storm water quantity and quality.
- In general, development impacts vegetation and soil properties in a manner that results in greater storm water volumes, higher peak discharges, and lower water quality. Minimizing these adverse impacts from development and maximizing the protection of sensitive and important natural resources is necessary to protect the political integrity, economic security, and the health and welfare of the Lummi Nation, its members, and all persons present on the Reservation.
- As a finite resource, groundwater is one of the most important and critical of the Lummi Nation's resources. Storm water is an important source of groundwater recharge and a potentially significant source of groundwater contamination.

- Managing storm water to minimize water quality impacts of development and to maximize groundwater recharge will help to protect the limited and vulnerable groundwater resources on the Reservation.

Vegetation removal and replacement with residential, commercial, or community land uses can impact storm water quantity and quality for a number of reasons including:

- The roots, leaves, and stems of vegetation provide surface roughness. This roughness reduces the speed that water can move overland and acts as a filter to trap sediment. The slower that water flows over a surface, the greater the opportunities for groundwater recharge. The more water that infiltrates to the soil, the less water is available to flow overland as storm water runoff. Because less water is available for overland flow, the opportunities for erosion and sediment transport by water are also reduced.
- Vegetation provides a protective cover for soil which reduces erosion by absorbing the energy of rainfall.
- Vegetation provides organic matter to the soil and thereby increases its capacity to hold water.
- Plant roots hold soil particles in place and help to prevent soil loss.
- Development increases the area of impervious surfaces which reduces groundwater recharge opportunities and increases storm water runoff.
- Because of the higher percentage of impervious surfaces in developed areas, runoff can be expected to be of greater volume, have higher peak discharges, and have a shorter duration relative to the forested condition.
- A reduction in evapotranspiration, thru vegetation removal, generally results in an increase in surface water runoff.
- In some cases, groundwater recharge can increase as a result of vegetation removal. However, increases in groundwater recharge can be offset by the increased surface water runoff (which results in a decrease in the amount of water available for recharge) or increased groundwater discharge due to higher hydraulic heads.

In addition to removing existing vegetation (land clearing), development is often associated with earthmoving during construction phases and impacts on storm water quantity and quality once the development is in place. Common storm water related impacts of construction and development include:

- During clearing and construction activities, soil compaction occurs as heavy construction machinery runs over the land surface. Similar to an impervious surface, increased soil compaction reduces infiltration and groundwater recharge, which can result in increased surface water runoff.
- Reworking and exposing soil during construction increases opportunities for erosion and sediment transport.

- There are numerous potential storm water pollutants associated with residential, commercial, and community land uses. These pollutants include: oils, metals, household chemicals, lawn and garden chemicals, street litter, and sediment.

Erosion and sediment control during construction is important because:

- Many pollutants adhere to the clay and other fine particles that comprise sediment. Transported sediment increases the potential for the off-site transport of pollutants and the subsequent degradation of water quality in the receiving waters (i.e., the estuaries and tidelands of the Reservation).
- Increases in the quantity of runoff can result in downstream erosion and property damage.
- Increased sediment from erosion can obstruct aquatic habitat and downstream storm water facilities (which will require increased maintenance).
- To reduce the impacts of development on storm water and achieve the storm water management goals, appropriate best management practices (BMPs) must be effectively applied. Effective use of BMPs, coupled with land use zoning, is needed to minimize the impacts of development on storm water. Examples of using BMPs to reduce the impacts of development activities on storm water quantity and quality include:
 - Planning development to fit the topography, soils, drainage patterns, and natural vegetation of the site.
 - Conducting pollution prevention activities including public education and household hazardous waste collection and disposal events.
 - Minimizing impervious areas (i.e., paved or compacted areas).
 - Preserving wetland areas.
 - Controlling erosion and sediment from disturbed areas within the project site or area.
 - Minimizing the extent of disturbed areas.
 - Conducting site disturbance work during the drier parts of the year (i.e., May through September).
 - Stabilizing and protecting disturbed areas from runoff as soon as possible.
 - Minimizing runoff velocities by minimizing slope length and gradient and protecting natural vegetative cover.
 - Implementing a thorough storm water facilities monitoring and maintenance program.
 - Constructing properly designed detention ponds, wetlands, infiltration trenches, grass swales, and filter strips.
 - Using Low Impact Development practices.

Because storm water movement does not follow private property or political boundaries, and because community participation in developing and implementing a storm water management program is necessary for a successful program, community involvement is a

key element of the Lummi Reservation Storm Water Management Program. The two elements of the community involvement plan are: 1) community education and, 2) interjurisdictional coordination and cooperation for activities off-Reservation that affect on-Reservation resources.

Ordinances for both the storm water management program and the wellhead protection program were adopted in 2004 as part of the Lummi Code of Laws (LCL) Title 17 Water Resources Protection Code, which is administered by the Lummi Natural Resources Department. In June 2010, new Lummi Administrative Regulations for storm water management, wetland management, technical requirements for groundwater wells, and a system for civil fines for violation of LCL Title 17 were approved by Lummi Indian Business Council.

The 2011 update of the 1998 Storm Water Management Program technical background document includes the following primary changes to the earlier version:

- Revised watershed delineation based on higher resolution topography data.
- New section on applicable federal and tribal laws and regulations.
- Updated storm water facilities inventory and updated inventory of potential pollutant sources.
- Updated descriptions of BMPs for storm water management.
- New section on Low Impact Development.
- Updated storm water community and education program.

Funding for the technical background documents and regulation development that form the basis of the Lummi Reservation Storm Water Management Program and the Lummi Nation Wellhead Protection Program was provided by the Bureau of Reclamation, the U.S. Environmental Protection Agency (EPA), and the Lummi Indian Business Council (LIBC).

4.1.3. Lummi Indian Reservation Wetland Management Program Technical Background Document (2000)

The Wetland Management Program is a part of the Comprehensive Water Resources Management Program (CWRMP) being developed and implemented by the Lummi Water Resources Division. Pursuant to Lummi Indian Business Council (LIBC) resolutions 90-88 and 92-43, the CWRMP also includes a storm water management program, a wellhead protection program, a nonpoint source pollution management program, water quality standards, and development and implementation of the Lummi Nation Water Code (Title 17).

The Lummi Nation finds that contamination of surface waters on the Reservation, tidelands and estuaries, wellhead areas, and groundwater resources has a direct, serious, and substantial effect on the political integrity, economic security, and the health and welfare of the Lummi Nation, its members, and all persons present on the Reservation, and that those activities posing threats of such contamination, if left unregulated, also could cause such adverse impacts.

The goals of the Lummi Nation Wetland Management Program are to: 1) develop technical background information for a Lummi wetland management ordinance consistent with land use and resource management comprehensive plans, and 2) increase public awareness of the importance of Reservation wetlands to promote compliance with the Lummi Nation Water Resources Protection code (LCL Title 17).

The purposes of the Lummi Nation Wetland Management Program are:

- To protect the functions and values of Reservation wetlands from the impacts of residential and commercial development;
- To encourage residential development by and for tribal members as well as commercial and business growth on the Reservation for tribal employment opportunities by providing defined wetland management standards, requirements, and mitigation alternatives for effective project planning;
- To protect and enhance fish and shellfish resources, wildlife resources, cultural resources, and the quantity and quality of Reservation groundwater; and
- To protect surface water quality and enhance storm water management.

4.1.4. Lummi Nation Nonpoint-Source Pollution Assessment Report (2015)

The goal of the Lummi Nation Nonpoint Source (NPS) Management Program, which is a watershed-based approach that includes a NPS Pollution Assessment Report (NPSPAR) and a NPS Pollution Management Plan, is to effectively and efficiently control nonpoint sources of pollution on the Lummi Indian Reservation (Reservation). The watershed-based approach of the Lummi Nation NPS Management Program includes coordination with appropriate jurisdictions to control nonpoint sources of pollution in the watersheds that discharge to the Reservation.

The objectives of the NPS Pollution Assessment Report are: (1) to determine the current and potential impairments of Reservation water bodies due to NPS pollution, (2) to identify the primary NPS pollution types responsible for these impairments, and (3) to identify the resources available to address NPS pollution. The objectives of the NPS Pollution Management Plan are: (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.

As described in the Lummi Nation Water Resources Protection Code (Lummi Code of Laws [LCL] Title 17) the Lummi Nation finds that contamination of surface and ground water resources on the Reservation has a direct, serious, and substantial effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation. Further, the Lummi Nation finds that those activities

posing threats of such contamination, if left unregulated, could cause such adverse effects. Accordingly, the Lummi Natural Resources Department (LNR) developed and is implementing the NPS Pollution Management Program for the Reservation based on the foregoing findings and the following considerations:

- The Lummi Nation aims to achieve the “fishable and swimmable” goal of the Clean Water Act and the Lummi Nation Water Quality Standards.
- The resource-rich tidelands and estuaries of the Reservation, which receive almost all of the water that falls onto or passes through the Reservation, are culturally and economically important to the Lummi Nation.
- There is a foreseeable continued conversion of forested and agricultural lands to residential, commercial, and community uses which will bring greater impacts to surface water quantity and quality.
- There is a need to minimize the adverse effects from development and maximize the protection of natural resources.
- As a finite resource, ground water is one of the most important and critical of the Lummi Nation’s resources and is vulnerable to contamination from storm water and pollutants from human activity.
- Ample supplies of high quality ground water are essential to serve the purposes of the Reservation as a permanent, economically viable, homeland to the Lummi Nation and its members.
- Ninety-five percent of the residential water supply for the Reservation is pumped from local ground water wells and wellhead contamination threatens public health.
- Ground water contamination could lead to the loss of the primary water supply source for the Reservation.
- Alternative water supply sources are expensive and may not be available in amounts sufficient to replace existing supplies and to provide for future growth.
- The on-Reservation salmon hatchery is dependent on high quality ground and surface water.

Analysis of available water quality data and potential sources of NPS pollution shows that surface waters on and flowing onto the Reservation are currently or potentially affected by all types of NPS pollutants. These types of pollution include bacteria/pathogens, fine sediment, nutrients, oxygen demanding substances (which result in low dissolved oxygen levels), pH, temperature, metals, pesticides, household and industrial chemicals, and oil and grease. Nonpoint source pollution currently and/or potentially impairs the four major waterbodies (Nooksack River, Portage Bay/Bellingham Bay, Lummi River, and Lummi Bay/Strait of Georgia) and the ground water on the Reservation. The Lummi Nation NPS Pollution Management Program is focused on addressing the three current impairments of greatest concern: loss of salmonid habitat in the Nooksack River watershed and estuary; restrictions to ceremonial, subsistence, and commercial shellfish harvests in Portage Bay; and salt water intrusion and other contamination of the Reservation aquifers. Also identified in the NPS Pollution Assessment Report is the potential impairment to the Lummi Nation Waters that would result in restrictions to ceremonial, subsistence, and commercial shellfish harvests in

Lummi Bay. These waters require NPS pollution control measures to restore or maintain desired water uses and/or, in the case of surface waters, to meet or maintain the Lummi Nation Water Quality Standards.

The primary NPS pollution categories responsible for the current and potential impairments of surface and ground water on the Reservation are agriculture, silviculture, hydromodification (including aquatic and riparian habitat modification), urban runoff, and both surface and ground water withdrawals. Other source categories, in particular atmospheric deposition, highway/road runoff, construction, and land disposal contribute to the impairment of Reservation water bodies, but are not known to produce significant impairment at this time. Control of each NPS pollution category should contribute to the improvement and maintenance of water quality on the Reservation. The primary sources of impairment should be the priority targets for NPS pollution management.

To reduce or eliminate the adverse effects of NPS pollution on surface and ground water and to achieve the NPS Pollution Management Program goals, appropriate best management practices (BMPs) must be effectively applied. Effective use of BMPs, coupled with land use zoning, should minimize or eliminate the NPS pollution effects on Reservation waters. Nonpoint source pollution on the Reservation is currently largely addressed through 15 interrelated Lummi Indian Business Council environmental programs and various Lummi Natural Resource Department activities that specifically target the primary current and potential impairments of Reservation water bodies. The NPS Pollution Management Plan for the Reservation supports and complements these programs and activities and emphasizes continued involvement in off-Reservation NPS pollution issues. Community involvement is a key element of the Lummi Nation NPS Pollution Management Program because surface and ground water movement does not adhere to property or political boundaries and because community participation in developing and implementing the NPS Pollution Management Program is necessary for the program to be successful.

The 2015 update of the 2001 Lummi Nation Nonpoint Source Pollution Assessment Report (LWRD 2001b) includes the following primary changes:

- Revised delineation of Reservation watersheds based on higher resolution topography data.
- Updated inventory of potential NPS pollution sources in the Reservation watersheds.
- Updated descriptions of the Lummi Surface and Ground Water Quality Monitoring Programs.
- Updated Lummi Surface Water Quality data.
- Updated impairments of Reservation water bodies.
- Updated descriptions of NPS pollution prevention and control programs.
- Updated descriptions of Best Management Practices (BMPs) for NPS pollution.

4.1.5. Lummi Nation Nonpoint-Source Pollution Management Plan: 2015-2020 (2015)

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.

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.

An important element of the Lummi Nation NPS Pollution Management Program is the updated Lummi Nation NPS Pollution Assessment Report (NPSPAR). The Lummi Water Resources Division completed an initial NPSPAR in 2001 (LWRD 2001) and updated the NPSPAR during 2015. The objectives of the NPSPAR are (1) to determine the current and potential impairments of Reservation water bodies due to NPS pollution, (2) to identify the primary nonpoint sources responsible for this pollution, and (3) to list the resources available to address NPS pollution.

The 2015 update of the 2002 Lummi Nation Nonpoint Source Pollution Management Plan (LWRD 2002) includes the following primary changes:

- Updated descriptions of BMPs for NPS pollution reduction.
- Updated list of identified impairments of Reservation water bodies.
- An updated NPS Pollution Management Plan for the Lummi Nation for the 2015-2020 period.

An analysis of available water quality data and potential sources of NPS pollution in the 2015 NPS Pollution Assessment Report shows that surface waters on and flowing onto the Reservation are currently or potentially affected by all types of NPS pollutants. These NPS pollution types include bacteria/pathogens, fine sediment, nutrients, oxygen demanding substances (which result in low dissolved oxygen levels), pH, temperature, metals, pesticides, household and industrial chemicals, and oil and grease. Nonpoint source pollution currently and/or potentially impairs the four major water bodies (Nooksack River, Portage Bay/Bellingham Bay, Lummi River, and Lummi Bay/Georgia Strait) and the ground water on the Reservation.

The Lummi Nation NPS Pollution Management Program is focused on addressing the three current impairments of greatest concern: loss of salmonid habitat in the Nooksack River

watershed and estuary; restrictions to ceremonial, subsistence, and commercial shellfish harvests in Portage Bay; and salt water intrusion and other contamination of the Reservation aquifers. Also identified in the NPS Pollution Assessment Report is the potential impairment to the Lummi Nation Waters that would result in restrictions to ceremonial, subsistence, and commercial shellfish harvests in Lummi Bay. These waters require NPS pollution control measures to restore or maintain desired water uses and/or, in the case of surface waters, to meet or maintain the Lummi Nation Water Quality Standards.

The primary NPS pollution categories responsible for the current and potential impairments of surface and ground water on the Reservation are agriculture, silviculture, hydromodification (including aquatic and riparian habitat modification), urban runoff, and both surface and ground water withdrawal. Other pollution source categories contribute to the impairment of Reservation water bodies but are not known to produce significant impairment at this time. Control of each NPS pollution category should contribute to the improvement and maintenance of water quality on the Reservation. The five primary sources of impairment listed above are the priority targets for NPS pollution management.

To reduce and/or eliminate the adverse effects of NPS pollution on surface and ground water and to achieve the NPS pollution management goals, appropriate best management practices (BMPs) must be effectively applied. Nonpoint source pollution on the Reservation is largely addressed through 15 interrelated Lummi Indian Business Council (LIBC) environmental programs and various Lummi Natural Resource Department (LNR) activities that specifically target the primary current and potential impairments of Reservation water bodies. The NPS Pollution Management Program for the Reservation supports and complements these programs and activities and emphasizes continued involvement in off-Reservation NPS pollution control efforts.

Community involvement is a key element of the Lummi Nation NPS Pollution Management Program because surface and ground water movement does not adhere to property or political boundaries and because community participation in developing and implementing the NPS Pollution Management Program is necessary for program success. The three elements of the community involvement plan are: (1) public education and outreach, (2) interjurisdictional coordination and cooperation for activities off-Reservation that affect on-Reservation resources, and (3) working with project applicants to ensure compliance with Lummi Nation ordinances and regulations.

4.1.6. Lummi Nation Water Quality Monitoring Strategy (2007)

The purpose of the Lummi Nation water quality monitoring strategy is to summarize existing conditions, describe long-term water quality monitoring objectives and the existing monitoring program, and to identify future plans to better support management decisions intended to achieve the water resources objectives of the Lummi Nation. This report is also intended to provide the U.S. Environmental Protection Agency (EPA) documentation requested pursuant to the Final Guidance of Awards of Grants to Indian Tribes Under Section 106 of the Clean Water Act (EPA 2006).

The Lummi Nation water quality monitoring strategy addresses the following:

- The Lummi Water Resources Division is responsible for protecting, restoring, and managing Lummi Nation water resources, including the Reservation shorelines, in accordance with the policies, priorities, and guidelines of the Lummi Indian Business Council (LIBC).
- The overall goal of the Lummi Nation Water Resources Division is to protect treaty rights to water of sufficient quantity and quality to (a) support the purposes of the Reservation as a permanent economically viable homeland for the Lummi People, and (b) to support a sustainable salmon and shellfish harvest sufficient to support a moderate living standard.
- LIBC resolutions 90-88 and 92-43 directed the Water Resources Division of the Lummi Natural Resources Department to develop a Comprehensive Water Resources Management Program (CWRMP) that ensures that the planning and development of Reservation water and land resources are safeguarded against surface and groundwater degradation.
- Reliable information on the quality of the surface and groundwater of the Reservation is required in order to effectively manage these water resources.
- The goal of the Lummi Nation Water Quality Monitoring Program (Program) is threefold: (1) to establish the baseline conditions of surface and ground waters on and flowing onto the Reservation, (2) to use this information to evaluate regulatory compliance of waters flowing onto the Reservation, and (3) to support the development and implementation of a water quality regulatory program (e.g., LCL Title 17, surface water quality standards) on the Reservation.
- Lummi Nation Waters are defined as all fresh and marine waters that originate or flow in, into, or through the Reservation, or that are stored on the Reservation, whether found on the surface of the earth or underground, and all Lummi Nation tribal reserved water rights. Lummi Nation Waters include the Nooksack River and Lummi River estuary systems, wetlands, Reservation groundwater, intermittent streams, and adjacent marine waters. Essentially all of these water resources affect the resource-rich uplands and tidelands of the Lummi Nation.
- The Lummi Water Resources Division developed a database management system during 2006 and 2007 to better manage water quality data collection, data entry, data storage, and data analysis. The surface water quality database was designed to export data both in a format that can be imported into the EPA STORET database and in a format that can be imported into a data analysis software program developed by Utah State University (USU) as part of the WRIA 1 Watershed Management Project (www.wria1project.wsu.edu).
- The data analysis tool developed by USU (Time Series Analyst) will be used to evaluate the existing water quality sampling network and to support the annual water quality assessment reports to be submitted to the EPA pursuant to the 2006 Guidance Document.
- The database and analytical tools will be used to assess existing sample sites, potential sample sites, sampling frequency, parameters, and other factors during 2008 to evaluate the existing sampling strategy.

- Program challenges include having sufficient qualified staff to adequately monitor the Lummi Nation’s water resources; having the tools and resources necessary to identify the contaminant sources that originate off-Reservation (especially bacterial contaminants); and effectively addressing off-Reservation issues that impact Lummi Nation waters.
- Actions to address Program challenges over the next five years are identified.

4.1.7. Water Quality Standards for Surface Waters of the Lummi Indian Reservation (2008)

The Lummi Nation Water Quality Standards (WQS) are intended to represent the most current best available science and are based on criteria recommended by the United States Environmental Protection Agency (EPA) and the adopted Washington State WQS (WAC 173-201A).

The general approach taken to developing the 2007 Lummi Nation WQS was to update the 1997 draft Lummi WQS using the EPA-approved portions of Washington’s 1997 and 2003 WQS (as of June 28, 2006). A companion document entitled, *Analyses and Methods Used to Derive the Draft Water Quality Standards For Surface Waters of the Lummi Indian Reservation* (dated October 4, 2006) provides a more detailed description of the source information used to derive the water quality standards. The 1997 draft Lummi WQS were based on the 1992 Washington WQS. The syntax of the Washington WQS and other sources were modified for compatibility with government and culture of the Lummi Nation.

The Lummi Nation did not independently develop any of the criteria. The Lummi Nation WQS are numerically equivalent to the water quality standards adopted by the State of Washington except for a provision in the Class AA temperature criteria for freshwaters to protect summertime spawning; dissolved oxygen criteria for Class AA freshwaters; enterococci criteria; toxics criteria; and radioactive criteria. The Washington State water quality standards for these variables are currently not updated to the criteria recommended and/or approved by the EPA.

Briefly, to be consistent with the most current best available science, the temperature criteria for freshwater follow the recommendations reported in the April 2003 EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards; the dissolved oxygen criteria for Class AA freshwaters follow the Oregon State Water Quality Standards approved by the EPA; the enterococci criteria follow the recommendations reported in the EPA’s Water Quality Standards for Coastal and Great Lakes Recreation Waters; most of the toxics criteria follow the recommendations reported in the EPA’s 2006 National Recommended Water Quality Criteria and the EPA’s 2002 report *Fish Consumption and Environmental Justice, A Report of the National Environmental Justice Advisory Council Meeting of December 3-6, 2001, Seattle, WA*; and the radioactive criteria follow the recommendations reported in the EPA’s Radionuclides Rule 66.

Additionally, although the Washington WQS are being transitioned into a “use-based” approach, the Lummi Nation WQS retain the “class-based” approach utilized in Washington’s 1997 WQS. The “class-based” approach is being utilized for the surface

waters of the Lummi Reservation due to the relatively small number of water bodies and their similarities. Classifications of waterbodies by uses and criteria on the Lummi Indian Reservation (Reservation) align with classifications applied by Washington adjacent to the Reservation, except where the EPA has determined that the waterbody should be classified differently. In such cases, EPA determinations were used. In addition, due to the variable salinities of many brackish waters on the Reservation, waterbodies were specifically designated as either fresh or marine.

4.1.8. Evaluation Report on the Development and Implementation of a Lummi Nation NPDES Program (2005)

Clean water is essential for the political integrity, economic security, health, and welfare of the Lummi Nation and its members, and all persons present on the Lummi Indian Reservation (Reservation). The Lummi Nation has developed a Comprehensive Water Resources Management Program (CWRMP) and the Lummi Code of Laws Water Resources Protection Code Title 17 (Title 17) to protect, enhance, and restore quality of the Reservation surface and ground water, including the Reservation estuaries and water over Reservation tidelands. The Federal Clean Water Act (CWA) also addresses surface water quality protection. The Clean Water Act Section 402 establishes the National Pollution Discharge Elimination System (NPDES), which requires permitting for point discharges of pollutants into surface waters.

Provisions of the CWA allow Indian Nations to be delegated authority to administer CWA Section 402 in Indian Country. The evaluation summarized in this report is intended to provide information that will allow the Lummi Nation to determine if it should seek this delegation at this time or continue to rely on the United States Environmental Protection Agency (EPA) to administer Section 402 of the CWA on the Reservation.

Compliance with Lummi Code of Laws Title 17 and the CWA, including Section 402, is essential to achieve water quality necessary for the purposes of the Reservation as a permanent economically viable homeland of the Lummi people. The Lummi Nation finds that activities on the Reservation which impair the quality of Lummi Nation water could have serious and substantial impacts on the political integrity, economic security, health, and welfare of the Lummi Nation and its members, and all persons present on the Reservation.

The report provides information on developing and implementing a Lummi Nation NPDES Program. A Lummi Nation NPDES program would complement other elements of the CWRMP and include:

- Protection of water sources and prevention of water supply contamination;
- Developing and issuing permits for point discharges, such as wastewater treatment plants and industrial and construction site storm water; and
- Enforcement of point discharge regulations including pretreatment and biosolids disposal.

The purpose of this report is to describe the steps required to seek and obtain authority to administer a NPDES program on the Reservation, to evaluate the costs and benefits of this authority, and to provide a recommended action plan.

Based on the evaluation completed in 2005, the technical staff recommendation is the following:

1. Currently, there are not enough facilities and/or construction activities requiring an NPDES permit to justify the costs associated with seeking delegation and administering a NPDES program.
2. The current delays associated with obtaining NPDES permits from the EPA on the Reservation and for other tribal facilities are not detrimental enough to justify the costs associated with seeking delegation and administering the program.
3. The results of this evaluation should be revisited in five years to determine if changes in conditions justify the costs associated with seeking and administering the program.

4.1.9. Evaluation Report on the Development and Implementation of a Lummi Nation Safe Drinking Water Management Program (2004)

A safe and reliable supply of drinking water is essential for residential, commercial, municipal, and industrial development and existence. The federal Safe Drinking Water Act (SDWA) is intended to protect public health by regulating public drinking water systems and sources. The SDWA also includes the establishment of national drinking water quality standards, wellhead protection programs, and regulation of underground injection wells. Provisions of the SDWA allow Indian Nations to be delegated authority to administer the SDWA in “Indian Country.” This evaluation is intended to provide information that will allow the Lummi Nation to determine if it should seek this delegation or continue to rely on the United States Environmental Protection Agency (EPA) to administer the SDWA on the Lummi Nation Reservation (Reservation).

The Lummi Nation Wellhead Protection Program is one element of the SDWA that the Lummi Nation has undertaken to prevent contamination of groundwater resources. This protection is important because the groundwater is the primary potable water supply for the Lummi Nation and residents of the Reservation. Ample supplies of good quality groundwater distributed by public water systems in compliance with the SDWA are essential to serve the purposes of the Reservation as a permanent economically viable homeland of the Lummi Nation and its members.

The report provides information on developing and implementing a Lummi Nation Safe Drinking Water Management Program. The goal of a safe drinking water management program is to protect the health of the people of the Lummi Reservation by assuring safe and reliable drinking water. A safe drinking water management program could include the following elements:

- Protection of water sources and prevention of water supply contamination,

- Monitoring of public and private drinking water systems,
- Technical assistance,
- Emergency response,
- Funding and review of system improvements,
- Water system coordination and planning,
- Public education, and
- Enforcement of safe drinking water regulations.

The purpose of the report is to describe the steps to seek and obtain primary responsibility for the enforcement (primacy) of SDWA elements on the Lummi Reservation, to evaluate the costs and benefits of primacy, and to provide a recommended action plan.

Based on this evaluation, was recommended in 2004 that the Lummi Nation:

1. Pursue SDWA primacy for the Public Water Supervision Systems (PWSS) program over the next five years at an estimated cost of \$106,000.
2. Complete the planned evaluation of seeking authority to administer Section 402 of the Clean Water Act (CWA) during 2005 and, following this evaluation, make a determination on whether or not to seek primacy for the Underground Injection Control (UIC) program.

Grant funding from the EPA have not been secured to date in order to develop the Lummi Nation primacy programs, adopt regulations, and to begin program implementation.

4.1.10. Water Conservation Plan for the Lummi Indian Reservation (2004)

The purpose of the Water Conservation Plan is to provide guidelines to conserve the Lummi Indian Reservation (Reservation) water supply. This report identifies water conservation strategies that support efforts to reliably provide high quality potable water to a growing population within a developing service area. The goal of the Water Conservation Plan is to identify, support, and implement water efficiency and conservation strategies that will reduce the effects of increasing demands on water supply sources, and thereby extend the existing system's usable capacity. The Water Conservation Plan is intended to protect the Lummi Nation's groundwater resources, while providing for future tribal growth and development. Because locally available groundwater is currently the primary water supply on the Reservation, water conservation will substantially affect the economic security, political integrity, and the health and welfare of the Lummi Nation and all persons present on the Reservation.

The primary goal of a public water supply system is to reliably deliver adequate quantities of high quality water to its customers. A water conservation strategy that addresses both supply and demand can help achieve this goal by reducing the effects of increased demands on water supply resources and thereby extending their usable capacity. The three main approaches to municipal water conservation are the use of voluntary conservation measures, economic

measures such as metering and pricing, and mandatory measures including regulations and restrictions.

Protection and conservation of groundwater quantity and quality on the Reservation is a high priority for the Lummi Nation, due to the following considerations:

- As a finite resource, groundwater is one of the most important and critical of the Lummi Nation's natural resources.
- An ample supply of groundwater of high quality is essential to serve the purposes of the Reservation as the permanent, economically viable homeland of the Lummi Nation and its citizens.
- Over 95 percent of the Reservation's domestic, commercial, municipal, and industrial water supply is currently pumped from on-Reservation groundwater wells.
- Groundwater is the only source of water on the Reservation that can be developed for potable domestic supply with minimum treatment.
- Utilization of surface water that would meet drinking water standards requires expensive treatment facilities.
- Salt-water intrusion due to over pumping could lead to the loss of the primary water supply source for the Reservation because water supply wells are difficult to replace and groundwater contamination can be expensive and/or impossible to treat.
- Purchase of water from the City of Bellingham or other sources at current rates is considerably more expensive than developing the groundwater sources to serve Reservation residents.

Based on this evaluation, it was recommended that the Lummi Nation:

- Develop and implement a public education campaign targeting the Lummi Tribal School (K–12), the monthly Lummi Nation newspaper (the *Squol Quol*), and Lummi Water District (LWD) customers.
- Implement a rebate program for retrofitting existing water use fixtures with more efficient fixtures.
- Expand on the existing LWD leak detection program.
- Develop and implement a water audit program.
- Evaluate and recommend revised water rates.
- Develop a water shortage contingency plan and emergency water-use regulations to promote water conservation during emergency situations.
- Incorporate water efficiency requirements into agricultural leases.
- Pursue water reclamation and reuse opportunities on the Reservation on a case-by-case basis.
- Monitor and evaluate the effectiveness of implemented water conservation programs.
- Hire a "Water Surveyor" staff person (0.5 FTE).

4.1.11. Lummi Nation Water Reclamation and Reuse (1998)

Water reclamation and reuse opportunities on the Lummi Reservation (Reservation) and at the Lummi Nation (Lummi or Lummi Nation) owned and operated Skookum Creek Fish Hatchery were evaluated. The evaluation consisted of: a review of current regulations and standards for reclaiming and reusing wastewater, an inventory and characterization of potential sources of wastewater, identification of the costs associated with water reclamation and reuse, and an assessment of wastewater reuse opportunities for each source.

In general, current water reclamation and reuse opportunities on the Reservation are limited by the costs to 1) monitor the reclaimed water quality, 2) provide additional treatment to the available wastewater, 3) convey the reclaimed water to places of reuse, and 4) the relatively low cost of potable water. At some time in the future, especially with new economic development activities, water reclamation and reuse may become more cost effective.

The evaluation of Lummi water reclamation and reuse opportunities is divided into the following six Sections:

- Section 1 is an introductory section.
- Section 2 describes current regulations for reclaimed water and identifies the treatment and quality requirements for common uses of reclaimed water.
- Section 3 identifies the potential sources of reclaimed water for the Lummi Nation and describes the quality of the wastewater from each source in terms of the water reclamation standards.
- Section 4 identifies the costs associated with reclaiming wastewater.
- Section 5 summarizes the evaluation results and presents conclusions regarding Lummi water reclamation and reuse opportunities.
- Section 6 lists all references used in the study.

4.1.12. Lummi Nation Spill Prevention and Response Plan (2005)

Large amounts of crude oil, petroleum products, and other hazardous materials are transported and stored on or near the Lummi Indian Reservation (Reservation). These hazardous materials are transported by ships, pipelines, trucks, and railroad and are used, produced, and/or stored throughout the Reservation area, particularly in the Cherry Point Heavy Impact Industrial Zone just north of the Reservation. Accidents, equipment failure, and human error have the potential to result in large spills and disastrous human and environmental consequences. Some of these hazardous materials are toxic to people and animals if inhaled or contacted. Oil and chemical spills or releases to waters on or adjacent to the Reservation have the potential to destroy some of the most productive and valuable ecosystems in the world. Spills or releases of petroleum products, chemicals, or other hazardous materials to land can threaten public safety, public health, and the environment. To date, there has not been a large hazardous material spill on the Reservation that has impacted Lummi Nation Waters. However, future residential and economic growth on the Reservation, in the adjacent Cherry Point Heavy Impact Industrial Zone, and in areas upstream from the Reservation will increase the risk of a hazardous material emergency on the Reservation. Because of the potential consequences, it is important for the Lummi

Nation to develop and implement a plan to effectively respond to a hazardous material spill or release on and/or adjacent to the Reservation.

The Lummi Nation finds that hazardous material spills on and adjacent to the Reservation have a direct, serious, and substantial effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation. Further, the Lummi Nation finds that those activities that potentially increase the frequency or severity of damages from hazardous material spills, if left unregulated or unaddressed, will eventually cause such damages. Accordingly, the Lummi Natural Resources Department (LNR) developed the Lummi Nation Spill Prevention and Response Plan for the Reservation. The purpose of the Spill Prevention and Response Plan is to guide current and future efforts to effectively reduce the potential for damage from hazardous material spills on the Reservation and, in coordination with other jurisdictions as appropriate, to reduce the potential for damage from spills near the Reservation or that cross the Reservation boundaries.

The following actions are intended to reduce the probability of hazardous material spills and to improve the Lummi Nation's response to spills:

- Implement the Emergency Planning and Community Right to Know Act (EPCRA) on the Reservation through the formation of a Tribal Emergency Response Commission (TERC). A Lummi Nation TERC would coordinate and implement emergency response activities according to EPCRA including acquisition of Federal grant funds, develop and review LEPC plans, and establish procedures for public information.
- The TERC should coordinate with the other area spill response organizations such as the Region 10 Regional Response Team, the Northwest Area Committee, the Washington State SERC, and the Whatcom County LEPC.
- Establish a Lummi Nation Spill Response Team. This team should consist of tribal members and staff who are familiar with the Lummi Nation Waters, shorelines, and tidelands and who can commit to participating in training and to incident response. By establishing a designated team, training resources can be focused on a set group of people who will have the time, capability, and interest to provide effective response.
- Assess and acquire appropriate training for the TERC, the Spill Response Team, Lummi Indian Business Council (LIBC) personnel, and community members.
- Maintain inventory of communication and response equipment and upgrade as needed.
- Establish a schedule and conduct appropriate spill response drills.
- Develop or review Pollution Prevention Plans (P3s) for Reservation facilities as necessary.
- Establish and/or maintain appropriate coordination with the Whatcom County Division of Emergency Management (DEM) and other agencies.
- Establish Mutual Aid Agreements with Whatcom County DEM and facilities near the Reservation.

- Offer public education opportunities specific to hazardous materials spills such as the four-hour First Responder Awareness Level hazardous materials training.
- Develop a plan for providing spill information to Reservation residents through coordination of the LIBC Safety Office and the LIBC Communication Office with established Whatcom County DEM and radio public information procedures and public meetings.
- Continue to review and provide comments to the Northwest Area Committee and the Region 10 Regional Response Team on the Geographic Response Plans for adequate protection of tribal resources.
- Participate on the Washington State Department of Ecology Spills Program Resource Damage Assessment (RDA) committee or other appropriate groups for spills that impact the Reservation and the Lummi Usual and Accustomed hunting, fishing, and gathering grounds and stations to ensure consideration and best possible protection of tribal resources.
- Identify and pursue potential federal, state, and local funding for training, purchase of additional equipment, maintenance of existing equipment, and tidegate repair.

It is anticipated that these actions will be pursued in coordination with the LIBC Safety Office and the Lummi Nation Comprehensive Emergency Management Plan that is being developed by the Lummi Police Department.

The best way to protect human health and the environment from hazardous materials spills and to minimize the costs of environmental protection and restoration is to prevent the release of oil or hazardous substances. In general terms, a prevention and response plan for spills of hazardous materials (spill prevention and response plan) is a set of measures to prevent the release of oil or hazardous substances as well as a system of contingency plans that outline steps to be taken by local entities in the event of a spill, including individual responsibilities and a chain of command. Such a plan is designed for any incident involving hazardous material that, when uncontrolled, may be harmful to life, property, or the environment.

Preventing spills and minimizing damage from spills are important elements of spill plans. The Spill Prevention and Response Plan represents a further step toward effective spill prevention and response for the Lummi Nation. The Lummi Nation has already taken significant steps including implementation of environmental, development, and construction regulations (e.g., the Land Use, Zoning, and Development, Water Resources Protection, Flood Damage Prevention, Building, and Solid Waste Control and Disposal codes) and review of spill prevention and response plans. In addition to existing federal regulations, implementation of development regulations and review of projects by the LIBC Technical Review Committee will continue to help reduce the potential for hazardous material spills, particularly smaller scale spills. The potential for larger scale spills primarily exists off-Reservation and is addressed by federal and state regulation.

The Lummi Nation can help protect its people and resources by reviewing spill prevention and response plans for facilities in the Reservation area, participating in their spill response drills, and by ensuring that pollution prevention plans are developed for facilities on the

Reservation. Implementation of the proposed actions in this plan should significantly reduce potential spill damages on the Reservation. Consistent attention and adequate funding to implement these actions will be required to maximize the spill prevention and response benefits of protecting public health and safety, protecting cultural and natural resources, and protecting the political integrity, economic security, and welfare of Reservation residents.

An update to the Lummi Nation Spill Prevention and Response Plan is currently in progress. When completed, full text of the Lummi Nation Spill Prevention and Response Plan: 2017 Update will be available at the Lummi Natural Resources Department website.

4.1.13. Water Resources Inventory Area 1 (WRIA 1) Watershed Management Plan (2005)

The draft Water Resource Inventory Area 1 (WRIA 1) Watershed Management Plan – Phase 1 (WRIA 1 WMP) was developed through the cooperative efforts of local stakeholders and governments under the framework provided by the Washington State Watershed Management Act (RCW 90.82). The WRIA 1 WMP provides a roadmap for addressing water quantity, water quality, instream flow, and fish habitat challenges faced by residents of WRIA 1 now and in the future, with an initial focus on 2005/2006 activities. It is to be viewed as a living document that will evolve and develop over time with continued refinement of the technical information necessary to respond to existing and new challenges.

The WRIA 1 Watershed Management Plan – Phase I is comprised of five sections and a number of appendices. Information is presented in the following manner:

- Section 1 – This section provides a description of the WRIA 1 Project process and the approach for developing the WRIA 1 WMP;
- Section 2 – Included in Section 2 is an overview of the actions taken and proposed as part of the WRIA 1 Project to build upon and enhance local knowledge about water resource issues and concerns. This section also includes a description of the technical tools being developed to support local decision-making with regard to water resource management issues. Also included in Section 2 of the WRIA 1 WMP is a discussion of the interrelationship between the Watershed Planning Process and the resolution of Tribal/Federal reserved water rights and related Treaty-based claims;
- Section 3 – This section of the WMP focuses on the recommended approaches and options for addressing key issues and managing water resources in WRIA 1;
- Section 4 – This section provides information on the approach for implementing and updating the WMP including resource considerations; and
- Section 5 – Included in this section is a summary of the actions, schedule, and resources needed to implement the WMP.
- Appendices – The appendices include supplemental documents and documentation considered necessary to understand some of the content provided in the five sections of the WRIA 1 WMP.

The Planning Unit approved the WRIA 1 Watershed Management Plan – Phase 1 on March 23, 2005. Legislative acts of those local governments participating in the Planning Unit

under which said local governments authorized approval of the WRIA 1 Watershed Management Plan - Phase 1 are compiled in Appendix G of the WRIA 1 Watershed Management Plan – Phase 1. Appendix G is hereby incorporated by reference into the WRIA 1 Watershed Management Plan – Phase 1. Appendix G also includes other actions of Planning Unit members authorizing approval of the Watershed Management Plan – Phase 1.

The Executive Summary is intended to provide an overview of the content for each section of the WRIA 1 WMP – Phase 1. For further detail or expansion of content covered in the Executive Summary, the reader should refer to the full version of the WRIA 1 WMP – Phase 1.

SECTION 1: In 1998, the Washington State Watershed Management Act (Act) legislation was passed and codified as Chapter 90.82 RCW. The specific geographic area covered under the Act is referred to as a “Water Resource Inventory Area”.

The geographic area for which this watershed plan was developed is Water Resource Inventory Area 1 (WRIA 1). WRIA 1 encompasses a majority of Whatcom County with a portion extending into Skagit County. For purposes of the WRIA 1 project, the study area extended into British Columbia because a portion of the WRIA 1 watershed is located in Canada.

In general, the requirements for participation, technical issues, and plan development outlined in RCW 90.82 are divided into four phases: Phase I is an organization phase, Phase II is an assessment phase, Phase III is a plan development phase, and Phase IV is an implementation phase.

The local WRIA 1 Watershed Management Project started in October 1998 after a Memorandum of Agreement was signed by four of the five “Initiating Governments”. The WRIA 1 Initiating Governments are the City of Bellingham, the Lummi Nation, the Nooksack Indian Tribe, the Public Utility District No. 1, and Whatcom County. During the organization phase, the Initiating Governments established the Planning Unit to ensure representation of a broad range of water resource interests. There are 16 caucuses representing government and non-governments water interests on the WRIA 1 Planning Unit. The WRIA 1 Planning Unit recommends approval of the WRIA 1 WMP to the Joint Board. The Joint Board was created by a 1999 Interlocal Agreement and is comprised of representatives of the City of Bellingham, Lummi Nation, Nooksack Indian Tribe, Public Utility District No. 1, and Whatcom County. Pursuant to the October 1998 Memorandum of Agreement, this Interlocal Agreement further formalized the government-to-government relationship essential to the tribes’ participation in the process.

In March 2000, a general scope of work for the WRIA 1 Project was developed by project participants and approved by the Planning Unit and Joint Board. The March 2000 Scope of Work identifies project goals, the technical elements to be addressed (water quantity, water quality, instream flow, and fish habitat), the approach for defining solutions, and elements to be considered for WMP implementation including governance structure, funding, long-term monitoring, and adaptive management.

SECTION 2: Section 2 of the WRIA 1 WMP describes the actions taken and proposed to build upon and enhance local knowledge of water resource issues and concerns. It also describes the tools being developed to support decision-making to address the concerns and to meet the adopted WRIA 1 Project goals (March 2000 Scope of Work). Work was conducted in the following areas: Technical Assessments, Socioeconomic Conditions/Methodology, and Local Perspectives.

- Technical Assessment – Technical assessments were completed for water quality, water quantity, instream flows, and fish habitat. The work undertaken was based on the goals and requirements identified in the March 2000 WRIA 1 Project Scope of Work. Local and outside expertise was hired to perform the assessments in coordination with WRIA 1 project participants. Section 2 of the WRIA 1 WMP provides detailed summaries of the work performed as part of the WRIA 1 Project as well as the approaches taken for the various tasks. It also includes information on technical work to be completed in 2005, and recommendations for future work. In addition, a list of the reports prepared in response to the technical work is included in the WMP appendices and are available on the WRIA 1 Project website (www.wria1project.wsu.edu).
- Socioeconomic Conditions/Methodology – A task associated with developing the WRIA 1 WMP included hiring a consultant to conduct a socioeconomic analysis for WRIA 1. The purpose of the analysis was to begin developing the tools that would help decision-makers understand the broad range of socioeconomic consequences associated with different management options. The tools developed include a baseline characterization of socioeconomic conditions in WRIA 1, water use and demand assessments, an assessment of methods to analyze non-market goods and services, development of the methodology to analyze impacts of management actions including long-term data collection protocols, and a socioeconomic analysis. Section 2 of the WRIA 1 WMP provides additional detail on the approach for performing the work and the content of the reports generated.
- Local Perspectives – In addition to meeting the WRIA 1 Project goals and requirements, efforts were made to address the needs of the WRIA 1 Project participants. To identify those needs, a number of opportunities and actions were incorporated into the project process including: participation in various groups such as the Staff Team, Technical Teams (Public Involvement and Education, Water Quantity, Water Quality, Instream Flow/Fish Habitat, Decision Support System, and Watershed Plan), Planning Unit, and Joint Board; participation in workshops, symposiums, fairs, and forums; questionnaires completed as part of the caucus formation and survey work conducted in support of developing the March 2000 Scope of Work; and survey work through the Decision Support System worksheets conducted during the Phase II Technical Assessment work. These activities and opportunities were used to direct the technical and socioeconomic assessment work described in Section 2 as well as the WRIA 1 WMP program recommendations and implementation described in Sections 3 and 4.

SECTION 3: The purpose of Section 3 of the WRIA 1 WMP – Phase 1 is to identify the initial solutions, actions, and alternatives for addressing the key issues identified in Section 2

and the requirements described in the WRIA 1 March 2000 Scope of Work. An overview of the initial solutions and recommended actions are provided below and are discussed in greater detail in Section 3.

- Early Activities – There were two components to the initial solutions: Early Action Projects and Multipurpose Water Storage Assessment. The Early Action projects were on-the-ground projects recommended by caucus members and/or WRIA 1 Technical Team members that addressed known or potential water quantity, water quality, instream flow, and/or fish habitat problems. The recommended projects were evaluated by the Planning Unit and Joint Board against project guidelines established as part of the Early Action process. Two Early Action projects, which are discussed in detail in Section 3, were funded as part of this effort. It is important to note that numerous complementary “Early Actions” were performed and continue to be performed throughout WRIA 1 pursuant to various governmental, private, and non-governmental agency initiatives (e.g., salmon recovery, TMDL implementation). The other early activity occurring as part of the WRIA 1 Project was completion of a WRIA 1 Multipurpose Water Storage Options Assessment. This effort was led by the Public Utility District No. 1 with grant funds received from the Washington State Department of Ecology. The purpose of the assessment was to compile and reconsider all of the storage options that had previously been identified in studies or plans conducted within WRIA 1 and to receive new ideas on storage options from WRIA 1 participants. The approach to conducting the assessment and the outcomes of the report are provided in Section 3.
- WRIA 1 Management Option Catalog – The WRIA 1 Management Option (MO) Catalog is the outcome of an effort by WRIA 1 participants to document and describe potential management options for addressing water resource management issues. The approach to developing the MO Catalog is discussed in Section 3.
- Instream Flow Selection and Adoption Action Plan – In the adopted March 2000 Scope of Work for the WRIA 1 Project, it was agreed that the existing established instream flows would be re-evaluated as part of the WRIA 1 Project. The purpose of the WRIA 1 Instream Flow Selection and Adoption Action Plan (ISF Action Plan) is to describe the proposed process for re-examining the existing instream flows and for selecting, determining achievability, adopting, and enforcing instream flow levels throughout WRIA 1. The ISF Action Plan is an essential component in achieving the overall goal of the WRIA 1 Project - to have water of sufficient quantity and quality to meet the needs of current and future human generations, including the restoration of salmon, steelhead, and trout populations to healthy and harvestable levels and the improvement of habitats on which we collectively rely. The current draft of the ISF Action Plan, which is included in the WRIA 1 WMP – Phase 1 Appendices, will be used as a guideline to implement Instream Flow Pilot Negotiations within WRIA 1. The information learned in the Pilot Negotiation process will be used to modify the ISF Action Plan over time. The Instream Flow Pilot Negotiations will be the focus of implementation actions for the WRIA 1 Project 2005-2006 Work Plan, which is described in Section 5. Section 3 provides detailed information on the approach to developing the ISF Action Plan as well as the process for approaching the ISF Pilot Negotiation projects.

- WRIA 1 Pilot Projects, WRIA-Wide Programs, and Other Recommendations – Section 3 of the WRIA 1 WMP – Phase 1 identifies a number of recommendations for projects and programs to address issues identified in Section 2 of the WMP. The approach for identifying the projects and programs varied and is discussed in detail in Section 3. In all cases, opportunities were provided to WRIA 1 participants to identify, formulate and/or comment on recommended projects and programs. Following are the projects and programs described in Section 3.6 and 3.7.
 - Drainage Based Management
 - E. Hemmi Neighborhood Wetland and Stream Restoration
 - Groundwater Augmentation of Streamflow
 - Low Impact Development Facility and Road Pilot Projects – 1) Whatcom County Facility and Road Projects and 2) Guide Meridian Road Project
 - Compliance Program
 - Low Impact Development (LID)
 - Natural Resource Policy Integration
 - Water Use Efficiency
 - Public Involvement and Education
- WRIA 1 Long Term Monitoring Program – The purpose of the WRIA 1 Long-Term Monitoring Program (LTMP) is to evaluate WRIA 1 Project success, and ensure that the WRIA 1 Project goals outlined in the March 2000 Scope of Work are met. The LTMP serves as a fundamental building block to the WRIA 1 Project by providing on-going information on the status of various water resource concerns, potential trends, causes/sources of problems, and the effectiveness of management actions. The approach to pursuing this program is outlined in Section 3.

SECTION 4: One of the fundamental premises upon which the WRIA 1 Project was developed, is the recognition that effective water resource management required a commitment extending beyond the development of the Watershed Management Plan itself. Section 4 of the WRIA 1 WMP – Phase 1 describes actions being recommended to address considerations outlined in the March 2000 Scope of Work relative to ensuring plan implementation. Included in the described actions are an implementation and adaptive management strategy. The implementation strategy recommended is a multi-staged approach that considers resource needs for the short and long term implementation. The adaptive management strategy provides a very simplistic illustration of the strategy conceived as part of the March 2000 Scope of Work.

SECTION 5: A summary of implementation actions, resource needs, schedule, and recommended lead entities is provided in Section 5. The focus of the implementation schedule is on actions that can be achieved within a two year timeframe (2005-2006) with existing and anticipated resources. Included in the tasks outlined are efforts directed toward obtaining additional funding through state grants, federal appropriations, and securing local funds.

The full text of the Water Resource Inventory Area 1 (WRIA 1) Watershed Management Plan and other associated documents are available through the following link:
<http://wrialproject.whatcomcounty.org/64.aspx#wmp>.

4.2. Land Resources

Environmental and human health assessments concerning the Lummi Nation's land resources address issues including land use planning, solid waste management, forest management, riparian and estuary habitat assessments, intertidal biota inventory, and coastal zone management.

4.2.1. Comprehensive Land Use Plan (2015)

The Comprehensive Land Use Plan is intended to characterize and predict the preferred future for the Lummi people and provide a vision for sustainable prosperity and wellness supported by the process of land use development.

The purpose of the Comprehensive Land Use Plan is to:

- Serve as a vehicle of land use information.
- Determine and establish the development preferences of the community.
- Guide policy and actions about land use and development.
- Identify and allocate land for specific uses to achieve the community's vision.
- Guide conservation of agriculture, commercial forestry, and mineral resources.
- Protect critical areas, including wetlands, sensitive habitats, floodways, and geo-hazard areas.
- Select and find funding for service programs that best serve the greatest good for the Lummi Nation and its members.
- Foster the application of a cooperative, inter-departmental approach to the management of land, resources, and government activities.
- Identify and prioritize capital facilities needs and funding.

The Comprehensive Land Use Plan process includes six steps:

1. Identify and characterize current issues.
2. Collect and interpret data to support projections.
3. State the community's vision for a desired outcome.
4. Develop realistic goals, objectives, and policies.
5. Apply policies and objectives to planning and development projects.
6. Evaluate alternatives programs.

The Lummi Nation is not subject to the planning requirements of the State of Washington's Growth Management Act (GMA). Like any other land manager with a Federal Government nexus, the Lummi Nation assumes a government-to-government relationship with the State and asserts sovereign authority to plan its own land uses. Nevertheless, as the senior land

steward in the area, the Lummi Nation intends to communicate and participate with Whatcom County and selected cities in the county to develop a consistent land use and development framework, while continuing to strive toward key tribal goals. The framework and organization of comprehensive plans under the Growth Management Act is respected in this plan by using many of the same State-mandated elements to be included in Growth Management Act-related planning documents.

The Comprehensive Land Use Plan analyzes six inter-related elements of community planning and development, including:

- Demographics – population and employment projections in the context of historical trends and established strategic plans.
- Land Use – allocation of resources for specific uses, including housing, commerce and industry, recreation and open space, agriculture, forestry, and public facilities (e.g., utilities, rights-of-way, flood and storm water control).
- Housing – inventory of existing stock to determine the projected need for land. Establish goals, objectives, and policies for preserving, developing, and improving housing opportunities.
- Resource Management and Protection – strategies for sustainable, low impact development optimize the balance between resource protection/conservation and highest and best uses of land for community wellness and prosperity.
- Capital Facilities – six-year needs projections including costs and funding sources, specific facility siting and fiscal impact analyses for public facilities, utilities, transportation improvement and parks, recreation and open space. Also, inventory of current and future capacity determinations, location, level of service standards, forecast of specific actions, and a multi-year funding strategy.
- Economic Development – defines existing strategies for creating opportunities for tribal member employment, entrepreneurship, and tribal revenue.
- Background Documents and Appendices – provide reference to other documents and policies administering land use.

4.2.2. Lummi Nation Integrated Solid Waste Management Plan: 2014-2024 (2014)

The purpose of the Lummi Nation Integrated Solid Waste Management Plan: 2014-2024 (ISWMP) is to guide current and future efforts to effectively and efficiently manage solid waste on the Lummi Indian Reservation (Reservation) over the 10 year planning period from 2014 to 2024. The ISWMP is intended to guide efforts to protect and restore environmental trust resources including water resources, shorelines, tidelands, and uplands through the management and disposal of solid and hazardous waste.

The Lummi Nation finds that solid waste dumping on the Reservation has a direct, serious, and substantial adverse effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation. Further, the Lummi Nation finds that solid waste management has been a documented

problem on the Reservation, particularly illegal dumping, and if left unregulated or unaddressed, will continue to have such adverse effects. Accordingly, the Lummi Natural Resources Department (LNR) and the Lummi Planning and Public Works Department (Planning) updated the Integrated Solid Waste Management Plan for the Reservation. The goal of the Lummi Nation ISWMP is to develop and implement a Reservation-wide solid waste management system to protect public health and the environment. This goal will be attained through the achievement of the following objectives:

1. Ensure convenient and reliable services for managing solid waste including providing convenient and cost-effective recycling opportunities to maximize participation.
2. Decrease illegal dumping on the Reservation.
3. Educate and involve citizens in solid waste management activities including waste reduction and recycling efforts.
4. Obtain funding for solid waste management services and facilities including enforcement actions against violators of applicable solid waste management laws.

Solid waste disposal, and in particular illegal dumping, has been a recognized problem on the Reservation for many years. To address this problem, the first solid waste management plan for the Reservation was developed in 1979 (Harper-Owes 1979). Prior to 1979, two unlined sanitary landfills that accepted solid waste from the Reservation and from adjacent Whatcom County were operated on the Reservation. Since the closure of these landfills, solid wastes generated on the Reservation have been disposed of off-Reservation, either through contracted curbside pick-up or by self-haul to one of the two local transfer facilities located less than two miles from the Reservation boundary. Despite these available disposal options, similar to other rural areas across the United States illegal solid waste dumping occurs and presents a public health threat and a threat to the quality of Reservation waters. Pollutants of concern include bacteria/pathogens, metals, nutrients, oil, grease, and other chemicals. The illegally dumped material originates both from on- and off- Reservation sources.

Over the last decade, the Lummi Nation has taken a pragmatic approach to stop illegal dumping activity and manage solid waste on the Reservation. Recognizing that cleaning up the dumpsites is the most direct way to remove the potential public health threat and the threat to Reservation water quality, the LIBC initiated Project Clean-Up in 2002. Initially funded by the tribal government and then funded through a grant obtained from the Environmental Protection Agency (EPA), the Project Clean-Up program, later called the Lummi Waste Management program, removed and disposed of solid waste at illegal dumpsites, installed warning signs at dumpsite locations, installed gates to prevent access to dumpsite locations, provided community education, and provided assistance in residential solid waste removal. Over the January 1, 2003 through December 31, 2006 period a total of approximately 565 tons of mixed household waste, 215 appliances, approximately 500 tires, and over 70 abandoned vehicles were removed from the Reservation. The waste management activities continued to be partially funded by EPA Performance Partnership Grants from January 1, 2007 through December 31, 2008, before the cleanup program was disbanded due to funding cuts.

In addition, following its development and public hearings during 2003, during January 2004 the Lummi Nation passed the Solid Waste Control and Disposal Code (Title 18 of the Lummi Code of Laws [LCL]). Title 18 provides the policy framework and delegation of administrative authority for a coordinated program to address the accumulation, collection, and disposal of solid waste; the resource recovery, recycling, and utilization of recyclable materials; and the creation and operation of disposal sites and transfer stations.

The existing Reservation solid waste management system largely relies on individual residents and businesses to comply with LCL Title 18 and to dispose of their solid waste in an environmentally-sound manner with little assistance from the Lummi Nation. The Lummi Housing Authority (LHA) contracts weekly solid waste and recycling collection services with a private contractor for the 270 homes on the Reservation that are owned or managed by the LHA. As there are approximately 1,989 residences on the Reservation, this leaves approximately 1,719 homes (86% of the residences) that must self-haul to an off-Reservation transfer station or contract individually with a private company for collection. Assuming the Whatcom County disposal rate of 3.4 pounds per person per day, and using the Reservation population of 4,706 people from the 2010 Census, Reservation residents dispose of approximately 16,000 pounds (8 tons) of solid waste per day or approximately 2,920 tons of solid waste annually. Since a typical garbage truck for the local private solid waste collection service (Sanitary Service Company, Inc.) hauls approximately 12 tons of compacted garbage, the Reservation solid waste disposal rate is equivalent to approximately 5 garbage truck loads per week or 243 garbage truck loads per year.

Although the Lummi Nation has taken a pragmatic approach to address the immediate solid waste management challenges that are found on the Reservation, there has been a recognized need to also take a programmatic approach. Development of the ISWMP allows a more holistic review of the solid waste management issues on the Reservation and the development of alternative solutions that may provide a more effective reduction in the amount of illegal dumping on the Reservation.

The ISWMP builds on the 1979 Lummi Solid Waste Management Plan (Harper-Owes 1979), the Solid Waste Control and Disposal Ordinance (LCL Title 18), Project Clean-Up, and past work by the Lummi Solid Waste Management Team formed through the Project Clean Up effort. The Plan development began with a literature review of technical background documents, solid waste audits, ordinances regarding solid waste management on the Lummi Reservation and for other tribal governments, and planning guidance documents. Solid waste management alternatives, including the status quo, were identified and evaluated against the goal and objectives of this Lummi Nation Integrated Solid Waste Management Plan. The identified solid waste management problems, goals and objectives, and preferred alternatives were used to develop a broad scope 10-year action plan for the Reservation. From this 10-year plan, more specific actions were selected to develop a 5-year implementation plan.

As a result of this process, the key recommendations for designing and implementing a solid waste management system on the Lummi Indian Reservation that will protect public health and the environment are:

1. Adopt this plan by a Lummi Indian Business Council (LIBC) resolution that includes approval to join the Tribal Solid Waste Advisory Network (TSWAN). The TSWAN should be joined as soon as practicable to provide technical support from other tribal and solid waste management professionals during plan implementation and later plan updates.
2. Re-establish a Solid Waste Management Division within the Lummi Nation Planning and Public Works Department including:
 - a. Hiring a full time Solid Waste Management Specialist,
 - b. Hiring a part-time office assistant or re-allocating a portion of existing staff time to the re-established Solid Waste Management Division.
3. Fully subsidize weekly curbside solid waste and every other week recyclable collection or its equivalent (Solid Waste Collection Alternative A-3) in combination with an annual Community Clean-up Event (Transfer and Disposal Alternative 1).
4. Implement all of the Special Waste Recommendations presented in Table 6.3 and both encourage use of the existing Disposal of Toxics facility near the Bellingham Airport (Moderate Risk Waste Alternative B) and conduct an annual Community Clean-Up event (Transfer and Disposal Alternative 1) that includes collection and disposal of moderate risk wastes (Moderate Risk Waste Alternative C).
5. Implement a public education and outreach program that will inform the community on solid waste management and recycling on the Reservation following the recommendations presented in Section 8.2 and listed in Table 8.1.
6. Coordinate solid waste management with other jurisdictions as appropriate.
7. Pursue funding to implement the solid waste management alternatives described in the approved Integrated Solid Waste Management Plan.

4.2.3. Lummi Nation Forest Management Plan (2011)

The purpose of the Lummi Nation Forest Management Plan is to establish management policies, objectives, and direction for the Lummi Nation's forestlands with particular emphasis on trust lands within the boundaries of the Lummi Reservation. Currently, the Lummi Nation holds approximately 5,360 acres of forested trust land within the boundaries of the Reservation, 703 forested acres on Portage Island, 26 forested acres on Madrona Point, and 1,771 forested acres in the Arlecho Creek Watershed. These forestlands provide significant cultural, environmental, and economic value to the Lummi people. Accordingly, the Forestry Division manages these resources in an environmentally and economically responsible and sustainable manner so that the benefits they provide are available for future generations.

The Lummi Forest Management Plan has been designed to serve four primary functions:

1. To provide a useful description of the physical, environmental, and land use conditions of the Lummi Reservation.
2. To provide guidance to the Forestry Division in determining how annual harvest units and other management units should be selected to maintain economic viability while protecting environmental and cultural resources.

3. To be a comprehensive procedural, technical, and educational resource for the Forestry Division by providing pertinent information about the Forestry program, silvicultural tools, best management practices and guidelines, and permit and contract templates used in the planning and performance of forest management activities.
4. To function as an educational tool for relevant departments within the Lummi Indian Business Council, landowners, and other interested Tribal members.

Since the majority of forested trust land ownership on the Lummi Reservation is individual trust land, the Forest Management Plan has been designed to provide useful information that will assist the Forestry Division in meeting the varying management objectives of assignment landowners while protecting environmental and cultural resources in accordance with all federal and tribal regulations.

The management plan is comprised of eight sections: Reservation Setting, Forest Inventory, Timber Harvesting, Forest Roads, Site Preparation, Reforestation, Vegetation Management, and Thinning. Forest management goals and objectives are represented in their respective sections as guidelines and best management practices. Each section has a corresponding appendix that contains supplemental technical information for reference. The Forestry Division's Forestry Permits and Timber Sale Contracts Handbook is also provided as an appendix to the plan. In this regard, the management plan also functions as a programmatic handbook.

4.2.4. Upper South Fork Nooksack River Habitat Assessment (2007)

The Upper South Fork Nooksack Habitat Assessment was developed in support of the Water Resources Inventory Area 1 (WRIA 1) Salmon Recovery Plan. The assessment area covers 25 miles of the South Fork Nooksack upstream from the Saxon Road Bridge (RM 12.8), and contains the most heavily used spawning areas for Threatened chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*) and bull trout (*Salvelinus confluentus*) in the South Fork watershed. The assessment area is heavily forested and commercial forestry dominates the land use of the watershed. Land ownership is split between Federal lands managed by the U.S. Forest Service, commercial forestlands, and conservation property held by Seattle City Light as mitigation for its Skagit River hydroelectric dams.

Under the current state Forest Practice Rules and Federal Northwest Forest Plan, the upper South Fork Nooksack River watershed should be on a trajectory of recovery. However, the legacy of timber harvest and road construction in the watershed has disrupted several important habitat-forming processes and resulted in degraded habitat conditions. The loss of mature trees from over 90 percent of the riparian zone has reduced shading of the channel and increased the process of heat delivery to the channel. Streamside harvest has also slowed the process of recruitment of large wood to the channel, altering the distribution and abundance of instream wood and limiting its influence of habitat diversity. Bank protection installed to protect roads and other infrastructure have narrowed the channel migration area and further slowed the recruitment of wood to the channel. Naturally high sediment production from unstable landforms in the watershed has been augmented by human-caused slope failures related to road failure and timber harvest. Because of the underlying geology

and physiography of the watershed, these processes will be slow to return to levels where habitat formation and maintenance can be self-sustaining.

The need to quickly improve instream habitat conditions is underscored by the listing under the Endangered Species Act of three fish species in the upper South Fork Watershed: chinook salmon, bull trout and steelhead trout. Near-term restoration projects should focus on improving habitat diversity in cooler water reaches of the river, controlling sediment sources, and initiating vegetation enhancement that speeds the growth of the riparian zone to provide shade and large wood to the channel. The natural barriers to recovery, such as low channel migration rates and slow growth of riparian trees, make it likely that habitat improvement will need 50-100 years without active restoration.

Since the primary land-use regulations governing this portion of the watershed are the Forest Practice Rules, the habitat protection strategy should focus on monitoring the implementation and effectiveness of these rules that aims to provide high quality instream habitat for ESA-listed species. Protection and acquisition projects should focus on ensuring that the watershed remains in commercial forestry and conservation status, by purchasing development rights or conservation easements to stream-adjacent property that is at risk of development. Future threats to habitat and salmon stocks in the upper South Fork watershed will come from further watershed development as the population in the region continues to grow.

4.2.5. Nooksack River Estuary Habitat Assessment (2005)

The Nooksack River Estuary Habitat Assessment describes estuarine habitat-forming processes and habitat requirements for Pacific salmon juveniles, particularly chinook salmon (*Oncorhynchus tshawytscha*), and the extent to which the Nooksack River supports those needs. These current habitat values are compared to historic conditions to assess changes in habitat distribution, type, and abundance through time. This knowledge can facilitate planning that incorporates the preservation of more intact habitats and the restoration of habitat-forming processes in areas that have been degraded and disconnected from their historic conditions.

The Nooksack River delta is one of the fastest developing sedimentary features in the Puget Sound basin. This delta has prograded rapidly into Bellingham Bay during the historic period, creating a diverse and productive estuarine environment. In the earliest part of the historic record, the majority of Nooksack River discharge flowed into Lummi Bay to the north of the Lummi Peninsula, then an island. Maps of the estuary in the late 1880s show broad wetlands and marshes dissected by numerous tidal and distributary channels draining into Lummi Bay, and a relatively young delta forming in Bellingham Bay where the main channel and the majority of the river's flows had recently been rerouted.

As the river built a new delta into Bellingham Bay, the floodplain draining into Lummi Bay was largely converted to agriculture and isolated from the main flow of the Nooksack River by levees. Drainage ditches were excavated through the floodplain to drain marshes, and channels were filled to improve farming practices. By the early 1930s, approximately 65 percent of the Nooksack/Lummi Bay estuarine floodplain had been converted to agriculture. Since then, some of the marginal farmland that has been abandoned is reverting to wetlands, and new estuarine habitat is developing along the front of the Bellingham Bay delta.

In the past 150 years, the Nooksack River has recreated much of the habitat diversity lost from the Lummi Delta on the other side of the peninsula in Bellingham Bay. The new lower delta has been virtually unmanaged, making it one of the higher quality estuarine ecosystems in the Puget Sound. Actions that preserve the quality of Nooksack Delta habitat as it continues to develop should be a priority for salmon recovery. Restoration of habitat-forming processes throughout the upper watershed will also provide benefits to estuarine habitats. Opportunities exist on both deltas to restore connectivity to juvenile rearing habitat in isolated floodplain channels and sloughs blocked by levees, tide gates, culverts, and ditches that would eventually restore tidal processes and salt marsh habitats. Restoration projects on the two deltas and the adjacent nearshore could affect the current land use and will require extensive evaluation of potential salmon recovery benefits in comparison to project costs and impacts. Further habitat-specific juvenile monitoring and integration of similar information from other estuaries will increase our understanding of how the Nooksack estuary and nearshore is used by fish in rearing life stages. This will allow us to evaluate the potential recovery benefits of various restoration options and drive an informed feasibility review of potential projects.

Given the changes in the Nooksack estuary through time, and the decline of ESA-listed chinook and other salmon stocks, restoration holds promise for improving the abundance, productivity, and diversity of critical rearing and transitional habitat. Restoration can be important in increasing the capacity of the estuary, to provide abundant habitat as salmon populations recover.

4.2.6. Lummi Intertidal Baseline Inventory (2010)

The Lummi Intertidal Baseline Inventory (LIBI) was conducted in order to document the existing diversity, abundance, distribution, and habitats of biological resources that are found on the Lummi Reservation tidelands. The LIBI integrates the results from six field surveys that were conducted in 2008 and 2009 with compatible pre-existing information.

The six surveys were conducted as follows:

- Topographic Survey: this survey used remote sensing with Light Detection And Ranging (LiDAR) to develop a high-resolution digital elevation model of the tidelands.
- Intertidal Biota Survey: this survey documented the diversity, distribution, abundance, and habitat preferences of benthic biota such as clams, snails, and eelgrass.
- Large Bivalve Survey: this survey assessed the distribution and abundance of horse clams specifically.
- Finfish Survey: this survey documented the diversity and monthly abundance of finfish.
- Shorebird and Marine Mammal Survey: this survey documented the diversity and monthly abundance of birds and marine mammals.

- Petroleum Toxicity Baseline Survey: This survey documented present-day concentrations of petroleum-derived chemicals in tideland sediments and clam tissues.

Over 242 separate taxa were documented on Lummi Reservation tidelands during the LIBI. The most abundant benthic taxa encountered were polychaete worms in the family Oweniidae, while the purple varnish/mahogany clam was easily the most abundant bivalve species. The purple varnish/mahogany clam was estimated to number nearly 1.2 billion individuals with a total biomass of 19.9 million pounds. The clam species with the next highest biomass was the butter clam. Butter clams collectively had an estimated biomass of 6.7 million pounds, even though the abundance estimate for this species was only 73 million individuals. The population estimate for Manila clams was 2.4 million pounds of legal-sized clams. This value is not statistically different from existing stock assessment estimates due to large confidence intervals for the LIBI estimate. Maps showing the distribution of selected species are presented in this report. Generally, densities of total benthic biota were highest at tidelands on Brant Island/Brant Flats, Lummi Bay, Point Francis, Hale Passage, and in the lower elevation parts of Neptune Beach. Densities of benthic biota were intermediate in Portage Bay and Lummi Shore Road and lowest on the Nooksack River Delta and the middle and upper elevations of Neptune Beach.

Seasonal and spatial trends in the abundance and diversity of finfish and birds are presented and discussed. Generally, bird abundance and diversity was highest during fall and winter months, while finfish diversity and abundance was highest during spring and summer months. Birds were generally most abundant in Lummi Bay, moderately abundant in Portage Bay, and least abundant at Neptune Beach, Hale Passage, and the Nooksack Delta. In contrast, finfishes were generally most abundant near the Nooksack Delta, followed by Portage Bay, Hale Passage, Lummi Bay, and finally Neptune Beach.

Environmental factors that had biological significance for individual taxa included tidal elevation, beach slope, wind fetch, substrate particle size, and eelgrass coverage. Overall, community structure was responsive to these same environmental factors along with salinity, percent coverage of acorn barnacles, percent coverage of mussels, and percent coverage of red, brown, and green algae. The five environmental gradients that appeared to have the most biological significance for community structure were tidal elevation, beach slope, substrate particle size, surface coverage of Pacific eelgrass (*Zostera marina*), and salinity.

Petroleum-derivative hydrocarbon concentrations were mostly below detection limits in Manila clam tissues and sediments sampled from 3 tidal elevation strata at sites in Lummi Bay and Portage Spit. However, very low concentrations of Napthalene (15 parts per billion) and Phenathrene (6 parts per billion) were detected in the sediment of the upper elevation sub-sample of the Lummi Bay site. These values are below the 'no effect' marine sediment quality standards criteria adopted by the State of Washington for these compounds.

The results of this project are intended as a pre-disaster reference dataset that can be used to assess the potential adverse impacts from an oil spill or some other disaster, as well as a standard against which post-spill recovery can be measured. In addition, the data are useful for informing resource management decisions, enhancement and aquaculture opportunities,

oil spill response planning, vessel navigation, and they improve the current knowledge about the ecology of the Lummi Reservation tidelands. Furthermore, the data can potentially be used to build models that would provide qualitative predictions about changes in community structure resulting from environmental changes.

4.2.7. Lummi Coastal Zone Management Plan (1988)

The Lummi Coastal Zone Management Plan (GPA 1988), adopted by the LIBC in 1982 and revised in 1988, was based on an earlier study entitled *Lummi Coastal Zone Management: Phase I – Assessment*. This report contained a detailed survey of scientific reports relating to the Lummi Indian Reservation, an inventory of existing federal, state, local, and Lummi policies that could possibly relate to coastal zone management, a survey of land use and land ownership, an analysis of population and development growth trends, and an extensive analysis of the scientific factors (natural systems) found within the Reservation and its surrounding waters.

The Lummi Coastal Zone Management Plan consists of three parts: policies, elements, and administrative procedures. The policies are extensive and comprehensive and are designed for use in reviewing development proposals and impact analysis within the coastal zone. There are five elements: the conservation element, which identifies areas of significant ecological value; the recreation, access, and historical/cultural element, which identifies existing and planned recreational/cultural resources and facilities; the circulation element, which identifies arterial and secondary roads; the shoreline use and economic development element, which identifies the existing Lummi zoning designations and location of shoreline sites to be used for tribal enterprise; and the coastal zone element, which identifies the delineation of the coastal zone designations. The administrative procedures section provides the legal mechanism for implementing the plan and includes the standards and permitted use for each coastal zone designation.

Another report, entitled *Lummi Coastal Zone Management: Recommendations for Land Use and Zoning Conflicts on the Lummi Indian Reservation* was prepared to supplement the Lummi Coastal Zone Management Plan. This report identified changes required by to bring the Lummi land use plan and the Lummi zoning text and map into agreement. Furthermore, it identified changes required in the Whatcom County land use plan and zoning map to become compatible with the Lummi plan and zoning. The Lummi coastal zone designations and the comprehensive plan and zoning map are all compatible with each other and will work in concert.

An update to the 1988 Lummi Coastal Zone Management Plan is currently in progress. When completed, full text of the Lummi Coastal Zone Management Plan will be available at the Lummi Natural Resources Department website.

4.3. Other Resources

Several other resources of the Lummi Nation are addressed in environmental and human health assessments focusing on hazard mitigation, energy planning, wind energy development, seafood consumption, Reservation mapping, and climate change.

4.3.1. Lummi Nation Multi-Hazard Mitigation Plan: 2015 Update (2015)

The purpose of the Lummi Nation Multi-Hazard Mitigation Plan (MHMP) is to guide current and future efforts to mitigate the impacts of natural hazards on the Lummi Indian Reservation (Reservation). The MHMP shall also guide efforts to mitigate and respond to natural hazards that are generated off-Reservation or that cross Reservation boundaries in coordination with other agencies and jurisdictions as appropriate.

The Lummi Nation finds that natural hazards on the Reservation have a direct, serious, and substantial effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation. Further, the Lummi Nation finds that those activities that potentially increase the frequency or severity of damages from natural hazards, if left unregulated or unaddressed, will eventually cause such damages (LIBC Resolution No. 2004-015, No. 2007-060, No. 2010-093, and No. 2015-107; Appendix A). The MHMP assessed the vulnerability of six geographic areas of the Reservation (i.e., Lummi Peninsula, Gooseberry Point, Floodplain, Northwest Upland, Sandy Point Peninsula, and Portage Island) to natural hazards and found that the Reservation is vulnerable to floods, earthquakes, severe winter storms, windstorms, coastal erosion, drought, wildfires, landslides, tsunamis, volcanic eruptions, and tornadoes.

The MHMP proposes mitigation measures for all existing natural hazards and recommends the following specific priorities for flood, tsunami, and volcanic lahar mitigation:

1. Protect the Nooksack River floodplain on the Reservation and maintain access to the Lummi Peninsula by constructing a 100-year setback levee that extends along Ferndale Road from Ferndale to Kwina Slough, then along the north side of Kwina Slough to Marine Drive, and finally along Marine Drive to Lummi Shore Road (the levee should include a bridge over the Lummi River channel and culverts allowing flow under Marine Drive).
2. Reduce the potential for flood damage along the low-lying coastal areas and concurrently reduce damage to shoreline resources by bulkheads through the acquisition or relocation of flood-prone structures currently located in the coastal velocity zones.
3. Complete the elevation of Slater Road to the 100-year flood level east of the Nooksack River including a bridge to allow floodwaters to pass downstream.
4. Protect, acquire, or relocate vulnerable structures in the coastal and riverine floodplains, outside of the velocity zone and floodway, respectively.
5. Provide access to the Lummi Peninsula in the case of levee failure by raising Haxton Way and providing for the flow of floodwaters under Haxton Way (this could serve as an interim measure prior to construction of a 100-year setback levee).
6. Purchase flood insurance for all LIBC structures within or adjacent to the floodplain.
7. Maintain the tsunami warning system and evacuation route signs in hazard areas and continue to provide residents in the tsunami hazard areas with updated information on the tsunami hazard, including the probability of occurrence, potential size of the hazard, signs of an impending tsunami, and best route to avoid a tsunami.

In addition, the following priorities are recommended for all natural hazards:

1. Establish an Emergency Management Division within the Lummi Nation Police Department and hire an Emergency Manager (at least 0.5 FTE).
2. Establish emergency medical response capability (an equipped Medic 1 unit along with paramedics and emergency medical technicians) located on the Reservation.
3. Purchase, or make available for purchase, 9-1-1 house number signs for all addressed structures on the Reservation to aid emergency responders.
4. Promote the establishment and maintenance of home survival/emergency kits.
5. Pursue funding for the Lummi Nation mitigation priorities and recommendations described in this MHMP, including funding for needed staff and infrastructure.
6. Improve and sustain public education programs aimed at mitigating natural hazards.
7. Redirect and/or relocate development away from hazard areas.
8. Encourage seismic strength evaluations of schools, public infrastructure, and critical facilities on the Reservation to identify vulnerabilities and help prioritize mitigation to meet current seismic standards.
9. Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices.
10. Continue to develop and implement programs to keep trees from threatening lives, property, and public infrastructure during windstorm events.
11. Continue monitoring of erosion rates along the shorelines of the Reservation.
12. Limit construction in identified landslide areas through regulation and outreach.

The MHMP works in coordination with the development regulations and management programs of the Lummi Nation. These measures include: the Natural Resources Code (Lummi Nation Code of Laws [LCL] Title 10), the Tidelands Code (Title 13), the Land Use, Zoning, and Development Code (LCL Title 15), the Flood Damage Prevention Code (LCL Title 15A), the Water Resources Protection Code (LCL Title 17), the Solid Waste Control and Disposal Code (LCL Title 18), the Building Code (LCL Title 22), the Cultural Resources Protection Code (LCL Title 40), the Lummi Nation Coastal Zone Management Plan, the Comprehensive Emergency Management Plan, and the Comprehensive Water Resources Management Program. The MHMP for the Reservation supports and complements these existing programs and activities and promotes continued involvement in off-Reservation hazard mitigation-related activities.

The Lummi Nation MHMP was prepared by the Water Resources Division (LWRD) of the Lummi Natural Resources Department (LNR) and complies with 44 Code of Federal Regulations (CFR) Part 201 and its amendments. The MHMP was first adopted by the LIBC through Resolution No. 2004-015 in January 2004 and approved by the Federal Emergency Management Agency (FEMA) in May 2004. The MHMP was comprehensively updated in 2007 (adopted by LIBC Resolution No. 2007-060), 2010 (adopted by LIBC Resolution No. 2010-093), and 2015 (LIBC Resolution No. 2015-107).

During the three years between adoption of the original plan and the 2007 update, several of the identified mitigation activities were undertaken. These included:

- The Multi-Hazard Mitigation Team (MHMT) was formed in 2004 pursuant to LIBC Resolution No. 2004-015 and consisted of the Natural Resources Department Executive Director, the Planning and Public Works Department Director, the Chief of the Lummi Nation Police, the LIBC Safety Officer, and assigned staff from the Natural Resources and Planning and Public Works departments. The MHMT met five times between 2005 and 2007 to discuss and review progress on mitigation projects, review the Lummi Nation Comprehensive Emergency Management Plan and Lummi Nation Spill Prevention and Response Plan, and discuss the MHMP update.
- A 2005 FEMA Pre-Disaster Mitigation-Competitive (PDM-C) grant was received for a total project cost of \$5,976,843 and a 75 percent federal share of \$4,482,632. The grant included two project subgrants and one management subgrant. The two projects were:
 - Slater Road Elevation Project – This project called for the elevation of an approximately 1 mile long, frequently flooded section of Slater Road east of the Nooksack River bridge to above the 100-year flood level. The elevation project was planned to include an approximately 400 foot long bridge that would allow continued access to the Reservation, Lummi Island, and nearby industries through a 100-year flood event. The project was targeted for completion by January 31, 2009. Because the cost estimates for Slater Road Elevation Project exceeded the available funding (shared between the Lummi Nation and Whatcom County), and additional funding sources needed to be identified, the grant reached its 5 year time limit and could not be used for the project. Efforts to secure the needed funding continue.
 - Sandy Point Coastal Acquisition Project – This project included the acquisition and removal of up to three homes from the high velocity coastal flood zone (V Zone) along the Sandy Point Peninsula.
- A 2006 Emergency Management Preparedness Assistance Grant (EMPAG) for \$94,200 was received from the Washington State Emergency Management Division for the turn-key installation of two All-Hazard Alert Broadcast (AHAB) tsunami warning systems to provide notification of tsunamis and other hazards to Reservation residents.
- Work was initiated with Whatcom County and the Washington State Emergency Management Division to develop tsunami evacuation route maps and brochures for the Reservation.
- The Lummi Nation MHMP, the Pre-Disaster Mitigation planning grant application, and the Pre-Disaster Mitigation project grant applications were shared with at least eight tribes including tribes in Massachusetts, Oklahoma, Idaho, Oregon, and Washington.
- The Lummi Indian Business Council adopted the Comprehensive Emergency Management Plan (CEMP) by LIBC Resolution No. 2006-036.
- The Lummi Nation Spill Prevention and Response Plan was completed in 2005 and is being implemented through spill preparedness and response efforts including equipment purchases, deployment (practice and response), and training.

- The Planning and Public Works Department developed a draft Lummi Nation Comprehensive Plan.
- The Water Resources Division of the Natural Resources Department began the process to join the Community Rating System (CRS) of the National Flood Insurance Program.
- The Forestry Division of the Natural Resources Department obtained equipment and training for wildland firefighting.
- The Lummi Nation's participation in the National Flood Insurance Program (NFIP) was improved through a Community Assistance Visit (CAV) with FEMA that closed on April 28, 2005.
- Twelve articles describing and providing updates on the mitigation projects and recommending preparedness measures such as family disaster plans and 72-hour emergency kits were published in the monthly Lummi Nation newspaper (Squol Quol).

Additionally, review of the 2004 hazard identification and vulnerability assessment led to the addition of one hazard (tornado), the refinements of the earthquake, tsunami, landslide, and coastal erosion maps through the addition of new information, and the reduction of risks for certain hazards through mitigation activities. The review of the mitigation measures led to the addition of recommendations to establish an Emergency Management Division within the Lummi Nation Police Department and hire an Emergency Manager (at least 0.5 FTE), purchase flood insurance for LIBC structures within or adjacent to the floodplain, and pursue FEMA elevation certificates for tribal homes in the floodplain. The review of the Plan Maintenance Process led to minor changes in the Multi-Hazard Mitigation Team's meeting, reporting, and project tracking processes.

The 2007 MHMP was comprehensively reviewed and updated in 2010. In accordance with newly developed guidance from FEMA, the plan changed from a state-level plan to a tribal plan. Notable differences in requirements between the two types of plan included: (1) stronger emphasis in the tribal plan on the documentation of the planning process, (2) consideration of cultural resources in the vulnerability assessment and resulting mitigation actions, and (3) stronger involvement of the public and interested parties in the maintenance and update of the plan. Also, the required plan update interval increased from three years to five years.

During the three years between the adoption of the 2007 MHMP and adoption of the 2010 MHMP, several mitigation actions were implemented. These included:

- Between 2007 and 2010, the Multi-Hazard Mitigation Team (MHMT) met four times to discuss and review mitigation projects and the MHMP update and over ten times to discuss the Slater Road Elevation Project.
- The Slater Road Elevation Project was fully designed and engineered and largely permitted by October 2007, but the estimated costs exceed the funds available through the 2005 PDM-C grant and the interlocal agreement with Whatcom County. The subgrant was terminated during May 2010 because the project could not be

completed before the five year maximum allowable project duration was exceeded. Efforts continue to secure additional funding for the project.

- The installation of the All-Hazard Alert Broadcast (AHAB) warning systems was completed, the tsunami warning and evacuation signs were installed, and an accompanying tsunami evacuation route brochure was developed and distributed to all Reservation residents. Maintenance of the evacuation route signs is ongoing in coordination with Washington State and Whatcom County. Several Squol Quol articles have provided additional information about tsunamis and tsunami mitigation strategies.
- Construction commenced on the Smuggler's Slough Restoration Project, which will include the elevation of a section of Marine Drive between Kwina Slough and Lummi Shore Road with provisions for underflow.
- The Lummi Nation's participation in the National Flood Insurance Program was improved through a second Community Assistance Visit (CAV) with FEMA during 2007.
- The Water Resources Division completed the application to join the Community Rating System (CRS) during 2009 and the Lummi Nation joined the CRS on May 1, 2010.
- Eleven articles describing and providing updates on the mitigation projects and recommending preparedness measures such as family disaster plans and 72-hour emergency kits were published in the monthly Lummi Nation newspaper (Squol Quol).

During the five years between the adoption of the 2010 MHMP and adoption of the 2015 MHMP, several mitigation actions were implemented. These included:

- Between June 2010 and June 2015, the Multi-Hazard Mitigation Team (MHMT) met one time to discuss current mitigation projects and identify proposed mitigation actions to pursue in the near-term future. Over this same time period, informal MHMT subcommittees met more than 10 times to discuss the Coastal Flood Study (RiskMAP) Partnership Agreement, the Community Rating System Community Verification Visit, the 9-1-1 addressing project, the Comprehensive Emergency Management Plan (CEMP) update, and the Whatcom County Floodplains by Design project, as well as participated in the LIBC Safety Committee meetings.
- Pursuant to LIBC Resolution 2010-093, which adopted the 2010 update to the MHMP, the Cultural Resources Department Director was appointed as a member of the Multi-Hazard Mitigation Team.
- The 2015 update to the Comprehensive Emergency Management Plan (CEMP) was adopted by LIBC Resolution No. 2015-086. Two training sessions and two drills were preformed to exercise the plan.
- The Lummi Spill Response Team continued implementing spill preparedness and response efforts including equipment purchases, deployment (practice and response), and training.

- In 2011, a section of Marine Drive was elevated and a box culvert and self regulating tide gate to provide for underflow were installed as part of the Smuggler’s Slough Restoration Project to improve salmon habitat and reduce flooding in the area.
- Acquisition and removal of structures in flood-prone areas of the Reservation included two structures purchased with Hazard Mitigation Grant Program (HMGP) funds (one on the Sandy Point Peninsula and one in Floodplain assessment area) in 2010 and one structure acquired by the LIBC as part of the Smuggler’s Slough Restoration Project in 2011.
- The Lummi Nation’s participation in the National Flood Insurance Program was improved through a third Community Assistance Visit (CAV) with FEMA during 2012.
- Following the Community Rating System (CRS) Community Verification Visit in September 2013, the Lummi Nation’s CRS rating improved to a Class 7, increasing the flood insurance premium discount in the Special Flood Hazard Areas (SFHAs) on the Reservation to 15 percent effective October 1, 2014.
- In 2013, the Coastal Flood Study (RiskMAP) Partnership Agreement was signed. Project deliverables will include an updated Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMS) for the coastal areas of the Reservation, as well as other non-regulatory products (e.g., BFE+ grid). Project completion is expected in December 2016.
- The LNR Forestry Division updated the Lummi Nation Forest Management Plan in 2011 and continued to issue burning permits and distribute wildfire brochures for public education.
- In August 2011, the Lummi Natural Resources Department (LNR) and Lummi Nation Police Department (LNPd) co-hosted a Thursday Safe Streets Walk (“Hazard Walk”) with staff available to discuss and provide educational materials concerning floods (e.g., Flood Insurance Rate Maps [FIRMs], National Flood Insurance Program [NFIP] brochures), tsunamis (e.g., tsunami simulation for the Reservation), LNPd response capabilities (e.g., Incident Command Vehicle), and home preparedness (e.g., 72-hour emergency kits, emergency radios).
- In April 2012, the LIBC Safety Officer and LNPd provided a two hour Lummi Emergency Management Training: Disaster Preparedness for community members.
- In April 2012, the LNPd provided a three day Community Emergency Response Team (CERT) Training.
- In September 2013, the LNR and LNPd co-hosted a second Thursday Safe Streets Walk, this time called the “Community Disaster Preparedness Walk.” Education and outreach activities were similar to those provided at the August 2011 event.
- Over fifteen articles describing and providing updates on the mitigation projects and recommending preparedness measures such as 72-hour emergency kits and tsunami preparedness were published in the Squol Quol.
- Beginning in 2013, contractors implementing the 9-1-1 addressing project have installed approximately 820 house number signs at tribal member owned homes on the Reservation to date. These signs have white numbers on a blue background and

are reflective, helping to improve safety by ensuring that first-responders can quickly locate to the correct house in the event of an emergency. Initial efforts have focused on signage on the Lummi Peninsula; additional funding is needed to expand the addressing project to other areas of the Reservation.

- The LIBC Emergency Notification Text Messaging System was developed in 2014. This system allows the Chairman's and/or Vice Chairman's office to send emergency notifications via text message to LIBC directors and key staff who have registered their cell phone number and service provider with administrators. The text system currently serves LIBC officers, the Police, Planning and Public Works, and Natural Resources departments, the Tribal Health Clinic, the Northwest Indian College, and the Lummi Nation School. Expansion of this program to other departments and tribal institutions is planned.
- In 2015, the draft Assessment of Climate Change Impacts on the Lummi Indian Nation was developed by staff of the Lummi Water Resources Division. The purpose of this assessment was to evaluate the potential impacts of anthropogenic climate change on the Reservation, Lummi Usual and Accustomed Grounds and Stations (U&A), and Lummi Traditional Territories and present both mitigation strategies that may reduce the causes of climate change and adaptation strategies that may minimize climate change impacts that cannot be avoided.

4.3.2. Lummi Nation Strategic Energy Plan: 2016-2026 (2016)

The purpose of the Lummi Nation Strategic Energy Plan: 2016-2026 (SEP) is to evaluate current and future energy needs and resources on the Lummi Indian Reservation (Reservation) and to identify options for improving energy efficiency and developing renewable energy resources over the 2016-2026 planning period. Successful implementation of the SEP will help attain the Lummi Nation's stated goals of (1) improved economic and energy self-sufficiency and (2) reduced emissions from energy production and use that contribute to global climate change, air quality degradation, and other adverse environmental and human health impacts.

Tribal energy self-sufficiency has been a goal of the Lummi Nation since at least 1993 when the Lummi Indian Business Council (LIBC – the governing body of the Lummi Nation) passed a resolution (No. 1993-121) directing the Community Development Director to explore a proposal for a tribally owned and operated gas-fired cogeneration facility on the Reservation. Ultimately, development of the cogeneration facility was not recommended, but pursuit of the option started the Lummi Nation moving toward a now long-standing goal to become more energy self-sufficient. In recent years, progress toward energy self-sufficiency has focused on reducing energy use by improving energy efficiency and producing energy from renewable sources, driven largely by increasing awareness of the economic and environmental costs of nonrenewable energy production and use.

In addition, LIBC Resolution No. 2014-084 Guiding Principles to Address Climate Change recently directed the LIBC administration to undertake efforts as soon as practicable to reduce the Lummi Nation's contribution to global climate change. Climate change is caused, in large part, by the combustion of carbon-based fossil fuels (e.g., petroleum, natural gas, coal), which releases carbon dioxide (CO₂), a heat-trapping greenhouse gas, into the

atmosphere. Climate change affects not only air temperature (i.e., global warming), but also sea surface temperature, sea level, ocean pH (i.e., ocean acidification), precipitation patterns, storm events, and other physical systems. Based on the SEP, the Lummi Nation finds that failure to improve energy self-sufficiency and reduce greenhouse gas emissions has a direct, serious, and substantial adverse effect on the political integrity, economic security, health, and welfare of the Lummi Nation, its treaty rights, its members, and all persons present on the Reservation.

The goals of the Lummi Nation Strategic Energy Plan: 2016-2026 will be attained through achievement of the following objectives:

1. Provide a summary of potential energy resources (nonrenewable and renewable) and the costs and benefits associated with each resource;
2. Identify current energy supplies and suppliers used on the Reservation;
3. Conduct a load assessment to evaluate the current and future energy needs of the Reservation;
4. Evaluate energy efficiency practices and opportunities on the Reservation including an assessment of energy efficiency technology options and associated costs and benefits;
5. Evaluate potential renewable energy resources on the Reservation in terms of economic and environmental costs and benefits;
6. Recommend an action plan and associated budget to increase energy self-sufficiency on the Lummi Indian Reservation.

Based on the assessment of current energy resources, baseline energy use, anticipated future energy demand, and current and potential future energy efficiency practices and renewable energy development on the Reservation, this Strategic Energy Plan recommends that the following action items be implemented in the 2016-2026 planning period:

1. Adopt a Lummi Indian Business Council resolution that establishes an achievable but ambitious goals for reducing energy use on and carbon emissions from the Lummi Indian Reservation. Goals should provide clear direction and set specific standards against which improvements may be measured (e.g., “reduce emissions by 15 percent from 2010 levels by 2025”).
2. Create a permanent, full-time Energy Management Specialist position within the Lummi Planning and Public Works Department. See Table 8.1 for the estimated annual budget.
3. Implement all of the energy efficiency practices recommendations presented in Table 6.1 and the renewable energy sources recommendations presented in Table 7.2, focusing initial efforts on the following high priority items:
 - a. Conduct energy audits at tribal facilities and prioritize the implementation of energy efficiency practices based on the findings of these energy audits.
 - b. Institutionalize the Residential Energy Efficiency Pilot Program as funding allows.

- c. Encourage walking, biking, carpooling, and public transportation on the Reservation through employer incentives and infrastructure improvements.
 - d. Mandate high energy efficiency standards in new construction.
 - e. Purchase green power to offset some or all electricity use at selected tribal institutions.
 - f. Continue to pursue photovoltaic (solar) electricity production and geothermal heating/cooling in new or substantially improved tribal facilities.
4. Provide community education and outreach to increase awareness of the issues surrounding energy and climate change and increase participation in energy conservation programs.
 5. Identify and obtain funding to implement energy efficiency improvements and development of renewable energy resources. See Table 8.2 for a partial list of potential external funding sources.

4.3.3. Wind Resource and Feasibility Assessment Report for the Lummi Indian Reservation (2012)

The overall goal of the Lummi Indian Reservation Wind Energy Development Feasibility Assessment Project (Project), funded through a grant from the U.S. Department of Energy (DOE), was to determine if and at what cost wind energy development can help achieve the tribal goal of energy self-sufficiency. To assist with making this determination, the Lummi Natural Resources Department (LNR) retained DNV KEMA to assess the wind energy development feasibility on the Lummi Indian Reservation (the Reservation). The LNR also contracted other consultants to assess the potential biological and noise impacts associated with installing wind turbines on the Reservation.

Using data collected during a one-year wind measurement campaign, DNV KEMA generated preliminary energy estimates and evaluated the economic feasibility of two project scenarios: 1) the installation and operation of a small, 5-megawatt (MW) “community” wind project and 2) the offset of electrical usage through 100-kilowatt (kW) of net-metering with a single 100-kW wind turbine. To evaluate these scenarios, DNV KEMA prepared a preliminary project pro forma for each scenario, incorporating items such as anticipated capital costs, O&M costs, estimated project performance, electricity pricing, finance structure, inflation rate, and other inputs.

The long-term adjusted, 80-m wind resource was estimated to range from 5.5 m/s to 6.5 m/s, with an annual estimated wind speed of 5.6 m/s at the Hillaire property, the proposed location of the 5-MW wind project scenario (referred to as Scenario 1 throughout this report). As documented in J.C. Brennan and Associates’ Wind Turbine Technical Noise Analysis, attached as Appendix A to this report, two turbine models were evaluated for Scenario 1, with sound power levels ranging between 105 dBA and 108 dBA, resulting in respective sound levels of 42 dBA and 45 dBA at the nearest residence. With appropriate setback distances, noise impacts from either turbine could be mitigated in order to comply with the recommended 42 dBA noise level standard.

The Site Screening Report for The Lummi Nation Wind Energy Development Feasibility Assessment Project, prepared by Hamer Environmental L.P. (Hamer) and attached to the report as Appendix B, identifies the potential biological resources on the Reservation which may require further study or present unique challenges to wind energy development. Based on the significant presence of Bald Eagle nests within the Reservation, the likelihood of occurrence of bald eagles is thought to be “Very High”. As noted in Hamer’s report, there are four species listed by the U.S. Fish and Wildlife Service as either endangered or threatened that are potentially within the Reservation boundaries. Of these species, only the Marble Murrelet is thought to have a “High” likelihood of occurring within the Reservation. The Lummi Flats and the Nooksack River Delta have been documented as foraging areas for raptors, thus given a “High” potential for biological impacts, as well as “High” potential impact to wetlands. Careful mitigation measures are recommended to ensure that wetlands are not impacted during wind project construction.

Using manufacturer-provided power curves, DNV KEMA estimated that an approximate 5-MW wind project would be expected to produce on average P50 net energy of 11.3 to 13.4 GWh per year with corresponding P50 net capacity factors of 23.3% and 25.6%, respectively. The payback period is estimated to be greater than 20 years (the assumed life of the wind turbines), thereby resulting in a negative internal rate of return (IRR) and negative net present value (NPV). A one 100-kW wind turbine located at the Se’eye’chen Youth Center (the LIBC facility with the highest wind resource), is estimated to have a long-term 37-m hub-height wind speed of 5.3 m/s and would be expected to generate an average P50 net energy of 150 MWh per year, with a corresponding P50 net capacity factor of 17.1%. The payback period is estimated to be 35 years (well beyond the assumed 20-year life of the wind turbine), thereby resulting in a negative IRR and NPV. Under either scenario, a wind energy project would likely not be economically viable for the LIBC.

DNV KEMA’s methodology, assumptions and analysis results are further described in the main body of this report. As requested by the LIBC, DNV KEMA also provided a summary of typical “residential-scale” wind generation and high-level evaluation of a 5-kW net-metering scenario for residents on the Reservation, included as Appendix D. This smaller wind turbine scenario also had a negative internal rate of return (IRR) and negative net present value (NPV).

4.3.4. Lummi Nation Seafood Consumption Study (2012)

The purpose of the Lummi Seafood Consumption Study is to reliably estimate the seafood consumption rate for Lummi Indians living on the Lummi Indian Reservation and in surrounding areas of northwestern Washington State.

The Lummi Nation seafood consumption rate determined from this study will be used for a number of purposes including to support the development of water quality standards for both the Lummi Nation and the State of Washington and to support a reliable risk assessment for Lummi tribal members in the evaluation of clean-up options for contaminated sites along Bellingham Bay.

The survey instrument used in the study was developed by Lummi Natural Resources Department staff with the support of a Technical Advisory Committee and a Tribal Advisory

Committee and further refined based on the results from test interviews. The survey instrument listed 54 species of seafood with questions about the amount, seasonality, and frequency of consumption for each species. Additionally, separate information about seafood consumption at home and at community gatherings, demographic information, and information about fishing activity and consumption patterns was recorded during interviews of study participants. The questionnaire was administered by three interviewers, who used scaled portion model photographs and seafood identification booklets as aids in the interviews.

All participants signed a consent agreement before the interview and were paid a \$25 honorarium at completion of the interview.

The environmental baseline chosen for the Lummi Seafood Consumption Study was 1985, as this was the peak fish harvest year for the Lummi Nation in recent history and a goal of the Lummi Natural Resources Department is to restore fish habitat so that at least the 1985 harvest levels can be sustained. As a result, the Tribal Advisory Committee determined that fish consumption rates from 1985 should be used to develop water quality standards and to support risk assessments of clean-up options for contaminated sites along Bellingham Bay. While not at Treaty-time levels, seafood abundance and availability was less of a limiting factor for seafood consumption during 1985 than in 2012. Consequently, the seafood consumption rate would be less suppressed due to environmental degradation or the lack of available fish. A literature review showed that appropriate data could be elicited in recall studies that reach back 25 years.

Consistent with the Environmental Protection Agency (EPA) guidance to use consumption rates that adequately protect the most highly exposed populations when developing water quality criteria, a sample pool of enrolled Lummi tribal members who could be expected to be high seafood consumers was chosen for the study. Based on the seafood consumption survey results from other Puget Sound tribal communities, the selected sample pool consisted of enrolled Lummi Nation members who were male, 45 years and older in 2010, and living on the Lummi Indian Reservation or in the surrounding Whatcom County.

A custom Microsoft Access database was developed simultaneously with the survey instrument. The Lummi Seafood Consumption Study database was used to calculate the total amount of seafood consumed for each individual during one year based on the survey responses. The results were then used to compute daily seafood consumption rates.

Eighty-two (82) participants were interviewed over the May 2011 through March 2012 survey period. Outliers were removed before the final calculation, which reduced the overall sample size used to compute the daily seafood consumption rate to 73 respondents. Outliers were defined by the Tribal Advisory Committee as respondents who reported consumption rates above the 90th percentile of the daily seafood consumption rate of all respondents. The resultant average Lummi seafood consumption rate was calculated to be 4.73 grams per kilogram per day (g/kg/day) or approximately 383 grams per day (g/day) (0.84 pounds per day [lb/day] or 13.5 ounces per day [oz/day]) for all seafood consumed; the median seafood consumption rate was calculated to be 3.82 g/kg/day or approximately 314 g/day (0.69 lb/day or 11 oz/day); the 90th percentile seafood consumption rate was calculated to be 10.03

g/kg/day or approximately 800 g/day (1.76 lb/day or 28.2 oz/day); and the 95th percentile seafood consumption rate was calculated to be 11.28 g/kg/day or approximately 918 g/day (2.02 lb/day or 32.4 oz/day). The final precision of the survey was ±16.5 percent.

4.3.5. Lummi Nation Atlas (2016)

The Lummi Nation Atlas provides an overview of the history, natural and economic resources, culture, and government of the Lummi Nation. The atlas includes photographs and the following 26 maps.

Overview:

- General Location of the Lummi Indian Reservation
- Usual and Accustomed Grounds and Stations
- Nooksack River Watershed
- Lummi Indian Reservation Overview
- Lummi Indian Reservation Community Facilities
- Lummi Indian Reservation Roads

Natural Resources:

- Lummi Indian Reservation Watersheds
- Climate and Average Annual Precipitation
- Lummi Indian Reservation Geology
- Lummi Indian Reservation Soils
- Lummi Indian Reservation Soil Runoff Potential
- Lummi Indian Reservation Storm Water Facilities
- Lummi Indian Reservation Wetlands Areas
- Lummi Indian Reservation Groundwater Quality
- Lummi Indian Reservation Well Production
- Lummi Indian Reservation Wells and Wellhead Protection Areas
- Lummi Indian Reservation Forage Fish Spawning Habitat
- Lummi Indian Reservation Manila Clam Distribution
- Dairy/Manure Lagoons in Reservation Watersheds and Surrounding Areas
- Lummi Indian Reservation Bald Eagle Nests

Planning and Economic Development:

- Lummi Indian Reservation 2011 Land Use/Land Cover
- Lummi Indian Reservation Zoning
- Lummi Indian Reservation Land Ownership
- Lummi Indian Reservation Households
- Lummi Indian Reservation Public Water Systems

- Lummi Indian Reservation Wastewater Collection and Treatment Facilities

4.3.6. Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026 (2016)

The purpose of the Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026 is to evaluate the potential impacts of anthropogenic climate change on the Lummi Indian Reservation (Reservation), Lummi Usual and Accustomed Grounds and Stations (U&A), and Lummi Traditional Territories and to present both mitigation strategies that may reduce the causes of climate change and adaptation strategies that may minimize climate change impacts that cannot be avoided.

Resolution No. 2014-084 *Guiding Principles to Address Climate Change* was adopted by the Lummi Indian Business Council (LIBC – the governing body of the Lummi Nation) on May 27, 2014 and directed the LIBC administration to undertake efforts to develop goals for addressing the potential effects of climate change, to develop policies and strategies guided by these goals that will enable climate mitigation and adaptation, and to develop and implement programmatic and/or regulatory actions to address the potential effects of climate change and contribute to the reduction of the causes of climate change. An important step toward fulfilling this mandate is this Assessment, which provides a comprehensive analysis of climate change impacts on and potential mitigation and adaptation strategies for the natural, social, and built systems of the Reservation. Based on the Assessment, the Lummi Nation finds that the potential impacts of climate change have a direct, serious, and substantial adverse effect on the political integrity, treaty rights, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation.

The goal of the plan is to identify the potential impacts of climate change on the natural, social, and built systems of the Reservation and identify actions to minimize the causes of climate change and damages from climate change impacts that cannot be avoided. This goal will be attained through the achievement of the following objectives:

1. Review existing climate change impacts assessments and scientific literature relevant to the Puget Sound region to evaluate projected climate change impacts on the Reservation.
2. Assess the vulnerability of the natural systems (i.e., water resources, coastal resources, forest resources, and fish, wildlife, and traditional use plants), social systems (i.e., human health, emergency services, and cultural resources), and built systems (i.e., land use, transportation, and utilities) on the Reservation to climate change impacts.
3. Develop a range of mitigation and adaptation strategies that may be implemented to reduce identified vulnerabilities and make the Reservation and the Lummi Nation more resilient to climate change.

Changes in climate affect not only air temperatures (i.e., global warming), but also sea surface temperatures, precipitation patterns, sea level, storm events, and other physical systems. The best available science indicates that climate change impacts on the Reservation over the coming decades-to-centuries are likely to include increasing surface temperature,

changes in precipitation (i.e., wetter winters, drier summers), changes in the seasonality and magnitude of streamflow (i.e., higher winter flows, earlier spring snowmelt, lower summer flows), increasing extent, frequency, and/or intensity of extreme weather events (e.g., heat waves, drought, flooding, wildfire), and changes in the coastal ocean (i.e., increasing sea surface temperature, sea level rise, ocean acidification). The extent and severity of future climate change will be inextricably linked to the level of human response to climate change.

To better understand how climate change impacts will affect the natural, social, and built systems of the Reservation, a framework was established for the purpose of the plan in which each system was divided into several sectors and each sector further divided into planning areas. For instance, the natural system (i.e., natural environment) is divided into several sectors, including water resources, coastal resources, forest resources, and fish, wildlife, and traditional use plants; the social system is divided into human health, emergency services, and cultural resources; and the built system is divided into land use, transportation, and utilities. At the subsequent level, the water resources sector is divided into three planning areas (i.e., freshwater, groundwater, and wetlands), the coastal resources sector is divided into three planning areas (i.e., shorelines, tidelands, and seawater), the forest resources sector is divided into three planning areas (i.e., forest type, wildfire, insects and disease), and so on.

Within this framework, the vulnerability (i.e., susceptibility to harm) to climate change of the Reservation's natural, social, and built systems was determined as a function of the sensitivity and adaptive capacity of that system, and was rated using a five-step scale (i.e., low, medium-low, medium, medium-high, high). Findings indicate that the majority of planning areas on the Reservation have a high level of vulnerability to climate change impacts, while some planning areas demonstrated medium-high or medium levels of vulnerability.

Given that anticipated impacts of climate change on the Reservation are significant and diverse, building a climate resilient community in the face of these impacts will require coordinated and comprehensive climate preparedness planning. Climate preparedness should include implementation of both climate mitigation and climate adaptation strategies. Climate mitigation means taking action to reduce greenhouse gas concentrations in the atmosphere, the quantity of which will determine the extent and severity of climate change over the coming decades-to-centuries. Although the Reservation accounts for only a relatively minor contribution to global carbon emissions, achieving emissions reduction goals globally will require universal support and participation. Accordingly, the recommendations of this Assessment are to undertake action on climate mitigation as soon as practicable. To address climate change impacts that are already occurring and impacts that will unavoidably occur in the future regardless of mitigation efforts, it is also recommended that the Lummi Nation take action on climate adaptation as soon as practicable. Several climate mitigation and adaptation strategies are provided for the natural, social, and built systems on the Reservation.

The key recommendations for implementing climate mitigation and adaptation actions on the Reservation that will protect public health and the environment are:

1. Establish and maintain a Climate Preparedness Planning Committee with representatives from the Lummi Indian Business Council's (LIBC) Police, Planning and Public Works, Natural Resources, and Cultural Resources departments, the Lummi Tribal Health Center, the Lummi Tribal Sewer and Water District (LTSWD), the Lummi Commercial Company (LCC), the Lummi Housing Authority (LHA), the General Council, and the Northwest Indian College (NWIC) to provide guidance and oversight in climate mitigation and adaptation planning.
2. Provide community education and outreach to increase awareness of and preparation for climate change impacts and engender community support for climate mitigation and adaptation.
3. Focus initial efforts in climate mitigation and adaptation on the following high priority items as determined from the core concepts for strategy development:
 - a. Improve building-, behavior-, and transportation-related energy efficiency.
 - b. Improve emergency preparedness planning and response capabilities.
 - c. Implement flood risk reduction measures.
 - d. Implement wildfire risk reduction measures.
 - e. Reduce existing stressors to salmon populations.
 - f. Improve water quality in shellfish harvest areas.
 - g. Restore and protect instream flow in the Nooksack River basin.
 - h. Protect the potable groundwater systems on and adjacent to the Reservation.
4. Further refine and prioritize climate mitigation and adaptation strategies for implementation based on guidance of the Climate Preparedness Planning Committee, community feedback, the recommendations of this report, and other vulnerability assessments as appropriate.
5. Identify and obtain funding to implement selected mitigation and adaptation strategies and determine which tribal entity will be responsible for implementation.

5. LUMMI NATION PROGRAMS AND PRIORITIES

The purpose of this section is to identify the programs developed and implemented by the Lummi Indian Business Council (LIBC) to address human health and environmental threats on the Reservation, to prioritize the environmental concerns of the Lummi Nation as they relate to Environmental Protection Agency programs, and to present a plan to address the Lummi Nation's prioritized concerns over the 2016-2021 period.

5.1. Divisions of the Lummi Natural Resources Department

The Lummi Natural Resources Department (LNR) is the caretaker of the Lummi Nation natural resources and is responsible for developing and implementing LIBC policies related to human health and the environment. The LNR is comprised of ten divisions, each tasked with distinct but complementary goals and objectives, working together in pursuit of the LNR mission to enhance, manage, and protect the natural resources into perpetuity for the benefit of the Lummi people in accordance with the policies and procedures of the Lummi Nation. The divisions of the LNR are the Water Resources Division, the Watershed Restoration Division, the Forestry Division, the Harvest Management Division, the Stock Assessment Division, the Salmon Enhancement Division, the Shellfish Hatchery Division, the Endangered Species Act (ESA) Coordination Division, the Geographic Information Systems (GIS) Division, and the Timber, Fish, and Wildlife – Forests and Fish Rules (TFW-FFR) Division (Figure 5.1). The mission and program goals of each LNR division are described below.

5.1.1. *Water Resources Division*

The mission of the Water Resources Division is to protect, restore, and manage Lummi Nation Waters, including Reservation shorelines, in accordance with the Lummi Code of Laws and the policies, priorities, and guidelines of the Lummi Nation.

The programs implemented by the Water Resources Division are intended to attain the following primary goals:

1. Maximize and protect to the greatest extent practicable water of sufficient quantity and quality on the Reservation to meet the purposes of the Reservation as a permanent, economically viable homeland for the Lummi people. Program actions include working to achieve a negotiated and/or litigated resolution to groundwater allocation for the Reservation and to surface water allocation (both instream and out-of-stream) for the Nooksack River Basin, development and implementation of the Lummi Nation Wetland and Habitat Mitigation Bank, on-going ambient water quality monitoring on the Reservation, on-going review of Lummi Land Use Permit Applications, and continued implementation of the Comprehensive Water Resources Management program (CWRMP), the Lummi Nation Spill Response and Prevention Plan, and the Lummi Nation Multi-Hazard Mitigation Plan.

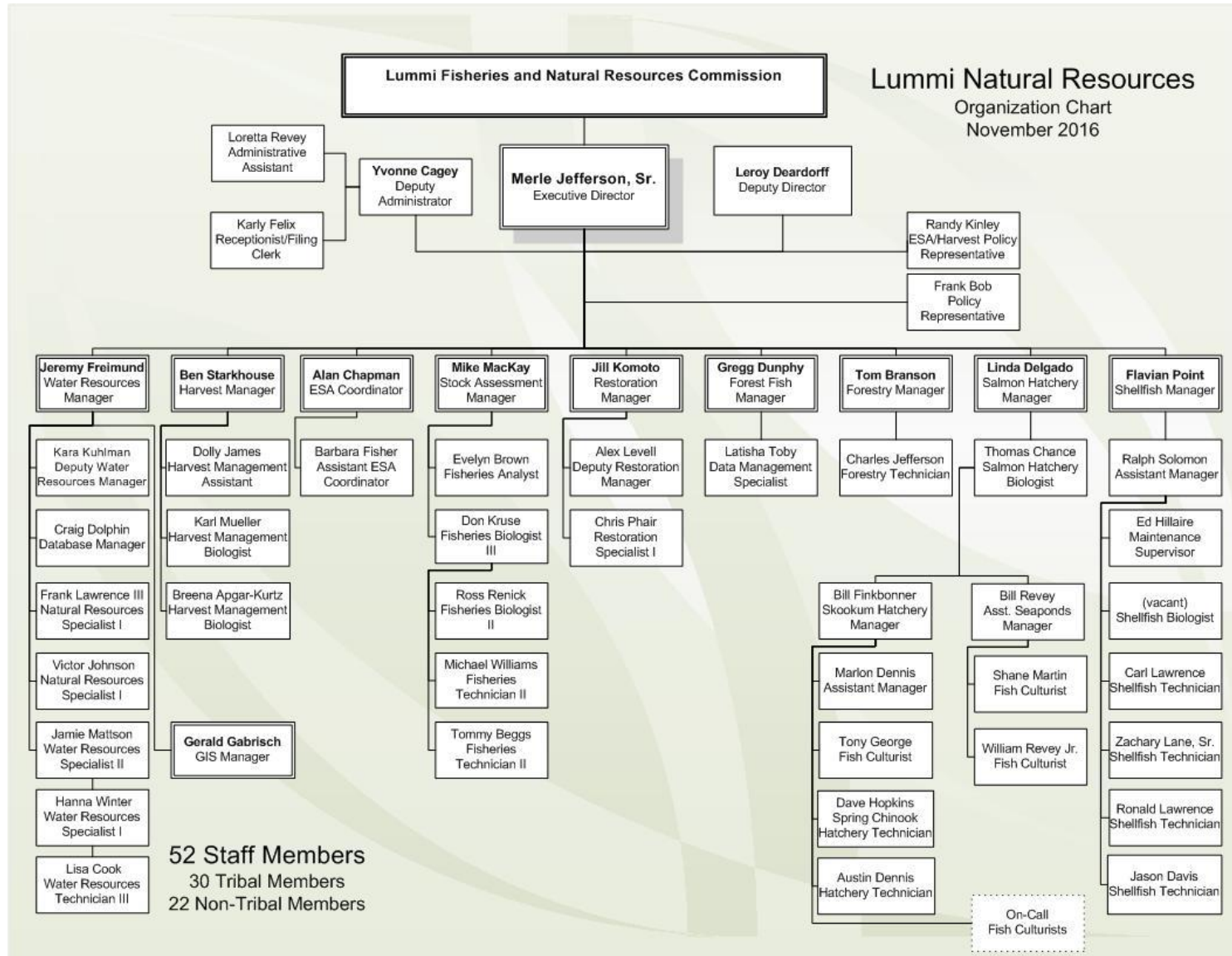


Figure 5.1 Current Lummi Natural Resources Department Organization Chart

2. Maximize and protect to the greatest extent practicable water of sufficient quantity and quality in the traditional areas of the Lummi people to ensure a harvestable surplus of salmon and shellfish sufficient for commercial, ceremonial, and subsistence purposes as well as to support a moderate living standard. This goal is supported largely by participation in the Water Resources Inventory Area 1 (WRIA 1) Watershed Management Project and through the pursuit of a Water Rights Settlement Initiative.
3. Protect, restore, and manage Reservation shorelines and tidelands, accomplished through pursuit of a negotiated and/or litigated resolution to trespass on all Reservation tidelands, monitoring of shoreline changes, and update and implementation of the Coastal Zone Management Plan.

5.1.2. Watershed Restoration Division

The mission of the Watershed Restoration Division is to assess, preserve, and restore fisheries habitat throughout the Lummi Nation's usual and accustomed areas. Special emphasis will be placed on the recovery of Chinook salmon and other treaty protected stocks of special significance to the Lummi people.

The programs implemented by the Watershed Restoration Division are intended to attain the following primary goals:

1. Restore salmon habitat and improve riparian conditions in Water Resources Inventory Area 1 (WRIA 1), accomplished by constructing engineered logjams, planting native vegetation, and assessing the impacts of forest roads.
2. Preserve and restore estuarine channel and wetland habitats of the Nooksack and Lummi river deltas to support salmon recovery and maintain or improve water quality. Program actions include land purchase, culvert replacement, native species re-vegetation, and monitoring of restoration impacts.
3. Cultivate ongoing cooperative relationships with landowners, agencies, educational institutions, and non-profit organizations and advance public education and stewardship efforts in environmental issues.

5.1.3. Forestry Division

The mission of the Forestry Division is to enhance, utilize, and protect forest resources within the exterior boundaries of the Reservation, Madrona Point, Portage Island, and the Arlecho Watershed into perpetuity for the benefit of the Lummi people.

The programs implemented by the Forestry Division are intended to attain the following primary goals:

1. Implement forest development projects (i.e., reforestation) as described in the Lummi Nation Forest Management Plan.
2. Prepare and administer Bureau of Indian Affairs (BIA) timber sale contracts and paid timber cutting permits. Program actions include establishing timber sale boundaries, completing timber sale appraisals, designing site access and road specifications, preparing biological assessments, and planning mitigation for wetland impacts.

3. Prepare and issue forestry permits, including tree removal permits, burn permits, firewood permits, and beachwood permits, and review Lummi Land Use Permit Applications.

5.1.4. Harvest Management Division

The mission of the Harvest Management Division is to protect, plan, and execute Lummi Treaty right fishery harvests to ensure the maximum sustainable harvest available to Lummi fishers in support of the Lummi *Sche'lang'en* (“way-of-life”) consistent with the objectives of the Fisheries and Natural Resources Commission, Lummi Indian Business Council, existing federal and tribal laws, and the requirements of the Boldt, Rafeedie, and subsequent federal court decisions and orders to maintain self-regulatory status.

The programs implemented by the Harvest Management Division are intended to attain the following primary goals:

1. Establish harvest plans to provide the maximum sustainable harvest to Lummi fishers. Program actions include monitoring and analyzing production and harvest data, collecting basic biological data in support of management and recovery plans, and establishing intertribal, co-manager, and international management agreements to ensure maximum sustainable shares of treaty reserved natural resources for Lummi fishers.
2. Manage fisheries according to management agreements, accomplished through annual registration of fishers, fishing vessels, and fishing gear, filing and monitoring regulations and hotlines governing conduct of fisheries, tracking and accounting for ceremonial and subsistence harvests, and maintaining a fish ticket database.
3. Manage, coordinate, and direct natural resources participation in local, state, federal and intertribal issues affecting implementation of treaty reserved fishing rights.

5.1.5. Stock Assessment Division

The mission of the Stock Assessment Division is to provide and exchange technical data products and services to the other divisions of the Lummi Natural Resources Department (LNR) as required to support efforts related to the protection and execution of Lummi Treaty Rights and the Lummi *Sche'lang'en* (“way-of-life”) consistent with the objectives of the Fisheries and Natural Resources Commission, Lummi Indian Business Council, existing federal and tribal laws, and the requirements of the Boldt, Rafeedie, and subsequent federal court decisions and orders to maintain self-regulatory status.

The programs implemented by the Stock Assessment Division are intended to attain the following primary goals:

1. Develop, maintain, and/or improve: (1) outmigration smolt production estimates for Chinook, coho, pink, chum, and steelhead in the Nooksack River; (2) spawning escapement goals and rearing capacity estimates for Chinook and coho; (3) survival (e.g. smolt to escapement) and production models (e.g. recruit/spawner) for Chinook and coho that may or may not include habitat and other ecosystem factors to allow evaluation of fishery models, hatchery performance, changes in harvest opportunities,

- and restoration; and (4) stock composition determinations in the fishery, at the terminal areas, at the spawning grounds, and in rearing areas.
2. Establish a technical interchange with: (1) the Lummi Nation salmon and shellfish hatcheries in order to improve and protect hatchery operations and as needed to inform hatchery policy and reporting (e.g. Hatchery and Genetic Management Plans [HGMPs]); (2) the Harvest Management Division as required to assist with operations; and (3) the Endangered Species Act (ESA) Coordination Division and the Timber, Fish, and Wildlife – Forests and Fish Rules (TFW-FFR) Division as required for salmon recovery planning and restoration evaluation.
 3. Monitor and/or actively participate in collaborative salmon, habitat, and/or ecosystem-related monitoring and research projects and programs that directly or indirectly benefit Lummi Natural Resources Department goals and operations.

5.1.6. Salmon Enhancement Division

The mission of the Salmon Enhancement Division is to sustain artificial production to produce and release salmon smolts in such a way so as to maximize the number returning to the usual and accustomed fishing areas for harvest opportunities by members of the Lummi Nation.

The programs implemented by the Salmon Enhancement Division are intended to attain the following primary goals:

1. Produce two million Coho and one million Fall Chinook. Program activities to accomplish production goals include broodstock capture, broodstock spawning, egg incubation, feeding, preventative medical treatment, data collection (e.g., at all stages of lifecycle, water quality), mass marking, and release.
2. Assist in South Fork Nooksack River Spring Chinook recovery efforts, rearing activities are similar to those listed above.
3. Maintain Lummi Nation hatchery facilities and ensure hatchery operation, activities range from equipment maintenance and repair to NPDES reporting.

5.1.7. Shellfish Hatchery Division

The mission of the Shellfish Hatchery Division is to provide shellfish seed for enhancing the Lummi Indian Reservation tidelands, provide employment for Lummi tribal members, and to produce sales of geoduck, oyster, and manila clam sufficient to fund Division operations for the benefit of the Lummi people in accordance with the policy and procedures of the Lummi Nation.

The programs implemented by the Shellfish Hatchery Division are intended to attain the following primary goals:

1. Operate hatchery to produce shellfish seed for sale and for stocking the Aquaculture Pond and tribal tidelands. Program actions include managing broodstock for optimum conditioning and genetic diversity, producing shellfish seed, growing seed to largest size possible, developing and improving shellfish culture techniques, maintaining algal cultures and cultivation system, and monitoring water quality.

2. Enhance tribal tidelands with manila clam (20 million seed) and oyster (3,000 cultch bags) annually, with reseeding performed as necessary.
3. Maintain strong financial standing and ensure that revenues meet or exceed expenditures by actively marketing shellfish produced in the hatchery and Aquaculture Pond and applying for additional grant funding for system retrofitting and upgrades.

5.1.8. Endangered Species Act Coordination Division

The mission of the Endangered Species Act (ESA) Coordination Division is to maximize sustainable fisheries harvests in support of the Lummi *Sche'lang'en* (“way-of-life”) and to protect, preserve and promote in perpetuity the inherent treaty reserved rights in all usual and accustomed areas.

The programs implemented by the ESA Division are intended to attain the following primary goals:

1. Ensure that the federal government will fulfill its trust responsibility to protect and restore the natural resources supporting Lummi treaty right fisheries by establishing a Lummi Natural Resources Treaty Rights task force to recover and maximize fisheries treaty rights, identifying federal actions in conflict with trust responsibilities, developing short- and long-term strategies to accomplish full implementation of trust responsibilities, and influencing regional federal agency policy and actions to support Lummi harvest objectives.
2. Maximize LNR activities in habitat protection and restoration, harvest management, and hatchery operations and ensure these activities take a coordinated approach to supporting Lummi harvest objectives. Program actions include determining long-term harvest objectives and identifying strategies and actions required to achieve long-term harvest objectives.
3. Support local, tribal, and state ecosystem and salmon recovery efforts and Lummi harvest objectives through participation in the Puget Sound Partnership (PSP), Northwest Indian Fisheries Commission (NWIFC), Water Resources Inventory Area 1 (WRIA 1) Watershed Management Project, and the Puget Sound Salmon Recovery Council.

5.1.9. Geographic Information Systems Division

The mission of the Geographic Information Systems (GIS) Division is to develop, document, and maintain spatial information for all Lummi Indian Business Council (LIBC) departments. The GIS Division promotes the use of spatial information and a GIS where practicable to serve, meet, and protect the spiritual, economic, social, cultural, educational, physical, and environmental needs and values of the Lummi people

The programs implemented by the GIS Division are intended to attain the following primary goals:

1. Develop, document, and maintain a centralized spatial data library accessible by LIBC staff, while ensuring that GIS technology is used properly and efficiently.

2. Provide high quality maps to and/or work with LIBC staff to develop GIS analysis that meets their project needs. Program actions include researching new methods of analysis and maintaining GPS units.
3. Provide training and support to increase the use of GIS throughout the LIBC, including one-on-one assistance, hands-on learning opportunities, and organized training sessions.

5.1.10. Timber, Fish, and Wildlife – Forests and Fish Rules Division

The mission of the Timber, Fish, and Wildlife – Forests and Fish Rules (TFW-FFR) Division is to protect fish and wildlife, their habitats, and other treaty reserved resources in the forested watersheds of the Lummi Nation usual and accustomed (U&A) areas in Whatcom, Skagit, and San Juan counties.

The programs implemented by the TFW-FFR Division are intended to attain the following primary goals:

1. Protect treaty resources in the forested portions of the Lummi Nation U&A areas by ensuring proper implementation of federal laws and state laws and agreements (e.g., the Timber, Fish, and Wildlife Agreement, the Salmon Recovery Act, the Forest and Fish Rules) through review of Forest Practice Activities (FPAs), Hydraulic Permit Applications (HPAs), and Road Management and Abandonment Plans (RMAPs), as well as participation in the Inter-agency Cooperative Compliance Monitoring (CoMo) program, Forest Practices Board (FPB) rule review, and Inter-Disciplinary (ID) Team field review processes.
2. Review and provide Lummi policy staff with technical information to aid in shaping public policy impacting natural resources.
3. Administer the Wildlife Management Program (e.g., hunting harvest management, co-manager data reporting, and hunting tag database management) and the off-Reservation Firewood and Staking Pole Gathering Project and ensure compliance with the Federal Air Rules for Reservations (FARR).

5.2. Environmental Program Priorities

The list below identifies the LNR programs that address the top environmental concerns of the Lummi Nation for the 2016-2021 period of this environmental plan. These efforts contribute to achieving the EPA strategic goals of protecting America's waters, cleaning up communities and advancing sustainable development, achieving healthy communities and ecosystems, and enforcing environmental laws. This list includes priorities that are directly related to programs administered by the EPA; Lummi Nation priorities that are outside of the EPA's purview are not included in this list.

1. Comprehensive Water Resources Management Program (CWRMP), including:
 - a. Wellhead Protection Program
 - b. Storm Water Management Program
 - c. Wetland Management Program
 - d. Nonpoint-Source Management Program

- e. Water Quality Standards Program
- 2. Watershed Management Programs, including:
 - a. Water Resources Inventory Area 1 Watershed Management Project (WRIA 1 WMP)
 - b. Puget Sound Partnership (PSP)
- 3. Integrated Solid Waste Management Program
- 4. Lummi Nation Technical Review Committee (TRC) participation
- 5. Lummi Nation Multi-Hazard Mitigation Program
- 6. Lummi Nation Spill Prevention and Response Program
- 7. Coastal Zone Management Program
- 8. Climate Change Mitigation and Adaptation Program

5.3. Plan to Address Environmental Program Priorities

The plan to address the prioritized environmental concerns of the Lummi Nation is presented in this section. For each priority, this plan includes (1) a short description of the priority (2) the long-term environmental program development goals to address or support the priority; (3) the intermediate program development milestones the Lummi Nation would like to meet; (4) plans to manage authorized environmental programs; and (5) a description of any assistance that may be needed (e.g., financial, training, technical assistance, EPA direct implementation actions). Again, it is noted that the priorities listed here are those that relate directly to EPA managed programs, environmental concerns that are either outside or indirectly related to the EPA's purview are not included.

5.3.1. Comprehensive Water Resources Management Program

Pursuant to LIBC resolutions 90-88 and 92-43, since the early 1990s the Water Resources Division has been developing a Comprehensive Water Resources Management Program (CWRMP). These LIBC resolutions directed the development of a CWRMP to ensure that the planning and development of Reservation water and land resources are safeguarded against surface and ground water degradation. The primary elements of the CWRMP are wellhead protection, storm water management, wetland management, nonpoint source pollution management, and water quality standards. Given the interrelationships between different aspects of water resources management, many of the CWRMP programs share common goals, objectives, and activities; each program is discussed separately below and notes are made where program activities overlap.

5.3.1.1. Wellhead Protection Program

There are approximately 250 wellheads, test holes, and undeveloped springs on the Lummi Indian Reservation. Over 95 percent of the water supply for the Reservation is obtained from ground water, the contamination of which could result in the loss of the primary water supply for the Lummi Reservation. Reservation ground water resources are particularly vulnerable to pollution due to geographic and hydrogeologic conditions, which may be exacerbated by future growth and development on the Reservation. Most of the existing water supply wells on the Reservation are located within a half mile of marine waters. Progressive saltwater intrusion already has led to the closure of several of these public water supply wells. Increased pumping, possible future reductions in groundwater recharge areas as the forested uplands of the Reservation are converted to residential uses, and rapid economic and

population growth could further threaten the Lummi Nation's groundwater resources if such activities are not managed effectively. Groundwater contamination could lead to the loss of the primary water supply source for the Reservation because water supply wells are difficult to replace, ground water contamination is very expensive to treat, and some damages to ground water caused by contamination may be impossible or unfeasible to mitigate.

The Wellhead Protection Program is a proactive approach to prevent contamination of ground water resources by pollution and to reduce risks that the Lummi Nation's ground water resources will become impaired or otherwise unusable as the primary water supply for the Lummi Nation and Reservation residents. The program focuses on implementing the Water Resources Protection Code (LCL Title 17), reviewing and commenting on proposed land uses on the Reservation as part of the Lummi Land Use Permitting process (administered by the Lummi Planning Department) through active participation in the associated Lummi Technical Review Committee (TRC), through monitoring water levels and water quality in Reservation wells, monitoring water use from the Reservation aquifers, supporting federal water rights negotiations and litigation, and decommissioning wells that are no longer in use.

Long-Term Goal: Protection of Reservation ground water from contamination, which may have an adverse effect on the health of persons or the integrity of the Lummi Nation's ground water resources.

Program Development Milestones: Results of continued ground water quality monitoring and well decommissioning activities are summarized in separate annual reports. In addition to these annual summary reports, semi-annual progress reports summarize activities of the TRC and describe activities and status of this task.

Management of Authorized Programs: The Wellhead Protection Program will remain administratively within the Lummi Natural Resources Department under direction of the Natural Resources Director and the Water Resources Manager.

Assistance Needed: The primary personnel needed to implement this element of the plan are LNR staff members (Water Resources Manager, Water Resources Specialist II, Water Resources Specialist I, Water Resources Technician III, and a Natural Resources Specialist I) to perform ground water quality monitoring, database management, participation in the Technical Review Committee (TRC), and the identification and decommissioning of wells. A combination of funding sources including appropriated Lummi government general funds, General Assistance Program (GAP) grants, Section 106 Program grants, and Section 319 Program grant funds support implementation of this element of the program. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Lummi Nation Wellhead Protection Program, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, the costs for the monitoring and database management elements are included with the cost to develop and implement the Water Quality Standards Program described below. Similarly, the costs of participating in the TRC are separately described below. As a result, the estimated assistance needed to implement this program is limited to the costs of decommissioning wells. As summarized in Table 5.1, the annual well decommissioning costs, which have historically

been funded through the use of Section 319 base funding, is \$20,000 per year. The funding is used to contract with a hydrogeological consulting firm and a licensed well driller. Other Lummi Natural Resources staff members funded through an appropriation from the Lummi General Fund support the identification of wells to be evaluated for decommissioning, land owner outreach and coordination, and the staff time associated with administering the hydrogeologic and well driller contracts. In addition, EPA support for targeted corrective actions both on- and off-Reservation will be requested on a case-by-case basis depending on the nature of the proposed action.

5.3.1.2. Storm Water Management Program

The purpose of the Storm Water Management Program is to protect all surface waters, tidelands and estuaries, wellhead protection areas, and groundwater resources on the Reservation from contaminated storm water, and to protect downstream property owners from adverse impacts of new development. With the exception of water discharged into Washington State aquatic lands from two wastewater treatment plants, all water that falls onto or passes through the Reservation discharges to resource rich tidelands and estuaries of the Lummi Nation. These resources, which are culturally and economically important to the Lummi Nation and its members, surround the Reservation uplands. Population projections, planned economic and institutional growth on the Reservation, and the small percentage of Reservation land that has been developed all suggest that portions of existing forested and agricultural lands will be converted to residential, commercial, or community uses in the coming years. This development can be expected to affect storm water quantity and quality. In general, development impacts vegetation and soil properties in a manner that results in greater storm water volumes, higher peak discharges, and lower water quality. Minimizing these adverse impacts from development (e.g., Best Management Practices [BMPs], Low Impact Development [LID]) and maximizing the protection of sensitive and important natural resources are necessary components of the Storm Water Management Program.

As part of the Storm Water Management Program, Water Resources Division staff members review and must approve Storm Water Pollution Prevention Plans (SWPPPs), Large Project Plans, and Site Plans for proposed development on the Reservation, inspect construction sites to ensure compliance with approved pollution prevention and site plans, review and issue CWA Section 401 certifications for the EPA General Construction Storm Water NPDES permit and the Multi-Sector General NPDES permit (MSGP), and review and issue CWA Section 401 certifications for other discharges on tribal lands including discharges associated with individual permits.

Long-Term Goal: Minimize opportunities for storm water to carry pollutants into aquifer recharge zones and the resource rich tidelands of the Reservation, minimize the downstream impacts of new development on storm water quantity and quality, and maximize the opportunities for infiltration and aquifer recharge.

Program Development Milestones:

1. Continue to review and approve as warranted Storm Water Pollution Prevention Plans (SWPPPs), Large Project Plans, and Site Plans for proposed development on the

Reservation and continue to inspect construction sites to ensure compliance with approved plans.

2. Continue to evaluate project plans and issue Clean Water Act Section 401 certifications if warranted for discharges on the Reservation associated with individual NPDES permits or Section 404 permits.
3. Continue to evaluate draft nationwide and general NPDES permits (e.g., General Construction Storm Water NPDES, Multi-Sector General Permit, Pesticide General Permit) and issue Clean Water Act Section 401 certifications if warranted for discharges on the Reservation.

Management of Authorized Programs: The Storm Water Management Program will remain administratively within the Lummi Natural Resources Department under direction of the Natural Resources Director and the Water Resources Manager. The EPA has delegated authority to the Lummi Nation to administer Sections 303(c) and 401 of the Clean Water Act and continued administration of these programs by the Lummi Nation over the 2016-2021 period is anticipated.

Assistance Needed: The primary personnel needed to implement this element of the plan are LNR staff members (Water Resources Manager, Water Resources Specialist II, and a Natural Resources Specialist I) to perform surface water quality monitoring, database management, participation in the Technical Review Committee (TRC), the review of SWPPPs and associated documents, and the review of draft general, nationwide, and individual CWA permits. A combination of funding sources including appropriated Lummi government general funds, General Assistance Program (GAP) grants, Section 106 Program grants, and Section 319 Program grant funds support implementation of this element of the plan. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Lummi Nation Storm Water Management Program, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, the costs for the monitoring and database management elements are included with the cost to develop and implement the Water Quality Standards Program described below. Similarly, the costs of participating in the TRC are separately described below. As a result, the estimated assistance needed to implement this program is limited to the costs of reviewing and commenting on draft nationwide, general, and individual project permits. As summarized in Table 5.1, the estimated annual costs are \$10,000 per year. In addition, EPA support for targeted corrective actions both on- and off-Reservation will be requested on a case-by-case basis depending on the nature of the proposed action.

5.3.1.3. Wetland Management Program

As described in Lummi Code of Laws (LCL) Chapter 17.06, different types of wetlands that vary in their quality and importance occur on the Reservation. To establish appropriate levels of protection pursuant to Chapter 17.06, the Reservation wetlands must be classified into one of four categories. Category 1 wetlands are considered Critical Value Wetlands that have a high and irreplaceable level of importance for fisheries, Lummi culture, and/or water quality on the Reservation. Category 4 wetlands have minimal habitat value and are suitable for restoration or enhancement efforts. To provide appropriate protection for these wetland resources, LCL Chapter 17.06 identifies larger buffers for Category 1 wetlands and smaller

buffers for Category 4 wetlands. Consequently, accurate information on the location, size, and wetland category are basic needs for wetland management on the Reservation.

The 1999 Reservation-wide wetland inventory (Harper 1999) relied largely on remotely sensed data (i.e., color and infra-red aerial photographs), USDA soil surveys, and limited field verification to identify wetland locations and sizes in the Reservation watersheds. Although this inventory represents an important planning tool and a significant improvement over the previously available information from the National Wetlands Inventory (USFWS 1987), the inventory has proven to be too general for more detailed level planning efforts. Refining the spatial resolution of the wetland mapping and classifying the wetlands into the regulatory categories identified in LCL Title 17 will support efforts to protect these wetland resources and the important ecological, hydrological, and water quality protection functions that they provide.

Another element of the Wetland Management Program is the development and implementation of the Lummi Nation Wetland and Habitat Mitigation Bank, which is an important action for protecting and enhancing wetlands, protecting key salmon and other wildlife habitat, increasing climate change resiliency, and achieving the Lummi Nation's goals related to no net loss of wetland area or functions while enabling tribal members to develop their assigned parcels in a manner that reduces costs and associated permitting burden. Although the mitigation bank is an important element of the Lummi Nation Wetland Management Program, the federal rules for Compensatory Mitigation for Losses of Aquatic Resources (40 CFR Part 230), specifically 33 CFR § 332.3(j)(2), prohibits the use of federal funds for compensatory mitigation credit generating activities unless specifically authorized. As result, no EPA funding is being used to support the development or implementation of the Lummi Nation Wetland and Habitat Mitigation Bank.

Long-Term Goal: Protection of wetland resources and the important ecological, hydrological, and water quality functions that they provide. Achieving this goal requires refining the spatial resolution of the wetland mapping (i.e., more accurate information on wetland size and location) and classifying the wetlands into the regulatory categories identified in the Water Resources Protection Code (LCL Title 17) using the methods identified in the Lummi Administrative Regulation (LAR) 17 LAR 06.

Program Development Milestones:

1. Identify and record the spatial location of the approximate boundaries of wetlands on the Reservation and classify each wetland into one of the four categories identified in LCL Title 17 using the Washington State Department of Ecology's Wetland Rating System for Western Washington – Revised (Hruby 2004). These reconnaissance level wetland boundary determinations are not intended to be a jurisdictional determination of each of the wetlands.
2. Development and adoption of a Lummi Administrative Regulation regarding wetland management during 2010.
3. Completion of an annual synthesis report that summarizes the methods used and includes boundary maps of the delineated wetlands, as well as semi-annual progress reports that describe activities and status of this task.

Management of Authorized Programs: The Wetland Management Program will remain administratively within the Lummi Natural Resources Department under direction of the Natural Resources Director and the Water Resources Manager.

Assistance Needed: The primary personnel needed to implement this element of the plan are LNR staff members (Water Resources Manager, Natural Resources Specialist I, Water Resources Specialist II, and the GIS Manager) and staff from a competitively selected wetland consulting firm. Collectively, these personnel administer contracts, perform site visits, perform reconnaissance level wetland delineations, map the wetland boundaries, categorize the Reservation wetlands, and develop annual summary reports of activities. A combination of funding sources including appropriated Lummi government general funds, General Assistance Program (GAP) grant funds, and Section 319 Program grant funds support implementation of this element of the environmental plan. The staff time associated with the Natural Resources Specialist I and Water Resources Specialist II during the 2016-2021 period will be supported using the GAP grant funds. The cost to contract with the wetland consulting firm will be supported through the Section 319 Program base funds. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Lummi Nation Wetland Management Program, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, the costs of participating in the TRC are separately described below. As a result, the estimated assistance needed to implement this program is limited to the wetland consulting firm contracting costs and the staff costs for the Natural Resources Specialist I and Water Resources Specialist II to support this program element. As summarized in Table 5.1, the estimated annual costs are \$30,000 per year. In addition, EPA support for targeted corrective actions for illegal discharges to wetlands both on- and off-Reservation will be requested on a case-by-case basis depending on the nature of the proposed action.

5.3.1.4. Nonpoint-Source Management Program

The purpose of the Nonpoint-Source (NPS) Management Program is to effectively and efficiently control nonpoint-sources of pollution on the Reservation. The Lummi Nation NPS Pollution Management Program: 2015-2020 is focused on addressing the three current impairments of greatest concern: loss of salmonid habitat in the Nooksack River watershed and estuary; restrictions to ceremonial, subsistence, and commercial shellfish harvests in Portage Bay; and salt water intrusion and other contamination of the Reservation aquifers. Also identified in the 2015 NPS Pollution Assessment Report is the potential impairment to the Lummi Nation Waters that would result in restrictions to ceremonial, subsistence, and commercial shellfish harvests in Lummi Bay. The primary NPS pollution categories responsible for the current and potential impairments of surface and ground water on the Reservation are agriculture, silviculture, hydromodification (including aquatic and riparian habitat modification), urban runoff, and both surface and ground water withdrawal. Other pollution source categories contribute to the impairment of Reservation water bodies but are not known to produce significant impairment at this time. Control of each NPS pollution category should contribute to the improvement and maintenance of water quality on the Reservation. The five primary sources of impairment listed above are the priority targets for NPS pollution management actions.

Long-Term Goal: Protection of high quality waters from degradation and improvement of substandard water quality and aquatic habitat conditions on the Reservation and within the watersheds that discharge to the Reservation.

Program Development Milestones:

1. Continue development and implementation of the 15 Lummi Nation environmental programs on the Reservation that are identified in the Lummi Nation NPS Management Plan: 2015-2020.
2. Continue participation in the existing NPS pollution control programs implemented by federal, state, tribal, and local agencies other than the Lummi Nation in the portions of the watersheds that discharge to the Reservation but that extend off-Reservation that are identified in the Lummi Nation NPS Management Plan: 2015-2020.

Management of Authorized Programs: The Nonpoint-Source Management Program will remain administratively within the Lummi Natural Resources Department under direction of the Natural Resources Director and the Water Resources Manager.

Assistance Needed: The primary personnel needed to implement this element of the plan are LNR technical staff members (Water Resources Manager and the Deputy Water Resources Manager) and LNR policy staff members (LNR Director and the LNR Deputy Directory). Collectively, these personnel review technical documents, project proposals, or permit applications; perform site visits; prepare for and participate in inter-agency meetings that determine management actions; and seek specific actions and work plans to address non-point source pollution sources that contribute to water quality degradation on the Lummi Indian Reservation. A combination of funding sources including appropriated Lummi government general funds, General Assistance Program (GAP) grant funds, and Section 319 Program grant funds support implementation of this element of the environmental plan. The staff time associated with the Water Resources Manager and Deputy Water Resources Manager during the 2016-2021 period will be supported using the Section 319 Program base funds. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Lummi Nation Nonpoint Source Pollution Management Program, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, the costs of participating in the TRC are separately described below. As a result, the estimated assistance needed to implement this program is limited to the staff costs for the Water Resources Manager and Deputy Water Resources Manager to support this program element. As summarized in Table 5.1, the estimated annual costs are \$20,000 per year. In addition, EPA support for targeted corrective actions for illegal discharges to wetlands both on- and off-Reservation will be requested on a case-by-case basis depending on the nature of the proposed action.

5.3.1.5. Water Quality Standards Program

Ambient water quality monitoring and the development and implementation of water quality standards are integral to achieving the fishable and swimmable goals of the Clean Water Act (CWA) and comprise the primary components of the Lummi Nation Water Quality Monitoring Program. The purpose of the Water Quality Standards Program is threefold: (1)

to establish baseline conditions of surface and ground waters on and flowing onto the Reservation, (2) to use information to evaluate regulatory compliance of waters flowing onto the Reservation, and (3) to support the development and implementation of the water quality regulatory program on the Reservation.

The Water Resources Division has implemented an extensive water quality sampling program since 1993, providing reliable baseline information on surface and ground water quality on the Reservation. Although sampling intensity was reduced in 2013, there are still 41 surface water sites and 27 groundwater sites that are regularly monitored by Water Resources Division staff. In addition to basic surface water quality parameters (e.g., bacteria, dissolved oxygen, pH, temperature, conductivity, salinity, and turbidity or secchi depth), some sites are also tested for nutrients, heavy metals, petroleum hydrocarbons, and total organic carbon. Ground water measurements include water level in representative wells, well pump rate/production pH, temperature, conductivity, salinity, and chloride concentration.

Water quality sampling efforts support the Lummi Nation's administration of Sections 303(c) and 401 of the Clean Water Act. The EPA delegated this authority to the Lummi Nation in March 2007 and implementation activities were initiated. Subsequently, the Lummi Nation adopted surface water quality standards for the Reservation in August 2007 and the EPA approved these standards during September 2008. Implementation activities include reviewing proposed projects and associated permit conditions for compliance with the water quality standards and issuing CWA Section 401 certifications as possible, reviewing new information regarding water quality standards/criteria in preparation for a triennial review, evaluating the water quality data collected and analyzed to determine whether water quality standards are achieved, and developing any necessary management plans to address locations where the Lummi Nation surface water quality standards are not achieved.

Long-Term Goal: Achieve the fishable and swimmable goals of the Clean Water Act by providing reliable information on surface and ground water quality on the Reservation that can be used to establish the current conditions of surface and ground waters on and flowing onto the Reservation, to evaluate regulatory compliance of waters flowing onto the Reservation, and to support the development and implementation of a water quality regulatory program on the Reservation.

Program Development Milestones:

1. Continue to conduct surface and ground water monitoring and enter collected surface and ground water measurements and laboratory results into the existing Water Quality Monitoring Program database.
2. Data may be used as needed to support efforts to change land use practices that result in violations of water quality standards.
3. Complete an annual assessment of Reservation water quality over the preceding year, including a comparison to data from previous years. In addition to the annual assessment report, semi-annual progress reports will describe activities and status of this task.

4. Provide training opportunities to enrolled Lummi tribal members who have recently completed college coursework in natural resources management.
5. Perform a triennial review and update the 2008 water quality standards as needed based on the review results.

Management of Authorized Programs: The Water Quality Standards Program will remain administratively within the Lummi Natural Resources Department under direction of the Natural Resources Director and the Water Resources Manager. The EPA has delegated authority to the Lummi Nation to administer Sections 303(c) and 401 of the Clean Water Act and continued administration of these programs, including performing a triennial review and an associated update of the water quality standards by the Lummi Nation over the 2016-2021 period is anticipated.

Assistance Needed: The primary personnel needed to implement this element of the plan are LNR staff members (Water Resources Manager, Water Resources Specialist I, Water Resources Specialist II, Water Resources Technician III, the GIS Manager, and a staff attorney from the Office of the Reservation Attorney) and a contracted analytical laboratory. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Lummi Nation Water Quality Standards Program, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, the costs of participating in the TRC are separately described below. As a result, the estimated assistance needed to implement this program is limited to the staff costs for the Water Resources Specialist I, Water Resources Specialist II, and Water Resources Technician III to implement the water quality monitoring program, the analytical laboratory costs, and the LNR staff costs to conduct the triennial review and develop updated water quality standards in support of this program element. Section 106 program funds will continue to support the surface and ground water quality monitoring effort, contracted analytical laboratory services, and data management effort performed by the Water Resources Technician III and supported by the Water Resources Specialist I as well as the triennial review and water quality standards update effort. As summarized in Table 5.1, the estimated annual costs are \$110,000 per year. In addition, EPA support for targeted corrective actions for illegal discharges to water bodies both on- and off-Reservation will be requested on a case-by-case basis depending on the nature of the proposed action.

5.3.2. Watershed Management Programs

In addition to the CWRMP, which is focused on managing waters of the Reservation, LNR actively participates in efforts to co-manage the Lummi Nation's water resources throughout the Lummi Nation's usual and accustomed (U&A) grounds and stations through participation in the Water Resources Inventory Area 1 Watershed Management Project (WRIA 1 WMP) and the Puget Sound Partnership (PSP).

5.3.2.1. Water Resources Inventory Area 1 Watershed Management Project

The Water Resources Inventory Area 1 Watershed Management Project (WRIA 1 WMP) was initiated in response to the Washington State Watershed Management Act of April 1998. The goal of the WRIA 1 WMP is to ensure that the water resources in WRIA 1 (the Nooksack River drainage and certain adjacent drainages) are managed to balance the

competing resource demands of the area in a manner that combines and coordinates data collection efforts, is consistent with Endangered Species Act recovery actions, ensures that the water quality standards for the designated uses of each water body are achieved, and does not conflict with existing state statutes, federal laws, tribal laws, and tribal treaty rights. The WRIA 1 WMP is an important process to the Lummi Nation and is addressing the need for instream flows protective of salmon and water quality. Nooksack River water quality is critical to the Lummi Nation because the Lummi Reservation is at the mouth of the Nooksack River and is downstream of the majority of WRIA 1.

The WRIA 1 WMP is led by five initiating governments: the Lummi Nation, the Nooksack Indian Tribe, Whatcom County, the City of Bellingham, and Public Utility District No. 1 of Whatcom County. After developing and adopting a Memorandum of Agreement that defined the terms of participation in the WRIA 1 WMP in October 1998, representatives from the initiating governments met frequently (weekly to monthly) to help determine the structure and functions of the various project components, the scopes of work for the associated technical studies, budgets, and schedules for this large, multi-year, intergovernmental undertaking. The initiating governments have successfully obtained state, federal, and local funding for the project, undertaken several technical assessments beginning in 1999, and completed the WRIA 1 Watershed Management Plan in 2005.

The Water Resources Manager's continued participation in the WRIA 1 WMP will be partially supported by the EPA General Assistance Program (GAP). The Water Resources Manager will prepare for and actively participate in Staff Team and Management Team meetings (which currently occur monthly or more frequently), and Instream Flow Working Group and Joint Board meetings as needed. In addition, the Water Resources Manager will review and comment on work products developed by the Staff Team membership and contractors conducting the technical assessments and revisions to the WRIA 1 Watershed Management Plan.

Long-Term Goal: Success of the WRIA 1 WMP will mean that on-Reservation shellfish beds will not be threatened by poor water quality and that waters throughout the basin will be sufficiently healthy to fully support all uses, including salmon migration, holding, spawning, incubation, rearing, and smoltification. Participation will help ensure the restoration and protection of natural resources critical to the Lummi Nation both on- and off-Reservation.

Program Development Milestones: Semi-annual progress reports will describe activities and status of participation in the WRIA 1 WMP. The work products for this task will include meeting agendas, meeting summaries, and the other products developed by the WRIA 1 WMP. These deliverables will be posted on the project website (<http://wria1project.whatcomcounty.org>) and/or maintained on file at the Lummi Water Resources Division office, hard copies will not be submitted separately to the EPA.

Management of Authorized Programs: Lummi Natural Resources Department staff participation the WRIA 1 WMP will continue as directed by the Natural Resources Director.

Assistance Needed: The primary personnel needed to implement this element of the plan are the Water Resources Manager, Deputy Water Resources Manager, LNR Director, and

Deputy LNR Director. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the WRIA 1 Watershed Management Project, it is difficult to isolate the total annual cost to implement this program. The GAP base funding will support the staff (Water Resources Manager) needed to implement this element of the action plan. As summarized in Table 5.1, the estimated annual costs are \$10,000 per year. Although EPA participation and oversight in the WRIA 1 WMP technical studies, plan development, and implementation is desirable, the level of needed participation (monthly meetings) may not be practicable. Several contractors have been selected and are currently supporting the WRIA 1 WMP. Providing a critical review of technical reports developed by contractors would be an important contribution by EPA scientists. In addition, although local, state, and other federal funding sources currently support these contractors, supplemental funding from the EPA for contractors may be requested at a future date.

5.3.2.2. Puget Sound Partnership

The Washington State Legislature created the Puget Sound Partnership (PSP) in 2007 to lead the effort to protect and restore the Puget Sound ecosystem. The PSP works to coordinate governments, scientists, businesses, nonprofits, and citizens to set priorities for ecosystem recovery and then develops and implements recovery plans based on these priorities. The current recovery plan, the 2012/2013 Action Agenda for Puget Sound, provides recommendations for restoring the health of Puget Sound by 2020 that focus on three action items: (1) preventing pollution from urban storm water runoff, (2) protecting and restoring shorelines and salmon habitat, and (3) restoring and re-opening shellfish beds.

Lummi Natural Resources Department participation in the PSP is guided by the intent to protect and restore the Puget Sound ecosystem to provide the goods and services essential to the perpetuation of the Lummi *Sche'lang'en* ("way-of-life"), ensure meaningful exercise of treaty reserved rights essential to the maintenance of the Lummi *Sche'lang'en*, and increase the stewardship ethic in the non-tribal community. Staff from the ESA Division of the LNR serve on the Ecosystem Coordination Board (ECB), participate in planning the Action Agenda for Puget Sound, and participate in the Management Conference of the Puget Sound National Estuary Program (NEP). The ECB is a policy body that advises the Leadership Council, the governing body of the PSP. The NEP is a federal program established by the 1987 amendments to the CWA with the objective of protecting estuaries of national significance; the Puget Sound NEP is the EPA Region 10 chapter of the NEP. Related ESA Division activities include monitoring the implementation of the action agenda on a regional and local scale, with an emphasis on the implementation of salmon recovery plans, coordinating LNR stock assessment, harvest management, hatchery production, and habitat protection and restoration programs to provide the best available use of available resources to achieve PSP recovery objectives, and coordinating the Technical Advisory Group overseeing the South Fork Chinook gene bank and captive brood program.

Long-Term Goal: Protect and restore the Puget Sound ecosystem to provide the goods and services essential to the perpetuation of the Lummi *Sche'lang'en* ("way-of-life"), ensure meaningful exercise of treaty reserved rights essential to the maintenance of the Lummi *Sche'lang'en*, and increase the stewardship ethic in the non-tribal community.

Program Development Milestones: Semi-annual progress reports will describe activities and status of participation in Puget Sound Partnership programs, including meeting agendas, meeting summaries, record of decisions, and the other products developed by the PSP. Many of these deliverables will also be posted on the PSP website (<http://psp.wa.gov/>).

Management of Authorized Programs: Lummi Natural Resources Department staff (ESA Coordinator, ESA Policy Representative, and Water Resources Manager) will continue participation in Puget Sound Partnership programs under direction of the Natural Resources Director and the ESA Coordinator.

Assistance Needed: The primary personnel needed to implement this element of the plan are the ESA Coordinator, ESA Policy Representative, and the Water Resources Manager, Deputy Water Resources Manager, LNR Director, and Deputy LNR Director. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Puget Sound Partnership, it is difficult to isolate the total annual cost to implement this program. As summarized in Table 5.1, the estimated annual costs are \$200,000 per year. The Puget Sound Estuary Tribal Capacity Assistance Grant will be used to support the participation of the ESA Coordinator, ESA Policy Representative, and other LNR staff members in the PSP.

5.3.3. Integrated Solid Waste Management Program

Solid waste disposal, and in particular illegal dumping, has been a recognized problem on the Reservation for many years. To address this problem, the Lummi Planning and Public Works Department began the solid waste management planning process for the Reservation in the mid-1970s and the LIBC adopted the resultant Lummi Solid Waste Management Plan in 1979. Prior to 1979, two unlined sanitary landfills that accepted solid waste from the Reservation and from adjacent Whatcom County were operated on the Reservation. Since the closure of these landfills, solid wastes generated on the Reservation have been disposed of off-Reservation, either through contracted curbside pick-up or by self-haul to one of the two local transfer facilities located less than two miles from the Reservation boundary. Despite these available disposal options, similar to other rural areas across the United States illegal solid waste dumping occurs and presents a public health threat and a threat to the quality of Reservation waters.

To address these threats, the LIBC initiated Project Clean-Up in 2002. The Project Clean-Up program, later called the Lummi Waste Management program, removed and disposed of solid waste at illegal dumpsites, installed warning signs at dumpsite locations, installed gates to prevent access to dumpsite locations, provided community education, and provided assistance in residential solid waste removal. In addition, the Lummi Nation passed the Solid Waste Control and Disposal Code (LCL Title 18) in 2004, providing the policy framework and delegation of administrative authority for a coordinated program to address the accumulation, collection, and disposal of solid waste; the resource recovery, recycling, and utilization of recyclable materials; and the creation and operation of disposal sites and transfer stations.

Although the Lummi Nation has taken a pragmatic approach to address the immediate solid waste management challenges that are found on the Reservation, there has been a recognized

need to also take a programmatic approach. The 2014 update to the Lummi Solid Waste Management Plan (now the Lummi Nation Integrated Solid Waste Management Plan: 2014-2024) recommends re-establishing a Solid Waste Management Division within the Lummi Nation Planning Department by hiring a full time solid waste management specialist and a part time administrative assistant, fully subsidizing weekly curbside solid waste and every other week recyclable collection or its equivalent, hosting an annual Community Clean-up Event, and implementing a public education and outreach program that will inform the community on solid waste management and recycling on the Reservation.

Long-Term Goal: Develop and implement a Reservation-wide solid waste management system to protect public health and environmental trust resources through the management and disposal of solid and hazardous waste.

Program Development Milestones: Semi-annual progress reports will document work performed by the Solid Waste Management Specialist and part-time administrative assistant.

1. Implement the recommendations identified in the adopted Lummi Nation Integrated Solid Waste Management Plan: 2014-2024 including the hiring of a Solid Waste Management Specialist and participating in training opportunities provided by the Tribal Solid Waste Advisory Network (TSWAN).
2. Implement the subsidized waste collection program, an annual Community Clean-up Event (Transfer and Disposal Alternative 1), and special waste recommendations identified in the Lummi Nation Integrated Solid Waste Management Plan: 2014-2024.
3. Conduct the public education and outreach activities identified in the Lummi Nation Integrated Solid Waste Management Plan: 2014-2024.

Management of Authorized Programs: The Solid Waste Management Division will be re-established within the Lummi Planning and Public Works Department under direction of the Planning Director once funding to implement the program is identified. Technical support for this Division will be provided by the Water Resources Division and the GIS Divisions of the Lummi Natural Resources Department.

Assistance Needed: Although the Lummi Nation Integrated Solid Waste Management Plan: 2014-2024 was adopted by the Lummi Indian Business Council during 2014, there are currently no financial resources currently available to implement the adopted plan. The plan identifies a 10-year and 5-year work plan. As summarized in Table 5.1, the estimated annual cost of the 5-year work plan is \$300,000.

5.3.4. Lummi Technical Review Committee

A Lummi Technical Review Committee (TRC) administered by the Lummi Planning and Public Works Department was created by LIBC resolution during the last quarter of the 1996 calendar year and codified in a revision of the Lummi Land Use, Zoning, and Development Code (LCL Title 15) in January 2004. The purpose of the TRC is to develop the environmental review capacity of the Lummi Nation so that the growth and development needs of Reservation landowners can be met while maintaining the Nation's goals related to

resource protection and compliance with tribal and federal laws. Based on the TRC activities during previous years, approximately 90 land use permit applications will be reviewed during a calendar year. Pursuant to LCL Title 15, a Lummi Land Use Permit (LUP) is required for all land use changes, alterations, or modifications within the exterior boundary of the Lummi Indian Reservation unless exempted by an adopted regulation. The LUP process is an environmental and infrastructure review conducted to ensure that proposed land use activities will not adversely affect treaty protected properties or adjacent landowners and have adequate infrastructure in place to support the proposed activity. An effective permit system will help meet the growth needs of Reservation landowners while maintaining the Nation's goals related to resource protection and compliance with applicable laws.

Long-Term Goal: A planning and environmental regulatory infrastructure that is technically sound, legally defensible, and administratively efficient. Progress toward this goal will ensure that proposed land uses on the Reservation avoid natural resource impacts where practicable, minimize any unavoidable impacts on natural resources, and mitigate any unavoidable impacts.

Program Development Milestones:

1. Review land use applications received and distributed by the Lummi Planning Department; participate in the weekly TRC meetings; participate in inter-disciplinary team site visits to proposed land use development projects and meet on-site with project proponents as necessary to avoid, minimize, or develop compensatory mitigation measures for unavoidable project impacts; draft and coordinate submittal of comments and/or conditions from the Lummi Natural Resources Department for each land use application; conduct follow-up site visits as needed to confirm permit compliance; maintain binders of all land use permit applications, site visit notes, and comment memoranda submitted by the Natural Resources Department.
2. Comments submitted to the TRC on behalf of the Natural Resources Department (which are in the form of a memorandum for each permit application) along with each TRC meeting agenda will be maintained on file within the Lummi Natural Resources Department. Additionally, semi-annual progress reports will describe activities and status of this task.

Management of Authorized Programs: The Technical Review Committee will remain administratively within the Lummi Planning Department, with participation by the Lummi Natural Resources Department as directed by the Natural Resources Director and the Water Resources Manager.

Assistance Needed: The primary personnel needed to implement this element of the plan are the Water Resources Manager, Natural Resources Specialist I, Water Resources Specialist II, and the GIS Manager. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Technical Review Committee, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, as summarized in Table 5.1 the estimated annual costs of participating in the TRC is \$40,000.

5.3.5. Lummi Nation Multi-Hazard Mitigation Plan

The purpose of the Lummi Nation Multi-Hazard Mitigation Plan (MHMP), first adopted in 2004 and updated in 2007, 2010, and 2015, is to guide current and future efforts to effectively and efficiently mitigate the impacts of natural hazards on the Reservation. The MHMP identifies natural hazards that endanger lives, property, and cultural and natural resources on the Reservation, including flooding, earthquakes, tsunamis, severe winter storms, windstorms, coastal erosion, drought, wildfires, landslides, volcano eruptions, and tornados, and assesses the vulnerability to, potential losses from, and mitigation strategies with specific mitigation actions for each hazard.

The objectives of the MHMP include the following:

1. Discourage new development in areas that are vulnerable to natural hazards or ensure that development occurs in such a way that risk is minimized;
2. Protect or alter existing development in hazardous areas to make it less susceptible to damage;
3. Ensure that the solution chosen to protect existing development is the most cost-effective available; protects or enhances cultural resources, natural resources, and sensitive terrestrial, riparian, or coastal habitats; and is consistent with applicable land use plans and regulations;
4. Ensure that the benefits of maintaining existing facilities outweigh the costs; if not, redesign facilities to make them less susceptible to damage or implement some other type of solution at the site;
5. Redesign existing projects and/or change maintenance practices to protect or enhance riparian or coastal habitats;
6. Manage floodplains, rivers, streams, and other water resources for multiple uses, including flood- and erosion-hazard reduction, fish and wildlife habitat, finfish and shellfish harvesting, open space, recreation, water supply, cultural/traditional practices, and hydropower;
7. Improve coordination and consistency between the Lummi Nation and other jurisdictions, as appropriate, in management activities for floodplain and coastal areas;
8. Increase public awareness of natural hazards and improve appropriate preparation for and response to such hazards; and
9. Improve hazard warning and emergency response systems.

Long-Term Goal: The overall outcome of the update and subsequent implementation of a Lummi Nation Multi-Hazard Mitigation Plan will be to reduce the threats to public health and safety posed by natural hazards; reduce structural damages caused by natural hazards; reduce the environmental impacts of natural hazards, mitigation actions, and future development activities; and reduce the long-term costs resulting from natural hazards and their mitigation.

Program Development Milestones: Implement the recommendations in the Lummi Nation Multi-Hazard Mitigation Plan: 2015 Update and collect new or additional information

regarding natural hazards that has become available since the 2015 update effort so that the plan can be efficiently updated in 2020. Semi-annual progress reports will describe activities and status of this objective.

Management of Authorized Programs: Multi-hazard mitigation activities will continue to be jointly administered by the Lummi Natural Resources Department, the Lummi Planning Department, the Lummi Cultural Resources Protection Department, and the Lummi Nation Police Department under the direction of the Lummi Nation General Manager.

Assistance Needed: The primary personnel needed to implement this element of the plan are the Water Resources Manager and the Deputy Water Resources Manager. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Multi-Hazard Mitigation Plan, it is difficult to isolate the total annual cost to implement this program. In addition, depending on available funding from the Federal Emergency Management Agency (FEMA) and program activities, the program implementation costs can be expected to vary widely from year to year. For the purposes of this Tribal Environmental Plan, as summarized in Table 5.1 the annual costs of administering the implementing the adopted Lummi Nation Multi-Hazard Mitigation Plan: 2015 Update and performing small scale activities and/or education campaigns is estimated to be \$15,000. The costs to develop and seek adoption of the Lummi Nation Multi-Hazard Mitigation Plan: 2020 Update is estimated to be approximately \$50,000.

5.3.6. Lummi Nation Spill Prevention and Response Program

Large amounts of crude oil, petroleum products, and other hazardous materials are transported and stored near the Lummi Indian Reservation. These hazardous materials are transported by ships, pipelines, trucks, and railroad and are used, produced, and/or stored throughout the Reservation area, particularly in the Cherry Point Heavy Impact Industrial Zone located immediately north and adjacent to the Reservation boundary. Accidents, equipment failure, and human error have the potential to result in large spills and disastrous human and environmental consequences. Many of these hazardous materials are toxic to people and animals if inhaled or contacted. Oil and chemical spills or releases to waters on or adjacent to the Reservation have the potential to destroy some of the most productive and valuable ecosystems in the world. Spills or releases of petroleum products, chemicals, or other hazardous materials to land can threaten public safety, public health, and the environment. To date, there has not been a large hazardous material spill on the Reservation that has impacted Lummi Nation waters. However, future residential and economic growth on the Reservation, in the adjacent Cherry Point Heavy Impact Industrial Zone, and in areas upstream from the Reservation will increase the risk of a hazardous material emergency on the Reservation. Because of the potential consequences, it is important for the Lummi Nation to develop and implement a plan to effectively respond to a hazardous material spill or release on and/or adjacent to the Reservation. This effort contributes to achieving the EPA strategic goals of protecting America's waters and cleaning up communities and advancing sustainable development.

Spill prevention and response capability development activities include:

- Continue to develop the capabilities of the Lummi Nation Spill Response Team.

- Assess and acquire appropriate training for the Spill Response Team, Lummi Indian Business Council (LIBC) personnel, and community members.
- Maintain an inventory of communication and response equipment and upgrade this equipment as needed.
- Establish a schedule and conduct appropriate spill response drills.
- Develop or review Pollution Prevention Plans (P3s) for Reservation facilities as necessary.
- Support the establishment and/or maintenance of appropriate coordination with the Whatcom County Division of Emergency Management (DEM) and other agencies.
- Support establishment Mutual Aid Agreements with Whatcom County DEM and facilities near the Reservation.
- Offer public education opportunities specific to hazardous materials spills such as the four-hour First Responder Awareness Level hazardous materials training.
- Develop a plan for providing spill information to Reservation residents through coordination of the LIBC Safety Office and the LIBC Communication Office with established Whatcom County DEM and radio public information procedures and public meetings.
- Continue to review and provide comments to the Northwest Area Committee and the Region 10 Regional Response Team on the Geographic Response Plans for adequate protection of tribal resources.
- Participate on the Washington State Department of Ecology Spills Program Resource Damage Assessment (RDA) committee or other appropriate groups for spills that impact the Reservation and the Lummi Usual and Accustomed hunting and fishing grounds and stations to ensure consideration and best possible protection of tribal resources.
- Identify and pursue potential federal, state, and local funding for training, purchase of additional equipment, maintenance of existing equipment, and tidegate repair.

The Lummi Nation Spill Prevention and Response Plan, completed in 2005, is intended to guide current and future efforts to effectively prevent and respond to hazardous materials spills on and near the Reservation. A review and update of the existing spill prevention and response plan and new or additional information regarding spill prevention and response that has become available since its adoption is underway and is expected to be completed by December 31, 2016.

Long-Term Goal: Improved water quality, water quality protection, and protection of natural resources critical to the Lummi Nation both on- and off-Reservation. Continued progress toward this goal will also increase the Lummi Nation Spill Response Team's proficiency in safe and reliable oil spill response and in the Incident Command System (ICS) and the National Incident Management System (NIMS), which can be applied to any type of emergency.

Program Development Milestones:

1. Perform spill prevention and response capability development activities as directed by the Water Resources Manager and perform at least one spill response drill with boom deployment held each year for the Lummi Nation Spill Response Team. An annual synthesis report that summarizes the spill prevention and response capability development activities and semi-annual progress reports.
2. Review the existing spill prevention and response plan and new or additional information regarding spill prevention and response that has become available since 2005 and develop and present the final updated draft Spill Prevention and Response Plan to the Lummi Indian Business Council for approval by December 31, 2016.

Management of Authorized Programs: The Lummi Nation Spill Prevention and Response Program will continue to be jointly administered by the Lummi Natural Resources Department and the Lummi Nation Police Department under the direction of the Natural Resources Director and the Chief of Police, respectively.

Assistance Needed: The Lummi Deputy Water Resources Manager is currently conducting a review of the existing Spill Prevention and Response Plan and updating the plan with new and additional information. The staff time associated with the Deputy Water Resources Manager to complete this update during 2016 is being supported using the GAP grant funds and is budgeted to cost approximately \$55,000. In addition, annual costs to continue to develop the Lummi Nation spill prevention and response capabilities are estimated to be approximately \$10,000 per year.

5.3.7. Coastal Zone Management Program

The Lummi Indian Reservation has approximately 38 miles of marine shoreline and approximately 10 miles of freshwater/estuarine shoreline along the Lummi and Nooksack rivers and deltas. Marine shorelines require a unique planning approach based on the site-specific physical characteristics of a particular shoreline and the likely impacts of a proposed development activity. Because of the abundant marine resources on which the Lummi economy and culture depend, coastal zone considerations must be integrated into many of the on- and off-Reservation environmental planning processes that involve the Lummi Nation.

In 1982 the LIBC adopted the Lummi Coastal Zone Management Plan, subsequently revised in 1988, with the purpose of (1) protecting and preserving the shoreline areas of the Lummi Nation, (2) implementing the United States Coastal Zone Management Act of 1972, and (3) cooperating with the State of Washington in the implementation of the 1971 Washington State Shoreline Management Act. The Lummi Coastal Zone Management Plan provides a set of guidelines for reviewing development proposals according to sound environmental principles. The policies are developed around the elements found in the guidelines for the Washington State Environmental Policy Act and the Washington State Shoreline Management Act. A Coastal Zone Management Permit (a.k.a. coastal zone permit) must be obtained from the Lummi Planning and Public Works Department for all nonexempt permitted uses and conditional uses before any construction or activities can take place

within the coastal zone. The coastal zone is defined as an area extending 200 feet inland from the mean higher high water line.

Planned coastal zone management actions for the five-year performance period of this TEP include an update to the Lummi Coastal Zone Management Plan, which needs to be revised to reflect current Lummi Nation land use zoning, current shoreline inventory information, updated Lummi Nation shoreline regulations, recommendations identified in site-specific shoreline management plans, and other information learned about shoreline processes during the intervening 30 plus years since it was first adopted. Other actions include contracted services from shoreline planning and management specialists for measuring and analyzing shoreline profiles at specified locations, advising the Lummi Nation on the shoreline impacts of existing or proposed projects, and supporting the update of the Lummi Coastal Zone Management Plan.

Long-Term Goal: Protection of shoreline resources and the important ecological functions that they provide through development of reliable information about the dynamic marine shorelines of the Reservation.

Program Development Milestones:

1. Review the existing Lummi Coastal Zone Management Plan and new or additional information regarding coastal zone management that has become available since the 1988 update effort and develop and present the final updated draft program and associated shoreline management regulation to the LIBC for approval. In addition to the updated program and shoreline management regulation, semi-annual progress reports will describe activities and status of this objective.
2. Contracted shoreline planning and management specialists will conduct assessments as requested by the Lummi Natural Resources Department and report on findings. Work products will be retained on file within the Water Resources Division.

Management of Authorized Programs: The Coastal Zone Management Program will remain administratively within the Lummi Planning Department under direction of the Planning Department Director with technical assistance provided by the Lummi Natural Resources Department and its Water Resources Division.

Assistance Needed: The primary personnel needed to implement this element of the plan are the Water Resources Manager and the Natural Resources Analyst. Because of the multiple funding sources and variety of inter-related activities used to develop and implement the Coastal Zone Management Program, including efforts to amend the federal Coastal Zone Management Act (CZMA) so that tribal governments are recognized in the CZMA as “coastal states” and therefore eligible to receive CZMA funding for program development and implementation and to make federal consistency determinations, it is difficult to isolate the total annual cost to implement this program. For the purposes of this Tribal Environmental Plan, the costs of participating in the TRC are separately described above. The staff time associated with the update of the Lummi Coastal Zone Management Plan is being funded using a portion of the LIBC appropriation to the Water Resources Division; GAP base funds have been used to support the contracted services with the shoreline planning

and management specialists. As summarized in Table 5.1 the annual costs of developing and implementing the Lummi Nation Coastal Zone Management Plan Update and performing contracted shoreline management and planning studies is estimated to be \$20,000.

5.3.8. Climate Change Mitigation and Adaptation Program

Resolution No. 2014-084 *Guiding Principles to Address Climate Change* was adopted by the Lummi Indian Business Council (LIBC) on May 27, 2014 and directed the LIBC administration to undertake efforts to develop goals for addressing the potential effects of climate change, to develop policies and strategies guided by these goals that will enable climate mitigation and adaptation, and to develop and implement programmatic and/or regulatory actions to address the potential effects of climate change and contribute to the reduction of the causes of climate change. An important step toward fulfilling this mandate was the development and adoption of the Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026, which provides a comprehensive analysis of climate change impacts on and potential mitigation and adaptation strategies for the natural, social, and built systems of the Reservation.

An equally important and related step toward fulfilling the LIBC mandate was the development and adoption of the Lummi Nation Strategic Energy Plan: 2016-2026. This strategic energy plan evaluates current and future energy needs and resources on the Lummi Indian Reservation (Reservation) and identifies options for improving energy efficiency and developing renewable energy resources over the 2016-2026 planning period. Successful implementation of the strategic energy plan will help attain the Lummi Nation's stated goals of (1) improved economic and energy self-sufficiency, and (2) reduced emissions from energy production and use that contribute to global climate change, air quality degradation, and other adverse environmental and human health impacts.

The Lummi Nation is planning for climate change because preparedness is more effective than disaster response. This is a principle that has long been recognized by the Lummi Nation and is evidenced by adoption of the original Lummi Nation Multi-Hazard Mitigation Plan in 2004, the first state-level plan approved by the Federal Emergency Management Agency (FEMA) nationwide. The impacts of climate change are likely to exacerbate some existing natural hazards on the Reservation (e.g., riverine and coastal flooding, coastal erosion, drought, and wildfire) and introduce new hazards (e.g., spread of diseases and pests, ocean acidification).

Climate change mitigation, which addresses the causes of climate change, requires taking action to reduce greenhouse gases emissions and greenhouse gas concentrations in the atmosphere and is necessary to limit the damage of future climate change. For Reservation residents, this means reducing energy use from energy sources (e.g., gasoline, diesel, propane, electricity generated at coal-fired power plants) that result in emissions of greenhouse gases such as carbon dioxide (CO₂). Although climate change mitigation is necessary to limit the extent of future warming and other impacts, many climate change impacts are already occurring and some future impacts are unavoidable even with extensive mitigation efforts. Given these circumstances, it is imperative that the Lummi Nation take action to minimize the impacts of climate change on the Reservation by developing and implementing climate change adaptation strategies.

If adaptation actions are not taken, climate change may lead to irreversible or unacceptable losses to the Lummi Nation. As such, the Lummi Nation has a responsibility to be proactive in preparing for climate change. In many cases, planning for the future will benefit the present and build upon existing programs designed to protect human health, environmental and cultural resources, and infrastructure. For example, the Lummi Nation Wetland and Habitat Mitigation Bank that is currently being developed by the Lummi Natural Resources Department has tangible benefits that are already being observed, such as restoring and enhancing wetland areas that provide critical habitat for culturally and economically important fish species (e.g., salmon). Preservation of open space in the floodplain also protects future generations by preventing development and retaining flood storage capacity in an area that is projected to experience an increase in the frequency and intensity of flood events as a result of climate change. This type of “win-win” strategy simultaneously reduces the impacts of climate change on the Reservation and provides environmental and economic benefits to the Lummi Nation that serves both current and future generations.

Long-Term Goal: Develop and implement a range of mitigation and adaptation strategies that will reduce identified vulnerabilities and that will make the Reservation and the Lummi Nation more resilient to climate change.

Program Development Milestones: Semi-annual progress reports will document work performed by the Energy Management Specialist.

1. Implement the recommendations identified in the adopted Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026.
2. Implement the recommendations identified in the adopted Lummi Nation Strategic Energy Plan: 2016-2026 including the selection and hiring of an Energy Management Specialist.

Management of Authorized Programs: The Energy Management Specialist position will be established within the Lummi Planning and Public Works Department under direction of the Planning Director once funding to implement the program is identified. Technical support for this position will be provided by the Water Resources Division and the GIS Division of the Lummi Natural Resources Department.

Assistance Needed: Although both the Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026 and the Lummi Nation Strategic Energy Plan: 2016-2026 were adopted by the Lummi Indian Business Council during 2016, there are currently no financial resources available to implement the adopted plan. Both planning documents identify an action plan for the 10-year planning period and the strategic energy plan identifies an annual cost estimate to implement the action plan. As summarized in Table 5.1, the estimated annual cost of the action plan is approximately \$100,000.

5.4. Approximate Financial Needs

The annual budget needed to implement the various programs in this Tribal Environmental Plan is summarized in Table 5.1. The current funding being provided by the EPA to implement this plan is shown in Table 5.2. In summary, the estimated annual cost to

implement this plan is approximately \$885,000 while the approximate annual funding provided currently by the EPA is \$467,000, or a little more than half of the funding that is needed. For the purpose of this plan, staff salaries and indirect costs were held constant over the five-year period. In reality, unless there is a cost of living increase every year, employees receive a pay cut most years. Step increases as dictated in the recently adopted Lummi Nation pay and wage scale were not factored into the projected budget needs. Consequently, the salary and fringe line items (and associated indirect charges) of the annual budgets may increase from 2 to 10 percent annually over the action plan performance period. Similarly, the indirect costs may change annually based on the Indirect Cost Rate Agreement negotiated between the Bureau of Indian Affairs and the Lummi Nation.

Table 5.1 Estimated Annual Cost to Implement the Tribal Environmental Plan

Programs	Estimated Annual Cost
Wellhead Protection	\$20,000
Storm Water Management	\$10,000
Wetland Management	\$30,000
Nonpoint-Source Pollution Management	\$20,000
Water Quality Standards	\$110,000
WRIA 1 Watershed Management Project	\$10,000
Puget Sound Partnership	\$200,000
Integrated Solid Waste Management	\$300,000
Technical Review Committee	\$40,000
Multi-Hazard Mitigation	\$15,000
Spill Prevention and Response	\$10,000
Coastal Zone Management	\$20,000
Climate Change Mitigation and Adaptation	\$100,000
TOTAL ANNUAL COST	\$885,000

Table 5.2 Annual Funding Currently Provided by the EPA

Object Class Category	GAP	Section 106	Section 319	Puget Sound Partnership	TOTAL
Personnel	\$67,480	\$51,325	\$0	\$116,500	\$235,305
Fringe Benefits	\$23,005	\$20,291	\$0	\$32,400	\$75,696
Travel	\$0	\$0	\$0	\$6,368	\$6,368
Equipment	\$0	\$0	\$0	\$0	\$0
Supplies	\$0	\$103	\$0	\$0	\$103
Contractual	\$5,870	\$19,619	\$30,000	\$0	\$55,489
Construction	\$0	\$0	\$0	\$0	\$0
Other	\$2,000	\$0	\$0	\$0	\$2,000
Total Direct Charges	\$98,355	\$91,338	\$30,000	\$155,268	\$374,961
Indirect Charges ¹	\$26,645	\$20,662	\$0	\$44,733	\$92,040
TOTALS	\$125,000	\$112,000	\$30,000	\$200,000	\$467,000

¹Indirect charges of 28.81% based on the January 2015 LIBC Indirect Cost Negotiation Agreement with the Department of Interior National Business Center for the period ending December 31, 2015.

5.5. Other Environmental Program Needs

In addition to the environmental programs outlined above, the Lummi Natural Resources Department (LNR) has also identified the need to develop an Air Quality Management Program and a Safe Drinking Water Management Program.

5.5.1. Air Quality Management Program

Although the LNR does not currently have an Air Quality Management Program or the resources to develop one, the location of the Lummi Indian Reservation with respect to four large petroleum refineries and other industrial activities suggests that Reservation air quality should be evaluated. In addition, the relatively older homes and low income levels of many Reservation residents suggests that indoor air quality should also be evaluated.

5.5.1.1. Outdoor Air Quality Management

The Reservation is situated where potential contamination from industrial processes includes the deposition of atmospheric pollutants originating from the industrial areas in Anacortes, located approximately 15 air miles to the southwest of the Reservation, and the Cherry Point industrial area, located directly north of the Reservation boundary. Although the Lummi Reservation is located near these large industrial areas, no information is available on the air quality found on the Reservation. Without empirical measurements of ambient air quality, the impacts of these industrial activities on the public health of Reservation residents cannot be reliably assessed. Collection and analysis of ambient air quality data would help determine the extent of air quality threats to Reservation residents and help guide an evaluation of whether or not the Lummi Nation should commit resources to further develop and implement an air quality program.

An ambient air quality monitoring program on the Reservation would be developed jointly and implemented with EPA experts. When practicable, the Lummi Nation will request that EPA technical staff establish and maintain ambient air quality sampling equipment on the Reservation and analyze the sample results. Funding will also be requested to support the coordination of LNR staff in the effort and to support the development of the evaluation and recommendations on further development and implementation of an air quality program. Alternatively, the EPA will be requested to provide funding sufficient to contract with an air quality specialist to conduct the ambient air quality sampling and analysis program. Currently, the LNR does not have the personnel required to pursue development of an ambient air quality monitoring program.

5.5.1.2. Indoor Air Quality Management

Indoor air quality (IAQ) research suggests that air pollution at levels commonly found in American homes has been linked with higher incidence and severity of asthma, allergies, and other respiratory diseases and that exposure to toxic air pollutants may be 10 to 50 times higher in the home than outdoors. Research also indicates that low income and tribal communities are often disproportionately affected by poor IAQ (EPA 2014c).

Indoor air quality problems result from the accumulation of gases and particles inside the home, often arising from inadequate ventilation. Without adequate ventilation, indoor air

pollutants cannot be diluted by or carried out of the home by outdoor air. Common sources of indoor air pollution include combustion sources (e.g. gas stoves, woodstoves, fireplaces, unvented gas and kerosene space heaters, tobacco smoke), building materials (e.g., asbestos containing insulation, damp carpet), furniture (e.g., made from certain pressed wood products), household cleaning and maintenance products (e.g., paint, paint strippers, varnishes, air fresheners), and outdoor sources (e.g., pesticides, radon, outdoor air pollution). High humidity levels and warm temperatures can also increase the concentration of certain pollutants (e.g., biological pollutants including mold, mildew, bacteria). Poor ventilation and high humidity are conditions present in some Reservation residences.

It is the goal of the Lummi Nation to develop and implement a Master Home Environmentalist Program to evaluate and manage IAQ conditions in Reservation residences and municipal facilities. The Master Home Environmentalist Program (MHEP) of the American Lung Association of Washington in Seattle is a program that helps individuals control exposures through changes in behavior and the indoor environment. Working with the Lummi Housing Department, Lummi Planning Department, Lummi Health Department, and the Tribal Clinic, staff from the LNR will help establish and implement a Master Home Environmentalist Program. As soon as practicable, a Lummi tribal member will be recruited and trained to be a Master Home Environmentalist. After being trained by staff of the American Lung Association, this individual will conduct home toxics surveys and assess low-cost ways to make homes on the Lummi Reservation healthier.

5.5.2. Safe Drinking Water Management Program

Although the LNR does not currently have a Safe Drinking Water Management Program or the resources to develop one, it is recognized that maintaining and protecting a safe and reliable supply of drinking water is necessary to protect the political integrity, economic security, health, and welfare of the Lummi Nation, its members, and all persons present on the Reservation. In 2004, the LNR developed and submitted a report to the Lummi Indian Business Council recommending that the Lummi Nation pursue primacy for the Safe Drinking Water Act (SDWA) Public Water Supervision Systems (PWSS) program (LWRD 2004a). The report established a five year timeline and an estimated budget for program development and implementation that has not yet been initiated. In the absence of a Lummi Nation PWSS program, the Lummi Nation would like the EPA to take a much more active role in regulating non-member operated water distribution systems on the Lummi Indian Reservation rather than deferring to the Washington Department of Health to regulate these non-member water associations. The current EPA position and deferral to the Washington Department of Health undermines tribal jurisdiction on the Lummi Indian Reservation and threatens the community water supply of the Lummi Nation.

(This page intentionally left blank)

6. FEDERAL PROGRAMS ON THE RESERVATION

This section provides a review of the federal environmental programs on the Reservation, including the Lummi Nation's current and planned role in program implementation, an inventory of regulated entities, and an assessment of LIBC's compliance with the requirements the federal Office of Management and Budget (OMB).

6.1. Lummi Nation Role in Program Implementation

As discussed in Section 3, until a tribal government is approved to assume responsibility for environmental and human health programs administered by the EPA, the EPA retains responsibility for these programs on tribal lands. Tribal participation in EPA programs may range from Treatment in the Same Manner as State (TAS), to EPA-Tribal cooperative agreements, to EPA-approval to administer selected programs. Described below are the federal programs that the Lummi Nation is currently implementing, programs that have been recommended for development, and programs that are not currently being pursued (Table 6.1).

6.1.1. Current Programs

The Lummi Nation currently implements Section 106, Section 319, Section 303(c), and Section 401 of the Clean Water Act (CWA) with "Treatment in the Same Manner as a State" (TAS) status (LWRD 2011a). In 1990, the Lummi Nation applied for and received TAS status from the EPA for the purpose of funding a comprehensive Water Management Plan for Reservation Waters under CWA Section 106. The Lummi Nation was approved for TAS for CWA Section 319 (Nonpoint Source Management Program) in 2002. In 1995, the Lummi Nation applied to the EPA for TAS to administer the CWA Section 303(c) and Section 401. On March 5, 2007, the EPA approved the Lummi Nation application and authorized the Lummi Nation to administer Water Quality Standards under Section 303(c) of the CWA and to provide water quality certifications pursuant to Section 401 of the CWA for all surface waters within the boundaries of the Lummi Indian Reservation. The EPA approved the Water Quality Standards for Surface Waters of the Lummi Indian Reservation on September 30, 2008.

Pursuant to the aforementioned authority, the Lummi Nation plans to lead efforts to implement CWA Section 303(d) for the development of Total Maximum Daily Loads (TMDLs) in the Lummi River watershed to address bacteria contamination (e.g., fecal coliform, enterococcus, *Escherichia coli* [*E. Coli*]). Results of water quality monitoring indicate that water bodies within the Lummi River consistently exceed the Lummi Nation's water quality standards for fecal coliform bacteria and enterococcus and that these bacteria likely originate off-Reservation (LWRD 2012b). Continued fecal coliform and enterococcus contamination impairs the Lummi River's designated uses and increases the potential for new closures of important tribal shellfish beds in Lummi Bay.

Table 6.1 Federal Environmental Programs and the Role of the Lummi Nation

Federal Environmental Program	Lummi Nation Role
Clean Water Act (CWA)	Current Programs – TAS status for Section 106, Section 319, Section 303(c), and Section 401 Programs Not Currently Being Pursued – Section 402, Section 404, and Section 405
Safe Drinking Water Act (SDWA)	Recommended Program – Pursue primacy for the Public Water Supervision Systems (PWSS) program Programs Not Currently Being Pursued – Primacy for the Underground Injection Control (UIC) program
Clean Air Act (CAA)	Recommended Program – Pursue Ambient Air Quality Monitoring program
Resource Conservation and Recovery Act (RCRA)	Recommended Program – Implement adopted Lummi Nation Integrated Solid Waste Management Plan: 2014-2024.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	Programs Not Currently Being Pursued
Emergency Planning and Community Right-to-Know Act (EPCRA)	Recommended Program – Develop a Tribal Emergency Response Commission (TERC)
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	Programs Not Currently Being Pursued
Toxic Substances Control Act (TSCA)	Programs Not Currently Being Pursued
Pollution Prevention Act (PPA)	Programs Not Currently Being Pursued

6.1.2. Recommended Programs

Expanding tribal capacity to administer environmental and human health programs is an ongoing goal of the Lummi Nation. As such, the LNR has assessed and recommends (1) developing a solid waste management program that equals or exceeds the minimal standards outlined in the Resource Conservation and Recovery Act (RCRA), (2) attaining primacy for the Safe Drinking Water Act (SDWA) Public Water Supervision Systems (PWSS) program, (3) developing a Tribal Emergency Response Commission (TERC) to implement certain provisions of the Emergency Planning and Community Right-to-Know Act (EPCRA), and (4) developing an ambient air quality monitoring program under the Clean Air Act (CAA). It is noted that although program development is recommended, program action may or may not be initiated during the 2016-2021 period.

1. Resource Conservation and Recovery Act (RCRA) – While the RCRA defines tribes as “Municipalities” and the courts have ruled that the EPA cannot approve tribal solid waste programs, a tribe may develop a solid waste program providing that the standards are at least equal to or exceed the minimal federal standards. The LIBC adopted the updated Lummi Nation Integrated Solid Waste Management Plan in 2014. The plan provides recommendations to effectively and efficiently manage solid waste on the Reservation, including re-establishing a Solid Waste Management Division within the Lummi Nation Planning and Public Works Department, fully subsidizing weekly curbside solid waste and every other week recyclable collection or its equivalent, encouraging use of the existing Disposal of Toxics facility near the Bellingham Airport, conducting an annual Community Clean-Up event, implementing a public education and outreach program, and pursuing funding to implement solid waste management activities (LWRD 2014a).
2. Safe Drinking Water Act (SDWA) – In 2004, the LNR submitted a report to the LIBC recommending the Lummi Nation pursue primacy for the SDWA PWSS program (LWRD 2004a). The report established a five year timeline for program development and implementation that has not yet been initiated. A preliminary assessment of the Underground Injection Control (UIC) program was also conducted at this time, but a determination on whether or not to seek primacy for this program was postponed pending further evaluation. In the absence of a Lummi Nation PWSS program, the Lummi Nation would like the EPA to take a much more active role in regulating non-member operated water distribution systems on the Lummi Indian Reservation rather than deferring to the Washington Department of Health to regulate these non-member water associations. The current EPA position and deferral to the Washington Department of Health undermines tribal jurisdiction on the Lummi Indian Reservation and threatens the community water supply of the Lummi Nation.
3. Emergency Planning and Community Right-to-Know Act (EPCRA) – The EPCRA does not explicitly authorize TAS; however, some EPCRA programs may be implemented by tribes with EPA-approval. In the 2005 Lummi Nation Spill Prevention and Response Plan, the LNR recommends the formation of a Lummi Nation TERC to coordinate and implement emergency response activities according to EPCRA, including acquiring federal grant funds, developing and reviewing of Local Emergency Planning Committee (LEPC) plans, and establishing procedures for

- public information. Until a Lummi Nation TERC is established, the LIBC Chairman operates as the TERC (LWRD 2005a).
4. Clean Air Act (CAA) – As discussed in Section 5, despite the recognized need to develop and implement programs under the CAA on the Reservation, the Lummi Nation does not currently have an air quality monitoring program or the staff resources to develop and implement such a program. When resources become available, the LNR will begin evaluating existing air quality (e.g., ambient air monitoring data, emissions inventory data). Next, the tribe may set air quality goals, determine emissions reductions to meet these goals, and develop a Tribal Implementation Plan (TIP) outlining strategies to obtain emissions reductions.

6.1.3. Programs Not Currently Being Pursued

There are several EPA administered programs that the Lummi Nation is not currently planning to seek delegated authority to administer, including (1) portions of the CWA (Section 402, Section 404, Section 405) and (2) eligible programs of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, including the Small Business Liability Relief and Brownfields Revitalization Act ["Brownfields Law"]), Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Toxic Substances Control Act (TSCA, including the Asbestos Hazard Emergency Response Act [AHERA]), and Pollution Prevention Act (PPA).

1. Clean Water Act (CWA) – The development and implementation of a Lummi Nation National Pollutant Discharge Elimination System (NPDES) pursuant to Section 402 of the CWA was the subject of a 2005 LNR evaluation. This analysis suggested that there were not enough facilities and construction activities on the Reservation requiring a NPDES permit and the delays associated with obtaining NPDES permits from the EPA for the point sources of discharge were not detrimental enough to justify the costs associated with seeking delegation and administering a NPDES program (LWRD 2005b). Since 2005, there have not been significant changes in NPDES permitting to prompt reassessment of these conclusions. The LNR has not assessed the feasibility of seeking delegated authority to administer Section 404 and Section 405 of the CWA.
2. Other Federal Laws – The Lummi Nation does not intend to seek delegated authority to administer programs of the CERCLA, FIFRA, TSCA, and PPA at this time. These acts do not explicitly authorize TAS status; however some programs may be implemented by tribes with EPA-approval. Development of possible programs has not been assessed by the LNR and until these assessments are conducted, these programs will remain under the sole authorization of the EPA in consultation with the Lummi Nation.

6.2. Inventory of Regulated Entities

As part of this Tribal Environmental Plan, this section documents federally regulated entities located on the Reservation, as well as regulated Lummi Nation facilities located off-Reservation. The presence of regulated entities determines which federal statutes are applicable, while maintaining an up-to-date inventory of these entities enhances the ability to effectively and efficiently monitor compliance with federal and tribal laws.

Data were collected from EPA databases including the Facility Registry Service (FRS), Envirofacts, and Enforcement and Compliance History Online (ECHO); EPA inspection reports from the Water Compliance Inspection of April 1997, the Multi-Media Applicability Survey of the Reservation of April 2007, and the Multi-Media Inspection under the Bureau of Indian Affairs (BIA) Tribal Facilities Inspection Initiative I in October 2005; and Lummi Natural Resources Department (LNR) assessments, reports, and records; and other sources as noted.

6.2.1. CWA Inventory

Pursuant to the Clean Water Act's (CWA) National Pollutant Discharge Elimination System (NPDES) all facilities that meet threshold requirements and that discharge pollutants from any point source into "waters of the United States" are required to obtain a permit. Table 6.2 lists the NPDES permits currently issued on the Reservation or other tribally-owned lands. Regulated entities include three wastewater treatment plants operated by the Lummi Tribal Sewer and Water District (LTSWD; Gooseberry Point Wastewater Treatment Plant [WWTP], Sandy Point WWTP, Membrane Bio Reactor WWTP) and two hatcheries operated by the LNR (Skookum Creek Fish Production Facility, Lummi Bay Sea Ponds Fish Production Facility). Each of the above entities operates under a current NPDES permit issued by the EPA.

Table 6.2 also lists the NPDES General Permit for Discharges from Construction Activities (CGP) and the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities (MSGP). A CGP is required for storm water discharges from construction activities disturbing one or more acres. An inventory of construction activities covered under the CGP (WAR10000I) is presented in Table 6.3. Industrial storm water is regulated under the MSGP (WAR05000I). Table 6.4 lists the entities that have applied for coverage under the MSGP.

There are (or were) several facilities on the Reservation subject to joint Lummi Natural Resources and EPA site inspections pursuant to the CWA and with assigned NPDES identification numbers that are not operating under NPDES permits. These facilities include four privately owned businesses (Finkbonner Shellfish, Frank Moser Dairy, Lummi Auto Recyclers, Colacurcio Brothers Construction), and two schools (Northwest Indian College, Lummi Nation School) (Table 6.5). Although Finkbonner Shellfish is currently identified as unpermitted in the EPA databases, the Evaluation Report on the Development and Implementation of a Lummi Nation NPDES Program states that Finkbonner Shellfish had an active permit (WA0026255) in 2005. Regardless, discharge from this facility is re-circulated seawater and is a low permitting priority. The Frank Moser Dairy discharges into the Lummi River and the dairy has twice been cited for noncompliance with the CWA; the EPA issued a CWA Penalty in February 1998 and a Letter of Violation in May 2007. Lummi Auto Recyclers closed in 2010 and nearly all vehicles were removed from the site by March 2011. As noted in the 1997 Water Compliance Inspection Report, the facility developed and implemented a Storm Water Pollution Prevention Plan (SWPPP) beginning in the late 1990s. The Northwest Indian College (along with a previous contractor Colacurcio Brothers Construction) and the Lummi Nation School were inspected in 2005 as part of the EPA's National Indian Country Enforcement and Compliance Assurance Priority, which focused on inspection of Bureau of Indian Affairs (BIA) schools. This inspection identified discharge of

wastewater from washing the school's busses at the Lummi Nation School as a potential violation of the CWA. Onsite bus washing activities were suspended and the busses are now washed at an offsite commercial car wash facility. A self-contained bus washing facility at the new Tribal Administration Center (2665 Kwina Rd.) is currently under construction and an application for an exemption to the MSGP is under development for submission to the EPA.

There are several other sites that are currently exempt from NPDES permitting that warrant mention. The Sandy Point Fish Production Facility (4118 Germain Rd., Ferndale, WA 98248) does not require a NPDES permit due to the small size of the facility. The Mamoya Ponds Fish Production Facility (3900 block of Lummi Shore Dr., Bellingham, WA 98226) is no longer in operation. Wastewater from Native American Shellfish, Inc. (3622 Lummi Shore Rd., Bellingham, WA 98226) discharges to Gooseberry Point WWTP. The current lessee (KMB Seafoods) at the Lummi Indian Tribal Enterprises Seafood Processing Plant (2559 Lummi View Dr., Bellingham, WA 98226; formerly leased by Crystal Ocean Seafood and Icicle Seafood) discharges re-circulated seawater from crab holding tanks.

Table 6.2 Inventory of Regulated Entities under NPDES Permits

Regulated Entity	Address	Permit Number	Permit Type	SIC Code ¹	Permit Expiration
FACILITIES					
Gooseberry Point Wastewater Treatment Plant	2156 Lummi View Dr. Bellingham, WA 98226	WA0025666	Individual Permit	4952	11/30/2016
Sandy Point Wastewater Treatment Plant	4369 Germain Rd. Ferndale, WA 98248	WA0025658	Individual Permit	4952	11/30/2016
Membrane Bio Reactor (MBR) Wastewater Treatment Plant	4100 Lummi Shore Rd. Bellingham, WA 98226	WA0026727	Individual Permit	4952	7/31/2019
Skookum Creek Fish Production Facility	6458 Saxon Rd. Acme, WA 98220	WAG130017	Hatchery General Permit ²	0921	7/31/2014
Lummi Bay Sea Ponds Fish Production Facility	3801 Haxton Way Bellingham, WA 98226	WAG130018	Hatchery General Permit ²	0921	7/31/2014
STORM WATER					
Construction Storm Water	Project specific (See Table 6.3)	WAR10000I	Construction General Permit ³	-	2/16/2017
Industrial Storm Water	Project specific (See Table 6.4)	WAR05000I	Multi-Sector General Permit ⁴	-	6/4/2020 ⁵

¹ Standard Industrial Classification (SIC) Codes: 4952 Sewerage Systems, 0921 Fish Hatcheries and Preserves

² NPDES General Permit for Federal Hatcheries and Hatcheries in Indian Country within the State of Washington – new general permit recently completed the public comment phase of adoption and is expected to be reissued during the second quarter of 2016

³ NPDES General Permit for Discharges from Construction Activities (CGP)

⁴ NPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities (MSGP)

⁵ The EPA has granted an administrative continuance of coverage under the 2008 MSGP until the proposed 2013 MSGP (WAR5I0000) is issued

Table 6.3 Inventory of Construction Storm Water Coverage Under NPDES Construction General Permit WAR100001¹

Permit Applicant	Tracking Number	Notice of Intent Filed	Project
ACTIVE PERMITS			
Lummi Planning and Public Works Department	WAR12AN4I	11/1/2013	Turkeyshoot Development
Lummi Planning and Public Works Department	WAR12AM7I	10/31/2013	Olsen Subdivision
Lummi Housing Authority	WAR12AL5I	8/8/2013	Lummi Youth Academy, Phase II
Lummi Housing Authority	WAR12AK3I	7/8/2013	MacKenzie 4, Division 1
Lummi Housing Authority	WAR12AG0I	2/28/2013	Kwina Apartments, Phase II
Lummi Planning and Public Works Department	WAR12AC5I	1/24/2013	Haxton Way-Kwina Road Roundabout
TERMINATED or EXPIRED PERMITS			
Strider Construction Co., Inc.	WAR12AH6I	3/29/2013	Sandy Point Sewer Extension
Lummi Planning and Public Works Department	WAR12AC5I_2013-02-07	10/24/2012	Haxton Way-Kwina Road Roundabout
Fieldturf USA	WAR12A72I	6/15/2012	Lummi Nation School Athletic Field
Northwest Indian College	WAR12A49I	5/23/2012	Coast Salish and Library Buildings
Aecon Buildings Inc.	WAR12A46I	5/18/2012	Silver Reef Casino, Hotel & Spa Parking Lot, Phase VI
Lummi Indian Business Council	WAR12A41I	5/16/2012	Tribal Administration Center and Head Start
Aecon Buildings Inc.	WAR12A03I	3/19/2012	Silver Reef Casino, Hotel & Spa, Phase VI
DO Construction, Inc.	WAR10AV3I	7/11/2011	MacKenzie 4, Division 1B
DO Construction, Inc.	WAR10AV2I	-	MacKenzie 4, Division 1B
Lummi Natural Resources Department	WAR10AV0I	6/21/2011	Smuggler's Slough Restoration
Northwest Indian College	WAR10AT3I	8/31/2010	Coast Salish and Library Buildings
Lummi Indian Business Council	WAR10AT1I	8/25/2010	Tribal Administration Center and Head Start
Friberg Construction	WAR10AT0I	8/12/2010	MacKenzie 4, Division 1
Lummi Housing Authority	WAR10AS8I	7/21/2010	MacKenzie 4, Division 1
Lummi Housing Authority	WAR10AS6I	-	MacKenzie 4, Division 1
Lummi Housing Authority	WAR10AW5	-	MacKenzie 4, Division 1
Lummi Housing Authority	WAR10AS7I	-	MacKenzie 4, Division 1
DO Construction, Inc.	WAR10AS1I	6/28/2010	Robertson Road Extension
DO Construction, Inc.	WAR10AS0I	-	Robertson Road Extension
Aecon Buildings Inc.	WAR10AR5I	5/17/2010	Silver Reef Casino, Hotel & Spa, Phase V
Lummi Indian Business Council	WAR10AQ8I	4/21/2010	Grace Erickson Subdivision
Lummi Indian Business Council	WAR10AQ5I	3/16/2010	Gateway Center
Lummi Indian Business Council	WAR10AQ6I	3/16/2010	Gateway Center
Lummi Indian Business Council	WAR10AP8I	10/29/2009	Robertson Road Extension

Table 6.3 Inventory of Construction Storm Water Coverage Under NPDES Construction General Permit WAR100001¹

Permit Applicant	Tracking Number	Notice of Intent Filed	Project
DO Construction, Inc.	WAR10AP7I	9/21/2009	Lummi Indian Business Council
Lummi Indian Business Council	WAR10AP4I	9/4/2009	Lummi Indian Business Council
DO Construction, Inc.	WAR10AP3I	8/20/2009	Kwina Apartments, Phase I
Lummi Housing Authority	WAR10AO6I	7/17/2009	Kwina Apartments, Phase I
Lummi Indian Business Council	WAR10AM2I	4/27/2009	Haxton Way Pedestrian Trail
Lummi Indian Business Council	WAR10AM0I	-	Haxton Way Pedestrian Trail
Lummi Indian Business Council	WAR10AD1I	12/28/2005	Lummi Shore Road
Northwest Indian College	WAR10AC9I	10/16/2005	Northwest Indian College
Telegraph Engineering	WAR10AC7I	9/27/2005	Northwest Reservation Water System
Telegraph Engineering	WAR10AC6I	9/14/2005	Membrane Bio Reactor Wastewater Treatment Plant
Telegraph Engineering	WAR10AB4I	6/6/2005	Northwest Indian College
Silver Reef Casino, Hotel & Spa	WAR10AB3I	5/4/2005	Silver Reef Casino, Hotel & Spa, Phase III
Lummi Housing Authority	WAR10AA1I	7/7/2004	Smokehouse Village
Harlan Oppenheim Corp.	WAR10AA6I	8/24/2003	Silver Reef Casino, Hotel & Spa, Phase II
Lummi Indian Business Council ²	WAR10A18I ¹	5/13/2003	Lummi Nation School
Lummi Indian Business Council ²	WAR10A18I ¹	1/26/2002	Lummi Nation School

¹ Data obtained from EPA 2014g unless otherwise noted

² Data obtained from LWRD 2005b

Table 6.4 Inventory of Industrial Storm Water Coverage Under NPDES Multi-Sector General Permit WAR05000I

Permit Applicant	Tracking Number	Notice of Intent Filed	Project
ACTIVE PERMITS¹			
Lummi Planning Department	WAR05AY0I	10/23/2012	Haxton Way-Kwina Road Roundabout
UNKNOWN PERMIT STATUS²			
Lummi Auto Recycling	-	2/10/1995	Facility Site
Finkbonner Shellfish	-	9/28/1992	Facility Site
Native American Shellfish	-	9/27/1992	Facility Site

¹ Data obtained from EPA 2014g

² Data obtained from LWRD 2005b

Table 6.5 Inventory of Unpermitted Facilities Subject to EPA Inspection under the CWA

Regulated Entity	Address	NPDES ID	SIC Code ¹	Most Recent Inspection
Finkbonner Shellfish	2301 Lummi View Dr. Bellingham, WA 98226	WAU000278	5146	4/15/2010
Frank Moser Dairy	2429 Red River Rd. Ferndale, WA 98248	WAU000283	0241	4/30/2007
Lummi Auto Recycling	2544 Cagey Rd. Bellingham, WA 98226	WAU000276	5015	8/17/2011
Northwest Indian College	2522 Kwina Rd. Bellingham, WA 98226	WAU000451	1522	10/26/2005
Colacurcio Brothers Construction ²	2522 Kwina Rd. Bellingham, WA 98226	WAU000452	1522	10/26/2005
Lummi Nation School	2334 Lummi View Dr. Bellingham, WA 98226	WAU000450	4151	4/15/2010

¹ Standard Industrial Classification (SIC) Codes: 5146 Fish and Seafoods, 0241 Dairy Farms, 5015 Used Motor Vehicle Parts, 1522 General Contractors-Residential Buildings, Other than Single-Family, 4151 School Busses

² Construction contractor inspected in conjunction with the Multi-Media Inspection under the Bureau of Indian Affairs (BIA) Tribal Facilities Inspection Initiative I on October 26, 2005

6.2.2. SDWA Inventory

The potable water supply on the Reservation is provided by the Lummi Tribal Sewer and Water District (LTSWD), non-tribal water associations, and individual or small group domestic wells. The LTSWD serves approximately 1,100 Reservation residences using a network of wells and supplemental water purchased from the City of Bellingham (LTSWD 2014) (Table 6.6). The EPA oversees the LTSWD water system pursuant to the Safe Drinking Water Act (SDWA). There are currently 8 non-tribal water associations (4 Group A systems, 4 Group B systems) serving predominantly non-tribal members in residential areas along the Reservation shorelines (Table 6.6) (EPA 2014h, DOH 2014). These systems are entirely dependent on wells adjacent to or within the association boundaries. Group A public water systems are defined by the Washington State Department of Health (DOH) as having 15 or more service connections or regularly serving 25 or more people for 60 or more days per year (Washington Administrative Code [WAC] 246-290). Group A water systems are currently regulated by the DOH under the federal SDWA. Group B systems are defined by the DOH as serving less than 15 residential services regardless of the number of people, serving an average nonresidential population of less than 25 people per day for 60 or more days within a calendar year, or serving any number of people for less than 60 days within in a calendar year (WAC 246-291). Group B water systems are defined and regulated under Washington State law only and are not regulated under the federal SDWA. Wells serving only single-family residences or small groups are not regulated by the EPA or Washington State pursuant to the SDWA; however, the Lummi Nation's Water Resources Protection Code (LCL Title 17) does establish wellhead protection areas and regulations on land use in these areas. In 2005, there were nearly 130 domestic wells located on the Reservation (LWRD 2005b). Because the Lummi Nation has not sought delegation to administer the SDWA, during the interim the Lummi Nation expects the EPA to take a much more active role in administering the SDWA on the Reservation.

There are four former water associations that have been upgraded and integrated into the LTSWD water system since the late 1980s, including the Gulfside Mobile Home Park Water Association (Water System ID: WA5330222), the Gooseberry Point Water Association (WA5328550), the Fisherman's Cove Water Association (WA5325550), and the Horizon Heights Water Association (WA5334360). These water systems were either purchased by the Lummi Nation or integrated pursuant to negotiated settlement agreements in an effort to consolidate the non-tribal water systems with the LTSWD water system, to upgrade and manage the systems for aquifer protection, and to meet existing and future legal obligations for service. The remaining 8 non-tribal water associations refused the Lummi Nation's offer to become integrated into the LTSWD.

As noted previously, the Lummi Nation's position on SDWA regulatory authority in Indian Country is that unless the EPA has approved SDWA primacy for an Indian nation or tribe, the EPA retains SDWA authority for both tribal and non-tribal public water systems (LWRD 2005b). The Lummi Nation advocates that adequate resources be allocated for direct implementation of the SDWA by the EPA for non-tribal water systems on the Reservation that currently report to the DOH.

Underground injection wells are also regulated under the SDWA. There are currently three facilities operating Class V Underground Injection Wells on the Reservation (Table 6.7).

The Membrane Bio Reactor (MBR) Wastewater Treatment Plant is permitted for infiltration of effluent (following tertiary treatment) through Class V Sewage Treatment Underground Injection wells. The Kwina Apartments and Northwest Indian College utilize Class V Storm Water Drainage wells.

Previous EPA Multi-Media inventories of facilities on the Reservation identified the Whatcom County Fire District #17 (4332 Sucia Dr., Ferndale, WA 98248) and Lummi Bay Sea Ponds Fish Production Facility as subject to the Underground Injection Control program, but did not provide details as to the relevant regulations. Facility operators at each site have confirmed that underground injection wells are not present at these facilities. The EPA inspectors may have been referring to requirements for Large Capacity Septic Systems (LCSS) or observed septic system problems. Fortunately, the fire district is now connected to the Lummi Tribal Sewer and Water District (LTSWD) sewer system and their septic system is no longer in use. The Lummi Bay Sea Ponds Fish Production Facility is a non-residential septic system receiving solely sanitary waste that serves fewer than 20 people per day and should be exempt from LCSS regulations. This site was likely noted in the inspection report because of observed septic system malfunction, an issue which has been resolved through regular septic system maintenance and pumping.

Table 6.6 Inventory of Public Water Systems

Public Water System	Address	Water System ID
TRIBAL WATER SYSTEM¹		
Lummi Tribal Sewer and Water District (LTSWD)	2156 Lummi View Dr. Bellingham, WA 98226	105300002
GROUP A NON-TRIBAL WATER ASSOCIATIONS²		
Neptune Beach	4693 Sucia Dr. Ferndale, WA 98248	WA5358950
Sandy Point Improvement Company	4460 Decatur Dr. Ferndale, WA 98248	WA5376105
Sunset	P.O. Box 1062 Bellingham, WA 98227	WA5386200
Georgia Manor	2845 Haxton Way Bellingham, WA 98226	WA5327450
GROUP B NON-TRIBAL WATER ASSOCIATIONS²		
Harnden Island View	3659 Harnden Rd. Bellingham, WA 98226	WA5331366
Leeward-Northgate	3376 Northgate Way Bellingham, WA 98226	WA5364916
Bell Bay	3032 Harbor Place Bellingham, WA 98226	WA5305450
Fertile Meadows	2287 Slater Rd. Ferndale, WA 98248	WA5324900

¹ Data obtained from LTSWD 2014

² Data obtained from EPA 2014h and DOH 2014

Table 6.7 Inventory of Class V Underground Injection Wells

Regulated Entity	Address	UIC Permit Status
Membrane Bio Reactor (MBR) Wastewater Treatment Plant	4100 Lummi Shore Rd. Bellingham, WA 98226	Injection Permit: WA 407T5-99-90226
Lummi Housing Authority – Kwina Apartments	2581 Kwina Rd. Bellingham, WA 98226	Inventory of Injection Wells form (EPA Form 7520-16) submitted
Northwest Indian College	2522 Kwina Rd. Bellingham, WA 98226	Inventory of Injection Wells form (EPA Form 7520-16) not submitted

6.2.3. CAA Inventory

In accordance with the Clean Air Act (CAA), facilities that are major sources of air pollution are required to obtain Air Operating Permits (AOPs; aka. Title V Permits or Part 70 Permits) when potential emissions are more than 100 tons per year of any pollutant, more than 10 tons per year of any hazardous air pollutant (HAP), or more than 25 tons per year of a combination of HAPs. Currently, there are no AOPs issued on the Reservation, but permitted facilities within approximately 15 air miles of the Reservation include four large petroleum refineries (Phillips 66’s Ferndale Refinery, BP’s Cherry Point Refinery, Shell’s Puget Sound Refinery, and Tesoro’s Anacortes Refinery) and one aluminum smelter (Alcoa Intalco Works), among others (EPA 2014i, NWCAA 2014). There are also not any Non-Title V Operating Permits under the Federal Air Rules for Reservations (FARR) currently issued on the Reservation (EPA 2014j).

During the 2000 EPA Multi-Media Inspection of the Reservation, several potential minor sources of air pollution were recorded. At the time, EPA inspectors determined that sites with potential CFC emissions (Fisherman’s Cove Mini Mart, Lummi Mini Mart, Lummi Auto Recyclers [CAA Facility ID: 5399992055 and 53073T0004]) were properly maintaining equipment to prevent unintended release, that wastes were not incinerated and that there were no potential sources of combustion at the Lummi Tribal Sewer and Water District (LTSWD) wastewater treatment plants (Gooseberry Point ID: 5399992058, Sandy Point ID: 5399992067) and Biosolids Application Site (ID: 5399992068), and that certain seafood production facilities (Lummi Bay Seaponds Fish Production Facility ID: 5399992069 and 53073T0003), seafood buyers (Native American Shellfish, Inc. ID: 5399992056 and 53073T0002) and other facilities (Crist Enterprises Gravel Pit ID: 5399992057) may or may not be subject to New Source Performance Standards (NSPS).

6.2.4. RCRA Inventory

Solid waste management on the Reservation is expected to improve significantly with implementation of recommendations identified in the adopted Lummi Nation Integrated Solid Waste Management Plan: 2014-2024. Recommend actions include re-establishing the Solid Waste Management Division within the Lummi Nation Planning Department and fully subsidizing off-Reservation solid waste disposal through contracted curbside pick-up or by self-haul to one of the two local transfer facilities located less than two miles from the Reservation boundary. There are currently no permitted solid waste disposal or transfer facilities located on the Reservation, but two unlined sanitary landfills were previously operated on the Reservation. The Lummi Shore Road Landfill was operated from 1961 to 1972. It was located on the east side of Lummi Shore Road near the intersection of Lummi

Shore Road and Scott Road. This unsupervised open dump was operated without maintenance and reportedly received solid wastes originating both on- and off-Reservation. To improve solid waste disposal management, in 1972 the Lummi Nation closed the Lummi Shore Road Dump and opened a new sanitary landfill at the site of a former gravel mine along Chief Martin Road. The Chief Martin Road Dump was projected to have a useable life of about six years and was closed on May 26, 1979. Prior to the closure of the Chief Martin Road Dump during 1979, limited tribal resources affected the operation and maintenance of the facility.

During the EPA's 2000 Multi-Media Inspection on the Reservation, unlabelled drums were present at several inspection sites. Facility operators are responsible for properly disposing of all waste materials and were notified this responsibly if available. The EPA also lists an "Abandoned Drum Site" (RCRA ID: WAI000000037) located on North Red River Road in the Facility Registry System. No further details pertaining to this site are provided by the EPA.

In October 2005, the EPA assessed compliance of the Lummi Nation School (ID: WAR000200287) and Northwest Indian College (NWIC; ID: WAR000200261) with the Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste requirements. As a result of this assessment, the EPA issued a Request for Information to the Lummi Nation School and a Notice of Violation to NWIC. Pursuant to the Request for Information, the Lummi Nation Schools submitted documentation to the EPA in September 2006 regarding the management of waste solvents and waste solvent-based paints in the Lummi Nation School woodshop. Additionally, the practice of washing school busses onsite, which inspectors identified as having the potential to cause harm to human health and the environment, although the activity had not "rise[n] to the level of a violation" of the RCRA, was changed as discussed in the CWA Inventory above. The NWIC Notice of Violation was issued for improperly labeled boxes of waste light bulbs, which was resolved by establishing procedures for proper labeling and disposal of waste light bulbs. The EPA also noted that the NWIC needed to assess the status of laboratory chemicals kept onsite to ensure that the chemicals were still usable and safe. If not, then the proper disposal of these wastes is required.

Underground storage tanks (USTs) are also regulated under RCRA. Table 6.8 lists the USTs that are currently in use or have been removed or closed in place on the Reservation or other tribal properties. Notably, leaking USTs were removed or closed in place at the Fisherman's Cove Mini Mart and the former Tribal Administration Center ("LIBC Central Campus") and site cleanup completed. There are three sites on the Reservation with reported USTs in unknown condition. Whatcom County Fire District #8 was identified as having one UST (Site Number 407005) in the EPA's 2000 Multi-Media Inspection and was reportedly issued a field citation for failure to conduct adequate leak detection in 1994; however, staff at District #8 state that, to the best of their knowledge, there does not exist nor has there ever existed a UST at this site. The UST located at the former Lummi Child Care Center (originally the Mormon Church) is most likely still in place and may or may not contain fuel oil. The North Cape Marina is no longer in operation, but there may be a UST located at this site.

Table 6.8 Inventory of Underground Storage Tanks (USTs)

Regulated Entity	Address	Site Number	Number of USTs
CURRENTLY IN USE			
Lummi Mini Mart	4884 Haxton Way Ferndale, WA 98248	4060012 ¹	3
Sandy Point Marina	4323 Saltspring Dr. Ferndale, WA 98248	4060007 ²	1
Skookum Creek Fish Production Facility	6458 Saxon Rd. Acme, WA 98220	4070001	1
REMOVED or CLOSED IN PLACE			
Fisherman's Cove Mini Mart	2557 Lummi View Dr. Bellingham, WA 98226	4070003	4
Lummi Indian Tribal Enterprises Seafood Processing Plant	2559 Lummi View Dr. Bellingham, WA 98226	4070006 ²	1
Gooseberry Point WWTP	2156 Lummi View Dr. Bellingham, WA 98226	4070009	1
Sandy Point WWTP	4369 Germain Rd. Ferndale, WA 98248	4070010	1
Tribal Administration Center ("LIBC Central Campus")	2616 Kwina Rd. Bellingham, WA 98226	4070002	6 ³
Skookum Creek Fish Production Facility	6458 Saxon Rd. Acme, WA 98220	4070001	2
Whatcom County Fire District #17	4332 Sucia Dr. Ferndale WA, 98248	407008	1
Former Lummi Head Start ("LIBC East Campus")	2608 Kwina Rd. Bellingham, WA 98226	Not Registered	1
STATUS UNKNOWN			
Whatcom County Fire District #8	600 McKenzie Rd. Bellingham, WA 98226	407005	1
Former Lummi Child Care Center	2561 Scott Rd. Bellingham, WA 98226	Not Registered	1
North Cape Marina	4168 Sucia Dr. Ferndale WA 98248	Unknown	Unknown

¹ Site Number listed as 4070012 in some EPA correspondence

² Site Number listed as 4070007 in some EPA correspondence

³ Four USTs removed in 1996, one UST removed in 2000, one UST removed in 2002

6.2.5. CERCLA Inventory

The Lummi Nation does not currently plan to nominate the two closed landfills located on the Reservation to the National Priorities List under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; aka. Superfund). This does not preclude future nomination should evidence indicate that one or both of these sites pose a high degree of hazard to human health or the environment. Several studies have been conducted to characterize the level of hazard at the Chief Martin Road Landfill (Aldis 1980, Niemuth 1987, Banton and Anderson 1992, Tecumseh Professional Associates, Inc. 1999, Ridolfi Inc. 2011). No further action has been taken because researchers have yet to detect elevated levels of soil, surface water, or groundwater contamination (e.g., heavy metals, volatile organic compounds) that would present a significant or imminent health risk and necessitate site cleanup. However, these studies had inherent limitations and localized contamination may have been overlooked due to the coarse sampling strategies and/or poor field conditions. Additionally, there are reports of chemical dumping by personnel of the U.S. Marietta Naval Base, which operated on the Reservation between 1953 and 1972. As part of the Formerly Used Defense Sites (FUDS) program the Department of Defense (DoD) investigates the environmental damages of former defense operations at properties no longer owned by the DoD. The DoD may apply for hazardous substance removal at FUDS following the CERCLA process. The DoD's 1999 draft Lummi Indian Reservation Site Assessment Report corroborates tribal accounts that at least 17 barrels of unknown chemical content were buried in the landfill when the naval base was preparing for closure. Empty pesticide containers were also observed at the dump, suggesting the possibility of other chemical contamination.

The quantity and composition of wastes in the Lummi Shore Road Landfill and the potential environmental and human health impacts of the dump have not been investigated. This site may pose environmental or human health hazards given the long period of operation (1961-1972), the absence of any site regulation, and the potential to receive wastes from Navy operations over the tenure of the U.S. Marietta Naval Base.

Past hazardous waste cleanups on the Reservation under the DoD FUDS or the Native American Lands Environmental Mitigation Program (NALEMP) include the removal of PCB-contaminated soils from the Navy's sewage treatment lagoon and the former Tribal Administration Center ("LIBC Central Campus"; 2616 Kwina Rd., Bellingham, WA 98226). The NALEMP is an offshoot of the FUDS that was established to address environmental impact from DoD activities on Indian Reservations and in Alaska Native Villages.

6.2.6. EPCRA Inventory

Currently, there are no facilities located on the Reservation that are required by Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) to report to the Toxics Release Inventory (TRI) program. However, the top five facilities for toxics disposal and/or releases in both Whatcom County and Skagit County are located within approximately 20 miles of the Reservation. The Whatcom County facilities include Alcoa Intalco Works, Phillips 66 Ferndale Refinery, BP Cherry Point Refinery, Chemco Inc., and Ershings Inc. and the Skagit County facilities include Shell Oil Products U.S. – Puget Sound Refinery, Tesoro Refining & Marketing LLC, Fibrex Corp., Janicki Industries Inc., and Dakota Creek Industries Inc (EPA 2014k).

6.2.7. FIFRA Inventory

There are approximately 2,885 acres of land zoned for agricultural use on the Reservation, though the area currently under cultivation is less. Farming is practiced on privately owned land, as well as land leased from the Lummi Nation or individual tribal members. The Lummi Nation managed 24 leases totaling 684 acres in spring 2014. The only information pertaining to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) on file in the LNR is a note from the EPA's 2000 Multi-Media Inspection of the Reservation stating that Frank Moser Dairy, which is the largest farming operation on the Reservation, is permitted for pesticides. The Lummi Nation requests that any additional information concerning FIFRA programs implemented on the Reservation be provided by the EPA to LNR. In addition, although there may have been an opportunity provided by the EPA, there are no records within the LNR that show that an opportunity to consult or issue a 401 certification for the current NPDES Pesticide General Permit (expires in October 31, 2016) was provided. As a result, the Lummi Nation would like to ensure that when this permit is up for re-authorization that an opportunity to review and comment on the next Pesticide General Permit is provided.

6.2.8. TSCA Inventory

The Toxic Substances Control Act (TSCA) regulates polychlorinated byphenols (PCBs) and, through Subchapter II – Asbestos Hazard Emergency Response Act (AHERA), asbestos. There were two sites on the Reservation with documented PCB-contaminated soils prior to recent site cleanups, the former Tribal Administration Center (“LIBC Central Campus”; 2616 Kwina Rd., Bellingham, WA 98226) and the former Navy sewage lagoon (located near the former Radio Direction Finding Facility [RDFF] building, aka. “The Blockhouse”). Contamination at both sites was the result of Department of Defense (DoD) operations at the U.S. Marietta Naval Base between 1953 and 1972. These sites have been mitigated through the Formerly Used Defense Sites (FUDS) program as discussed in the CERCLA Inventory above. Additionally, confirmed asbestos containing materials (ACMs) were identified in four buildings located at the former Tribal Administration Center. These buildings were originally two barracks buildings (later “The Blue Building” which housed Council Operations, Office of the Reservation Attorney, Lummi Language, and Statistics, and the Accounting Department building), one multi-purpose building (later the Natural Resources Department building), and one utility building (later the Purchasing Department building). Asbestos abatement was used in the demolition of the blue building in 2007, the Natural Resources building in 2013, and the Accounting building in 2014. Similar procedures are planned for demolition of the remaining former Navy buildings at this site, which are currently unoccupied and that may also contain asbestos.

School buildings with ACMs include the former Lummi Nation School (“LIBC East Campus”, 2530 Kwina Rd., Bellingham, WA 98226) and the former Lummi Child Care Center (2561 Scott Rd., Bellingham, WA 98226). The Lummi Nation School opened new school buildings in October 2004 which are certified asbestos free. The old Lummi Nation School buildings are now occupied by the Lummi Child Care Center (previously located on Scott Rd.). Asbestos abatement at this site consisted of covering asbestos containing floor tiles with a sealed membrane floor covering. The former the Lummi Child Care Center located on Scott Road is no longer in use as a daycare.

6.2.9. PPA Inventory

The Lummi Nation has a longstanding commitment to pollution prevention programs, as demonstrated in the Water Reclamation and Reuse report (1998), the Water Conservation Plan for the Lummi Indian Reservation (2004), and the recently adopted Integrated Solid Waste Management Plan: 2014-2024. However, the EPA and Lummi Nation do not currently partner to promote specific Pollution Prevention Act programs on the Reservation.

6.3. Administrative/Fiscal Assessment

The LIBC's Finance Department has reviewed the tribe's financial systems and confirms compliance with the requirements of the federal Office of Management and Budget (OMB) guidance on Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal awards (a.k.a., the December 26, 2013 "Super Circular"). The LIBC is audited against these federal requirements annually and, upon request, will provide documentation showing that no significant deficiencies or material weaknesses were found in recent audits.

7. CONCLUSION

The purpose of this Lummi Nation Tribal Environmental Plan (TEP) is twofold: the TEP (1) serves as an intergovernmental environmental agreement between the Lummi Nation and the Environmental Protection Agency (EPA) and (2) acts as a standalone environmental plan that addresses all media (water, land, air) on the Lummi Indian Reservation (Reservation) for the 2016-2021 period.

The TEP builds on the draft Tribal Environmental Agreement (TEA) developed by the Lummi Natural Resources Department (LNR) in 2003. The draft TEA was intended as a cooperative agreement between the Lummi Nation and the EPA that clearly reaffirmed tribal sovereignty and ensured the development and implementation of tribal and federal environmental protection policies and programs. In the same manner, the intent of this TEP is to clearly define the mutual roles and responsibilities of the Lummi Nation and the EPA, to help the EPA assist the Lummi Nation in building its capacity and capability to assume regulatory and program management responsibilities for priorities identified by the Lummi Nation, and to identify funding and technical support for managing tribal environmental priorities and to increase the flexibility in implementing grants for existing environmental programs. As an intergovernmental environmental agreement, this TEP recognizes and affirms the government-to-government relationship of the EPA and the Lummi Nation and promotes protection of the Reservation environment and Lummi resources, effective implementation and enforcement of regulatory programs, tribal stability in funding, regulatory capacity, and administrative infrastructure, and the implementation of the EPA's Indian Policy, guidance, and direction, with due consideration of the Lummi Nation's views.

To provide necessary guidance for future program development, the TEP provides a summary and overview of the environmental programs currently underway in the Lummi Natural Resources Department and includes the following information: (1) a description of the Lummi Nation's existing environmental programs, identification and prioritization of environmental and human health issues of concern to the Lummi Nation, and development of a plan on how to address the identified priorities in the 2016-2021 period, including capacity building and program implementation goals and (2) a review the federal environmental programs that the Lummi Nation and/or EPA are implementing on the Reservation, including an inventory of regulated entities on the Reservation to determine which federal environmental statutes are applicable.

(This page intentionally left blank)

8. REFERENCES

- Aldis, H. 1980. *Memorandum: Lummi Indian Reservation Garbage Dump*. Ecology and Environment, Inc., Seattle, Washington. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Banton, D. and R. Anderson. 1992. *Water Quality Evaluation of the Lummi Indian Reservation*. Golder Associates Inc, Redmond, Washington. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Blake, S. and B. Peterson. 2005. *Water Resources Inventory 1 (WRIA 1) Watershed Management Plan – Phase 1*. Prepared for WRIA 1 Watershed Management Project participants, Bellingham, Washington.
- Bortleson, G.C., M.J. Chrzastowski, and A.K. Helgerson. 1980. *Historical Changes of Shoreline and Wetland at Eleven Major Deltas in the Puget Sound Region, Washington*. U.S. Geological Survey. Hydrologic Investigations Atlas HA-617.
- Cline, D.R. 1974. *A Ground Water Investigation of the Lummi Indian Reservation Area, Washington*. Tacoma, U.S. Geological Survey, Open-File Report.
- Deardorff, L. 1992. *A Brief History of the Nooksack River's Delta Tributaries*. Lummi Nation Fisheries Department.
- DNV-KEMA. 2012. *Wind Resource and Feasibility Assessment Report for the Lummi Reservation*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Easterbrook, D.J. 1973. *Environmental Geology of Western Whatcom County, Washington*. Western Washington University, Bellingham, Washington.
- Easterbrook, D.J. 1976. *Geologic map of western Whatcom County, Washington*. U.S. Geologic Survey Map I-854-B, 1:62,500.
- Federal Emergency Management Agency (FEMA). 2004. *Flood Insurance Study: Whatcom County, Washington (All Jurisdictions)*. FIS No. 53073CV000A. Prepared by Michael Baker, Jr., Inc. January 16, 2004.
- Gillies, J. 1998. Personal Communication – Meeting Notes April 13, 1998.
- GPA Consulting Services (GPA). 1988. *Lummi Nation Coastal Zone Management Plan*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Harper, K. 1999. *Lummi Nation Wetland Inventory Technical Report*. Sheldon and Associates, Inc., Seattle, Washington. Prepared for the Lummi Indian Business Council, Bellingham, Washington.

- Harper-Owes. 1979. *Lummi Solid Waste Management Plan*. Peat, Marwick, Mitchell & Company, Seattle, Washington. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Hruby, T. 2004. *Washington State Wetland Rating System for Western Washington*. Washington State Department of Ecology Publication #04-06-025.
- International Forestry Consultants, Inc. 2007. *Lummi Nation Forest Inventory*. Prepared for the Lummi Natural Resources Department – Forestry Division, Bellingham, Washington.
- Kamkoff, V. 2011. *Personal Communication with Jeremy Freimund*.
- Leckman, S. 1990. *A Forest History of the Lummi Indian Reservation*.
- Lummi Indian Business Council (LIBC). 1996. *Lummi Nation Comprehensive Environmental Land Use Plan: Background Document*. LIBC, Bellingham, Washington.
- Lummi Indian Business Council (LIBC). 2003. *2003 Lummi Tribal Survey*. LIBC, Bellingham, Washington.
- Lummi Natural Resources Department (LNR). 2005. *Nooksack River Estuary Habitat Assessment*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Natural Resources Department (LNR). 2007. *Upper South Fork Nooksack River Habitat Assessment*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Natural Resources Department (LNR). 2010. *Lummi Intertidal Baseline Inventory*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Natural Resources Department (LNR). 2011. *Lummi Nation Forest Management Plan*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Tribal Sewer and Water District (LTSWD). 2014. *Lummi Tribal Water System*. <http://ltswd.com/>. Accessed March 23, 2014.
- Lummi Water Resources Division (LWRD). 1998. *Lummi Nation Water Reclamation and Reuse*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2000. *Lummi Indian Reservation Wetland Management Program Technical Background Document*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2001. *Lummi Nation Nonpoint Source Assessment Report*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.

- Lummi Water Resources Division (LWRD). 2002. *Lummi Nation Nonpoint Source Management Program*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2004a. *Evaluation Report on the Development and Implementation of a Lummi Nation Safe Drinking Water Management Program*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2004b. *Water Conservation Plan for the Lummi Indian Reservation*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2005a. *Lummi Nation Spill Prevention and Response Plan*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2005b. *Evaluation Report on the Development and Implementation of a Lummi Nation NPDES Program*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2007. *Lummi Nation Water Quality Monitoring Strategy*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2008a. *Water Quality Standards for Surface Waters of the Lummi Indian Reservation*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2008b. *Lummi Nation Wetland and Habitat Mitigation Bank Prospectus*. Prepared for the Lummi Indian Business Council, Bellingham, Washington. October.
- Lummi Water Resources Division (LWRD). 2011a. *Lummi Nation Storm Water Management Program Technical Background Document, 2011 Update*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2011b. *Lummi Nation Wellhead Protection Program*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2012a. *Lummi Nation Seafood Consumption Study*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2012b. *Lummi Nation Water Quality Assessment Report: June 28, 1993 to December 31, 2010*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.

- Lummi Water Resources Division (LWRD). 2014a. *Lummi Nation Integrated Solid Waste Management Plan: 2014-2024*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2014b. *Lummi Nation Atlas*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2015. *Lummi Nation Wetland Inventory Update Year 11 Synthesis Report 2015*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2015a. *Lummi Nation Multi-Hazard Mitigation Plan*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2015b. *Lummi Nation Nonpoint Source Pollution Assessment Report 2015 Update*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2015c. *Lummi Nation Nonpoint Source Pollution Management Plan: 2015-2020*. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2016. *Lummi Nation Strategic Energy Plan: 2016-2026*. Prepared for Lummi Indian Business Council, Bellingham, Washington.
- Lummi Water Resources Division (LWRD). 2016. *Lummi Nation Climate Change Mitigation and Adaptation Plan: 2016-2026*. Prepared for Lummi Indian Business Council, Bellingham, Washington.
- Lynch, W. 2001. *Internal Memorandum: Floodplain and Wetland Acres*. Lummi Natural Resources Department (LNR), Bellingham, Washington.
- Mitsch, W.J. and J.G. Gosselink. 1993. *Wetlands*. Van Nostrand Reinhold, New York, New York.
- National Oceanic and Atmospheric Administration, Coastal Services Center (NOAA). 2006. *Regional Land Cover Database: Data Collected 1995-Present*. Charleston, SC. Data accessed at www.csc.noaa.gov/landcover.
- Niemuth, S. 1987. *Memorandum: Final Site Inspection Report for Lummi Indian Reservation Dump Bellingham, Washington*. Ecology and Environment, Inc., Seattle, Washington. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Northern Economics, Inc. (NEI). 2005. *Lummi Nation Workforce Skills Inventory and Analysis: Final Report*. Northern Economics, Inc., Bellingham, WA. Prepared for the Lummi Development Authority and Lummi Indian Business Council, Bellingham, Washington.

- Northwest Clean Air Agency (NWCAA). 2014. *Emissions Inventories*. <http://www.nwcleanair.org/airQuality/inventories.htm>. Website accessed January 27, 2014.
- Northwest Indian Fisheries Commission (NWIFC). 2012. *Tribal Online Accounting System (TOCAS)*. <http://access.nwifc.org/webapps/>. Website accessed January 2012.
- Pierson, W. 1953. *The Geography of the Bellingham Lowland, Washington*. University of Chicago, Department of Geography Research Paper No. 28. University of Chicago Press, Chicago, Illinois.
- Ridolfi Inc. 2011. *Native American Lands Environmental Mitigation Program 2009: Chief Martin Road Landfill Site Investigation Report Lummi Indian Reservation, Washington*. Ridolfi Inc., Seattle, Washington. Prepared for the Lummi Indian Business Council, Bellingham, Washington.
- Smelser, C. 1970. *Sequent Occupance of the Nooksack River Valley and the Influence of Man on the Rate of Sediment Delivery to Bellingham Bay*. Master of Science Thesis, Western Washington State College, Bellingham, Washington.
- Tecumseh Professional Associates, Inc. 1999. *Draft Lummi Indian Reservation Site Assessment Report*. Prepared for Office of the Deputy Under Secretary of Defense (Environmental Security), Washington, DC.
- U.S. Army Corps of Engineers (Corps). 1997. *Detailed Project Report: Lummi Shore Protection Project, Lummi Indian Reservation, Whatcom County, Washington*. Corps of Engineers, Seattle District, Washington.
- U.S. Department of Agriculture – Soil Conservation Service (USDA). 1970. *National Engineering Handbook, Section 4, Hydrology*. USGPO, Washington.
- U.S. Department of Agriculture – Soil Conservation Service (USDA). 1992. *Soil Survey of Whatcom County Area, Washington*.
- U.S. Bureau of Indian Affairs (BIA). 1999. *Indian Service Population and Labor Force Estimates*. U.S. Department of the Interior, Bureau of Indian Affairs.
- U.S. Environmental Protection Agency (EPA). 2014a. *Treatment in the Same Manner as a State*. <http://www.epa.gov/tribal/laws/tas.htm>. Website accessed January 17, 2014.
- U.S. Environmental Protection Agency (EPA). 2014b. *Tribal Compliance Assistance Center*. <http://www.epa.gov/tribalcompliance/>. Website accessed January 17, 2014.
- U.S. Environmental Protection Agency (EPA). 2014c. *An Introduction to Indoor Air Quality (IAQ)*. <http://www.epa.gov/iaq/ia-intro.html>. Website accessed January 10, 2014.
- U.S. Environmental Protection Agency (EPA). 2014d. *Facility Registry Service (FRS)*. <http://www.epa.gov/enviro/html/fii/>. Website accessed February 20, 2014.

- U.S. Environmental Protection Agency (EPA). 2014e. *Envirofacts*. <http://www.epa.gov/enviro/index.html>. Website accessed February 20, 2014.
- U.S. Environmental Protection Agency (EPA). 2014f. *Enforcement and Compliance History Online (ECHO)*. http://echo.epa.gov/facility_search. Website accessed February 21, 2014.
- U.S. Environmental Protection Agency (EPA). 2014g. *NPDES Electronic Notice of Intent (eNOI)*. <http://cfpub.epa.gov/npdes/npdesnoi.cfm>. Website accessed February 21, 2014.
- U.S. Environmental Protection Agency (EPA). 2014h. *Safe Drinking Water Information System (SDWIS)*. <http://www.epa.gov/enviro/facts/sdwis/search.html>. Website accessed March 21, 2014.
- U.S. Environmental Protection Agency (EPA). 2014i. *Active Title V Air Permits issued by Region 10*. <http://yosemite.epa.gov/R10/AIRPAGE.NSF/Permits/airpermits+inR10>. Website accessed January 27, 2014.
- U.S. Environmental Protection Agency (EPA). 2014j. *FARR Non-Title V Permits Issued by Region 10*. <http://yosemite.epa.gov/R10/AIRPAGE.NSF/Tribal+Air/Non+Title+V>. Website accessed January 27, 2014.
- U.S. Environmental Protection Agency (EPA). 2014k. *Toxics Release Inventory (TRI) Program*. <http://www2.epa.gov/toxics-release-inventory-tri-program>. Website accessed March 10, 2014.
- U.S. Fish and Wildlife Service (USFWS). 1987. *National Wetlands Inventory*. Washington, D.C.
- Valz, E. 2003. *LIBC and NWIC Employment Information*. Lummi Nation Statistics Department. Bellingham, WA.
- Washburn, R.L. 1957. *Ground water in the Lummi Indian Reservation, Whatcom County, Washington*. Tacoma, U.S. Geological Survey, Open-File Report.
- Washington State Department of Conservation (WSDC). 1960. *Water Resources of the Nooksack River Basin and Certain Adjacent Streams*. Water Supply Bulletin No. 12.
- Washington State Department of Conservation (WSDC). 1964. *Miscellaneous stream-flow measurements in the State of Washington 1890 to January 1961*. Water Supply Bulletin No. 23.
- Washington State Department of Health (DOH). 1997. *Sanitary Survey of Portage Bay*. Office of Shellfish Programs.
- Washington State Department of Health (DOH). 2014. *Water System Data for Download*. <http://www.doh.wa.gov/DataandStatisticalReports/EnvironmentalHealth/DrinkingWaterSystemData/DataDownload.aspx>. Accessed March 24, 2014.

Werner, K. 2007. *Personal communication with Kevin Werner, Assistant General Manager, Silver Reef Hotel, Casino & Spa.* February 19, 2007.

Western Washington University (WWU). 2011. *Top 25 Employers in Whatcom County.* Western Washington University, College of Business and Economics, Center for Economics and Business Research, Bellingham, WA.
http://www.cbe.wwu.edu/cebr/data/Top_25/top25employers.htm.

Whatcom County. 2005. *Whatcom County Comprehensive Plan.* Whatcom County Planning Department, Bellingham, Washington.
http://www.co.whatcom.wa.us/pds/planning/comp_plan/comp_plan.jsp.

(This page intentionally left blank)

9. ACRONYMS AND ABBREVIATIONS

Programs, Terms, Agencies, and Organizations:	
ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
AIRFA	American Indian Religious Freedom Act
AOP	Air Operating Permit
ARPA	Archaeological Resources Protection Act
BIA	Bureau of Indian Affairs
BMPs	Best Management Practices
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
Corps	United States Army Corps of Engineers
County	Whatcom County
CWA	Clean Water Act
CWRMP	Comprehensive Water Resources Management Program
DNV-KEMA	DNV Renewables (USA) Inc.
DoD	Department of Defense
DOE	Department of Energy
DOH	Washington State Department of Health
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
FARR	Federal Air Rules for Reservations
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FUDS	Formerly Used Defense Sites
GAP	General Assistance Program
GIS	Geographic Information System
IAQ	Indoor Air Quality
ISWMP	Lummi Nation Integrated Solid Waste Management Plan
LCL	Lummi Nation Code of Laws
LIBC	Lummi Indian Business Council
LIBI	Lummi Intertidal Baseline Inventory
LiDAR	Light Detection and Ranging
LNR	Lummi Natural Resources Department
LTSWD	Lummi Tribal Sewer and Water District
LWRD	Lummi Water Resources Division
MBR	Membrane Bio Reactor
MHMP	Lummi Nation Multi-Hazard Mitigation Plan
MSGP	Multi-Sector General Permit
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAVD88	North American Vertical Datum 1988
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NPS	Nonpoint-Source
NPSMP	Nonpoint-Source Management Program
NWIC	Northwest Indian College
NPDES	National Pollutant Discharge Elimination System

Programs, Terms, Agencies, and Organizations:	
PCB	Polychlorinated Biphenyl
Planning	Lummi Planning and Public Works Department
PSP	Puget Sound Partnership
PWSS	Public Water System Supervision
PPA	Pollution Prevention Act
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
Reservation	Lummi Indian Reservation
SWDA	Safe Drinking Water Act
SWPPP	Storm Water Pollution Prevention Plan
TAS	Treatment in the Same Manner as a State
TEA	Tribal Environmental Agreement
TEP	Tribal Environmental Plan
TEPC	Tribal Emergency Planning Committee
TERC	Tribal Emergency Response Commission
TFW-FFR	Timber, Fish, and Wildlife – Forests and Fish Rules
TIP	Tribal Implementation Plan
TMDL	Total Maximum Daily Load
TRC	Technical Review Committee
Treaty	1855 Treaty of Point Elliott
TRI	Toxics Release Inventory
TSCA	Toxic Substances Control Act
U&A	Usual and Accustomed
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
UST	Underground Storage Tank
WAC	Washington Administrative Code
WRIA 1	Water Resources Inventory Area 1
WRIA 1 WMP	Water Resource Inventory Area 1 Watershed Management Plan
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant

APPENDIX A

EPA REGION 10 PROGRAMS AND PRIORITIES

(This page intentionally left blank)



EPA Region 10 Office of the Regional Administrator



The mission of the U.S. Environmental Protection Agency is to protect public health and the environment. We work to accomplish this through studying environmental issues, developing and enforcing regulations, publishing information, teaching people about the environment, sponsoring partnerships, and giving grants. EPA's Region 10 covers Alaska, Idaho, Oregon, and Washington and includes 271 federally recognized tribes. The Office of the Regional Administrator oversees the implementation of programs and the enforcement of environmental rules and regulations in the Pacific Northwest and Alaska. The Regional Administrator's Division includes the Public Affairs and Community Engagement Unit, the Tribal Trust and Assistance Unit, and Civil Rights and Equal Opportunity Employment functions.

Units & Programs	Priorities & Activities
<p>Public Affairs & Community Engagement Unit</p> <p>Public Affairs Specialists communicate EPA's mission and efforts through the website, news and social media outlets. Coordinators work with communities and other agencies and partners, and assist EPA programs in engaging on clean-ups and other actions. The Environmental Justice and Children's Health programs work to promote EJ and children's health, to integrate protections into other programs, and to assist in evaluating issues.</p>	<ul style="list-style-type: none"> • developing web/internet content and press releases • responding to public, press, and Congressional inquiries • coordinating on international issues and projects • coordinating outreach for clean-ups and other projects • providing information for healthy children, homes & schools • facilitating EJ work for tribes and indigenous peoples and connecting communities and programs • managing EJ and environmental education grants • providing training and technical assistance
<p>Tribal Trust & Assistance Unit</p> <p>The United States has a unique relationship with and responsibility to federally recognized tribes. The Tribal Program works to assist other EPA programs in coordinating and consulting with tribes, and in partnering to address environmental issues and challenges. Tribal Coordinators work with tribes and consortia to build capacity to manage environmental protection programs.</p>	<ul style="list-style-type: none"> • facilitating communication, coordination and consultation • supporting Government-to-Government relationships • managing IGAP and Performance Partnership grants • facilitating the development of EPA-Tribal Environmental Plans (ETEPs) • providing training and technical assistance • coordinating R10 Tribal Specialists Team • coordinating R10 Tribal Operations Committee
<p>Civil Rights & Equal Opportunity Employment</p> <p>Region 10's Civil Rights and Equal Opportunity Employment Coordinator works to implement federal civil rights laws that protect employees and applicants for employment from discrimination and prohibit discrimination against members of the public by recipients of EPA funds.</p>	<ul style="list-style-type: none"> • providing leadership, guidance, and assistance in carrying out the Agency's equal employment programs • providing technical assistance to regional program offices in carrying out responsibilities related to civil rights • providing technical assistance to regional program offices in complying with Equal Employment Opportunity (EEO) laws and regulations

Office of the Regional Administrator Tribal Specialists:

Katherine Brown (206) 553-7263, brown.katherine@epa.gov / JR Herbst (206) 553-2116, herbst.john@epa.gov
 EPA Region 10: www.epa.gov/aboutepa/epa-region-10-pacific-northwest



EPA Region 10 Office of Water & Watersheds



Region 10's Office of Water and Watersheds (OWW) is responsible for carrying out EPA's mandates under the Clean Water Act and Safe Drinking Water Act. OWWs' mission is to restore, maintain, and enhance the overall quality of the Region's water resources in order to protect the health and diversity of the environment for present and future generations. Our environmental objectives are to: protect diverse ecosystems and ensure healthy watersheds; safeguard human health through vigorous protection of ground and surface waters and drinking water sources; prevent and minimize the discharge of pollutants to land, air, and water; and promote stewardship for the Region's waters through education and public involvement.

Units & Programs	Priorities & Activities
<p>Drinking Water</p> <p>Oversees implementation of the Safe Drinking Water Act, which is the national law safeguarding tap water in America.</p>	<ul style="list-style-type: none"> • implementing drinking water rules • direct implementation for the approximately 140 drinking water systems on tribal lands • conducting compliance and enforcement on drinking water systems on tribal lands • administering drinking water state revolving funds • administering tribal drinking water set-aside funds
<p>Wastewater (NPDES)</p> <p>The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating industrial, municipal, and other facilities that discharge pollutants via point sources, storm water, and sewer overflow discharges into waters of the United States.</p>	<ul style="list-style-type: none"> • issuing NPDES permits, including: municipal, stormwater, industrial, oil & gas, concentrated animal feeding operations, pesticides, offshore seafood processing, and mining • directly implementing the NPDES permits program throughout ID, federal facilities in WA, and facilities on tribal lands within AK, WA, and OR • issuing NPDES permits in federal waters off the shores of AK, WA, OR • overseeing permitting in states which run approved NPDES programs (WA, OR, AK) and participating in development of an Idaho NPDES Program
<p>Clean Water State Revolving Fund (CWSRF)</p> <p>Under EPA's Clean Water State Revolving Fund (CWSRF) program, each state maintains a revolving loan fund to provide low-cost financing for a wide range of water quality infrastructure projects, including: municipal wastewater treatment; non-point source protection; watershed protection or restoration; and estuary management projects.</p>	<ul style="list-style-type: none"> • providing oversight and funding for the CWSRF programs administered by AK, ID, OR, and WA, including a focus on how to support climate resiliency

<p>Watersheds</p> <p>Watersheds are areas that drain to a common waterway, such as a stream, lake, estuary, wetland, aquifer, or even the ocean. A watershed approach is the most effective framework to address many of today's water resource challenges.</p>	<ul style="list-style-type: none"> • administering the Tribal NonPoint Source (319) Program • managing and overseeing state 319 grants in AK, WA, ID, and OR and supporting nonpoint source management • reviewing and acting on Integrated Reports / Impaired Waters (303(d)) Lists in AK, WA, ID, and OR • reviewing and acting on Total Maximum Daily Loads (TMDL) and providing technical support for TMDL development
<p>Water Quality Standards</p> <p>Studies the effects of pollutants and uses this information to set protective standards for fresh surface waters and seawater.</p>	<ul style="list-style-type: none"> • providing oversight on, and reviewing and approving or disapproving, state and tribal water quality standards actions • conducting tribal consultation and coordinating on state water quality standards • providing Clean Water Act Water Pollution Control Program (106) Grants so tribes can run water quality programs
<p>Tribal Infrastructure Programs</p> <p>Helps ensure clean and safe water for the 271 federally recognized tribes and Alaska Native Villages in Region 10 by providing technical, funding, and other assistance.</p>	<ul style="list-style-type: none"> • providing funding for drinking water and wastewater infrastructure projects identified as priorities in cooperation with Indian Health Service • supporting training and technical assistance in the operations and management of Alaska Native Village and rural community systems through a grant to the state of AK • supporting capacity development through cooperation with the state of AK Remote Maintenance Worker Program and the Rural Utility Business Advisor Program • providing training and technical assistance in the operations and management of systems to tribes in WA, ID, and OR through the drinking water direct implementation program
<p>Puget Sound</p> <p>Puget Sound is one of the most ecologically diverse ecosystems in North America. EPA receives federal funding to protect and restore Puget Sound, most of which is used for financial assistance to state, local and tribal governments for efforts to implement the Puget Sound Action Agenda.</p>	<ul style="list-style-type: none"> • directing funding to projects that protect treaty-reserved salmon and shellfish resources and their habitat • providing EPA Project Officer and technical monitor support for these Puget Sound Cooperative Agreements • supporting tribal engagement in the National Estuary Program Management Conference and overseeing the Puget Sound Partnership and integration of tribal priorities • co-leading the federal response to Western WA treaty tribes calling on the federal government to better protect treaty-reserved resources ("Treaty Rights at Risk" whitepaper) • under a joint 'Statement of Cooperation' with Environment Canada, seeking to provide a forum for transboundary issues of concern to Coast Salish tribes and First Nations
<p>Office of Water & Watersheds Tribal Specialists:</p> <p>Catherine Gockel (206)-553-0325, gockel.catherine@epa.gov/ Bryan Fiedorczyk (206) 553-0506 fiedorczyk.bryan@epa.gov EPA Region 10 Office of Water & Watersheds: http://yosemite.epa.gov/R10/WATER.NSF/ EPA Office of Water: http://water.epa.gov/</p>	



EPA Region 10 Office of Air & Waste



Region 10's Office of Air and Waste (OAW) mission is to be a steward of the environment to protect air quality, control toxics, and manage waste. In coordination with partners, OAW provides technical, policy and monetary assistance to tribes, states, and local governments to build capacity for environmental management. This office implements program activities under these environmental laws: Clean Air Act (CAA), Resource Conservation and Recovery Act (RCRA), Pollution Prevention (P2) Act, and the Diesel Emissions Reduction Act.

Units & Programs	Priorities & Activities
<p>Tribal Programs, Diesel and Indoor Air Unit</p> <p>The Tribal Programs, Diesel and Indoor Air Unit carries out regulatory air quality programs under the statutory authority of the Clean Air Act (CAA), tribal solid waste programs under the Resource Conservation and Recovery Act (RCRA), and diesel emissions reduction programs. This unit implements clean air and solid waste programs, including the Federal Air Rules for Reservations, on tribal lands, and also administers the Alaska tribal air quality program and the tribal indoor air program.</p>	<ul style="list-style-type: none"> • implementing the Federal Air Rules for Reservations (FARR) in OR, WA, and ID • reviewing and acting on Treatment as a State applications • leading collaborations and providing technical assistance to support indoor air programs and initiatives in communities • coordinating with tribes, and other federal agencies that have roles, in implementing tribal air programs • convening partners, leveraging resources, and providing direct support to AK tribes to mitigate air issues • establishing partnerships around tribal priority issues such as PM2.5/wood smoke, solid waste, road dust, and asthma • developing tools and providing technical assistance and training to tribes for solid and hazardous waste programs • awarding and managing tribal air and Diesel Emission Reduction Act grants • providing assistance in developing and reviewing Integrated Waste Management Plans • awarding and managing tribal solid and hazardous waste grants, e.g. household hazardous waste grants
<p>Air Planning Unit</p> <p>The Air Planning Unit develops designations for attainment and non-attainment of the National Ambient Air Quality Standards (NAAQS). This unit acts on state and tribal implementation plan submittals and develops federal implementation plans when needed. The Air Planning Unit provides coordination and support for state and tribal smoke management programs and supports state and tribal air monitoring programs.</p>	<ul style="list-style-type: none"> • providing technical assistance and coordination for smoke management review • acting on State and Tribal Implementation Plan submittals • developing Federal Implementation Plans as needed to implement CAA requirements • designating areas as attainment or nonattainment for the NAAQS, including Indian Country • awarding and managing CAA 103 and 105 grants to state and local agencies • providing programmatic air monitoring support

<p>Stationary Source Unit</p> <p>The Air Stationary Source Unit issues air permits in places where there is no authorized state or tribal program. This unit approves and oversees state and tribal air permitting programs, provides regulatory and technical assistance regarding the air toxics program, New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and implements radiation protection programs.</p>	<ul style="list-style-type: none"> • issuing major source operating permits (Title V) and major and minor source construction permits in Indian Country • issuing major source construction and operating permits in areas with federal jurisdiction (including Indian Country) • issuing FARR permits in WA, OR, and ID • acting on applications from states, local air agencies, and tribes for delegation of air permit programs • maintaining oversight of state permitting programs • performing reviews of state and local Title V programs
<p>Resource Conservation & Recovery Act Unit</p> <p>The RCRA Program Unit authorizes the RCRA Subtitle C Hazardous Waste Program in the States of WA, OR and ID and directly implements it in AK. The purpose of the RCRA Subtitle C program is to ensure the safe handling of hazardous wastes. The Unit supports hazardous and solid waste activities on tribal lands. It also provides expertise in the development of national RCRA-related strategies, policies, and guidance documents.</p>	<ul style="list-style-type: none"> • managing hazardous waste grants in authorized states • implementing the hazardous waste program in AK • reviewing all state RCRA program activities • overseeing the Hanford Dangerous Waste Permit • managing the Biannual Reporting for AK RCRA sites • maintaining the RCRA Info Database
<p>Corrective Action, Permits and PCB Unit</p> <p>The Corrective Action, Permits and PCB Unit manages the RCRA Hazardous Waste Permitting and Corrective Action programs. This Unit issues RCRA Permits and PCB Approvals and oversees corrective actions at select RCRA facilities.</p>	<ul style="list-style-type: none"> • issuing RCRA Permits • managing and overseeing the clean-up of contamination at regulated facilities • providing technical and regulatory information, advice and assistance to permitted facilities, the public, tribes, states, local agencies, and other federal agencies • consulting with tribes whose interests are affected by EPA R10 RCRA Hazardous Waste Permits or Corrective Actions
<p>Prevention and Materials Management Unit</p> <p>The Prevention and Materials Management Unit implements the Pollution Prevention (P2) Act, the RCRA Sustainable Materials Management (SMM) Program, the Energy Star Program, and the RCRA Subtitle D Solid Waste Permitting Program. Special areas of emphasis are source reduction for the prevention of chemical releases, energy efficiency, the reduction of upstream impacts of manmade materials on the environment, and the approval of State Solid Waste Permitting Programs.</p>	<ul style="list-style-type: none"> • awarding and managing P2 grants for source reduction of hazardous chemicals, pollutants, and substances • developing the P2 technical assistance network (agencies, tribes, businesses) • fostering energy efficiency and renewable energy, including Energy Star • implementing the SMM program and working to reduce upstream impacts of materials on the environment • approving RCRA Subtitle D Permit Programs
<p>Office of Air & Waste Tribal Specialists:</p> <p>Andra Bosneag (206) 553-1226 bosneag.andra@epa.gov / Kristine Carre (503) 326-7024 carre.kristine@epa.gov EPA Region 10 Office of Air Waste and Toxics: http://yosemite.epa.gov/R10/AIRPAGE.NSF/webpage/Air+Quality http://yosemite.epa.gov/r10/owcm.nsf/recycle/waste</p>	



EPA Region 10 Office of Compliance and Enforcement



The Office of Compliance & Enforcement (OECA) provides enforcement, compliance assurance, and compliance assistance for ground water, pesticides and toxics, wastewater (NPDES), air, and solid and hazardous waste (RCRA) programs. Working in partnership with tribal governments, state governments, and other federal agencies, EPA ensures compliance with the nation's environmental laws. Nationally, EPA maintains a website to allow citizens to report a potential violation of environmental laws and regulations. Information submitted will be forwarded to EPA environmental enforcement personnel or to the appropriate regulatory authority. <http://www.epa.gov/tips/>

Units & Programs	Priorities & Activities
<p>Clean Air Act Compliance</p> <p>The Clean Air Act (CAA) is the federal law that regulates air emissions from stationary and mobile sources. This program investigates suspected noncompliance of emission sources in Indian Country. Federal Air Rules for Reservations (FARR) lists certain “prohibited materials” that cannot be burned. These materials are commonly prohibited by air agencies because burning these materials produces toxic chemicals. Certain existing sources of air pollution must also register their emissions with EPA on an annual basis.</p>	<ul style="list-style-type: none"> • ensuring compliance with the CAA and the FARR • evaluating suspected noncompliance of emission sources in Indian Country through investigating tips/complaints and, where needed, conducting compliance inspections, determining the appropriate enforcement response, and resolving violations in order to bring sources into compliance • implementing the terms of authorization agreements for those tribes in Region 10 with CAA inspector credentials, including the development of annual inspection plans, the review of inspection reports, and coordination of any follow-up enforcement action that EPA proposes to take
<p>Clean Air Act 112r Risk Management Program</p> <p>When Congress passed the Clean Air Act Amendments of 1990, section 112r required EPA to publish regulations and guidance for chemical accident prevention at facilities using substances that posed the greatest risk of harm from accidental releases. These regulations require companies of all sizes that use certain listed regulated flammable and toxic substances to develop a Risk Management Program.</p>	<ul style="list-style-type: none"> • ensuring compliance with the CAA section 112r • evaluating suspected noncompliance at regulated facilities in Indian Country through investigating tips/complaints, and where needed, conducting compliance inspections, determining the appropriate enforcement response, and resolving violations in order to bring facilities into compliance
<p>Resource Conservation and Recovery Act</p> <p>The Resource Conservation and Recovery Act (RCRA) Enforcement Program closely monitors hazardous waste handler activities, taking legal action when handler is in noncompliance, and providing compliance incentives and assistance.</p>	<ul style="list-style-type: none"> • ensuring compliance with the RCRA Subtitle C Hazardous Waste Program • evaluating suspected noncompliance at regulated facilities in Indian Country through investigating tips/complaints, and where needed, conducting compliance inspections, determining the appropriate enforcement response, and resolving violations in order to bring facilities into compliance

<p>Pesticides</p> <p>The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provides for federal regulation of pesticide distribution, sale, and use. The pesticides program works to reduce pesticide risk through enforcement and outreach activities. Our region currently has two pesticide cooperative agreements with tribes; one with the Yakama Nation and one with the Coeur d'Alene tribe that also covers the Kootenai, Nez Perce, Colville, Kalispell, and Spokane tribes. EPA also has an interagency agreement with the Indian Health Service to provide free pest and pesticide consultations and technical assistance to tribes in WA, OR, and ID.</p>	<ul style="list-style-type: none"> • ensuring FIFRA compliance through investigation of reported pesticide misuse • implementing the terms of cooperative agreements for those tribes in R10 receiving FIFRA STAG funds, including the review of inspection reports and coordination of any follow-up enforcement actions that the EPA proposes to take • ensuring pesticide products are sold and distributed legally • providing a legal mechanism for applicators to apply restricted use pesticides in Indian Country • providing integrated pest management outreach as requested • providing pesticide worker protection outreach as requested • providing assistance on pollinator protection activities • coordinating with water monitoring efforts that affect tribes
<p>Emergency Planning and Community Right-to-Know Act</p> <p>The objectives of the Emergency Planning and Community Right-To-Know Act (EPCRA) are to: allow state and local planning for chemical emergencies; provide for notification of emergency releases of chemicals; and address communities' right-to-know about toxic and hazardous chemicals.</p>	<ul style="list-style-type: none"> • ensuring compliance with EPCRA sections 304/311/312 and CERCLA Section 103 (annual and release reporting) • evaluating suspected noncompliance at regulated facilities in Indian Country through investigating tips/complaints, and where needed, conducting compliance inspections, determining the appropriate enforcement response, and resolving violations in order to bring facilities into compliance
<p>Clean Water Act Compliance</p> <p>The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The National Pollutant Discharge Elimination System (NPDES) Compliance Unit monitors compliance with EPA-issued NPDES permits and takes appropriate actions to enforce the provisions of those permits as well as other issues of compliance with the CWA.</p>	<ul style="list-style-type: none"> • ensuring compliance with the CWA • evaluating suspected noncompliance of pollutant discharges into waters of the United States in Indian Country through investigating tips/complaints, and where needed, conducting compliance inspections, determining the appropriate enforcement response, and resolving violations in order to bring facilities into compliance
<p>Wetlands Enforcement</p> <p>The EPA co-administers the Clean Water Act Section 404 program with the U.S. Army Corps of Engineers (USACE). Section 404 requires a permit before dredged or fill material may be discharged into waters of the U.S., including wetlands, unless the activity is exempt from this regulation (e.g. certain farming and forestry activities). Activities regulated include fill for development, water resources projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects.</p>	<ul style="list-style-type: none"> • enforcing CWA section 404 provisions • determining the scope of geographic jurisdiction and the applicability of exemptions • reviewing and commenting on individual permit applications • having authority to prohibit, deny, or restrict the use of any defined areas as a disposal site (Section 404c) • ability to elevate specific cases (Section 404q)

<p>Drinking Water Enforcement</p> <p>Oversees implementation of the Safe Drinking Water Act (SDWA), which is the national law safeguarding tap water in America.</p>	<ul style="list-style-type: none"> • ensuring compliance with the SDWA • conducting compliance and enforcement for drinking water systems on tribal lands
<p>Underground Storage Tanks</p> <p>The Underground Storage Tank (UST) / Leaking Underground Storage Tank (LUST) Program works to prevent petroleum and other products stored in USTs from contaminating groundwater.</p>	<ul style="list-style-type: none"> • ensuring compliance with the Solid Waste Disposal Act (SWDA), Subtitle I • requiring every regulated underground storage tank system be inspected every 3 years, and requiring reporting and cleanup of leaking underground storage tank systems
<p>Underground Injection Control</p> <p>The Underground Injection Control (UIC) program is designed to prevent ground water contamination from injection wells and to ensure appropriate underground disposal of hazardous wastes.</p>	<ul style="list-style-type: none"> • ensuring compliance with Safe Drinking Water Act (SDWA) • requiring any injection of a fluid into a well or other underground fluid distribution system be registered with EPA prior to construction/use
<p>Polychlorinated Biphenyls</p> <p>Congress enacted the Toxic Substances Control Act (TSCA) to control the distribution, use, and disposal of harmful chemicals, including Polychlorinated Biphenyls (PCBs).</p>	<ul style="list-style-type: none"> • ensuring compliance with PCB cleanup standards through the approval and management of facility cleanups (40 CFR Part 761)
<p>Lead Paint Program</p> <p>The TSCA Lead Paint rules protect children from lead-based paint and lead hazards. The goal of EPA's enforcement program is to protect public health, deter would-be violators, and level the playing field for companies that follow the law.</p>	<ul style="list-style-type: none"> • evaluating suspected noncompliance through investigation of tips/complaints, and where needed, conducting compliance inspections, determining the appropriate enforcement response, and resolving violations in order to bring companies/renovators into compliance • educating renovators, renters, and construction firms about the requirements of the TSCA Lead Paint rules
<p>Office of Compliance and Enforcement Tribal Specialist: Charissa Bujak (208) 378-5754, bujak.charissa@epa.gov Compliance and Enforcement: http://yosemite.epa.gov/R10/ENFORCE.NSF/homepage/OCE+Main+Page</p>	



EPA Region 10 Office of Environmental Review and Assessment



Region 10's Office of Environmental Review and Assessment (OERA) provides scientific and technical leadership and expertise for assessing the condition of the environment in support of National Environmental Policy Act (NEPA) reviews, media program decision-making, and scientific initiatives. The work involves collecting and analyzing data to characterize the environment, investigating environmental problems, and evaluating proposed solutions. Scientific and engineering capabilities are directed toward environmental modeling, monitoring and assessment, chemical and microbiological laboratory analyses, facility compliance inspections, geographic information system (GIS) support, risk assessments, management of Region 10's Quality Assurance Program, and providing technical assistance to partner agencies and the public. OEA is the lead office for climate change work. OEA works closely with EPA Programs to identify priority program work as well as special cross-cutting projects. Tribal requests that come to EPA Programs are often supported by OEA's work, and OEA provides several key support functions to the Programs that relate to tribes.

Units & Programs	Priorities & Activities
<p>NEPA Review & Sediment Management Unit</p> <p>National Environmental Policy Act (NEPA) reviewers evaluate assessments of environmental impacts that may result from federally funded projects. Reviewers conduct evaluations and provide comments and recommendations to responsible agencies. Specialists manage and monitor ocean disposal sites for sediments, vessels, and fish processors, and participate in workgroups.</p>	<ul style="list-style-type: none"> • reviewing assessments for mining, transportation, development, and other projects • ensuring tribal concerns are considered • ensuring financial assurance is adequate • assisting ACE in ocean disposal site permitting • managing and monitoring ocean disposal sites • assisting NOAA with National Ocean Policy Initiative • assisting WA with Ocean Acidification & Marine Resources • assisting Superfund with evaluating Marine Debris impacts
<p>Aquatic Resources Unit</p> <p>The EPA co-administers a Clean Water Act (CWA) section 404 program with the Army Corps of Engineers (ACE) that regulates the discharge of dredge and fill materials from development, water resource, infrastructure, and mining projects into waters of the U.S., including wetlands. R10 also works to enhance state and tribal wetlands programs with grants and technical assistance.</p>	<ul style="list-style-type: none"> • reviewing and evaluating CWA 404 permit applications • ensuring adequacy of compensatory mitigation • evaluating state and tribal applications for program assumption • managing state and tribal wetland program grants • facilitating development of state and tribal wetland plans • providing training/ technical assistance
<p>Environmental Services Unit</p> <p>The Environmental Services Unit supports regional programs through: QA support by reviewing and approving Quality Assurance Project Plans; scheduling Contract Lab Program support and data quality validation; Dive Team support for various projects; asbestos sampling and analysis; biology support to EIS development; mining geochemistry support to various programs; and field support in the form of sampling and monitoring and watercraft.</p>	<p>Environmental services work supports R10 Programs in activities such as:</p> <ul style="list-style-type: none"> • inspections • quality assurance • Field and Dive team operations • asbestos sampling and analysis • mining geochemistry

<p>Risk Evaluation Unit</p> <p>The Risk Evaluation Unit is responsible for characterizing the environment as well as assessing risks to people and ecosystems. It includes experts in the physical, chemical, and biological sciences that work on a variety of issues such as: consumption of fish and shellfish; stressors to aquatic ecosystems; and recommending ways to reduce human health and ecological risks from exposure to persistent, bioaccumulative, and/or toxic chemicals (lead, pesticides, PCBs, dioxins).</p>	<p>Risk assessment and hydrogeology work supports R10 programs and projects such as:</p> <ul style="list-style-type: none"> • Superfund and RCRA sites- assessment, response, reviews • water, drinking water, NPDES, water quality standards • wetlands, air toxics • compliance and enforcement • Endangered Species Act support • pesticide exposure and nitrates in groundwater in ag. areas • tribal exposure factors (such as fish consumption rates)
<p>Environmental Services Unit</p> <p>The Environmental Services Unit supports regional programs through: QA support by reviewing and approving Quality Assurance Project Plans; scheduling Contract Lab Program support and data quality validation; Dive Team support for various projects; asbestos sampling and analysis; biology support to EIS development; mining geochemistry support to various programs; and field support in the form of sampling and monitoring and watercraft.</p>	<p>Environmental services work supports R10 Programs in activities such as:</p> <ul style="list-style-type: none"> • inspections • quality assurance • Field and Dive team operations • asbestos sampling and analysis • mining geochemistry
<p>Environmental Characterization Unit</p> <p>The Environmental Characterization Unit provides broad scientific and technical support to regional programs, focusing on the air and water programs. It includes experts in atmospheric sciences and meteorology, aquatic ecosystems, fisheries biology, landscape ecology, hydrogeology, engineering, Geographic Information Systems (GIS), and data analysis, quality, and systems. Staff provide advice and technical assistance to state, local, and tribal agencies, other federal agencies, international organizations, and the general public. Staff participate in the development of technical guidance in their respective areas of expertise, and participate in professional organizations and conferences.</p>	<p>Environmental characterization work supports R10 programs in activities such as:</p> <ul style="list-style-type: none"> • supporting GIS and other software applications • managing national environmental databases • implementing data quality policy and planning and facilitating regional data system development • air quality modeling and impact assessment • reviewing and commenting on NEPA documents • overseeing state, local, and tribal air quality monitoring and modeling programs – e.g., FARR • developing burn ban procedures for Reservations • managing submittal of state and tribal data to databases • giving technical and programmatic oversight to state, local, and tribal water quality monitoring programs • characterizing ecosystems and conditions • managing central data exchange (CDX) network grants • technical reviews of tribal water grants

<p>Region 10 Laboratory</p> <p>The EPA Region 10 Laboratory is NELAC accredited with state-of-the-art instruments. It is staffed with expert chemists, microbiologists and staff who support the analysis of environmental and criminal samples for chemical and microbiological contaminants in a wide range of sample matrices. Staff assure proper method selection, serve as expert witnesses in criminal investigations, audit and certify states' drinking water laboratories, and develop unique methods to address specific Regional project needs. Under a Department of Homeland Security initiative, the Laboratory is a member of the Environmental Response Laboratory Network and is developing capabilities to respond to National incidents.</p>	<p>Laboratory services support R10 Programs and activities including:</p> <ul style="list-style-type: none"> • Water, Superfund, Brownfields, Enforcement • developing new methods and creating new instruments • utilizing specialty equipment for unique applications • Field and Dive Team operations
<p>Unique Functions/Expertise</p> <p>OEA's Immediate Office includes water modeling, quality assurance management, climate change, sustainability, and the liaison to the EPA's Office of Research and Development.</p>	<p>The immediate office provides technical support for R10 Programs and initiatives including:</p> <ul style="list-style-type: none"> • aquatic and temperature modeling that supports TMDL development and implementation as well as National program implementation (such as Lakes surveys) • Quality Assurance General- QMP and QAPP development and training; Superfund, RCRA and special project related sampling; QA assistance/training for grantees • Quality Assurance- tribal capacity building • Climate Change Advisor- supports climate change adaptation and mitigation for all programs including tribal-related programs and tribal-specific concerns • Sustainability Advisor- Smart growth/sustainable development workshops and assistance; systems modeling assistance to tribes to address ecosystem based issues
<p>Office of Environmental Review and Assessment Tribal Specialist: Bruce Duncan (206) 553-0218, duncan.bruce@epa.gov Environmental Assessment: http://yosemite.epa.gov/r10/oea.nsf/webpage/Environmental+Assessment</p>	



EPA Region 10 Office of Environmental Cleanup



Region 10's Office of Environmental Cleanup (ECL) is responsible for Superfund Removal and Remedial programs, the Brownfield's program, the Emergency Response and Management program, and the Federal Facility Oversight program. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The EPA conducts and supervises investigations and cleanup actions at sites where oil or hazardous substances have been or may be released into the environment. The National Priorities List (NPL) includes sites of known or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories, and assists in determining which sites warrant further investigation. There are over a hundred NPL or NPL equivalent sites in Region 10, and the majority of them affect tribal interests.

Programs & Units	Priorities & Activities
<p>Program Management Unit</p> <p>This unit provides management and technical support services for Region 10's Office of Environmental Cleanup.</p>	<ul style="list-style-type: none"> • management of grants, cooperative agreements, and interagency agreements for Technical Assistance Services for Communities, Superfund Job Training, and Environmental Workforce Development and Job Training • management of contracts for remedial, removal and emergency response actions, and state Superfund • tribal coordination and consultation assistance • response to Freedom of Information Act (FOIA) requests
<p>Site Assessment</p> <p>Site Assessment is the process that the EPA uses to gather information about and evaluate sites for potential inclusion on the National Priorities List (NPL) and other options. Generating reports called Preliminary Assessments and Site Inspections are part of the evaluation process.</p>	<ul style="list-style-type: none"> • reports are generated by the EPA or state or federal counterparts to evaluate potential sources of site contamination, pathways for releases, and potential impacts • Preliminary Assessments - typically rely on existing information to determine if site sampling is warranted • Site Inspections - typically involve a degree of field sampling and collection of additional information to determine if further action is required, including potential for listing on the NPL • the Hazard Ranking System (HRS) serves as the principal mechanism the EPA uses to place uncontrolled waste sites on the NPL. These are the most serious sites identified for possible long-term cleanup
<p>Remedial (Superfund) Cleanup Program</p> <p>Region 10's Remedial Cleanup Program (Site Cleanup Units 1, 2 and 3 and Hanford Cleanup Office) protects human health and the environment by assessing and cleaning up some of most contaminated hazardous waste sites in Idaho, Oregon, Washington, and Alaska.</p>	<ul style="list-style-type: none"> • managing and overseeing National Priority List sites and non-NPL sites and incorporating community involvement activities into most phases of CERCLA work • Non-Time Critical Removal Actions or "Early Actions" deemed necessary to protect human health or the environment prior to completing the Remedial Investigation/Feasibility Study (RI/FS) and remedy decision • consultation typically occurs at or near the completion of the Engineering Evaluation/Cost Analysis (EE/CA) phase and concludes with the issuance of an Action Memorandum

<p>Brownfields</p> <p>In addition to conducting site assessments, Region 10's Site Assessment/ Brownfield Unit works on Brownfield and Land Revitalization, balancing protecting human health and the environment with redevelopment. Many "Brownfield" sites were created when manufacturing plants or facilities closed or moved.</p> <p>The EPA supports the assessment and cleanup of these sites for re-use through funding assistance agreements. Tribes in Alaska are eligible for Brownfield State and Tribal Response Program Grants only. Alaska Village and Regional Corporations are eligible for the other types of grants listed here.</p>	<ul style="list-style-type: none"> • Brownfield State and Tribal Response Program Grants- help ensure that response programs include certain elements and maintain a public record of sites addressed • Brownfield Assessment Grants- for recipients to inventory, characterize, assess, and conduct planning and community involvement related to Brownfield sites • Brownfield Revolving Loan Fund Grants (RLF)- provide funding for recipients to capitalize a revolving loan fund and to provide sub-grants to carry out cleanup activities • Environmental Workforce Development and Job Training Grants- allow organizations to recruit, train, and place unemployed and under-employed people living in areas affected by solid and hazardous waste • Brownfield Cleanup Grants- provide funding to carry out cleanup activities at Brownfield sites. Cleanup grants require a 20% cost share, and applicants must own the site
<p>Emergency Management Program</p> <p>Region 10's Emergency Management Program (Emergency Response Unit and Emergency Preparedness and Prevention Unit) responds to remove imminent and substantial threats to human health and the environment.</p> <p>The EPA works closely with the Federal Emergency Management Agency (FEMA) and the U.S. Coast Guard to plan and prepare to respond to disasters. The EPA is the lead for Emergency Support Function #10 for natural disasters that cause hazardous substance releases and/or oil spills.</p> <p>The EPA does not have the resources or the authority to help communities with overall disaster planning or preparedness. Questions related to community disaster preparedness, planning, and recovery should be directed to FEMA.</p>	<ul style="list-style-type: none"> • Time-Critical Removal Actions - cleanup actions that are generally limited to planning periods of less than 6 months and where the environmental conditions require actions to limit acute risk to human health and the environment • Non-Time Critical Removal Actions - cleanup actions that meet the criteria for a Time-Critical Removal Action, but have planning periods longer than 6 months and include preparation of an Engineering Evaluation/Cost Analyses • Emergency Responses - conducted to provide immediate management and oversight to chemical, oil, biological and radiological releases and large-scale national emergencies, including homeland security incidents, when requested. • Oil Cleanup Actions - under the Oil Pollution Act (OPA), the EPA is the lead federal response agency for oil spills occurring in and around inland waters of the U.S. The U.S. Coast Guard is the lead response agency for spills occurring in coastal waters and deep-water ports • Spill Prevention, Control, and Countermeasures (SPCC) and Facility Response Plans (FRP) - provides the requirements for oil spill prevention, preparedness, and response to prevent oil discharges to navigable waters and adjoining shorelines by specific facilities • Emergency Response Planning - as required under the National Contingency Plan, preparedness, coordination and communication on current and emerging threats is accomplished by participating in area committees, Regional Response Teams, and other work groups and task forces
<p>Office of Environmental Cleanup Tribal Specialist: Joanne Moore (206) 553-0310, moore.joanne@epa.gov http://yosemite.epa.gov/R10/CLEANUP.NSF/webpage/Cleaning+Up+the+Pacific+Northwest+and+Alaska</p>	



EPA Region 10 Office of Management Programs



Region 10's Office of Management and Programs (OMP) manages the implementation of administrative programs and provides resource assistance to all EPA Region 10 programs. Our work includes administering grants and interagency agreements, strategic planning and fiscal management, managing infrastructure and human resources, managing information technology and Freedom of Information Act (FOIA) requests, and maintaining the Public Environmental Resources Center.

Units & Programs	Priorities & Activities
Public Environmental Resource Center	<ul style="list-style-type: none"> • maintaining environmental resources for the public • offering publications, educational material, and video loans • routing calls and questions about environmental matters
Grants and Interagency Agreements Unit	<ul style="list-style-type: none"> • administratively reviewing grant applications • issuing and closing out grant awards • providing timely and accurate grant information and administrative assistance to grant recipients • streamlining regional grants procedures • conducting grant compliance and enforcement activities • conducting on and off-site assistance reviews, baseline and advanced post-award monitoring, and audit resolution • hosting the EPA's Interagency Agreement Shared Service Center- West, reviewing and issuing ~1/2 of EPA's IAs • engaging in national workgroups regarding changes in grants and interagency agreements administration • supplementing national trainings on grants and interagency agreements management topics
Fiscal Management and Planning Unit	<ul style="list-style-type: none"> • Budget and Finance– managing regional resources, providing technical and financial expertise, guidance, and quality assurance in accordance with Agency directives • Planning – providing framework for setting, focusing and evaluating regional priorities, maintaining and revising Regional Strategic Plan, liaising with Headquarters on EPA Strategic Plan, Annual Commitment System, and National Program Management guidances
Other Units and Functions	<ul style="list-style-type: none"> • human resources and facilities • information services and resources • records and FOIA management • immediate office

Office of Management Programs Tribal Specialists:

Andrea Bennett (206) 553-1789, bennett.andrea@epa.gov / Joanne Brendle (206) 553-6385, brendle.joanne@epa.gov
Grants: <http://yosemite.epa.gov/R10/HOMEPAGE.NSF/webpage/GRANTS>



EPA Region 10 Office of Regional Counsel



The Office of Regional Counsel (ORC) provides legal representation, advice, and support to all other offices in EPA's Region 10. ORC is organized with an Immediate Office headed by the Regional Counsel and Deputy Regional Counsel, and three units supervised by Managers. Work in each unit is generally divided by statute or subject area.

Units & Programs	Priorities & Activities
<p>Immediate Office</p> <p>General Law: Grants, Ethics, Personnel Regional Judicial Officer Criminal Environmental Enforcement Indian Law</p>	<ul style="list-style-type: none"> • legal counseling on grant issues across EPA's programs • ethics counseling to EPA staff • assist with criminal enforcement under EPA's statutes • provide legal counseling regarding the interpretation and application of federal laws in Indian Country, including treaty rights and Treatment as State processes
<p>Unit 1</p> <p>Clean Air Act (CAA) Resource Conservation and Recovery Act (RCRA) Underground Storage Tanks (part of RCRA) Toxic Substances Control Act (TSCA), Emergency Planning and Community Right-to-Know Act (EPCRA), and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)</p>	<ul style="list-style-type: none"> • compliance assistance and enforcement activities regarding tribal facilities • consultation regarding enforcement response to violations by non-tribal facilities • use of tribal experts in enforcement actions against non-tribal facilities • consultation regarding cleanup options and procedures at tribal facilities or other facilities in Indian Country
<p>Unit 2</p> <p>Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/ Superfund)</p>	<ul style="list-style-type: none"> • counseling and enforcement advice for all phases of response actions under Superfund for fund-lead cleanups and cleanups conducted by potentially responsible parties • tribal consultation regarding cleanup and/or enforcement actions at Superfund sites in Indian Country
<p>Unit 3</p> <p>Clean Water Act (CWA) Safe Drinking Water Act (SDWA) Public Water Supply (PWS) National Environmental Policy Act (NEPA)</p>	<ul style="list-style-type: none"> • water quality standards approvals • supporting CWA section 401 certifications • supporting NPDES permit issuances and appeals • compliance assistance and enforcement activities regarding tribal facilities, consultation regarding enforcement response to violations by non-tribal facilities
<p>All Units</p>	<ul style="list-style-type: none"> • responses to questions from tribes about implementation of federal environmental laws in Indian Country • counseling on National Historic Preservation Act (NHPA) • other general training sessions (FARR, FIFRA, UIC, etc.)

Office of Regional Counsel Tribal Specialists:

Lisa Castañon (206) 553-0464, castanon.lisa@epa.gov / Ted Yackulic (206) 553-1218, yackulic.ted@epa.gov
Regional Counsel: <http://www.epa.gov/ogc/regional.htm>