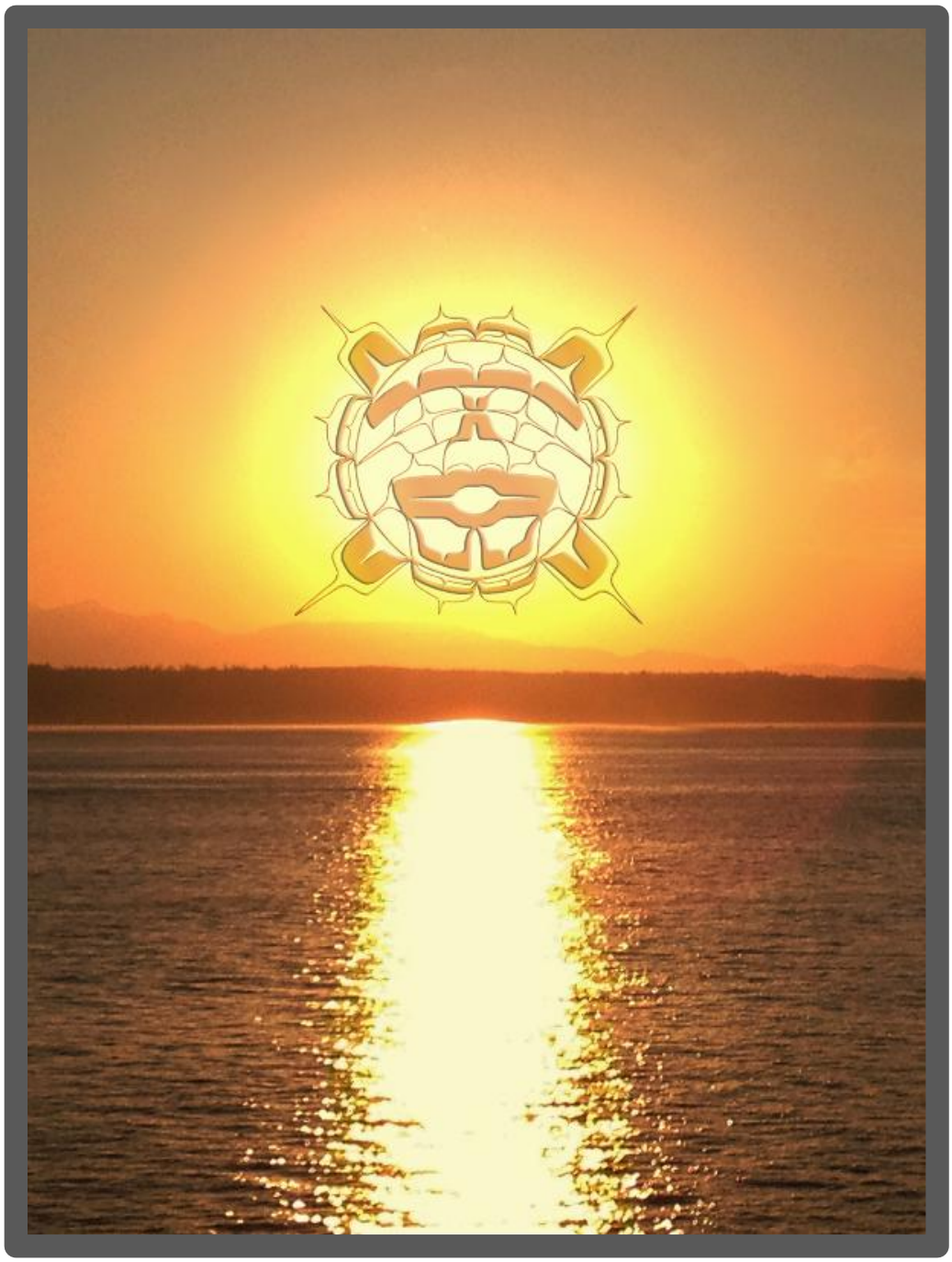
Lummi Nation Atlas

March 2018

An overview of the history, natural and economic resources, and government of the Lummi Nation



Cover art courtesy of Vincent Feliciano Jr., House of the Salish Sun Arts

Artist's Statement: My name is Vincent Feliciano Jr. I am a member of the Lummi Nation. My mother is Sheri James, an enrolled Lummi, we are of the *Lhaq te mish* (survivors of the flood). My mother's mother was Velma Jefferson (Lummi/James Town *Schel al em*) and my mother's father was Joe James (Lummi/Skagit/Duwamish). My father was Vincent Feliciano Sr., a Native from Hawaii, and his mother was Francis Feliciano.

My uncle, the late Dale James, was an internationally known master carver of the Lummi Nation and a founder of "The House of Tears Carvers". My uncle, Jewell James (Praying Wolf), is the current master carver of the Lummi Nation and the head carver of "The House of Tears Carvers". My uncles have been very influential in my path as an artist. I have learned from my uncles, and other artists, about painting and carving techniques, about Coast Salish art forms, the influential styles of the Haida and Tlingit, and many others.

As an artist, I love and respect traditional coastal art forms. This love and respect for traditional coastal art forms is best conveyed in my hand-carvings of native woods, primarily western red cedar and yellow cedar. As an artist I also enjoy adapting traditional styles and techniques to modern media. I extend coastal art by fusing the traditional with the modern incorporating photography and fashion design in expressions on cloth, canvas, paper, and leather drums using paint, silk-screening, and graphics editing software.

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Back Cover: *Looking Through the Veil With All Senses*, Copyright © Vincent Feliciano, House of the Salish Sun Arts 2014, reproduced with the permission from the artist.

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Introduction

We are the *Lhaq'temish*, “The Lummi People”. We are survivors of the great flood. With a sharpened sense of resilience and tenacity we carry on. We pursue the way of life that our past leaders hoped to preserve with the rights reserved by our treaty. We will witness and continue to carry on our *Sche langen*. We are fishers, hunters, gatherers, and harvesters of nature’s abundance and have been so since time immemorial. We are the original inhabitants of Washington's northernmost coast and southern British Columbia known as the Salish Sea and the third largest Tribe in Washington State serving a population of over 5,000. We are one of the signatories to the Point Elliot Treaty of 1855. We are a fishing Nation and for thousands of years we have worked, flourished and celebrated life on the shores and waters of the Salish Sea.

In 1855 our ancestors signed the Point Elliot Treaty ceding lands to the United States government in exchange for our Reservation lands and guarantees to retain the rights to hunt, fish, and gather at our usual and accustomed grounds and stations and traditional territories. We have exercised these rights since time immemorial and intend to maintain these rights for our children into perpetuity.

We are a Sovereign Nation and Self-Governing Nation. We are governed by an elected eleven member Lummi Indian Business Council (LIBC), various commissions, and the General Council composed of voting age enrolled members that elect the LIBC. The LIBC provides policy direction to numerous administrative departments including the Office of the Reservation Attorney, the Cultural Resources, Economic Development, Police, Education, Health, Planning, and Natural Resources departments. The Lummi Reservation is adjacent to Whatcom County; the LIBC and other combined tribal enterprises combined is the third largest employer in the Whatcom County region.

We understand the challenge of respecting our traditions while making progress in a modern world. We know we must to listen to the wisdom of our ancestors, to care for our lands and waterways, to educate our children, to provide family services, and to strengthen our ties with the outside community. We continue to invest in our tribal economic development and training our people to use the most modern technologies available while staying attentive to our tribal values.

We envision our homeland as a place where we enjoy an abundant, safe, and healthy life in mind, body, society, environment, space, time, and spirituality where all are encouraged to succeed and none are left behind. This Atlas is an overview of the space we have created for ourselves. It is an overview of the history, natural and economic resources, and government of the Lummi Nation. Within its pages you will gain an understanding of our people and our homeland, but more importantly you will gain an understanding of our mission statement: to Preserve, Promote and Protect our *Sche langen*.

Timothy Ballew II
Tribal Chairman

LUMMI NATION

TREATY OF 1855

Lummi Indian Business Council Contact Information

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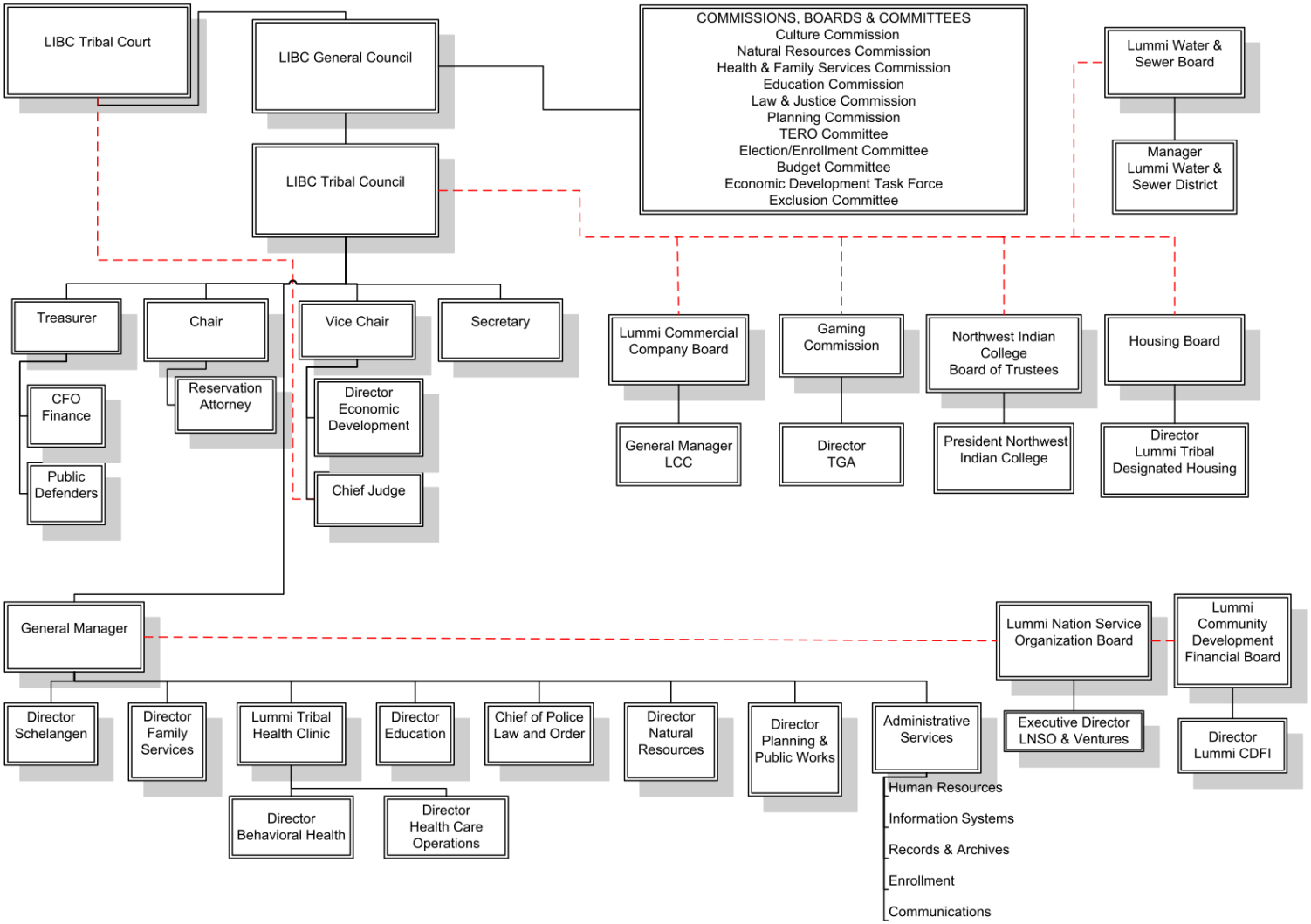
Dedication of the Healing Pole at the Pentagon during September 2004. Three totems were carved by the "House of Tears" carving studio and dedicated at each of the airplane crash sites in memory of the September 11, 2001 attacks on the United States.

Lummi Indian Business Council Organizational Chart

Lummi Indian Business Council Organizational Chart (abridged) April 21, 2010



Overview

General Location of the Lummi Indian Reservation (Map 1)

The Lummi Indian Reservation (Reservation) is located approximately eight miles west of Bellingham, Washington; 90 miles north of Seattle, Washington; and 60 miles south of Vancouver, in British Columbia, Canada. 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 peninsula of Sandy Point; the floodplains and deltas of the Lummi River (a.k.a. Red River) and the Nooksack River; Portage Island; and associated tidelands.

The Reservation is located at the mouth of the Nooksack River and along the western border of Whatcom County, Washington. The Nooksack River drains a watershed of approximately 786 square miles, flows through the Reservation near its mouth, and discharges to Bellingham Bay (and partially to Lummi Bay during high flows). The Reservation is located at the southern extent of Georgia Strait and the northern extent of Puget Sound.

Over 32 miles of highly productive marine shoreline surround the Reservation on all but the north and northeast borders. Much of the high-density development to date has occurred along the marine shoreline. The Reservation also features relatively low topographic relief and a temperate marine climate. Today, the Reservation uplands encompass approximately 13,500 acres and the tidelands encompass approximately 10,500 acres.

History

Prior to the arrival of European Americans during the 1800s, the ancestors of the present day Lummi Indians occupied a large territory that included much of the San Juan Islands, as well as the coastal lands from the Fraser River south to the environs of Seattle. The relative ease of transportation along regular seasonal migration routes to fishing sites, berry and other harvesting grounds, game hunting areas, waterfowl hunting sites, and winter villages accounted for the large geographic territory. This broad use of many different sites, sometimes roughly overlapping with other Indian tribes and First Nation bands, was a key feature of Coast Salish peoples (Suttles 1974). These lands and waters were of immense cultural significance as they relate to the genesis stories and the subsequent history of the Lummi Nation. This territory was a "homeland" vital to the cultural identification and material existence of the Lummi people; the territory provided resources to sustain them as a group.

The Lummi People made wide use of the resources of the territory for their own ceremonial and subsistence purposes and for a broad and generalized trade with others in the area during the aboriginal and protohistorical periods (c. 1780s to c. 1850). Long-standing Lummi cultural patterns, or "traditions", included complex interlocking and overlapping concepts of individual and corporate (village, band, tribal) ownership of their territory. Thus, individuals and families owned the rights to use certain resource and settlement sites, but ownership incurred broader obligations to distribute significant portions of any surplus throughout the Indian community. The Lummi People were dependent on specific sources of freshwater for their occupation of settlement and certain resource-gathering sites (Friday 2003). Ceremonies and legends related to salmon and salmon fishing, with names such as “The First Salmon Ceremony” and the “Tale of the Salmon Woman”, have been passed down through generations and provide evidence of the sacred relationship between the Lummi culture and salmon. The Lummi Indian Reservation was created in 1855 by the Treaty of Point Elliot, the full text of which is available in Appendix A and at www.lummi-nsn.gov/pointelliotttreatyof1855.html.

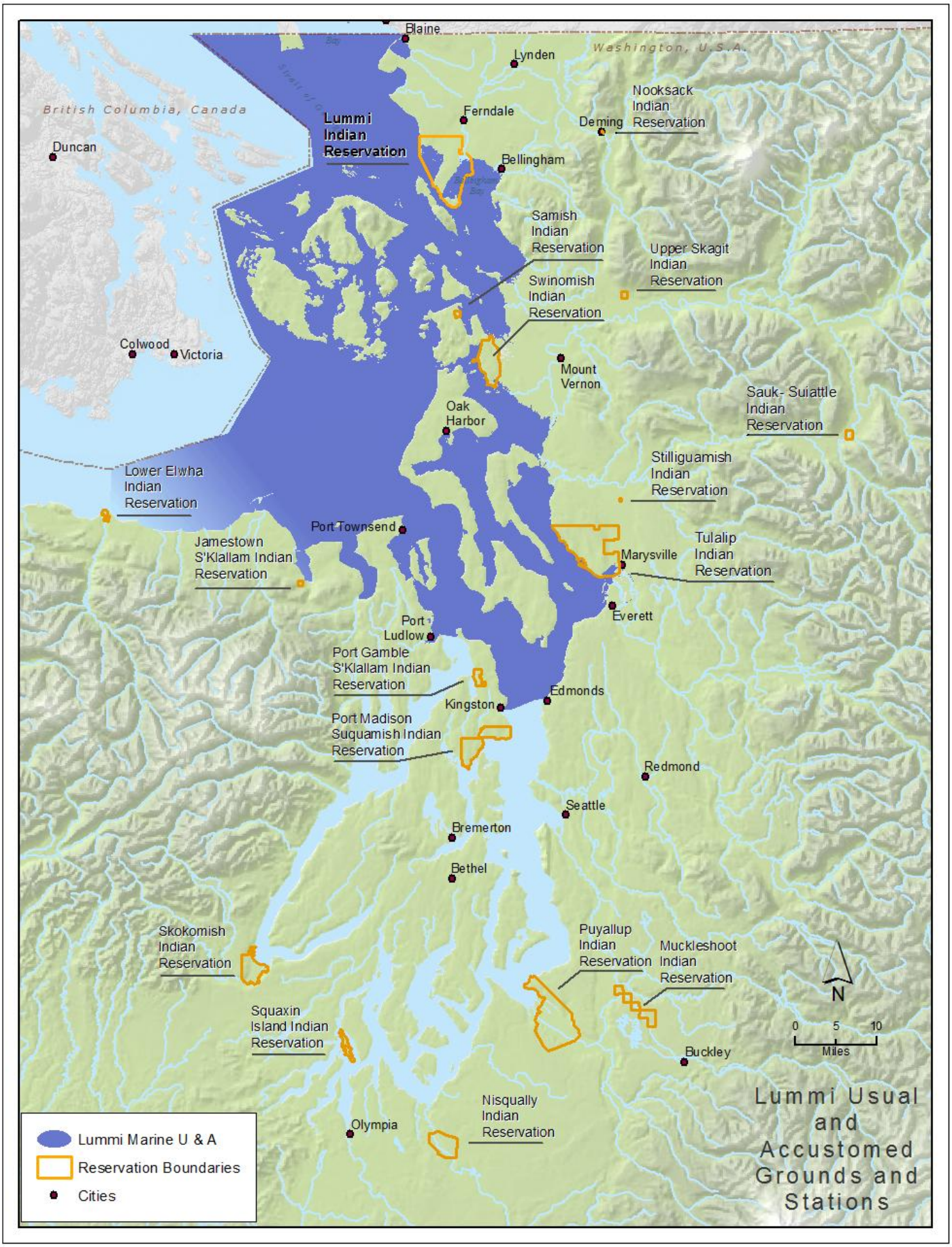
Map 1. General Location of the Lummi Indian Reservation

Usual and Accustomed Grounds and Stations (Map 2)

The phrase “Usual and Accustomed Grounds and Stations” (U&A) comes from Article 5 of the Treaty of Point Elliott, which was signed in 1855 and ratified by the United States Senate in 1859.

Indian tribes in Washington State who signed treaties with the United States in the mid-1850s retained the right to “fish” at all “usual and accustomed grounds and stations” (U&A). That is, where they had traditionally harvested water dwelling animals and plants before the treaty. Usual and accustomed areas refer to fishing activities and are not applicable to hunting and gathering activities on terrestrial areas, which are governed by other portions of the treaty. The U&A includes the shoreline areas involved in the fishing activities, as well as access to the water across uplands. All saltwater, freshwater, tidelands, and stream banks in western Washington north of a line from Olympia to the south shore of Gray’s Harbor are within the U&A of one or more Indian tribes. Tribal members are allowed to exercise their treaty-protected harvest rights only within their tribe’s U&A and only with permission of their tribe. Each tribe regulates the harvest by its members, including requiring tribal identification, setting season and gear restrictions, policing the harvest, and accounting for the catch. Like most northwestern tribes, the Lummi Nation has a relatively small Reservation and a large U&A.

The federal courts have reaffirmed treaty-reserved rights of tribes to fish throughout their U&A. An example is the 1974 decision in *United States v. Washington* (1975) (known as the Boldt Decision after Judge George Boldt), which reaffirmed the validity of the treaties and of the Tribes’ treaty right to harvest up to half of the harvestable number of salmon (and non-anadromous species of finfish) returning to Washington waters. A similar ruling in 1994 extended the recognized treaty right to shellfish harvest (known as the Rafeedie Decision after Judge Edward Rafeedie) (*United States v. Washington* 1994). Since shortly after 1974, the treaty Indian tribes in western Washington have co-managed the fishery resources in their U&A together with the State of Washington. Tribes have sole management authority over fish harvests on their respective reservations. Although there have been conflicts, in general, the tribes and state have had numerous successes in implementing cooperative natural resource management efforts to protect, restore, and enhance the productivity of natural resources in Washington.



Map 2. Lummi Nation Usual and Accustomed Grounds and Stations

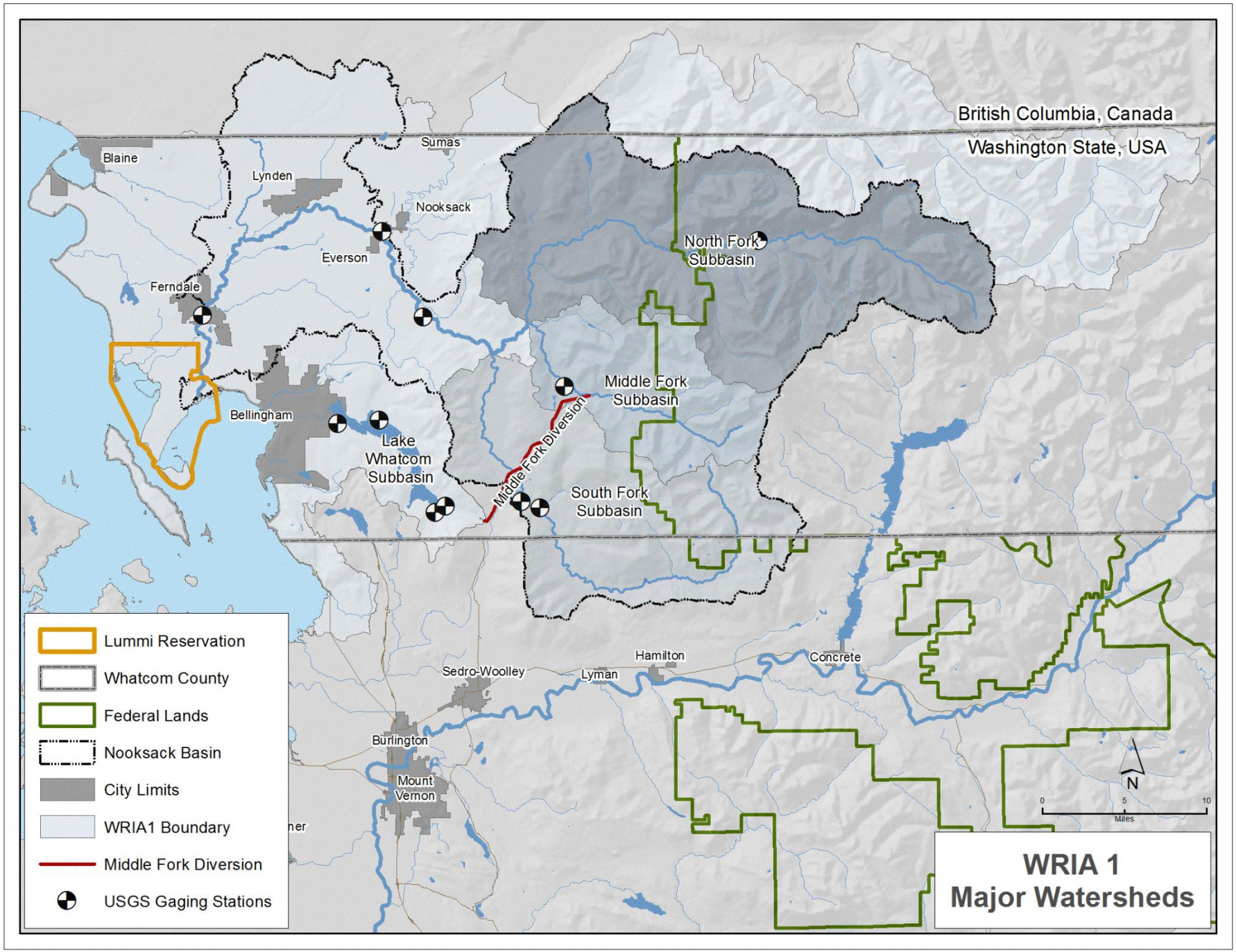
Nooksack River Watershed (Map 3)

The Nooksack River watershed comprises approximately 786 square miles in northwestern Washington State – largely within Whatcom County. The watershed is within Water Resources Inventory Area No. 1 (WRIA 1). The North, Middle, and South forks of the river originate on federally managed lands in the Cascade mountain range near Mount Baker and collectively form the Nooksack River near the town of Deming, Washington. Near Deming the land use transitions from forestry to agriculture. Associated with this change in land use is an increase in flood protection projects and floodplain development that have isolated floodplain wetlands, degraded riparian conditions, and halted habitat formation along the mainstem Nooksack.

During historic times, the Nooksack River had a broad delta that discharged water through distributary channels to both Lummi and Bellingham bays. This led to a mosaic of estuarine habitats that was associated with strong and diverse salmon runs. Subsequent diking and draining of the estuarine wetlands has greatly reduced the habitat, although the active portion of the Nooksack delta is still largely pristine and is one of the most rapidly evolving features in Puget Sound. Although the Lummi River is currently a largely disconnected distributary of the Nooksack River, before 1860 it was the dominant distributary channel and Lummi Bay the dominant receiving water body. Lummi Bay is now home to productive salmon and shellfish hatcheries, and shellfish harvests in the bay are an important ceremonial, subsistence, and economic activity for many Lummi tribal members.

The Nooksack watershed hosts nine species of salmonids, including three listed under the Endangered Species Act (ESA): chinook, steelhead, and bull trout. The Nooksack salmon populations also appear to provide critical genetic diversity to the Puget Sound, where Nooksack chinook populations are one of only five geographic areas considered essential for recovery of the Puget Sound evolutionarily significant unit (ESU). Unfortunately, many of the Nooksack salmon populations have declined substantially from historic levels and only 3 of 25 salmonid stocks identified in WRIA 1 by Washington State Salmonid Stock Inventories are currently considered healthy. Habitat degradation is considered the leading cause for the decline of WRIA 1 salmonid populations with current habitat conditions substantially less productive than historic conditions.

High quality water is critical to maintaining productive natural resources. As part of the United States Clean Water Action Plan, both the Lummi Natural Resources Department (LNR) and the Washington Department of Ecology (Ecology) conducted unified watershed assessments of WRIA 1. In 1998, both agencies classified WRIA 1 as a “Category I” watershed that does not now meet, or faces imminent threat of not meeting, clean water and other natural resource goals. The 2004 303(d) lists prepared by Ecology indicates that a number of water quality parameters including fecal coliform, temperature, dissolved oxygen, and sediment still do not meet the applicable water quality standards for various water bodies in the watershed. Instream flow levels established by Ecology in 1986 are also generally not achieved and much of the watershed is closed to further water withdrawals to protect existing instream flow levels.



Map 3. Nooksack River Watershed

Lummi Indian Reservation Overview (Map 4)

The Lummi Indian Reservation (Reservation) is comprised of both upland and tideland areas. The Reservation uplands comprise approximately 13,500 acres and the resource-rich tidelands (LNR 2010) comprise approximately 10,500 acres. The Reservation is a low-lying landscape with few steep slopes and little topographic relief. Elevations on the Reservation range from approximately -4.5 feet Mean Lower Low Water (ft MLLW) to about 220 feet above mean sea level. The higher elevations occur mostly on the Lummi Peninsula and in the northwest portions of the Reservation. These two large upland areas are separated by the low-lying floodplain of the Lummi River. The Nooksack River floodplain lies along the eastern portions of the Reservation. These floodplain areas support large, interconnected wetland systems. Lummi Island, located across from Hale Passage, is not part of the Reservation.

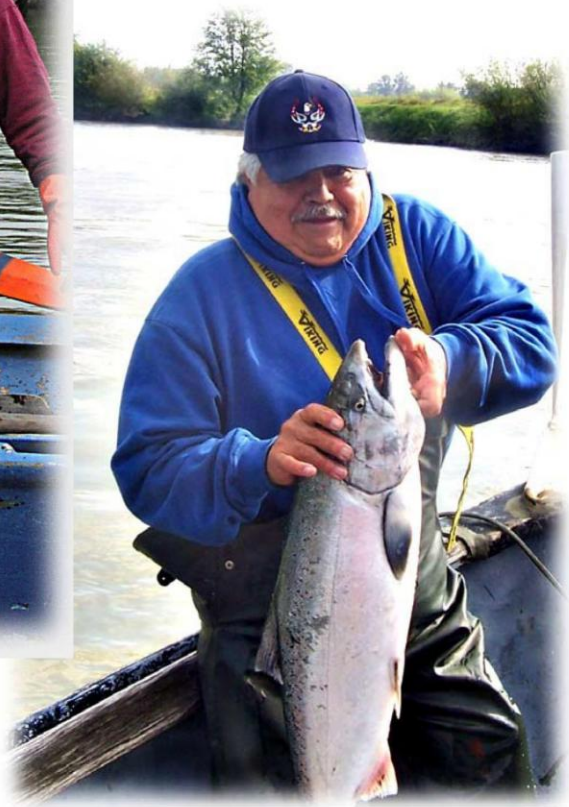
Lummi People

The Lummi People traditionally lived near the sea and in the mountain areas, returning seasonally to their longhouses located at a number of sites around the San Juan Islands, Whatcom County, and southwestern Canada. Smoking and sun-drying were used to preserve many kinds of foods including camas bulbs, berries, clams, oysters, crab, salmon, trout, elk, deer, bear, and many other land and sea plants and animals. Western red cedar trees were used to fashion art, clothing, longhouses, baskets, canoes, and cookware.

Changes away from the traditional diet have resulted in increased rates of diabetes, cancer, heart attacks, high blood pressure, and tooth decay (Welty 1991). Many Lummi people still rely on salmon fishing and shellfish harvesting as a means of subsistence and income, although in the last 25 years harvest levels have dropped significantly due to a decline in fish populations.

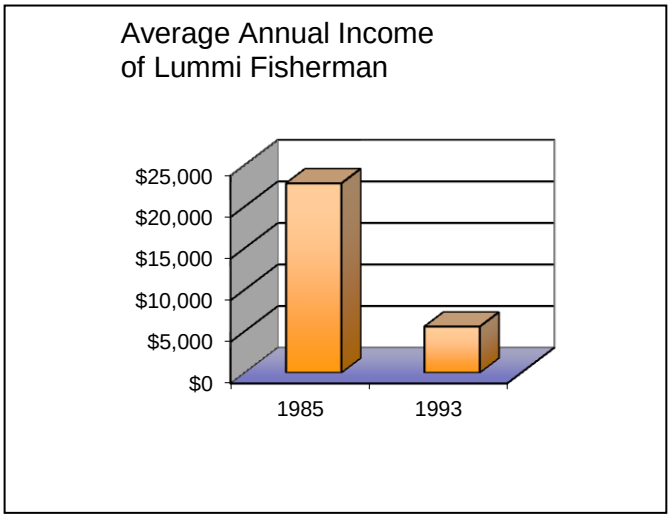
A number of factors have contributed to changes in Reservation population and demographics since 1855. The sale of Reservation lands to non-Lummis and the resulting immigration of non-Lummis increased the Reservation population between 1855 and 1960. Between 1857 and 1932 the removal of Lummi children to attend school in Tulalip and other off-Reservation sites and the relocation of Lummi people to urban areas in the 1950s and 1960s reduced the number of Lummi tribal members on the Reservation. Since 1960 there has been a significant increase in the Lummi and non-Lummi populations on the Reservation. The Lummi population increase is due to improved economic conditions within the community, the beginning of tribal self-governance, the increased rate of home construction, the development and improvement of potable water distribution and wastewater collection and treatment systems, and a renewed sense of Lummi cultural identity. There are approximately 4,650 enrolled tribal members. Nearly 2,650 enrolled Lummi tribal members live on the Reservation.

Map 4. Lummi Indian Reservation Overview



Lummi Indian Reservation Community Facilities (Map 5)

The Lummi Nation is the largest fishing tribe in Puget Sound. However, the recent declines in salmon stocks have dramatically altered the tribal dependence on salmon fishing as an economic mainstay. In 1985, the average Lummi fisherman made $22,796 ($49,500 in 2013 dollars). In 1993, the average income from fishing was only $5,555 ($9,000 in 2013 dollars). During the 1980s, about 30 percent of the tribal workforce relied on fishing for their sole source of income. Since 1993, further reductions in salmon stocks have resulted in closure of some fisheries and a further reduction in tribal fishery incomes (LIBC 1996). In recent years, the annual value of the Lummi Nation fishery has declined from a high of over $11 million in 1985 ($24 million in 2013 dollars) to an average during a representative harvest year of approximately $5 million in 2001 ($6.6 million in 2013 dollars).



The Lummi government (the Lummi Indian Business Council [LIBC]) and affiliated enterprises (e.g., Silver Reef Hotel, Casino & Spa; Northwest Indian College; Lummi K-12 School) is the third largest employer in the Whatcom County area. Although most of the LIBC and affiliated enterprises employees are tribal members, numerous non-Lummis are also employed by the Lummi Nation. The LIBC provides community, administrative, education, material resources management, natural resources management, cultural resources management, and health services to the tribal population in order to help achieve the tribal economic and social development goals. These goals include protection and enhancement of natural and cultural resources, 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 and gaming. Revenue generation is needed in order for the Lummi Nation to develop economic self-sufficiency. The Lummi Nation Statistics Department estimated that 43.1 percent of Lummi families living on the Reservation during 2004 were living at or below 100 percent of the Federal Poverty Level. The results of a survey of enrolled tribal members conducted by the LIBC in 2005 (LIBC 2005) indicated that 16 percent of adult tribal members were unemployed in 2005.

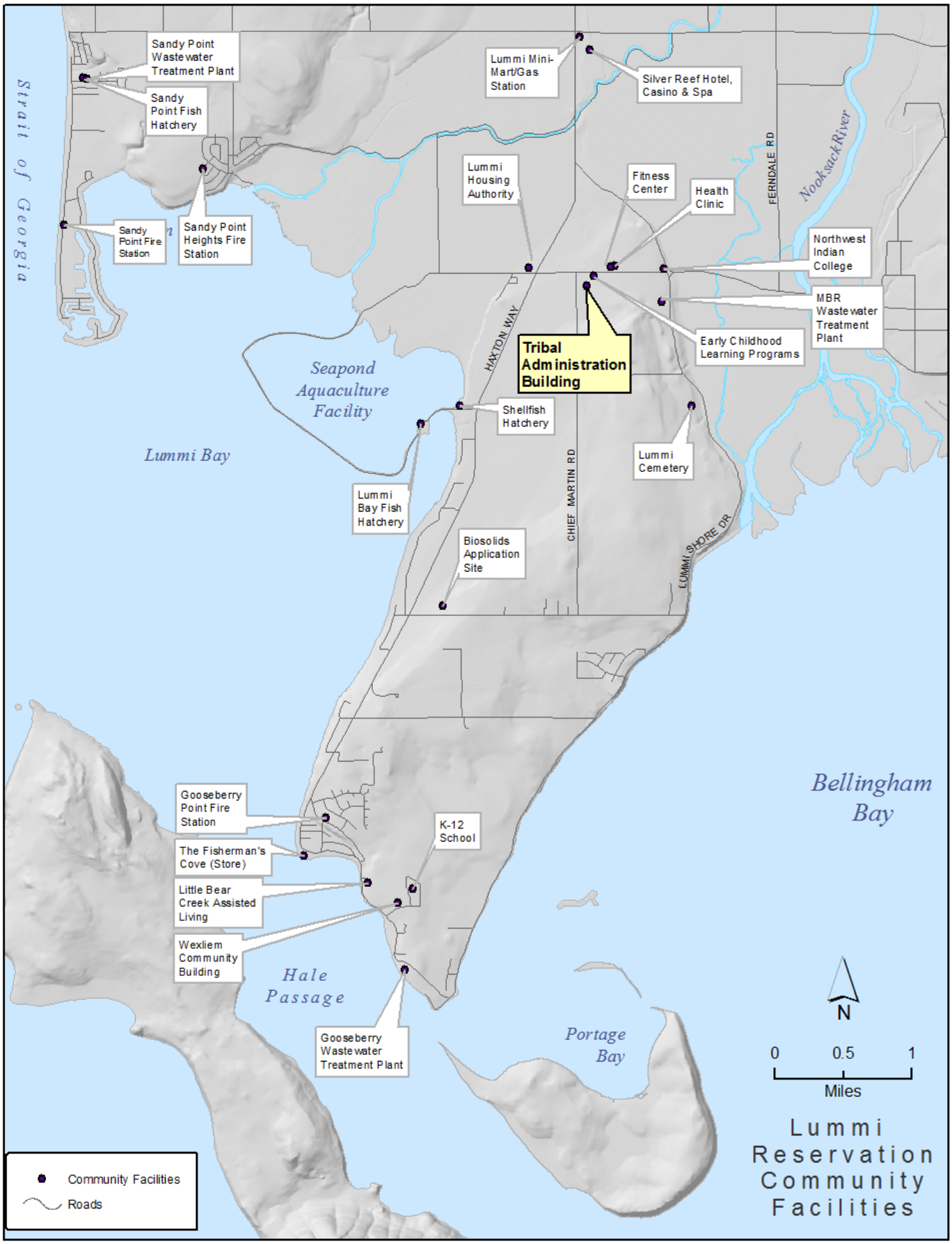
The Lummi Casino project began in 1983 in an effort to diversify the Reservation economy. The casino operation was upgraded significantly in 1994 with the opening of the Lummi Casino at Fisherman's Cove. The casino flourished initially, employing approximately 400 people, 65 percent of whom were Native 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. A second hotel tower is currently under construction. The LIBC also operates a gas station and minimart adjacent to the Silver Reef Hotel, Casino & Spa.

Other employment opportunities exist at the two nearby petroleum refineries and the aluminum smelter north of the Reservation, and in the communities of Ferndale and Bellingham. In addition, there were 248 business licenses issued for the Reservation during 2012, most of which are home-based businesses including seasonal fireworks stands.

The Lummi Nation was one of the first Indian tribes in the United States to participate in the federal government Self-Governance project. This project, which began with the “Indian Self Determination and Education Assistance Act of 1975”, allowed Indian tribes to take over the administration of programs formerly controlled by the federal government (e.g., education, medical services, construction, realty, natural resources, and law enforcement). Under the Self-Governance program, the Lummi Nation has established a tribal business assistance center, a cultural resources protection department, a youth program, and has helped fund a volunteer fire department, scholarships, a tribal court, and other tribal programs related to natural resources, forestry, seniors, and veterans (LIBC 2003). A $24 million K-12 school was completed in 2004 and a $32 million new tribal administration building was completed in 2013 to replace obsolete tribal government offices and consolidate services.



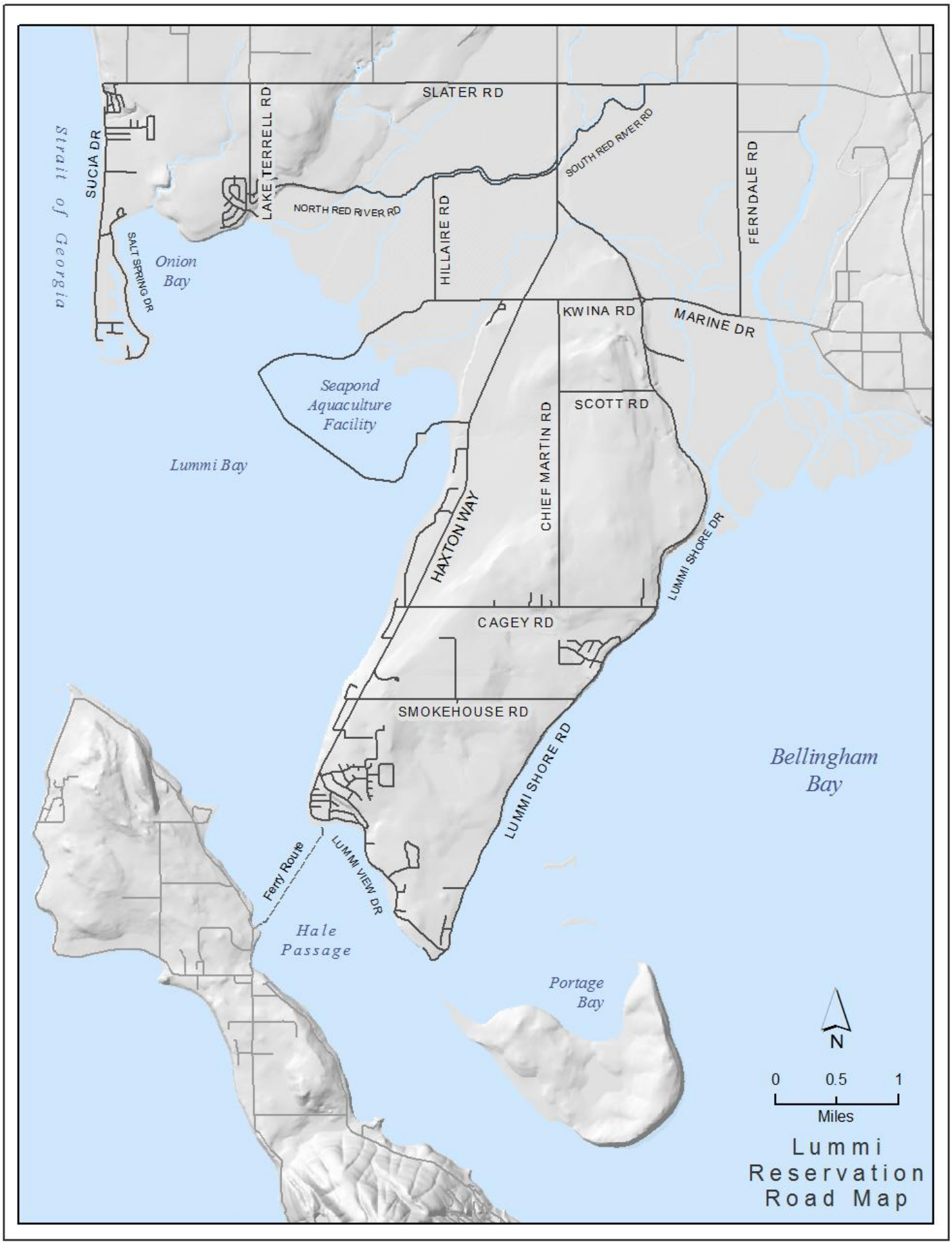
Map 5. Lummi Indian Reservation Community Facilities

Lummi Indian Reservation Roads (Map 6)

Approximately 65 miles of public roads provide access within the Lummi Indian Reservation. Slater Road, which is along the northern Reservation border, services the majority of east-west traffic with direct access to the Interstate 5 corridor. Haxton Way, Lummi View Drive, and Lummi Shore Road form a loop around the Lummi Peninsula and provide major north-south access to the tribal center, the densely populated neighborhoods near Gooseberry Point, and the Lummi Island Ferry Terminal operated by Whatcom County under the terms of a lease agreement with the Lummi Nation. There are no improved roads on Portage Island.

Roads within the Reservation boundary are categorized as either Whatcom County roads or Bureau of Indian Affairs (BIA) roads. Whatcom County is responsible for maintaining 92 percent of the Reservation roads. The remaining nine percent of roads (approximately 5.1 miles) are maintained by the Lummi Nation. The BIA roads, part of the National Indian Reservation Roads Inventory, are primarily spur roads that provide access to tribal member housing developments, aquaculture, or tribal specific utilities. County roads and BIA roads are assigned functional class values, which consider road surface, traffic volumes, connections to other roads, community access, and generally indicate the importance of the road as a traffic corridor.

The 2010 Lummi Transportation Plan Update, which is available from the Lummi Nation Planning and Public Works Department, provides a comprehensive analysis of Reservation roads including detailed descriptions of individual roads, classification definitions, traffic volumes, planned improvements, and future needs.



Map 6. Lummi Indian Reservation Road Map

Natural Resources

Lummi Indian Reservation Watersheds (Map 7)

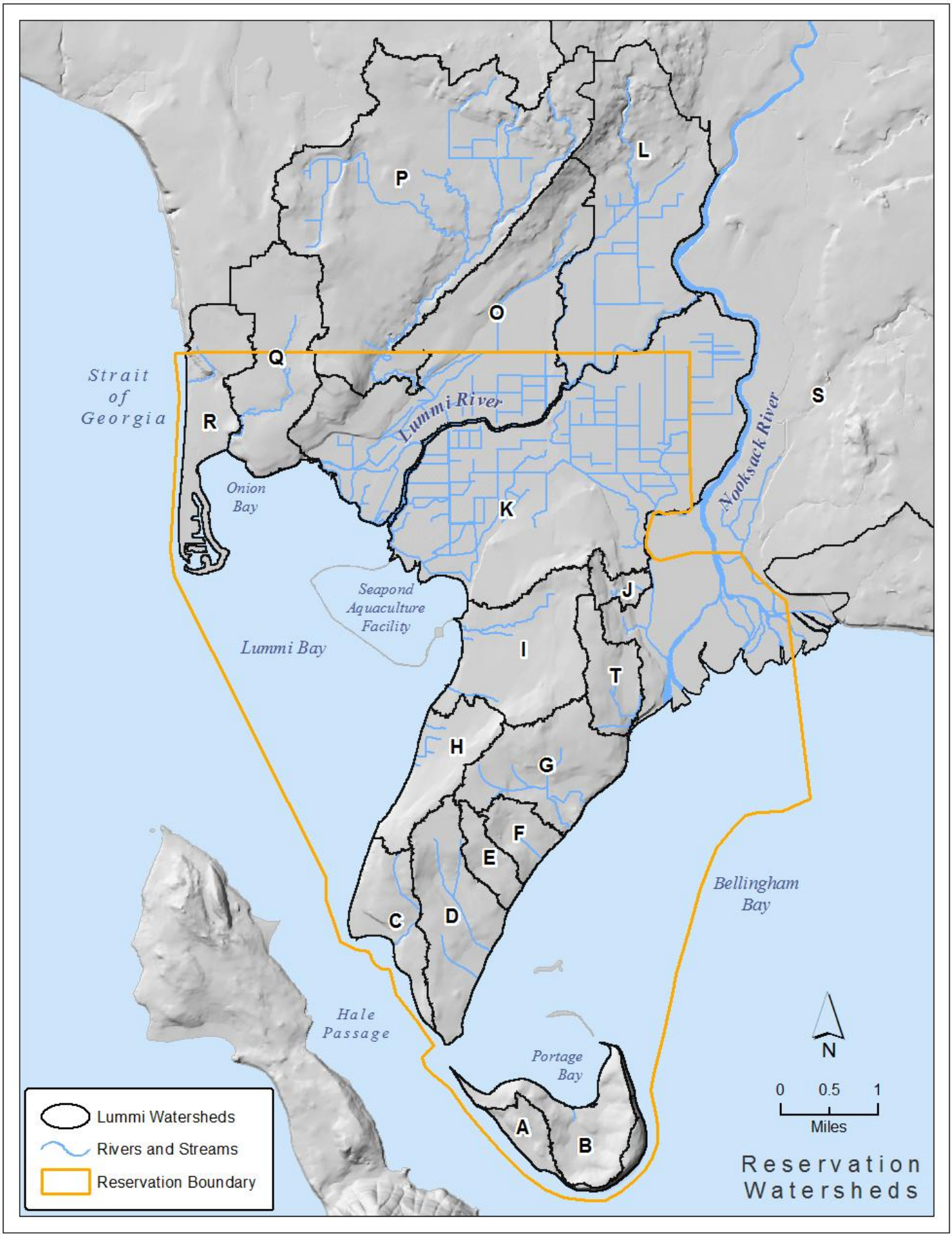
A watershed is a land area defined by topography that is drained by a stream system. Until recently, watershed boundaries were delineated using U.S. Geological Survey (USGS) topographic maps and drawing lines by hand to connect the ridgelines shown by the contour lines. The hand drawn lines were then digitized and incorporated into a Geographic Information System (GIS). In 1998 Lummi Water Resources staff defined 18 watersheds using USGS topographic maps with a 20-foot contour interval (vertical accuracy of ±10 feet). Desktop computers using digital surface models and GIS software now automate the delineation of watershed boundaries.

In 2010 a Light Detection and Ranging (LiDAR) digital surface model was created for the Reservation and surrounding areas from LiDAR data collected in 2005. To collect the LiDAR data, an airplane affixed with a scanning range-finding laser made repeated flights over the Reservation and adjacent areas. The LiDAR flight resulted in approximately 116 million elevation sample points with an average density of 5 sample points every 100 ft^2. In contrast to the older USGS maps, the LiDAR-based digital surface model has a vertical accuracy of ±1.3 feet.

The 2010 LiDAR surface model was used to delineate watershed boundaries for those areas that contribute to the overland flow of water on the Reservation. First, the storm water facilities inventory was used to edit stream course and drainage ditch data, and define locations of culverts under roadways hidden from the LiDAR. After the surface model was corrected to include stream channels and road-culvert crossings, a GIS was used to define new watershed boundaries.

The eighteen watersheds defined for the Lummi Reservation range in size from 86 acres to 4,696 acres except for the Nooksack River watershed, which is approximately 520,000 acres. The Reservation watersheds were identified by alphabetic letters (A through T) on an interim basis. It is anticipated that names will be assigned to the watersheds over time.

For more information about the Reservation watersheds, see the updated Lummi Indian Reservation Storm Water Management Program Technical Background Document (LWRD 2011) available from the Natural Resources Department (http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=81).



Map 7. Lummi Indian Reservation Watersheds

Climate and Average Annual Precipitation (Map 8)

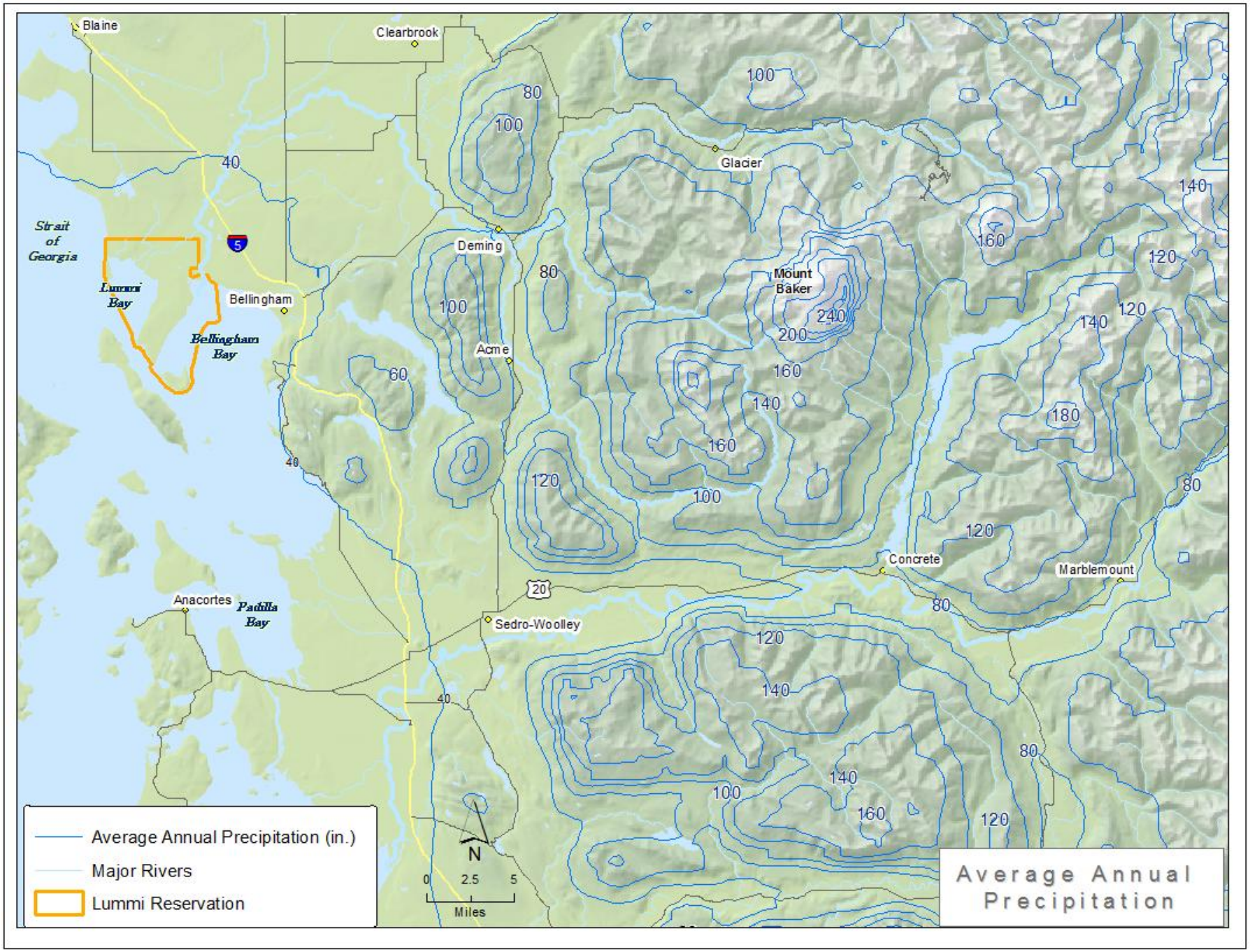
Pacific Northwest (PNW) climate and ecology are largely shaped by the interactions that occur between seasonally varying weather patterns and the region's mountain ranges.

Approximately 75 percent of the region's precipitation occurs in just half the year (October-April) when the PNW is on the receiving end of the Pacific storm track. Much of this precipitation is captured in the region's mountains, influencing both natural and human systems throughout the PNW. Precipitation is generally light during the summer, increases in the fall, peaks in December, and then decreases through the spring with a slight increase in May and June followed by a sharp drop near the first of July. From late spring to early fall, high pressure to the west generally keeps the Northwest fairly dry. These seasonal variations are related to changes in large-scale atmospheric circulation occurring over the Pacific Ocean, including the Gulf of Alaska.

Mild year-round temperatures, abundant winter rains, and dry summers characterize climate in the low-lying valleys west of the Cascades. Average annual precipitation in most places west of the Cascades is more than 30 inches. Precipitation in the mountains is much higher. The western slopes of the Olympic and Coast mountain ranges – the first recipients of winter storms – typically receive about 118 inches per year, with some locations on the Olympic Peninsula exceeding 200 inches per year. Average annual precipitation in the Cascades typically exceeds 100 inches or more. The Cascades are often among the snowiest places on Earth.

Based on climate data collected at Bellingham 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. Wind data for Bellingham indicates that the prevailing wind direction on the Reservation is from the south and southeast, with gusts upward of 80 miles per hour.

There are four weather stations in Whatcom County that have collected precipitation and temperature data over an extended time period: Bellingham, Blaine, Clearbrook, and Glacier.



Map 8. Average Annual Precipitation

Lummi Indian Reservation Geology (Map 9)

The Lummi Indian Reservation is comprised of Pleistocene (Ice Age) ocean and river deposits blanketed by more recent deposits from the Nooksack River. During the Pleistocene, 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 fine silt and clay, along with sand, gravel, and larger rocks that dropped from the melting ice. As sea level dropped and the glaciers receded, the water from the melting ice flowed across western Whatcom County and carried clay, silt, sand and gravel to the ocean. Once the glaciers had melted far enough, 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, resulting in the physical geography that we observe today.

The geologic layers of the Reservation are summarized below, from youngest to oldest.

Alluvium: Alluvium is derived from sediment carried by the Lummi and Nooksack rivers and deposited on the floodplain and Reservation tidelands. It is comprised mostly of clay, silt, sand, and some gravel.

Beach Deposits: Beach deposits are laid down 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, at Gooseberry Point, and near Fish Point.

Older Alluvium: Older alluvium was deposited by the Lummi and Nooksack rivers 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.

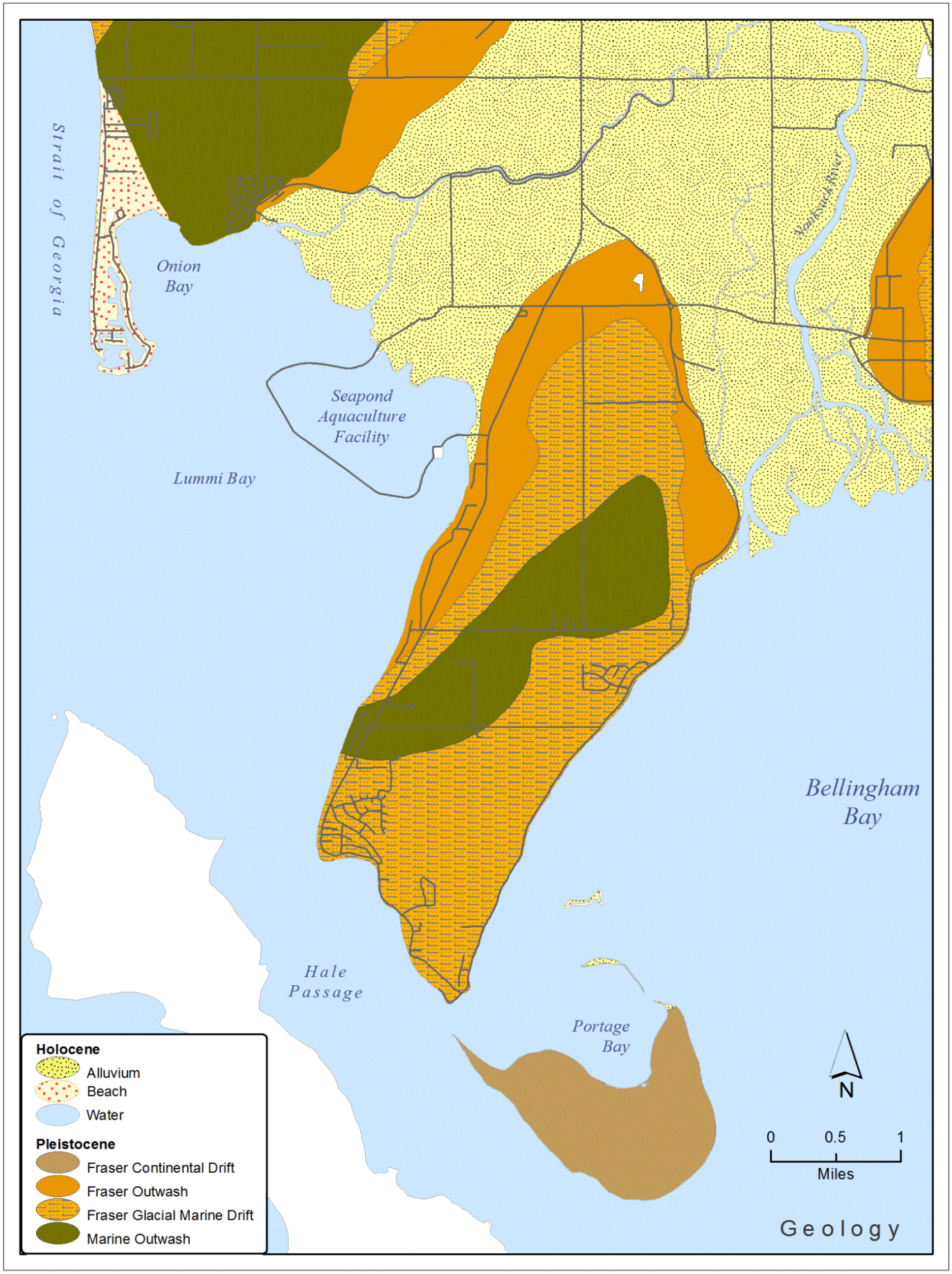
Glaciomarine Drift: The Glaciomarine Drift unit was deposited late in the Fraser Glaciation (from about 20,000 years ago to about 10,000 years ago [Easterbrook 1973]). The drift is comprised of unsorted clay, silt, sand, gravel, and some cobbles and boulders. The deposits include both Kulshan and Bellingham drifts.

Glacial Till: 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 (Easterbrook 1976), 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.

Cherry Point Silt: The Cherry Point Silt unit is the oldest known unconsolidated stratigraphic unit in the northern Puget Sound lowland. This unit is comprised of a thick sequence of blue to brownish gray stratified clay and silt with minor sandy beds.

Bedrock: 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.



Map 9. Lummi Indian Reservation Geology

Lummi Indian Reservation Soils (Map 10)

Differences in temperature, precipitation, vegetation, slope, time, and parent material each play an important role in the soil formation process. Slight variations in these factors can change the characteristic of the soil and alter the soils texture, permeability, chemical composition, vegetation, and potential land use.

Scientists have identified seventeen general soil units in Whatcom County, eight of which are found on the Lummi Indian Reservation (USDA 1992). Each of these eight soil units can be further divided into soil types; there are forty different soil types identified on the Reservation.

The eight general soil units on the Reservation and their general characteristics are the following:

Mt. Vernon-Puyallup: Very deep, moderately well drained, nearly level soils; 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; on floodplains, deltas, and tidal flats lower than twenty feet of elevation.

Kickerville-Barston-Everett: Very deep, well drained and somewhat excessively drained, level to very steep soils; on outwash terraces and glacial moraines.

Lynden-Hale-Tromp: Very deep, well drained to somewhat poorly drained, level to gently sloping soils; on outwash terraces at 50 to 300 feet in elevation.

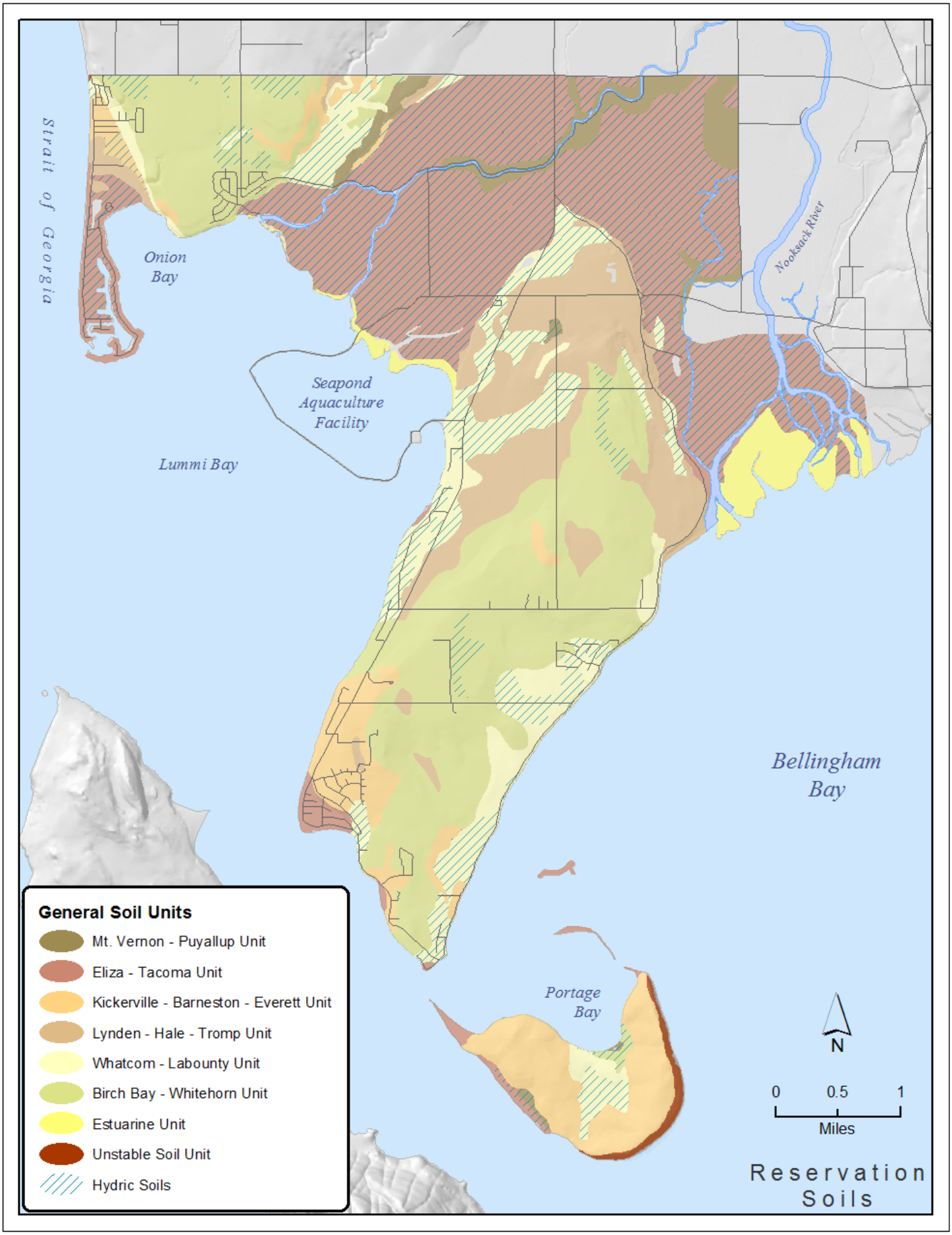
Whatcom-Labounty: Very deep, moderately well drained and poorly drained level to very steep soils; dominantly on glaciomarine drift.

Birchbay-Whitehorn: Very deep, moderately well drained and poorly drained, level to gently sloping soils; on glaciomarine drift plains.

Estuarine Unit: Very deep, poorly drained, level, on tidal flats.

Unstable Soil Unit: Moderately deep to very deep, well drained soils, very steep slopes, on mountainsides, canyonsides, and ridges.

Hydric Soil: Soil that is permanently or seasonally saturated by water, resulting in anaerobic conditions, as found in wetlands.



Map 10. General Soil Units of the Lummi Indian Reservation

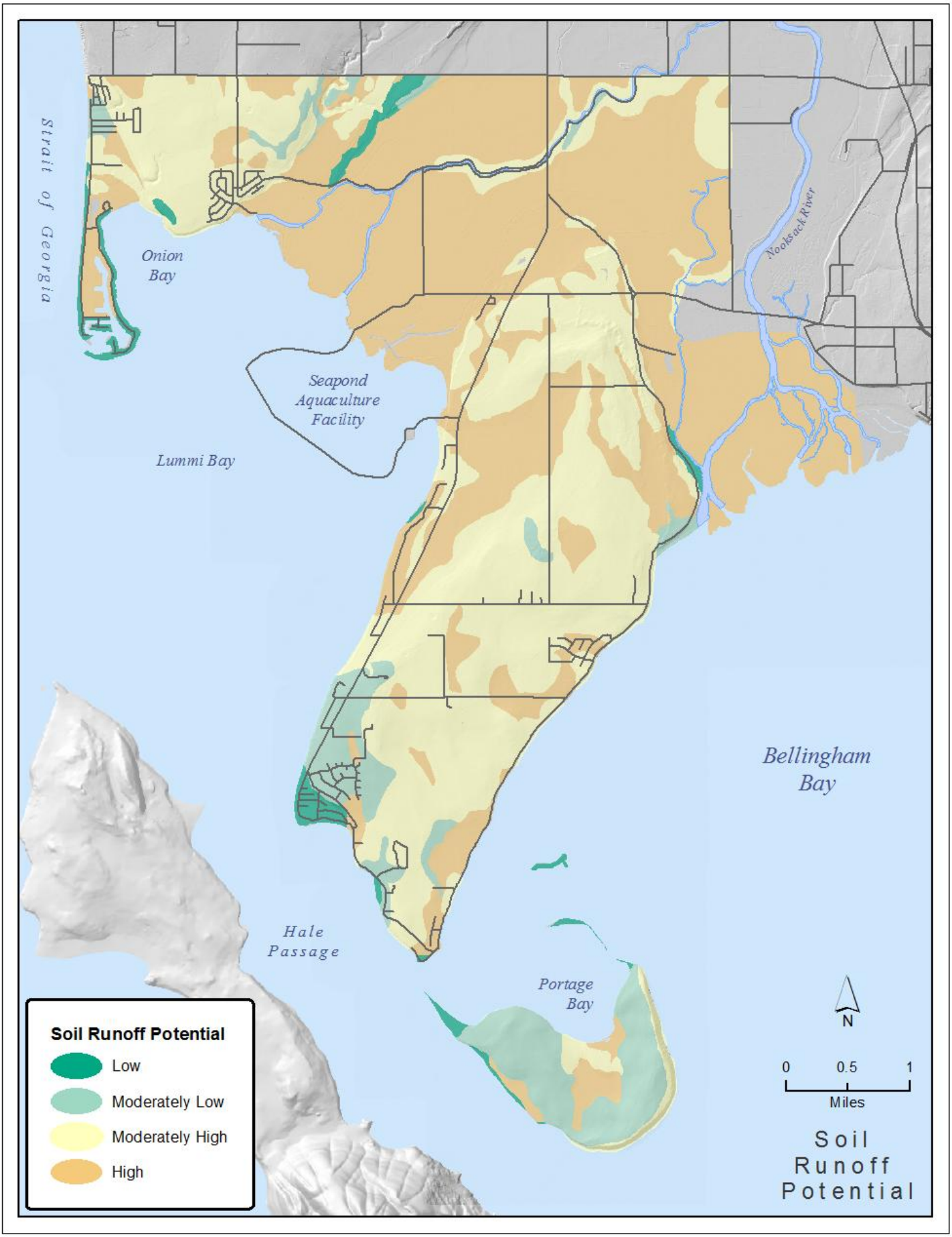
Lummi Indian Reservation Soil Runoff Potential (Map 11)

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) described each of the 40 different soil types identified on the Lummi Indian Reservation (USDA 1992). As part of the characterization, the USDA assigned each soil type to one of four hydrologic soil groups based on their runoff producing potential. 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 (USDA 1970) to estimate runoff volumes and hydrographs for specified storms. The primary consideration in assigning soils 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 the table below.

As shown below, about 13 percent of the soils on the Reservation have a low or moderately low runoff potential (Group A or Group B). The remaining 87 percent of the Reservation soils have a moderately high or high runoff potential (Group C or Group D). These soil characteristics suggest that less than 15 percent of the Reservation uplands have a good aquifer recharge potential and highlights the importance of effective storm water management.

For more information, see the Lummi Reservation Storm Water Management Program Technical Background Document (LWRD 2011), which provides additional discussion of soil groups and runoff characteristics. The report is available from the Natural Resources Department of the Lummi Indian Business Council at http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=81.

Hydrologic Soil Group	Description	Percent of Reservation Soils
A	Soils having high infiltration rates even when thoroughly wetted, consisting chiefly of deep (3-6+ ft) 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.	2.7
B	Soils having moderate infiltration rates when thoroughly wetted and 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.	10.0
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 a slow infiltration rate. These soils have a slow rate of water transmission and a moderately high runoff potential.	40.4
D	Soils having very slow infiltration rates when thoroughly wetted consisting chiefly of 1) clay soils with a 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.	46.9



Map 11. Runoff Potential of Lummi Indian Reservation Soils

Lummi Indian Reservation Storm Water Facilities (Map 12)

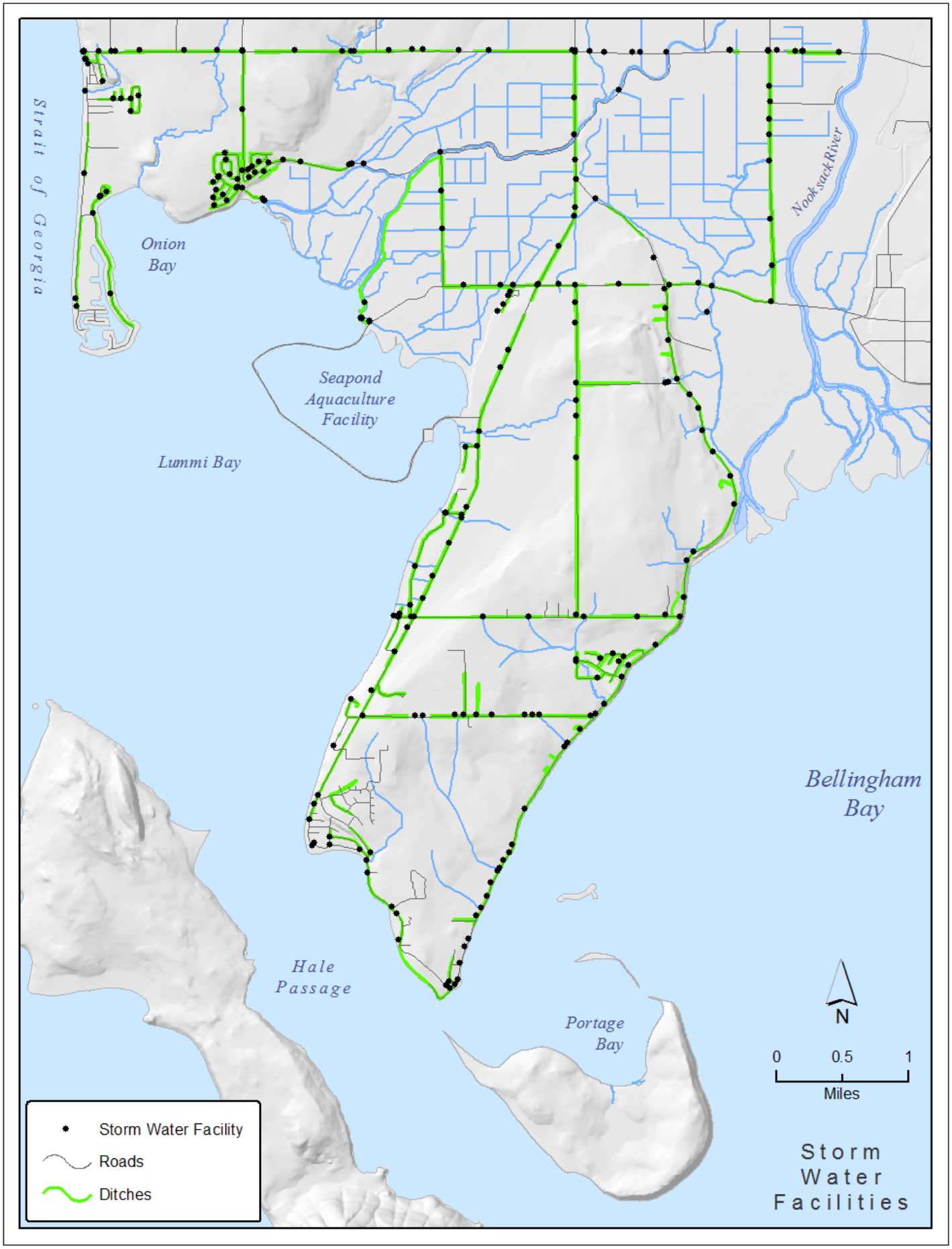
An inventory of storm water facilities on the Reservation was conducted during February and March 1997 and updated during October 2010. Storm water facilities are defined as culverts, bridges, tide gates, catch basins, roadside ditches, and agricultural ditches. During the 1997 inventory, water was flowing in all or most of the roadside and agricultural ditches. Some of the facilities were completely underwater during initial visits and were revisited later in the year when the water had receded.

The purpose of the inventory was to:

1. Identify and map the locations of culverts and bridges on the Reservation;
2. Identify and map the locations of roadside and agricultural ditches on the Reservation;
3. Describe the storm water facilities (i.e., diameter, material, condition); and
4. Identify the flow paths of water as it drains from upland areas and the floodplain to determine how each culvert or bridge is related to other culverts, bridges, roadside ditches, agricultural ditches, streams, sloughs, wetland areas, and marine waters.

Whatcom County is responsible for the maintenance of most of the roads and associated storm water drainage systems on the Reservation. Consequently, prior to starting the storm water facilities inventory, the field inventory data sheets and aerial photographs from the culvert inventory conducted by Whatcom County in 1984 were reviewed. Although the Whatcom County data were useful, they were dated (over ten years old) and inaccurate in areas where only limited field verification was conducted. In addition to providing more accurate and up-to-date information, the new inventory also allowed the flow direction(s) in ditches and channels, as well as the interrelations between culverts, to be observed. The inventory indicated that at least 48 culverts along the upland parts of the Reservation discharge storm water directly to marine waters or to the floodplain.

The Lummi Reservation Storm Water Management Program Technical Background Document (LWRD 2011) provides a complete discussion of storm water facilities, quantity, and quality. The report is available from the Natural Resources Department of the Lummi Indian Business Council at http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=81.



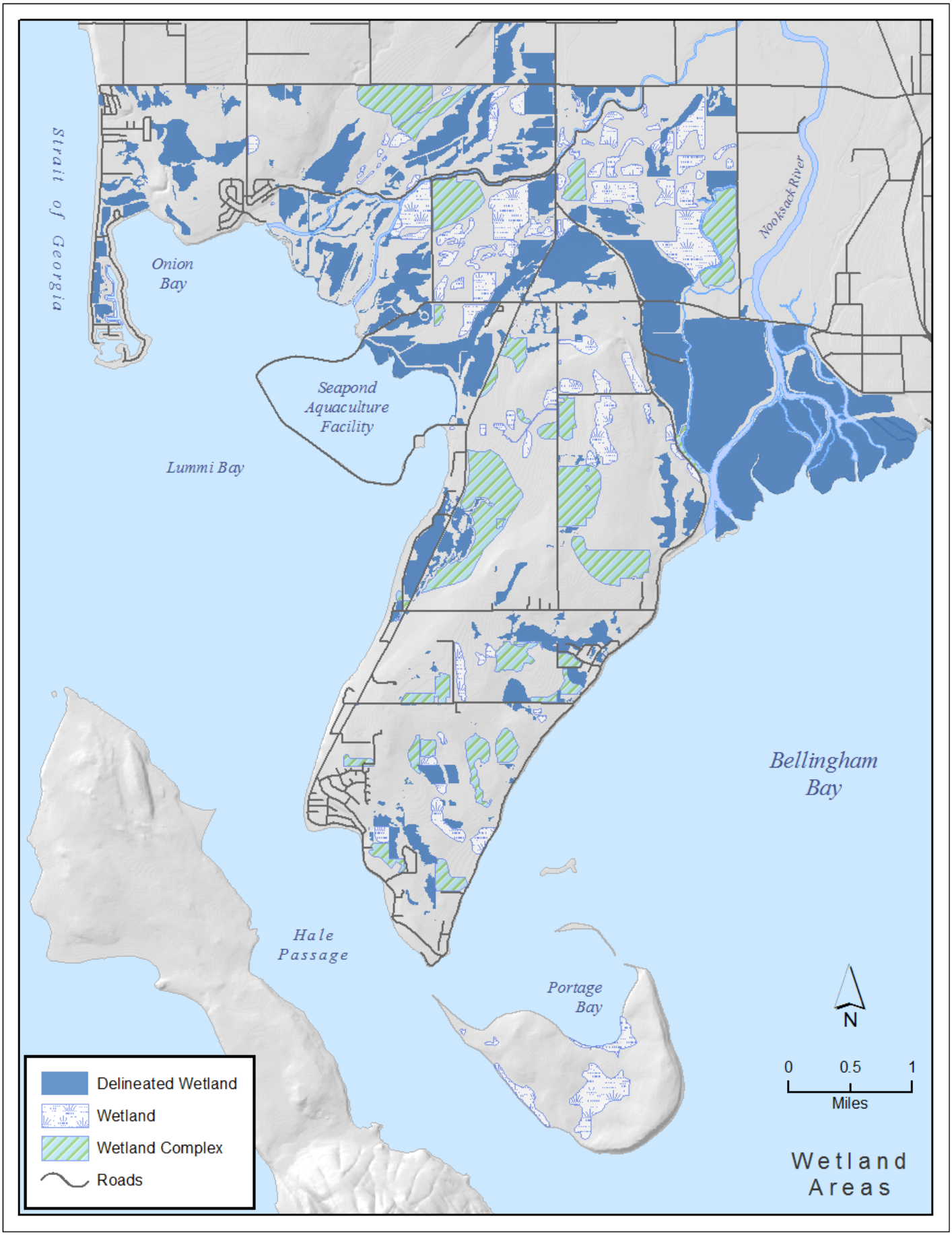
Map 12. Storm Water Facilities on the Lummi Indian Reservation

Lummi Indian Reservation Wetland Areas (Map 13)

The Lummi Natural Resources (LNR) staff, with training and oversight provided by a consulting firm specializing in wetland management, completed an inventory of Reservation wetlands. Data were collected and analyzed in the spring and summer of 1999. The study resulted in a report that provided baseline data on wetland location and characteristics in order to better inform wetland policy and future development planning. The report provides technical information that is used by LNR staff in making planning and management decisions to help protect and enhance the wetlands that are a commonly held resource of the Lummi Nation. During the study, 214 wetlands or wetland complexes were mapped, totaling 5,432 acres, or roughly 40 percent of the land area of the Reservation (excluding tidelands). Wetland complexes are areas where wetlands form a highly interspersed mosaic with upland hummocks. The wetlands areas map shows the outer boundary of the wetland complex and the entire area is labeled “wetland complex”. As a result, the estimated wetland area identified in the inventory represents more wetland area than actually exists. About 50 percent of the wetlands are over 10 acres in size, and 13 percent are over 50 acres in size.

The primary goal of the 1999 inventory was to improve the Reservation wetland inventory and provide more accurate information than the National Wetland Inventory (USFWS 1977). The 1999 inventory attempted to locate every wetland on the Reservation, by aerial photograph interpretation (visible and near infra-red), map review, or direct field reconnaissance. Because some wetlands were only mapped using aerial photographs, there is a continuing effort to ground truth wetland boundaries using GPS technologies and categorize each wetland into one of four categories based on characteristics. Map 13 shows the ground-truthed wetland areas in solid blue. To date, 2,546 acres of wetlands have been ground-truthed.

For additional information regarding the wetlands of the Lummi Indian Reservation see the Wetland Management Program Technical Background Report. The report is available from the Natural Resources Department of the Lummi Indian Business Council at http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=84.



Map 13. Wetland Areas on the Lummi Indian Reservation

Lummi Indian Reservation Groundwater Quality (Map 14)

The U.S. Geological Survey (USGS) characterized the Reservation groundwater resources in the mid-1970s (Cline 1974). The Reservation groundwater was further characterized by a several hydrogeological consulting firms in the 1990s (Golder 1992) and in the early 2000s (Aspect Consulting 2005). All of these characterizations found that the Reservation aquifers are threatened by lateral and vertical saltwater intrusion. In addition, potable groundwater is available only within limited areas of the Reservation.

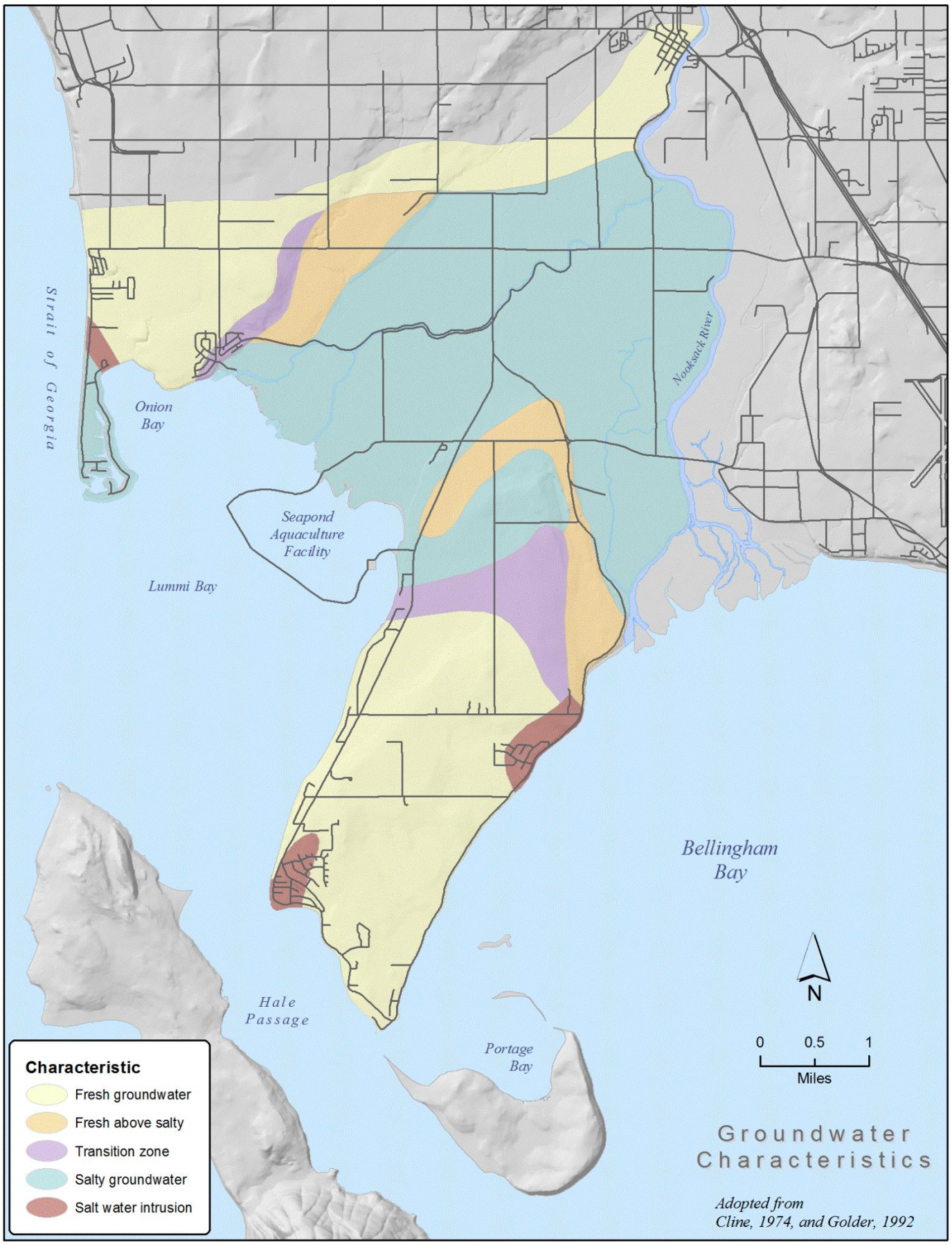
The following excerpt is taken directly from the USGS report (Cline 1974):

> *The investigations showed that both fresh and salty ground water underlie the reservation. This water is sometimes stratified, with the freshwater lying above the salty water…. Although serious, saltwater intrusion has not yet been detected on the reservation, some wells may be showing the first signs of it, such as at Gooseberry Point. There, the chloride content of the water from the two public-supply wells has been slowly increasing, from 24 milligrams per liter in 1968 to 110 milligrams per liter in 1972. Increased ground-water withdrawals in the future on the reservation will increase the chances of saltwater intrusion. The quantity of ground water withdrawn on the reservation in 1972 was about 41 million gallons, about double that in 1965.*

A follow up report written in 1992 by Golder Associates, Inc., titled "Report to LIBC on Water Quality Evaluation of the Lummi Indian Reservation" concluded:

> *Intrusion of saline marine waters (defined as having chloride concentrations greater than 250 mg/L) into the freshwater aquifer on the Lummi Peninsula is increasing in the Gooseberry Point area as compared to a previous USGS investigation in 1971, and is moving inland towards the MacKenzie-1 well.*
>
> *Preventative management of ground water within the Lummi Reservation is recommended to maintain present ground water quality in existing production wells. It is clear that the water quality at the major pumping center on the Peninsula is threatened by saline intrusion.*

In addition to the risk of salt water intrusion, groundwater monitoring and testing has demonstrated that naturally occurring arsenic levels exceed Safe Drinking Water Act standards at several locations on the Reservation including the northwestern upland areas, the Sandy Point peninsula, the northern parts of the Lummi Peninsula, and along the northwestern shoreline areas of the Lummi Peninsula.



Map 14. Groundwater Quality of the Lummi Indian Reservation

Lummi Indian Reservation Well Production (Map 15)

Groundwater in the Reservation aquifers is obtained primarily from outwash deposits of sand and gravel in the unconsolidated glacial sediments, which are generally 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, which restricts the recharge to the underlying aquifer.

Two separate potable groundwater systems occur on the Reservation. One system is located in the northern upland area. This northern system flows onto the Reservation from the north and drains to the west, south, and east (Aspect Consulting 2009a). 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 (Aspect Consulting 2003). The floodplain of the Lummi River and Nooksack River, which contains a surface aquifer that is saline (Cline 1974), separates the two potable water systems. 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.

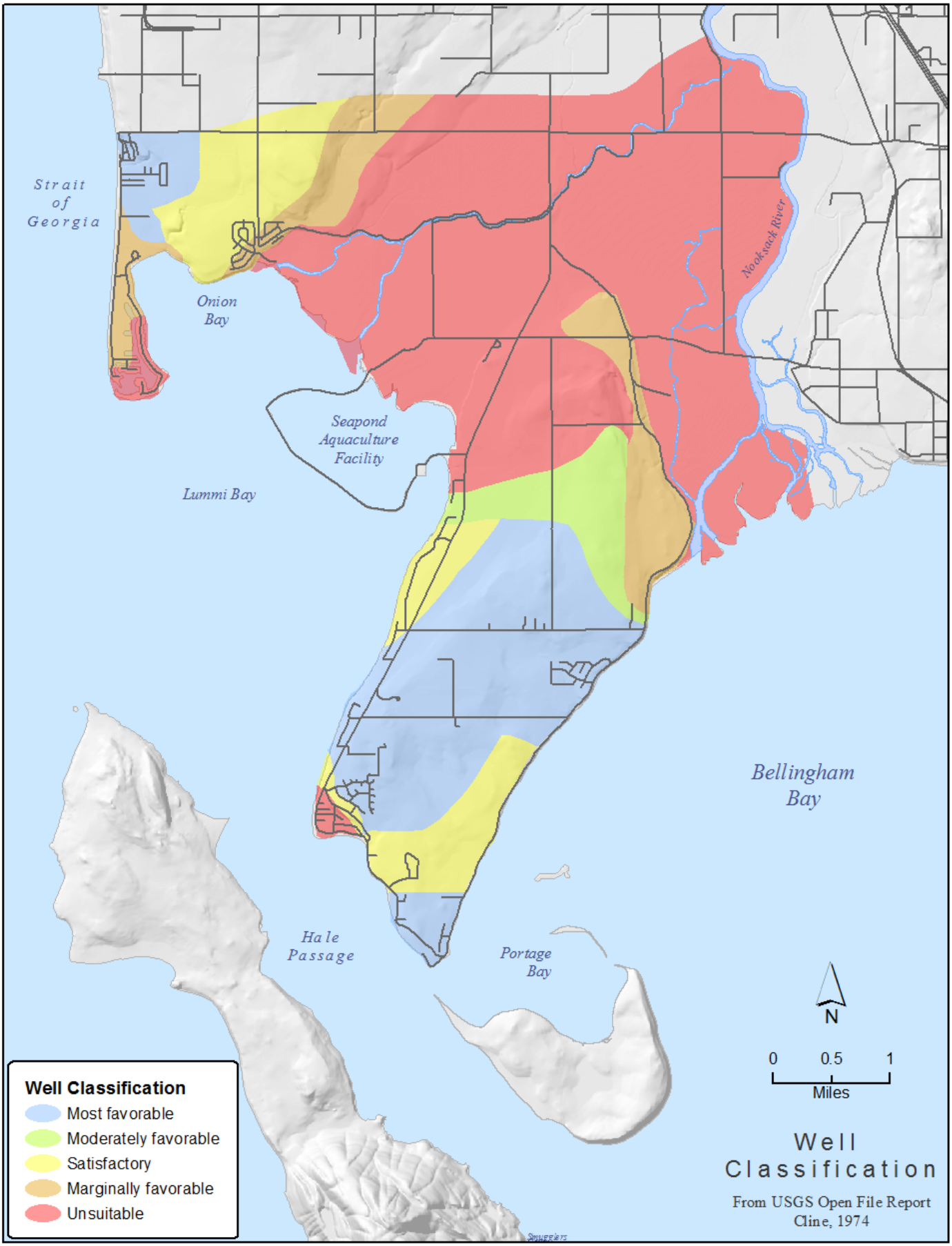
In general, both the northern and southern groundwater systems contain two aquifer types (Washburn 1957, Easterbrook 1976). The upper aquifer type is comprised primarily of lenses of sand or sand and gravel that are in or above the glaciomarine drift. These relatively permeable lenses are not continuous 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 variable and generally 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.

As reported by the U.S. Geological Survey (USGS) (Cline 1974), groundwater is generally obtained from sand or sand and gravel deposits. Most of the wells tap the water-bearing deposits which are located below clay layers. The clay layer can range in thickness from 2 feet to over 100 feet in places. The thick clay layer affords a level of groundwater protection if it is immediately around the well but likely thins where the aquifer is recharged. Although the protective clay deposits are present where many of the wellheads are located, there are several wells where the clay layer is absent.

The groundwater yield of wells on the Reservation is generally low and can vary over short distances. Groundwater wells on the Reservation generally yield from less than 1 gallon per minute (gpm) to approximately 60 gpm (Cline 1974). The highest yield reported on the southern upland area (i.e., Lummi Peninsula and Portage Island) is about 60 gpm. There is a limited area in the western section of the northern upland area of the Reservation where higher yields have been encountered. Three wells with reported yields greater than 200 gpm are located near the southeastern corner of Neptune Circle. Although these three wells have relatively high yields, the yields reported for three wells near the western side of Neptune Circle (approximately 0.1 mile distance) range from 25 gpm to 30 gpm. Wells located approximately 0.25 miles to the east were not productive.

The USGS reported (Cline 1974):

> *The two areas which appear to be the most favorable for developing fresh ground-water supplies – based on subsurface geology, present well yields, water levels, and water quality – are near Neptune Beach in the northwestern part of the reservation and in the south-central part of the Lummi Peninsula….*
>
> *The three areas that are unsuitable for the development of even very limited supplies of fresh ground water are generally underlain by salty ground water. In some places, such as at Sandy Point, if the ground water is not already salty, there is a great potential for saltwater intrusion to occur with the pumping of any well. In addition to the problem of poor-quality ground water, wells yield little or no water in some places, such as at Gooseberry Point.*



Map 15. Production Characteristics of Lummi Indian Reservation Wells

Lummi Indian Reservation Wells and Wellhead Protection Areas (Map 16)

Wells

Wellheads and/or the groundwater resources on the Reservation have been inventoried by the U.S. Geological Survey (USGS) and others on several occasions since the late 1940s (Newcomb et al. 1949, Washburn 1957, Cline 1974, Charles Howard and Associates 1991, Golder 1992, Drost 1996, and Aspect Consulting 2003). The information from these inventories, along with information collected by the Lummi Water Resources Division staff since 1991, was used to identify the wellhead locations on the Reservation. In addition, information from the previous USGS work and well logs obtained from the Washington State Department of Ecology were used to identify the locations of wells north of the Reservation in the watersheds that contribute surface water to the Reservation. Wells located beyond the exterior boundaries of the Reservation were inventoried because they may share an aquifer serving the Reservation. See the Lummi Nation Wellhead Protection Program 2011 Update report (LWRD 2011) for more information. The report is available from the Natural Resources Department of the Lummi Indian Business Council at http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=83.

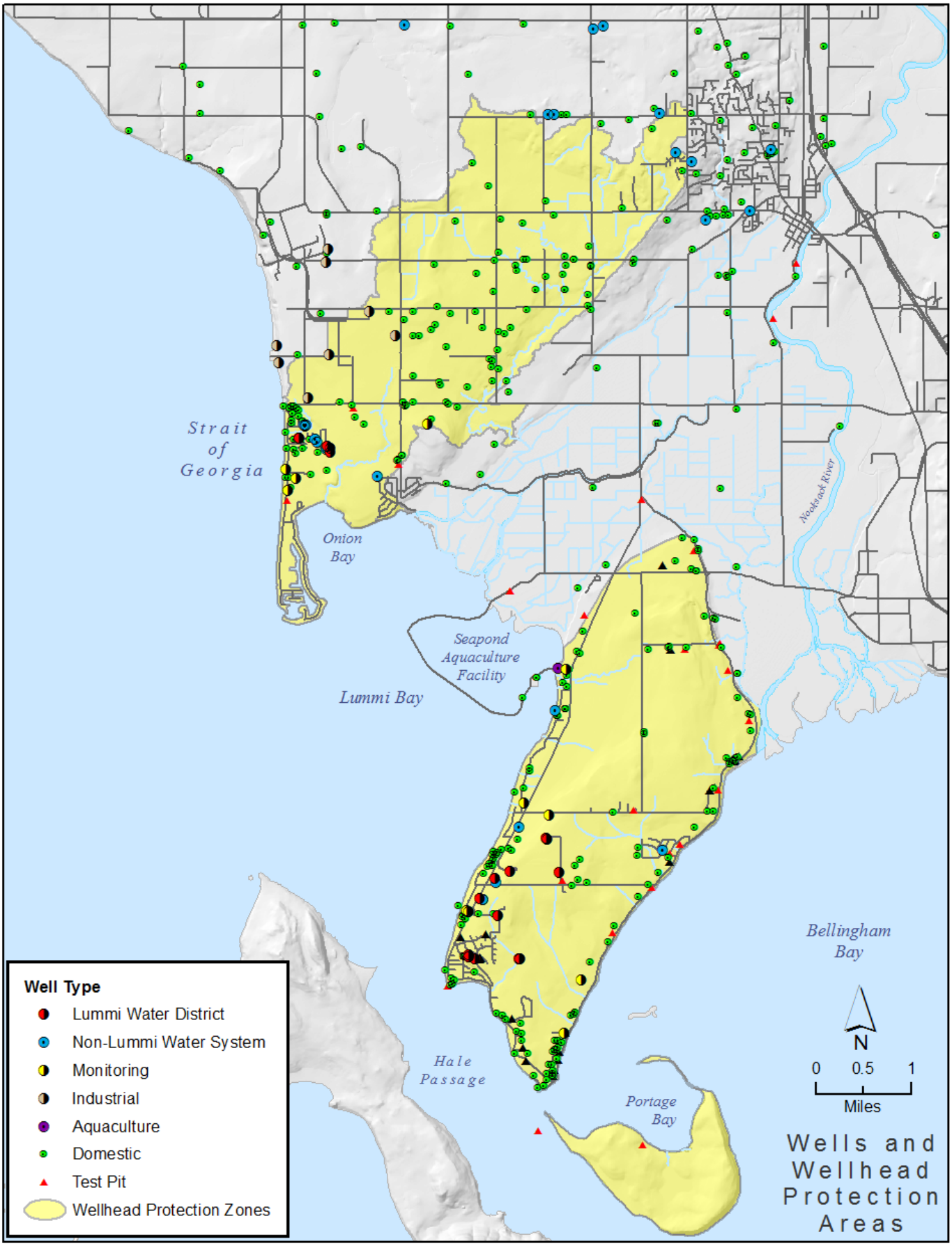
Wellhead Protection Areas

A wellhead protection area is the area managed by a community to protect groundwater sources of drinking water. As defined in the federal Safe Drinking Water Act (SDWA), wellhead protection areas are the surface and subsurface areas surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach the water well or wellfield. A contaminant is defined in the SDWA as any physical, chemical, biological, or radiological substance or matter in water. In addition to a sanitary control area immediately around a wellhead, in general a wellhead protection area includes the area that contributes water to a well or spring over a 1 to 10 year period.

The Safe Drinking Water Act requires that all federally defined public water systems using groundwater as their source implement a wellhead protection program. The goal of the program is to prevent contamination of the groundwater used by public water systems. The Lummi Nation Wellhead Protection Program (LWRD 2011) includes the following elements:

- A completed susceptibility assessment;
- A delineated wellhead protection area for each well, well field, or spring;
- An inventory within the wellhead protection area of all potential sources of contamination that may pose a threat to the water bearing zone (aquifer) utilized by the well, spring, or well field;
- Wellhead protection action plan;
- Contingency plans for providing alternate sources of drinking water in the event that contamination does occur;
- Community involvement plan; and
- Coordination with local emergency responders for spill/incident response measures.

Because the hydrogeologic conditions on the Reservation vary considerably over short horizontal and vertical 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 high runoff 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.



Map 16. Lummi Indian Reservation Wells and Wellhead Protection Areas

Lummi Indian Reservation Forage Fish Spawning Habitat (Map 17)

Forage fish are relatively small fish species that are the prey base for a wide variety of other marine organisms (e.g., salmon, mammals, birds). Forage fish species are also harvested for ceremonial, subsistence, and commercial purposes. Primary forage fish species that occur on or along the Reservation include Pacific sand lance, surf smelt, and Pacific herring. Herring is a keystone species in the nearshore and estuary environment, playing many important roles that build habitat and perpetuate the food web.

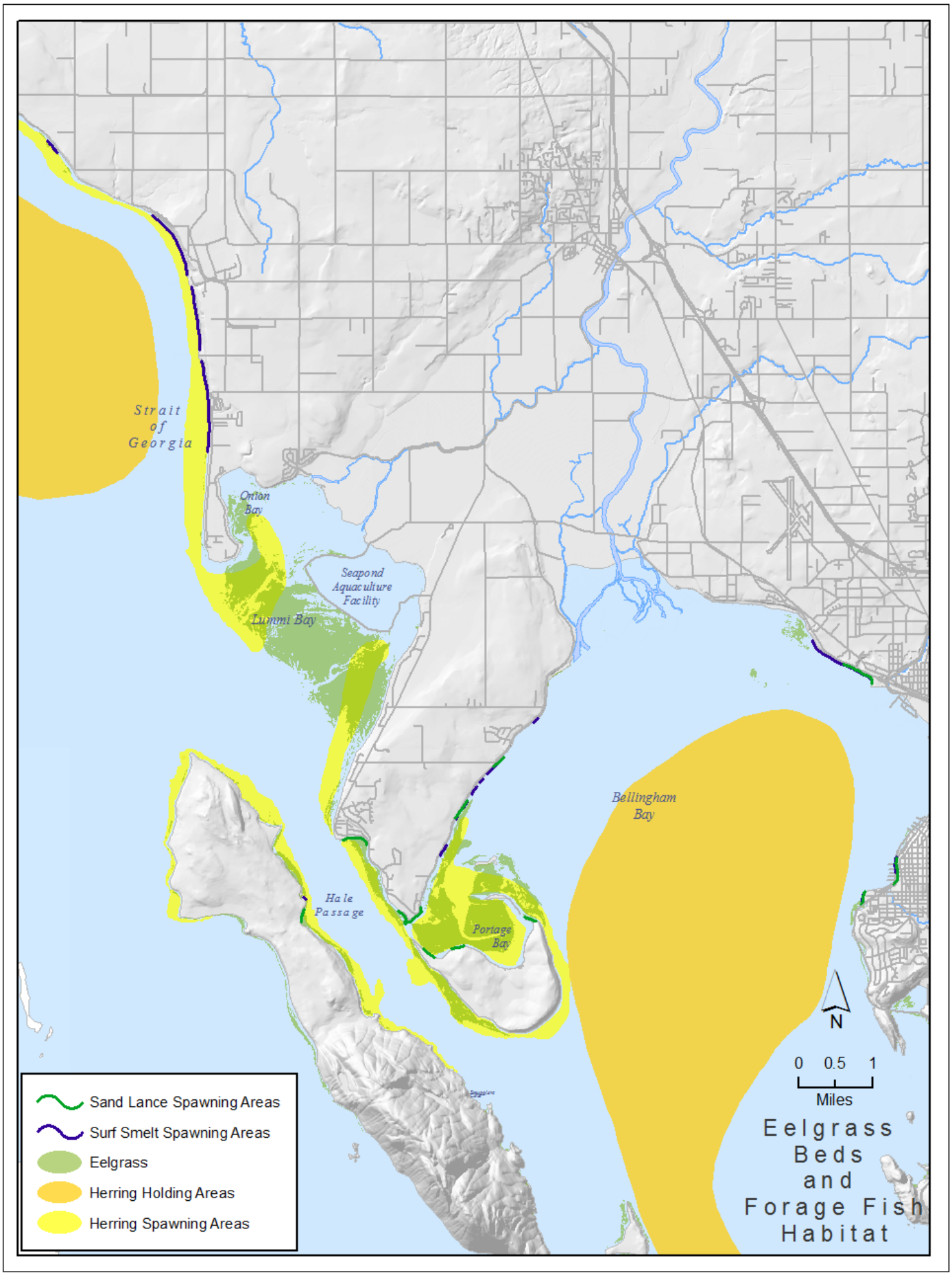
Forage fish spawning habitat includes eelgrass beds and algae utilized by Pacific herring; beaches that have specific mixtures of coarse sand and pea gravel utilized by surf smelt; and a wide variety of substrates but mostly fine sands utilized by Pacific sand lance.

Eelgrass plays several important ecological roles. It provides living space and structure for many aquatic species that grow on or among its blades, on its roots, or in the stabilized substrate it colonizes. Dense eelgrass beds serve as a refuge from predators for small fish and invertebrates and many commercially and recreationally important species, such as herring (*Clupea pallasi*), Dungeness crab (*Cancer magister*), and juvenile salmon (*Onchorhynchus* spp.) use eelgrass as a nursery area. Herring spawn on eelgrass, laying as many as three million eggs on a single blade during the spring (Hood and Zimmerman 1986, cited in ADFG 2004).

Eelgrass beds occur in shallow water, near the shore, and hence are threatened by some types of coastal development activities (ADFG 2004). The plant is vulnerable because it has a narrow tolerance for turbidity, sediment disturbance, and eutrophication, as well as a need for high ambient light. Sedimentation and water quality impacts from coastal development and logging contribute to turbidity. Excess nutrients from wastes, fertilizers, or other sources promote the growth of epiphytic algae on eelgrass and phytoplankton in the water column which decrease light penetration (ADFG 2004). Decreased light penetration reduces eelgrass photosynthesis and growth. Changes in sedimentation patterns, propeller-wash from boats, and other physical disturbances can smother or uproot eelgrass from the fine sediments in which it grows.

Eelgrass beds occur along many of the marine shorelines of the Lummi Reservation, particularly in Portage Bay, along Hale Passage, and in Lummi Bay. These areas are an important migratory corridor for juvenile salmon originating in the Nooksack River watershed and support the Dungeness crab fisheries in nearby water. Nearshore habitat along Sandy Point up to Point Whitehorn serves as another valuable corridor to eelgrass meadow habitat at Cherry Point. Cherry Point eelgrass habitat once sustained the largest fishery of Pacific herring in Puget Sound. Herring eggs, larvae, and juveniles comprise over 60 percent of juvenile chinook salmon diet in the nearshore (Fisheries and Oceans Canada, found in Bargman 2001). Cherry Point herring populations have declined 94 percent in the past 20 years. This decline in herring populations is not necessarily due to changes in eelgrass (Bargman 2001).

Suitable substrate for surf smelt and sand lance spawning has been documented along several of the Reservation shorelines including along Bellingham Bay, Hale Passage, and Georgia Strait.



Map 17. Eelgrass Beds and Forage Fish Habitat Associated with the Lummi Indian Reservation

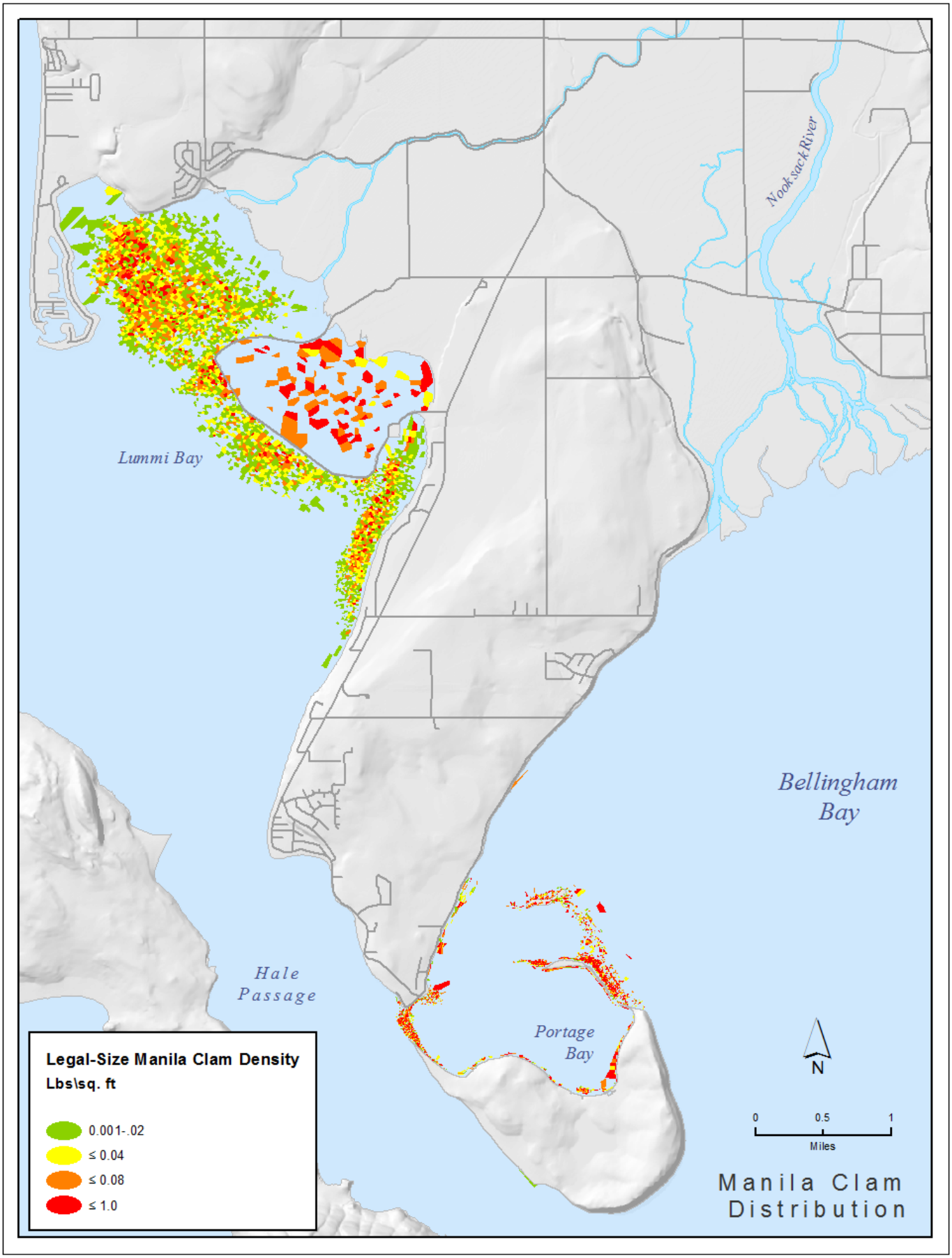
Lummi Indian Reservation Manila Clam Distribution (Map 18)

Lummi tribal members harvest Manila clams for ceremonial, subsistence, and commercial purposes. Manila clams are an important economic resource to many tribal members, particularly for members who do not own or have access to a boat. Peak annual harvests from intertidal Reservation beaches reached 415,000 pounds of Manila clams in 2009. Significant quantities of Manila clams are also harvested from the Seapond Aquaculture Facility in Lummi Bay. Manila clam harvests in the Seapond Aquaculture Facility peaked at 300,000 pounds during 1999.

Manila clam surveys are conducted by staff from the Lummi Natural Resources Department, or by contractors using tribal survey protocols. Clam surveys involve digging hundreds of sample holes on each beach and counting and measuring the Manila clams found in the survey holes. Surveys are conducted to assess the wild stock status and to help harvest managers set sustainable harvest targets for each beach to ensure the future of the resource. The Lummi Intertidal Baseline Inventory (LIBI) estimated that the on-Reservation Manila clam population has a total biomass of approximately 2.4 million pounds (LNR 2010).

Map 18 shows the known distribution and relative abundance of Manila clams on surveyed Reservation beaches and in the Seapond Aquaculture Facility. The Manila clam distribution shown in Map 18 was computer generated from 13,489 individual samples collected between 2002 and 2010 during regular stock assessment surveys or during the LIBI project. Note that, due to safety concerns, the large expanse of very soft sediments inside Portage Bay has not been surveyed for clams.

In addition to Manila clams, various portions of the Reservation tidelands contain harvestable volumes of Pacific oysters, purple varnish clams, horse clams, butter clams, native littleneck clams, and cockles. Distribution maps and estimates of relative abundance for many of these species are available in the LIBI Final Report (http://lnnr.lummi-nsn.gov/LummiWebsite/Website.php?PageID=77) (LNR 2010).



Map 18. 2010 Manila Clam Distribution on the Lummi Indian Reservation

Dairy/Manure Lagoons in Reservation Watersheds and Surrounding Areas (Map 19)

Ceremonial, subsistence, and commercial shellfish harvest by Lummi tribal members and the Lummi Nation commercial shellfish enterprise were severely impacted by the 1996 closure of 60 acres of Lummi shellfish beds in Portage Bay and the 1997 closure of an additional 120 acres in Portage Bay. The 1996 Portage Bay closures 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, Washington State passed the Dairy Nutrient Management Act (RCW 90.64) in 1998, 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.

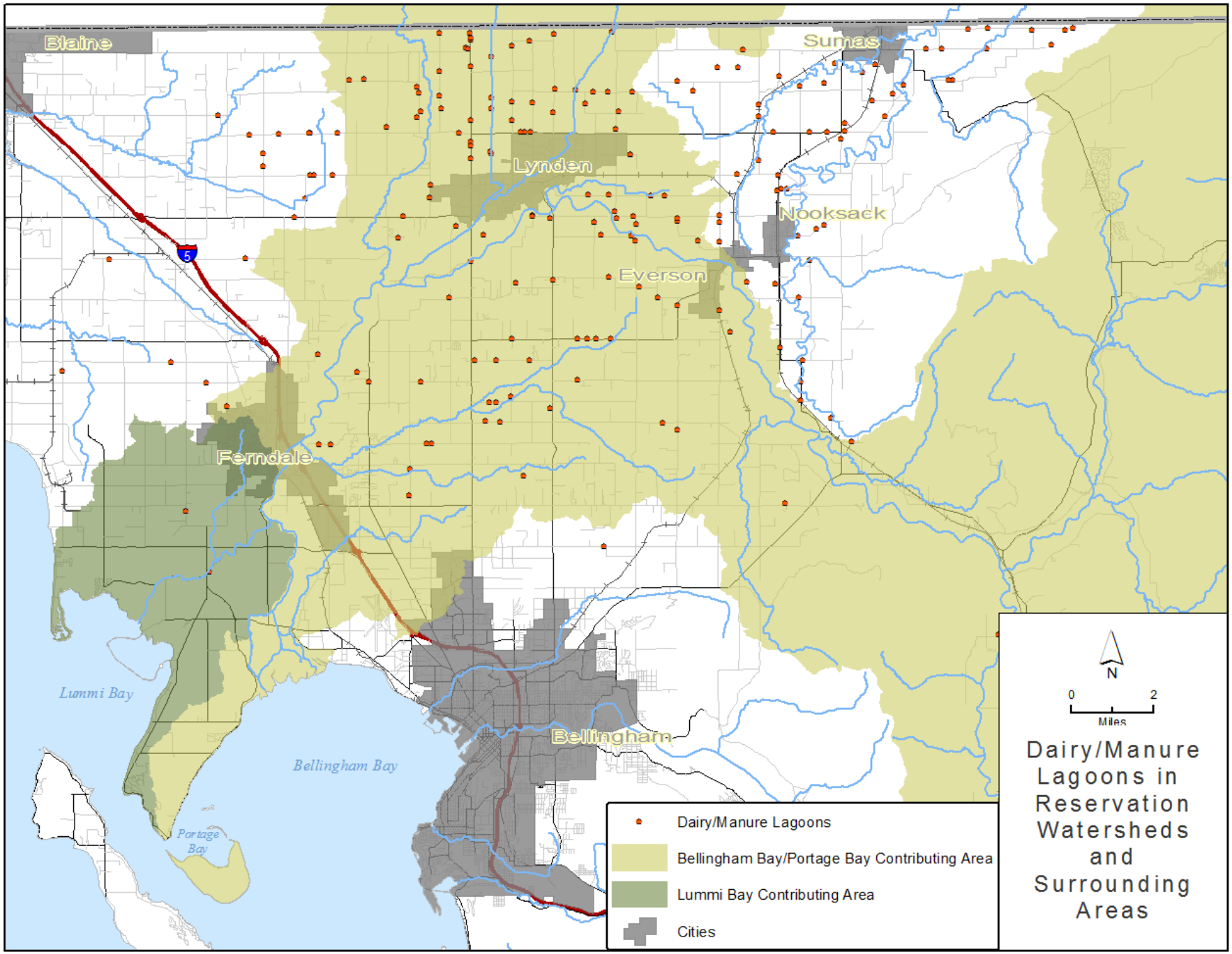
After the Department of Ecology planned to eliminate their livestock program (which supported the dairy waste inspections) to address budget shortfalls, the compliance inspection responsibilities for dairies were transferred to the Department of Agriculture in July 2003. Water quality in the Nooksack River and Portage Bay declined during 2004 and additional shellfish growing areas in Portage Bay were closed temporarily in January 2005. After additional actions by the Department of Agriculture and others during 2005, water quality improved again and all of the Portage Bay shellfish beds were reopened in May 2006, nearly 10 years after the initial closure.

Around the time of the 1996 closure, Ecology staff worked with the community to develop a Total Maximum Daily Load (TMDL) for fecal coliform in the lower Nooksack River watershed. Fecal coliform is an “indicator” organism used as a measure of water contamination. The TMDL was being conducted because the density of fecal coliform bacteria in many of the lowland streams of Whatcom County was measured on multiple occasions to be higher than the applicable water quality standards. When water quality standards are exceeded, the Federal Clean Water Act requires completion of a TMDL.

The TMDL established a schedule and targets for fecal coliform density at 18 compliance points in the watershed. In all cases, these targets were more stringent (less bacteria was allowable) than the Ecology water quality standards in order to ensure that the Federal Food and Drug Administration (FDA) National Shellfish Sanitation Program (NSSP) water quality standards would be achieved at Portage Bay. To the community’s credit, the lower Fecal coliform levels were achieved at all of the 18 sites during 2003.

Following the transfer of responsibility to monitor dairy operations from Ecology to the Department of Agriculture on July 1 2003, fecal coliform levels started to increase. The Lummi Natural Resources Department notified the EPA and Ecology of their concerns about the increase fecal coliform levels first in 2005 and again in 2010.

Appendix C shows a graph of the fecal coliform trends as of December 31, 2013. The three water quality stations that are highlighted were the first stations to not meet the NSSP standards in 1996. In December 2011 the Washington Shellfish Initiative was launched and the Nooksack River watershed identified as one of two focus areas. The Initiative resulted in the hiring of a coordinator and two Ecology field inspectors. The inspectors were hired during the summer of 2012 and following training became operational in March 2013. The success of this four year effort will be reflected in the water quality sampling results both in the Nooksack River watershed and Portage Bay.



Map 19. Dairy/Manure Lagoons in Reservation Watersheds and Surrounding Areas

Lummi Indian Reservation Bald Eagle Nests (Map 20)

Bald eagles (*Haliaeetus leucocephalus*) occur in western Washington throughout the year as both resident and wintering populations. Bald eagles prefer nesting sites that include proximity to water with an adequate food source, large trees with sturdy branching at sufficient height for nesting, and stand heterogeneity both vertically and horizontally.

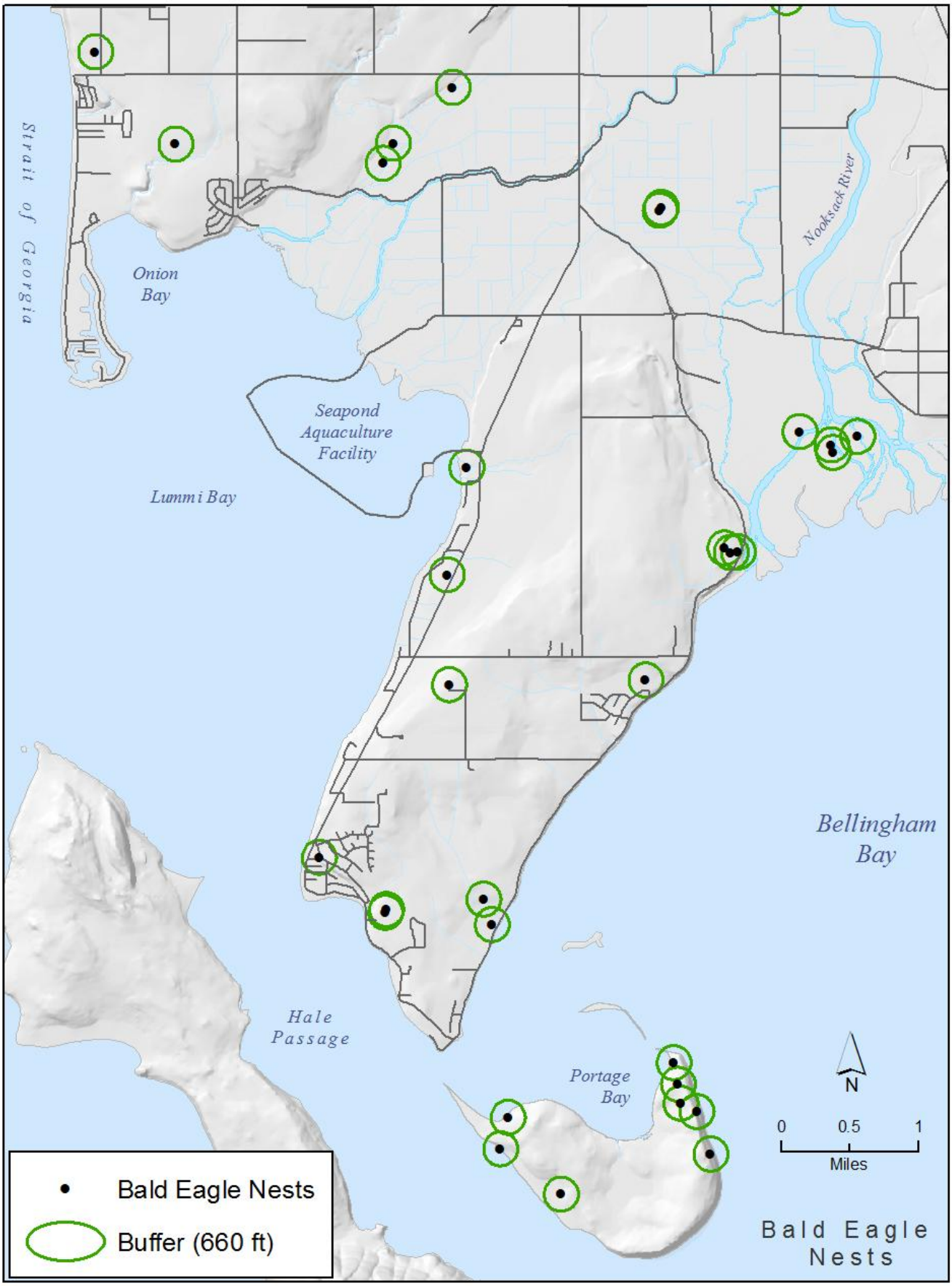
Thirty-three bald eagle nests have been identified on the Lummi Indian Reservation. In addition to the resident eagle population, Portage Island and the Lummi Peninsula shoreline serve as important roosting grounds for migrating eagles. During the winter months, roosting colonies are a common sight throughout the Reservation.

Resident, non-breeding, and wintering bald eagles utilize the areas around the Lummi Peninsula. Significant shallow nearshore habitat provides a large productive foraging area from the Nooksack River estuary to Sandy Point. Georgia Strait and Hale Passage provide excellent shoreline habitat and foraging opportunities for bald eagles including seasonal herring, salmon, and waterfowl concentrations. Anadromous fish including salmon associated with the Nooksack River system and resident marine fish including spawning sand lance and surf smelt occur in the shallow nearshore habitats and provide a substantial year-round food source for bald eagles in this area. Upland forest and individual mature shoreline trees such as black cottonwood, grand fir, and Douglas fir provide suitable nest and perch trees.

The recognition of bald eagles as an important cultural asset is formalized in Lummi Tribal Code 15.07.030, which mandates the protection of tribal resources and cultural values through compliance with several Federal laws including the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the Lacey Act. This commitment to ensure healthy eagle populations is a priority to tribal administrators, and achieved through cooperation with the U.S. Fish and Wildlife Service, the Washington Department of Fish and Wildlife, Lummi Natural Resources, and the Lummi Planning and Public Works departments.

Consistent with the U.S. Fish and Wildlife Service guidelines, the Lummi Nation places a 660 foot development buffer around all bald eagle nests. Logging, construction, and utilities projects are restricted within these buffer zones during the nesting season. In addition to these restrictions, land use decisions within nest buffer zones are considered on a case-by-case basis with respect to their impact on the eagle population. For more information regarding eagles in general, up-to-date map layers, or specific detail on tribal policies, contact the Lummi Natural Resources Department or reference the web links below.

http://www.fws.gov/laws/lawsdigest/BALDEGL.HTML
http://www.fws.gov/laws/lawsdigest/migtrea.html
http://www.fws.gov/le/pdffiles/Lacey.pdf
http://www.lummi-nsn.gov/natural_resources.html



Map 20. Bald Eagle Nests on the Lummi Indian Reservation

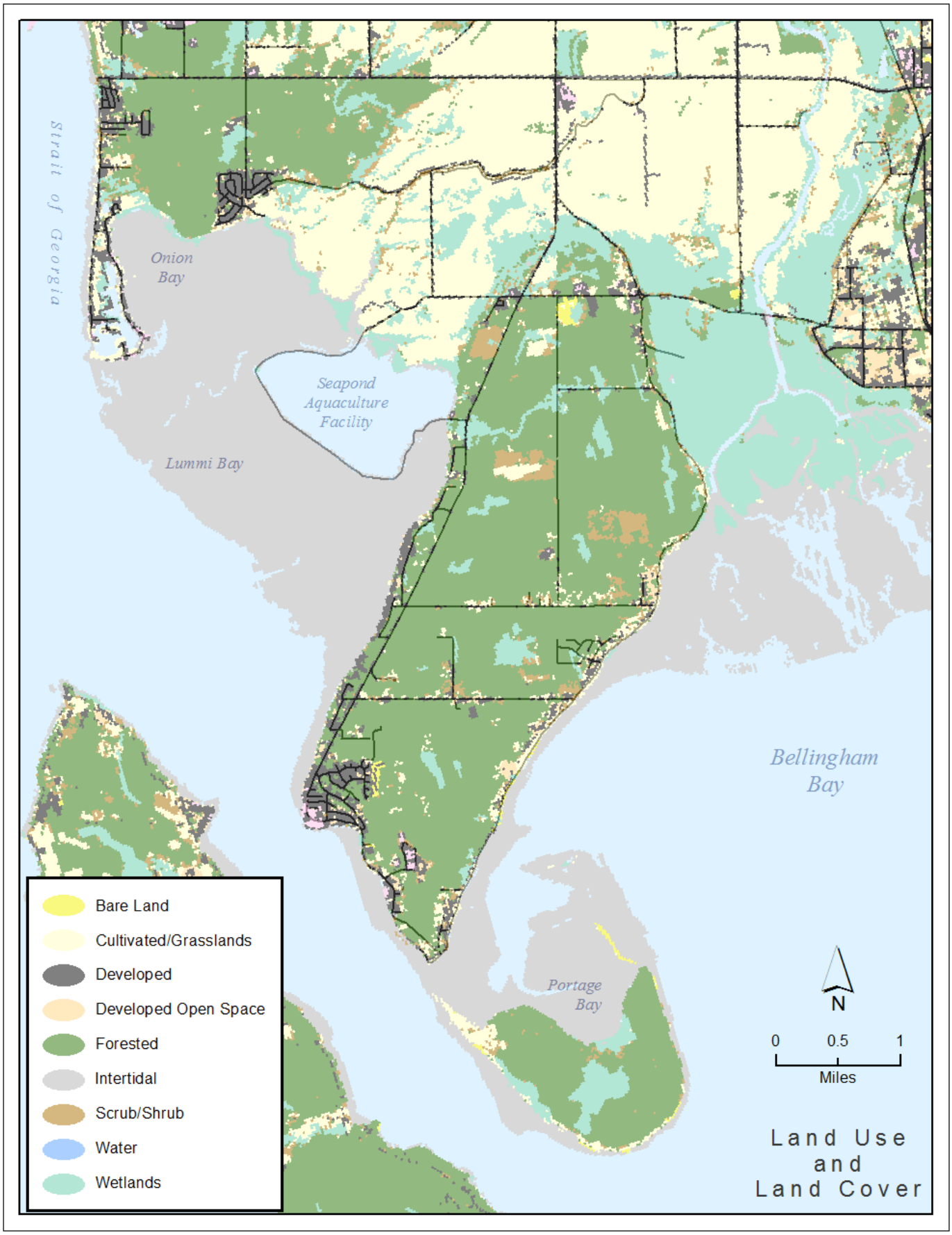
Planning and Economic Development

Lummi Indian Reservation 2011 Land Use/ Land Cover (Map 21)

The Reservation land use and land cover data set consists of Landsat 7 Thematic Mapper (TM) scenes collected in 2011. These Landsat 7 TM scenes were analyzed according to the Coastal Change Analysis Program (C-CAP) protocol to determine land cover. The C-CAP is used to improve the understanding of coastal uplands and wetlands and their linkages with the distribution, abundance, and health of living marine resources. The spatial resolution (pixel size) of the Landsat image is 30 meters by 30 meters. The C-CAP defined 20 different land cover classes for the Lummi Reservation and neighboring areas which were grouped into 9 different categories.

- Bare Land (44 acres)
    - Bare Land: Bare exposed rock, sand, and soil.
- Cultivated/Grasslands (1,514 acres)
    - Cultivated land: Active agriculture for crop production.
    - Grassland: Wild or untilled rangelands.
    - Pasture/Hay: Untilled harvested grasslands.
- Developed (905 acres)
    - High Intensity Developed: > 80 percent developed land surface.
    - Medium Intensity Developed: 50– 79 percent developed land surface.
    - Low Intensity Developed: 21 – 49 percent developed land surface.
- Developed Open Space (84 acres)
    - Developed Open Space: < 20 percent developed land surface.
- Forested (6,196 acres)
    - Deciduous Forest: Hardwood forest with a pronounced seasonal dormancy period.
    - Evergreen Forest: Forest without a pronounced seasonal dormancy period.
    - Mixed Forest: Forest not dominated by either deciduous or evergreen species.
- Intertidal (6,170 acres)
    - Estuarine Aquatic Bed: Marine algal communities.
    - Unconsolidated Shore: Tidal flats, shoals, and intertidal areas.
- Scrub/Shrub (453 acres)
    - Scrub/Shrub: Woody vegetation less than 15 feet tall.
- Water (4,566 acres)
    - Open Water: > 25 percent cover of soil or vegetation.
- Wetlands (2,381 acres)
    - Palustrine Forested Wetland: Freshwater wetland forest.
    - Palustrine Scrub/Shrub Wetland: Freshwater wetland scrub/shrub.
    - Palustrine Emergent Wetlands: Freshwater wetland-rooted emergent species (marsh, lilies, etc.).
    - Estuarine Emergent Wetland: Saltwater wetland emergent species (Spartina marsh, juncus grass, etc.).
    - Palustrine Aquatic Bed: Floating vegetation and algal communities.

For more information see http://www.csc.noaa.gov/digitalcoast/data/ccapregional.



Map 21. Land Use and Land Cover on the Lummi Indian Reservation

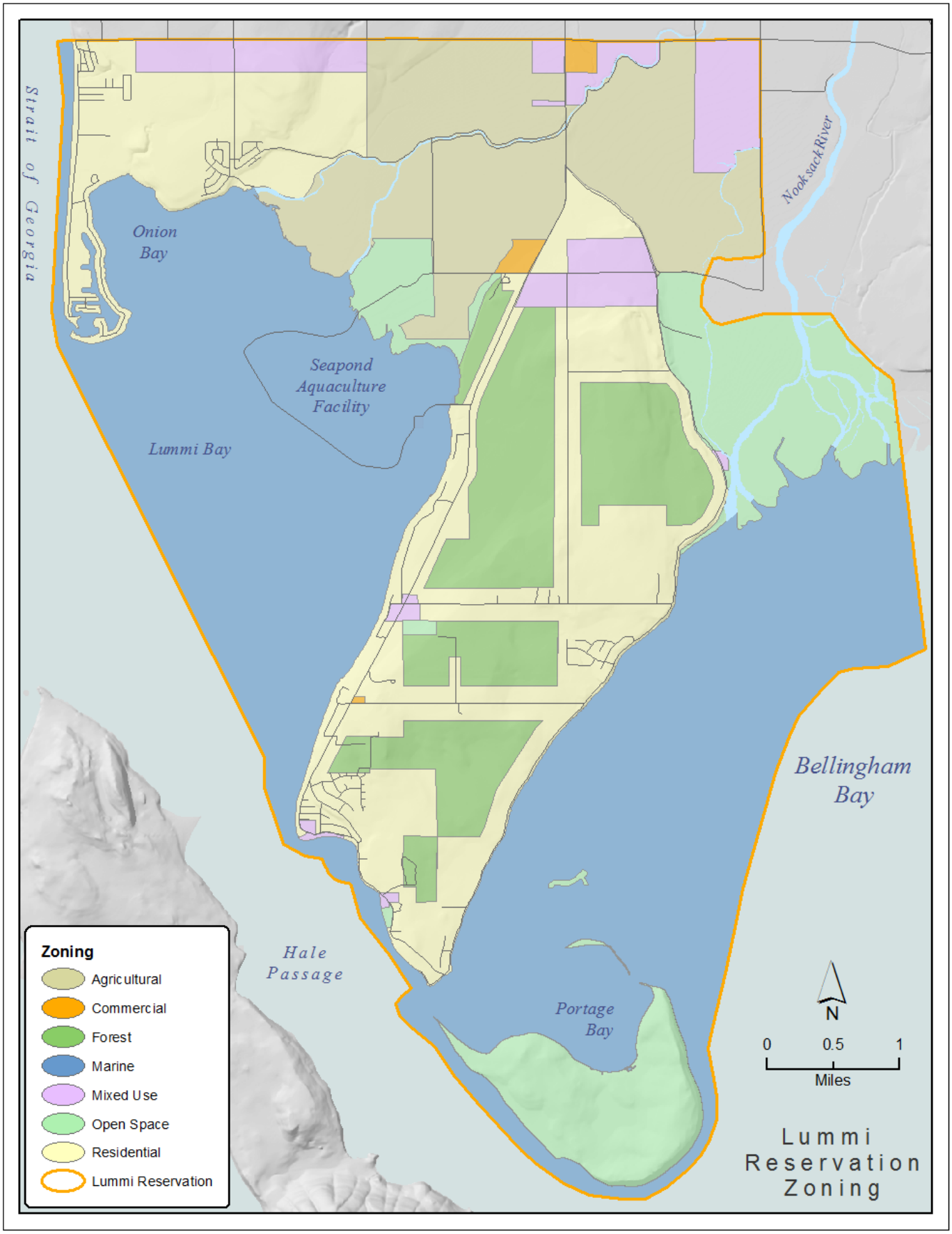
Lummi Indian Reservation Zoning (Map 22)

The Lummi Indian Business Council (LIBC) recognizes the need to implement a comprehensive zoning and development code to ensure orderly growth and protection of the political, economic, social, cultural, and physical integrity of the Tribe. In order to promote the health, safety, and general well being of all residents, and to promote harmony between the many interests on the Reservation, the Lummi Nation Land Use Zoning and Development Code (Title 15) and the Lummi Nation Flood Damage Reduction Code (Title 15A) provide clear development standards for current and future use.

The Lummi Planning Commission and the LIBC have classified and divided the Reservation into the following zone districts (LIBC Resolution 2004-115; updated December, 2010):

- **Residential:** The residential zone district provides land for tracts of detached single-family homes with a density range comparable to both suburban and rural residential zones, depending on the type and level of services available and neighboring development.
    - Rural Residential: 1-3 dwelling units per acre
    - Suburban Residential: 5-7 dwelling units per acre
- **Commercial:** The commercial zone district comprises land suitable for commercial and business uses to meet objectives in economic development and provide employment opportunities to improve the economic conditions of the tribal government and individual tribal members.
- **Light Industrial:** The light industrial zone district provides land suitable for low impact industrial uses to meet economic development objectives and provide employment opportunities to improve the economic conditions of individual tribal members.
- **Forestry:** The forestry zone district allocates land suitable for the sustained cultivation and production of forest products and provides land for low-density rural residential development, where such mixed uses are consistent with the Comprehensive Plan and the Forest Management Plan (LIBC 2010).
- **Agriculture:** The agriculture zone district recognizes the importance of agriculture and allows the continuation of farming activities by allocating land for them. It also allocates land for accessory and supporting uses to farming, including residential and resource conservation. Land uses like restoration and protection of natural resources and residential development are allowed in addition to farming.
- **Open Space:** The open space zone district provides land for preservation, conservation and restoration of environmentally and culturally sensitive areas and for low impact, outdoor recreational uses.
- **Marine:** The marine zone district comprises an area for treaty-reserved and tribally controlled fishing activities, seafood production, and harvest for the benefit of tribal members.
- **Mixed Use:** The mixed use zone district is intended for important community centers where planned multiple uses are allowed and desirable. Any proposed use allowed in the immediately adjacent zone districts is allowed in the mixed use zone district with a conditional use permit.

These zone descriptions do not describe the specific legal and technical details pertaining to the conditions for land use. For more information on land use and zoning, refer to Title 15 of the Lummi Code of Laws (Land Use, Zoning, and Development Code) available from the Lummi Nation webpage (www.lummi-nsn.gov).



Map 22. Lummi Indian Reservation Zoning

Lummi Indian Reservation Land Ownership (Map 23)

Land ownership on the Reservation and generally throughout “Indian Country” is divided into five categories: Individual Native Trust, Individual Native Fee, Tribal Fee, Tribal Trust, and Fee. The following table summarizes the area of uplands in each of these categories. All of the approximately 10,500 acres of tidelands on the Reservation are in Tribal Trust status.

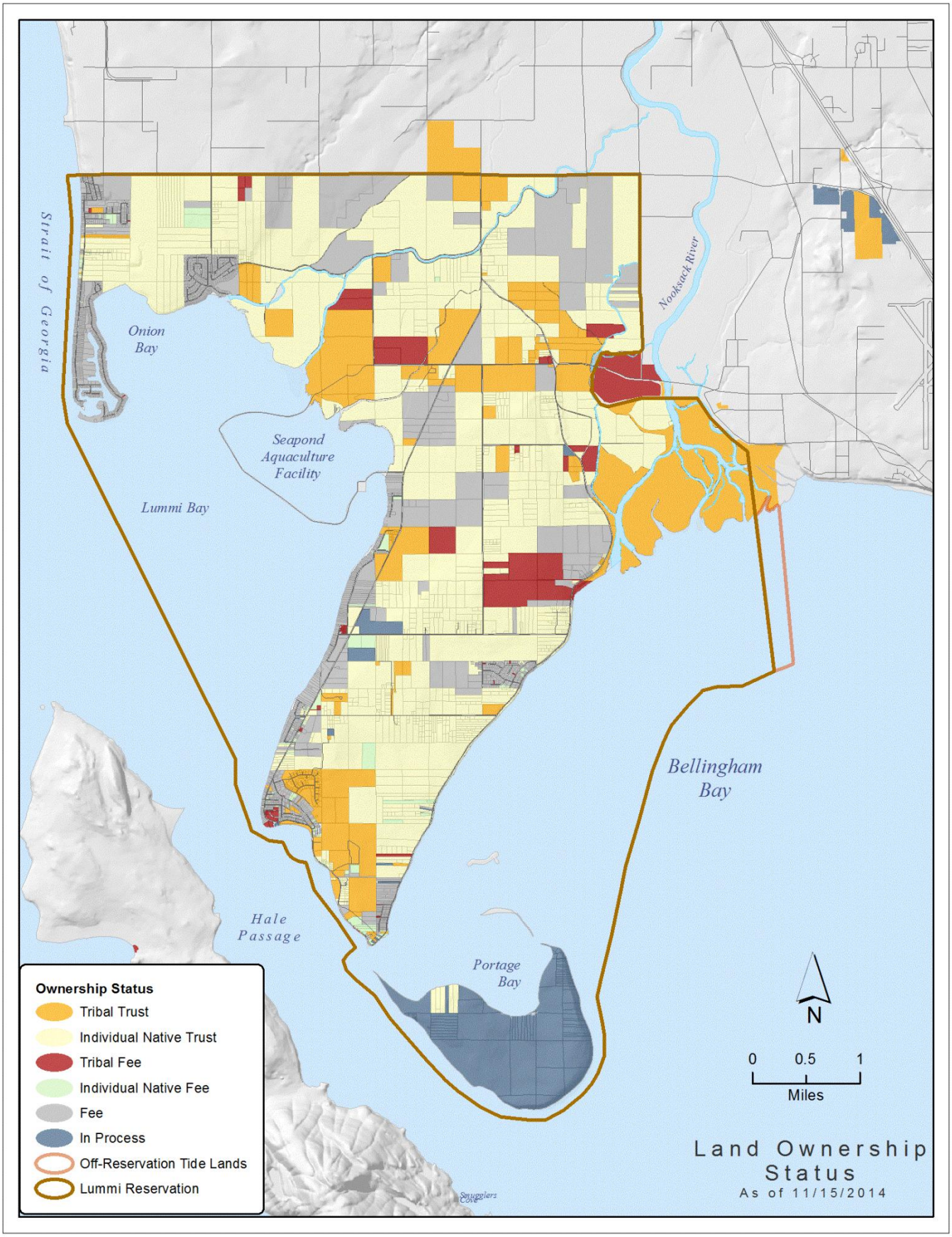
Category	Acres	Percentage
Individual Native Trust	6,510	50.2
Non-Tribal Fee	2,833	21.9
Tribal Trust	2,204	17.0
In Process (of becoming Trust land)	940	7.3
Tribal Fee	297	2.3
Individual Native Fee	180	1.4

Ownership of a parcel determines the property tax (if any) applicable to the property and the types of land use that can occur on the parcel.

Individual Land Ownership
Under the Treaty of Point Elliot the federal government had the authority to assign specific parcels of land to the heads of tribal families for use by that family and their descendents subject to restrictions on sale imposed by the federal government. Much of the land on the Reservation is now held by multiple owners who are descendents of the original assignees, subject to those restrictions. These lands have the same status as “trust land” under the law and are shown on the Map 23 as Individual Native Trust lands.

Trust
Trust status refers to Indian-owned lands where the title is held in trust and protected by the federal government. Indian people and tribes have use of the land, but ultimate control of the land remains with the federal government. Because of the extension of treaties, all land within the defined boundaries of Indian reservations and some of those owned by tribes or individuals off the reservation were initially held in "trust status”. This means that the administration and disposition of an individual or tribe's land base is supervised by the Bureau of Indian Affairs through federal law. Thus, even though an individual Indian or a tribal government may own a parcel of trust land, the land cannot be leased, sold, or mortgaged without acknowledgment and approval by the Bureau of Indian Affairs.

Fee Simple
This is the most basic form of land ownership. The owner holds title and control of the property. The owner may make decisions about the most common land use or sale without government oversight. In Indian country, however, whether the owner of fee simple land is Indian or non-Indian is a factor in deciding who has jurisdiction over the land. Due to the “checker boarding” of Indian reservations, different governing authorities – such as county, state, federal, and tribal governments – may claim the authority to regulate, tax, or perform various activities within reservation borders based on whether a piece of land is Indian or non-Indian owned. These different claims to jurisdictional authority often conflict. The case law relevant to jurisdiction on these lands is complex and on some points inconsistent and unsettled.



Map 23. Land Ownership Status On and Adjacent to the Lummi Indian Reservation

Lummi Indian Reservation Households (Map 24)

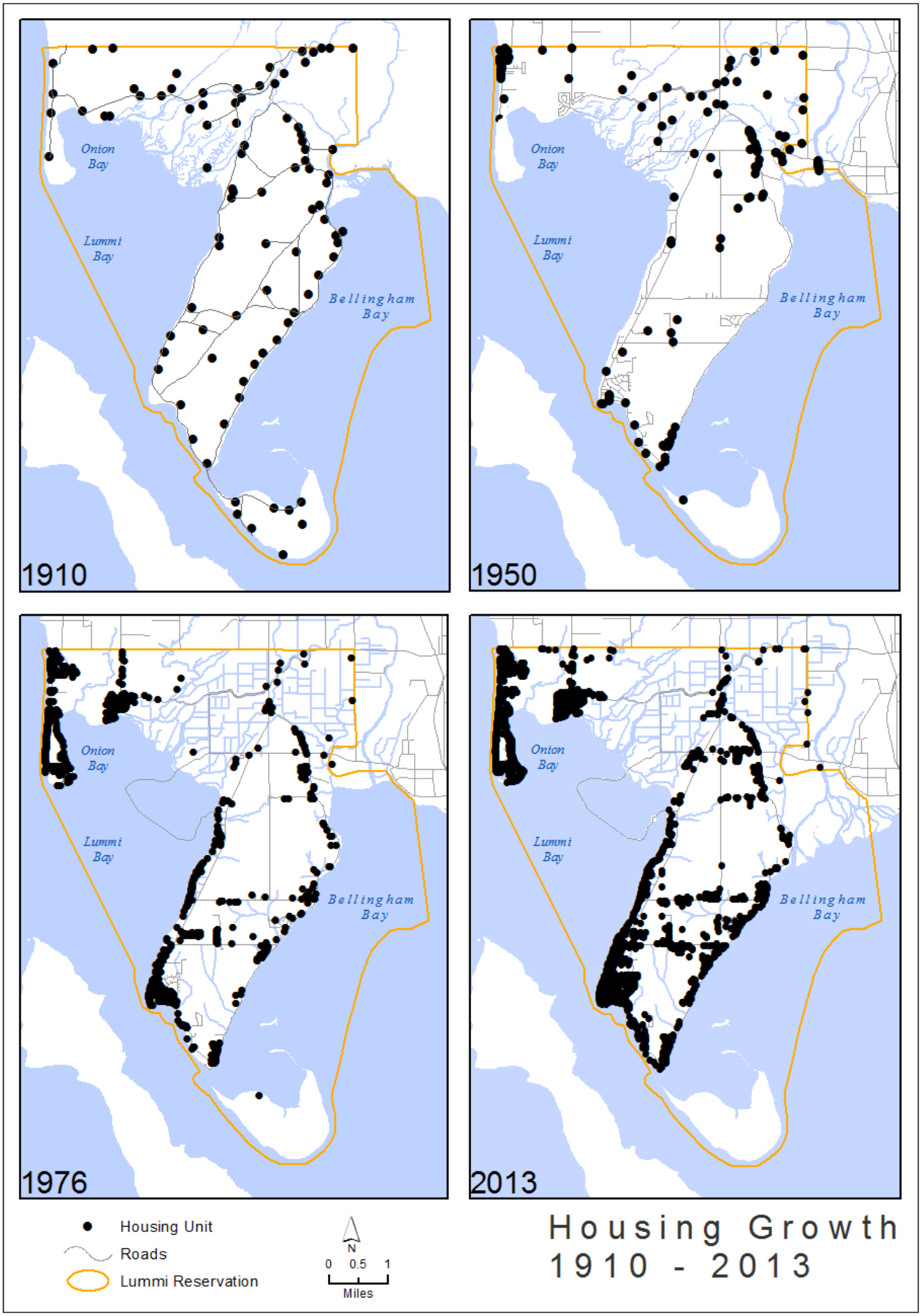
The series of household location maps (Map 24) over the 1910 through 2013 period illustrates building trends over the last 100 years on the Lummi Indian Reservation. Over the last century, the construction of an extensive road network, a potable water distribution and wastewater collection and treatment system, the Sandy Point Marina, and several Tribal housing projects have fostered a trend towards higher density neighborhoods throughout the Reservation.

The 2010 Census found 1,989 housing units on the Reservation, of which 1,632 (82.1 percent) were occupied year-round and 221 (12.6 percent) were for seasonal or occasional use. The remaining 73 (4.2 percent) housing units were vacant.

Several distinct residential neighborhoods now exist, mainly along the shorelines of the Reservation including Sandy Point, Neptune Beach, Sandy Point Heights, Gooseberry Point, and Mackenzie. Higher density residential neighborhoods can also be accessed from the numerous spur roads along Haxton Way and Lummi Shore Road. The Sandy Point neighborhoods, as well as the numerous waterfront parcels along the west shore of the Lummi Peninsula, consist of a combination of tribal and fee lands but are predominantly owned by nontribal-members. The east shore of the Lummi Peninsula, and the numerous scattered subdivisions in the interior of the Reservation, are almost exclusively tribal member owned properties.

Many of the more expensive homes on the Reservation are located in the coastal flood zones along the Sandy Point Peninsula, Neptune Beach, Gooseberry Point, and Hermosa Beach shorelines. Most of these houses were constructed during the 1960 – 1990 period. Relatively few homes are located in the Nooksack River floodplain; many of these are on agricultural properties and were constructed before 1950.

During the summer of 2004, over 1,800 GPS waypoints were manually collected to represent the physical location, address, and street name of each addressed structure on the Reservation. Address locations are updated annually. Based on 2013 information, there are 2,126 private residences and 36 community buildings, including churches, schools, police stations, and fire stations on the Reservation. The Lummi Natural Resources Department uses road and address information to periodically produce a detailed address and road atlas. The address and road atlas is available electronically by contacting the Lummi GIS Division (360) 312-2310.



Maps 24 Lummi Indian Reservation Households (1910 – 2013)

Lummi Indian Reservation Public Water Systems (Map 25)

Prior to the 1960s, Reservation residents generally obtained water from the Nooksack River, springs, hand-dug wells, or relied on water hauled from community wells. The water distribution system that was to become the Lummi Water District System was constructed beginning in 1964 with funding provided by the Indian Health Service (IHS) under P.L. 86-121 (Projects PO-63-832 and PO-63-839). In the first projects, 8 small low-pressure community systems relying on 22 individual wells were developed to serve 86 families. The Lummi Water District system expanded from that point forward and is continuing to expand to meet the needs of the growing community.

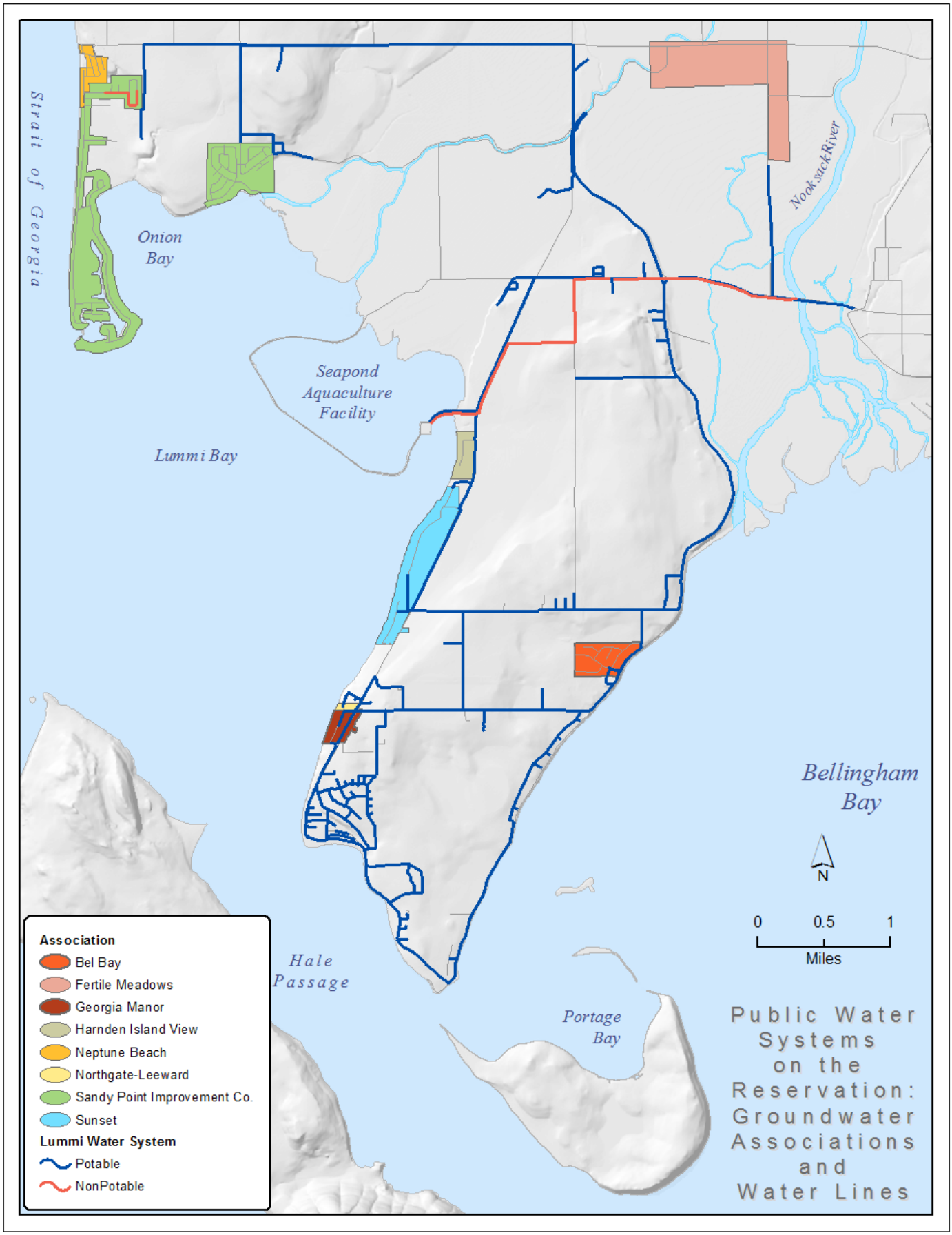
There are currently four categories of water purveyors on the Reservation. Three of these purveyor categories supply potable water and one provides untreated ground water primarily for salmon egg incubation and a limited salmon rearing operation. The four types of purveyors are listed below and their general service areas shown in Map 25. Areas in Map 25 that are not adjacent to the Lummi Water District water lines or are not within the claimed service area of a water association are either undeveloped or obtain water from individual/private wells. The four categories of water purveyors on the Reservation are the following:

1. **Lummi Water District:** The Lummi Water District is the largest and the most geographically comprehensive water system on the Reservation. The Lummi Water District operates a network of nine production wells and approximately 758,600 gallons of reservoir storage (in four storage tanks ranging in capacity from 90,600 to 317,000 gallons). The Lummi Water District can also purchase and import potable water from the City of Bellingham via a 10-inch ductile iron pipeline. In 2010, the Lummi Water District provided water to approximately 986 residential connections (about 50 percent of the approximately 1,989 residential units identified on the Reservation by the 2010 Census) and to municipal and commercial operations.

2. **Non-Tribal Water Associations:** Although during the 1980s there were twelve small water systems operated by non-member water associations, there are currently eight of these associations that serve predominantly non-tribal members in dense residential areas located along the Reservation shorelines. Combined, these eight non-tribal water associations provide water to approximately 846 residential units or about 43 percent of the total number of houses. The Fertile Meadows Water Association obtains groundwater from an off-Reservation source and provides water to three residential units on the Reservation and to additional residential units located adjacent to the Reservation. All of the non-tribal water associations on the Reservation rely exclusively on local groundwater wells for supply. Four former non-tribal water associations (Horizon Heights, Fisherman's Cove, Gooseberry Point, Gulfside Mobile Home Park) have been integrated with the Lummi water system and are provided water by the Lummi Water District.

3. **Individual or Private Wells:** There is currently an estimated 157 individual or private wells that supply water to one or more residential units on the Reservation (8 percent of the total).

4. **Untreated/Non Potable Water Systems:** The Lummi Natural Resources Department operates two systems that supply untreated ground and surface water for the Lummi Nation salmon propagation program. A well along Neptune Circle currently provides untreated water to the Sandy Point Hatchery facility and two tribal homes near Germaine Road. The Sandy Point Hatchery is a salmon egg incubation facility that uses approximately 129,600 gallons per day (gpd) for approximately four months of the year. The Lummi Bay salmon hatchery is supplied by surface water pumped from the Nooksack River. The pumped water is discharged into a settling pond located along Chief Martin Road on the Lummi Peninsula before flowing via gravity to the Lummi Bay Hatchery. The Lummi Bay Salmon Hatchery uses approximately 1,220,000 gpd of Nooksack River water during eight months of the year.



Map 25. Public Water Systems on the Lummi Indian Reservation

Lummi Indian Reservation Wastewater Collection and Treatment Facilities (Map 26)

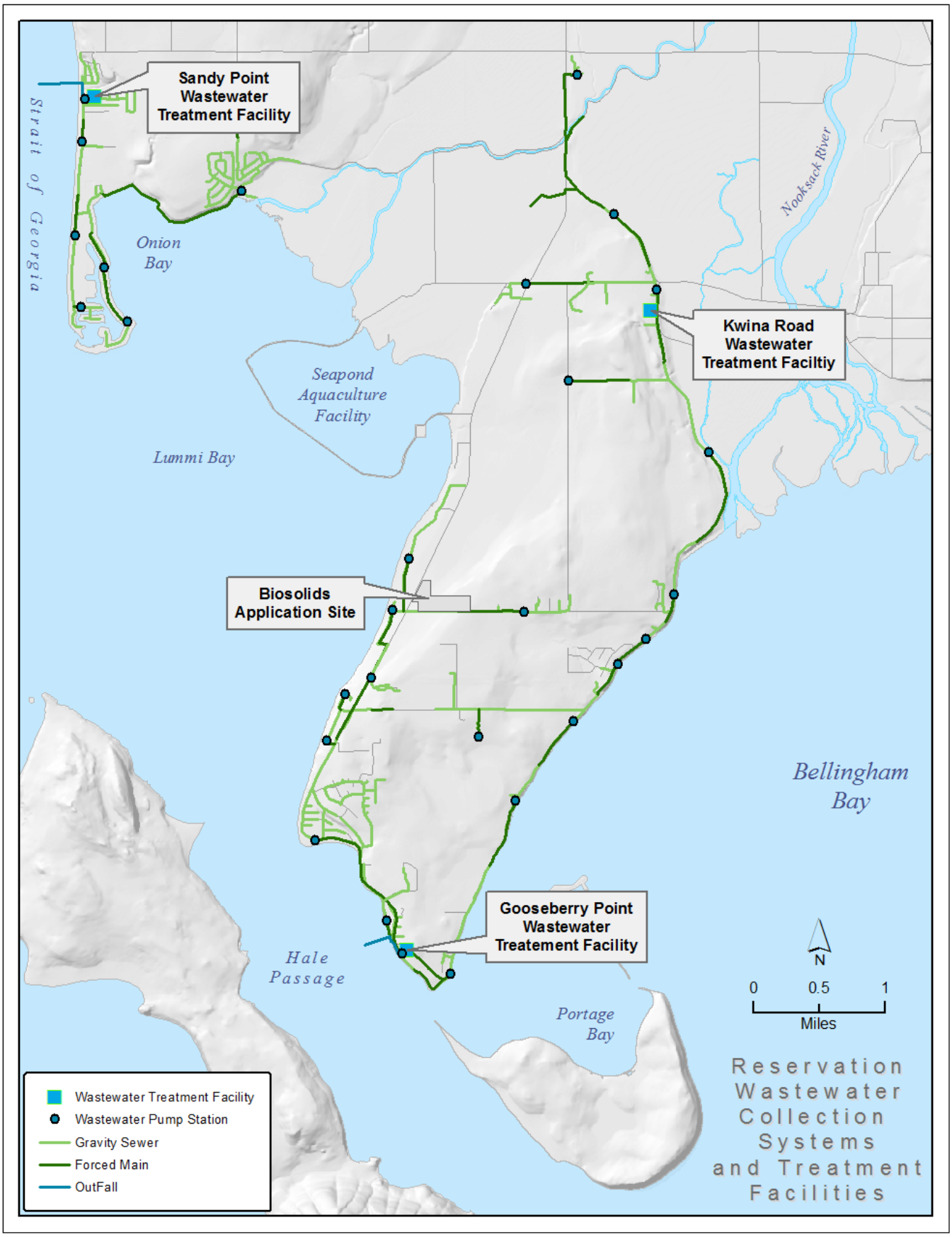
The Lummi Tribal Sewer District currently operates and maintains three wastewater treatment facilities and a forested biosolids application site. The biosolids application site and two of these treatment plants became operational during the 1983 start-up of the collection and treatment system and a third treatment plant became operational in June 2006. The three wastewater treatment plants are the following:

Gooseberry Point: The Gooseberry Point wastewater treatment plant began operation in 1983. This facility is a rotating biological contactor unit that historically served the entire Lummi Peninsula area of the Reservation and the Silver Reef Hotel, Casino & Spa. The treatment plant produces secondary treated effluent that is discharged to Hale Passage. The National Pollutant Discharge Elimination System (NPDES) permit issued by the Environmental Protection Agency (EPA) for this facility authorizes an annual average day flow of 0.375 million gallons per day. The wastewater collection system for the Gooseberry Point wastewater treatment plant includes 15 pump stations.

Sandy Point: The Sandy Point wastewater treatment plant also became operational in 1983 and uses the same rotating biological contactor technology as the Gooseberry Point facility. This facility serves the northwestern part of the Reservation including the Sandy Point peninsula. The treatment plant produces secondary treated effluent that is discharged to Georgia Strait. The EPA-issued NPDES permit for this facilities authorizes an annual average day flow of 0.250 million gallons per day. The wastewater collection system for the Sandy Point wastewater treatment plant includes 7 pump stations.

Kwina Road: The Kwina Road wastewater treatment plant is a membrane bioreactor (MBR) that became operational in June 2006. This facility now serves the northeast portions of the Reservation including the Silver Reef Hotel, Casino & Spa. It produces “Class A” reclaimed water that is currently discharged into the ground through a series of underground injection wells. The ground water in the vicinity of this facility is too salty for potable uses. The MBR facility currently has the capacity to treat 0.10 million gallons per day. The wastewater collection system for this facility extends south from the casino complex and includes 4 pump stations.

The biosolids or sludge generated by the three wastewater treatment plants is stabilized in digesters at the Gooseberry Point and Sandy Point treatment facilities. The stabilized biosolids are land applied to a dedicated forested site on the Reservation near the intersection of Haxton Way and Cagey Road.



Map 26. Wastewater Collection and Treatment Facilities on the Lummi Indian Reservation

Summary and Conclusion

This atlas is an overview of the history, natural and economic resources, culture, and government of the Lummi Nation. It is by no means a conclusive description of the Lummi Reservation, nor the Lummi people. Please take to the time to discover more about the Lummi people, their government, culture, and struggle to maintain their treaty rights to hunt, fish, and gather at their usual and accustomed grounds and stations. The web links below will connect you to a variety of relevant sites and enhance your understanding of the Lummi people.

This atlas was created by the Lummi Indian Business Council Geographic Information System (GIS) Division. This atlas is available for digital download at ftp://lnnr.lummi-nsn.gov/2014LummiAtlas.pdf
If you are a consulting firm under contract with the LIBC, a researcher associated with an accredited institution, or associated with a government agency, individual GIS data layers may be available upon request. For more information please contact the GIS Division at:

Lummi Indian Business Council
Gerry Gabrisch GISP, GIS Manager
2665 Kwina Road #S-2312
Bellingham, WA 98226
(360) 312-2310
geraldg@lummi-nsn.gov

Discover More…	**Web Links**
Lummi Nation Website	http://lummi-nsn.org/
Lummi Indian Business Council Website	http://lummi-nsn.gov/
Treaty Protection Website	http://www.treatyprotection.org/
Estongets Woch (Lummi Nation Current Events)	http://lummi-nsn.gov/PDF/EstongetsWoch.pdf
Lummi Communications Website (Monthly News and Podcasts).	http://www.lummi-nsn.org/website/dept_pages/communications/communi_home.shtml
Lummi Nation Facebook Page	https://www.facebook.com/lummicommunications
Lummi Natural Resources Website	http://lnnr.lummi-nsn.gov/LummiWebsite/
Lummi Transit Schedule	http://lummi-nsn.gov/PDF/LummiTransit.pdf
Download the Lummi Address Atlas (270MB).	ftp://lnnr.lummi-nsn.gov/2013AddressAtlasDRAFT.pdf
Find LIBC Office Locations using Google Maps.	https://maps.google.com/maps/ms?ie=UTF8&hl=en&msa=0&msid=110323157748962226615.000489a487370df6740d5&ll=48.793719,-122.626605&spn=0.020412,0.038409&source=embed
Find Lummi Community Buildings using Google Maps.	https://maps.google.com/maps/ms?ie=UTF8&oe=UTF8&msa=0&msid=110323157748962226615.000489b8bf4d3e797a477

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Appendix A: Point Elliott Treaty

Treaty between the United States and the Dwamish, Suquamish, and other allied and subordinate Tribes of Indians in Washington Territory.

JAMES BUCHANAN,
PRESIDENT OF THE UNITED STATES OF AMERICA

TO ALL AND SINGULAR TO WHOM THESE PRESENTS SHALL COME, GREETING:

WHEREAS a treaty was made and concluded at Muckl-te-oh, or Point Elliott, in the territory of Washington, this twenty-second day of January, eighteen hundred and fifty-five, by Isaac I. Stevens, governor and superintendent of Indian affairs for the said Territory, on the part of the United States, and the undersigned chiefs, head-men and delegates of the Dwamish, Suquamish, Sk-kahl-mish, Sam-ahmish, Smalh-kamish, Skope-ahmish, St-kah-mish, Snoqualmoo, Skai-wha-mish, N'Quentl-ma-mish, Sk-tah-le-jum, Stoluck-wha-mish, Sno-ho-mish, Skagit, Kik-i-allus, Swin-a-mish, Squin-ah-mish, Sah-ku-mehu, Noo-wha-ha, Nook-wa-chah-mish, Mee-see-qua-guilch, Cho-bah-ah-bish, and othe allied and subordinate tribes and bands of Indians occupying certain lands situated in said Territory of Washington, on behalf of said tribes, and duly authorized by them.

ARTICLE 1. **The said tribes and bands of Indians hereby cede, relinquish, and convey to the United States all their right, title, and interest in and to the lands and country occupied by them,** bounded and described as follows: Commencing at a point on the eastern side of Admiralty Inlet, known as Point Pully, about midway between Commencement and Elliott Bays; thence eastwardly, running along the north line of lands heretofore ceded to the United States by the Nisqually, Puyallup, and other Indians, to the summit of the Cascade range of mountains; thence northwardly, following the summit of said range to the 49th parallel of north latitude; thence west, along said parallel to the middle of the Gulf of Georgia; thence through the middle of said gulf and the main channel through the Canal de Arro to the Straits of Fuca, and crossing the same through the middle of Admiralty Inlet to Suquamish Head; thence southwesterly, through the peninsula, and following the divide between Hood's Canal and Admiralty Inlet to the portage known as Wilkes' Portage; thence northeastwardly, and following the line of lands heretofore ceded as aforesaid to Point Southworth, on the western side of Admiralty Inlet, and thence around the foot of Vashon's Island eastwardly and southeastwardly to the place of beginning, including all the islands comprised within said boundaries, and all the right, title, and interest of the said tribes and bands to any lands within the territory of the United States.

ARTICLE 2. There is, however, **reserved for the present use and occupation** of the said tribes and bands the following tracts of land, viz: the amount of two sections, or twelve hundred and eighty acres, surrounding the small bight at the head of Port Madison, called by the Indians Noo-sohk-um; the amount of two sections, or twelve hundred and eighty acres, on the north side Hwhomish Bay and the creek emptying into the same called Kwilt-seh-da, the peninsula at the southeastern end of Perry's Island, called Shais-quihl, and the island called Chah-choo-sen, situated in the Lummi River at the point of separation of the mouths emptying respectively into Bellingham Bay and the Gulf of Georgia; **all which tracts shall be set apart, and so far as necessary surveyed and marked out for their exclusive use; nor shall any white man be permitted to reside upon the same without permission of the said tribes or bands**, and of the superintendent or agent, but, if necessary for the public convenience, roads may be run through the said reserves, the Indians being compensated for any damage thereby done them.

ARTICLE 3. There is also reserved from out the lands hereby ceded the amount of thirty-six sections, or one township of land, on the northeastern shore of Port Gardner, and north of the mouth of Snohomish River, including Tulalip Bay and the before-mentioned Kwilt-seh-da Creek, for the purpose of establishing thereon an agricultural and industrial school, as hereinafter

mentioned and agreed, and with a view of ultimately drawing thereto and settling thereon all the Indians living west of the Cascade Mountains in said Territory. Provided, however, That the President may establish the central agency and general reservation at such other point as he may deem for the benefit of the Indians.

ARTICLE 4. The said tribes and bands agree to remove to and settle upon the said first above-mentioned reservations within one year after the ratification of this treaty, or sooner, if the means are furnished them. In the mean time it shall be lawful for them to reside upon any land not in the actual claim and occupation of citizens of the United States, and upon any land claimed or occupied, if with the permission of the owner.

ARTICLE 5. **The right of taking fish at usual and accustomed grounds and stations is further secured to said Indians in common with all citizens of the Territory, 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. Provided, however, that they shall not take shell-fish from any beds staked or cultivated by citizens.**

ARTICLE 6. In consideration of the above cession, the United States agree to pay to the said tribes and bands the sum of one hundred and fifty thousand dollars, in the following manner - - that is to say: For the first year after the ratification hereof, fifteen thousand dollars; for the next two year, twelve thousand dollars each year; for the next three years, ten thousand dollars each year; for the next four years, seven thousand five hundred dollars each years; for the next five years, six thousand dollars each year; and for the last five years, four thousand two hundred and fifty dollars each year. All which said sums of money shall be applied to the use and benefit of the said Indians, under the direction of the President of the United States, who may, from time to time, determine at his discretion upon what beneficial objects to expend the same; and the superintendent of Indian affairs, or other proper officer, shall each year inform the President of the wishes of said Indians in respect thereto.

ARTICLE 7. The President may hereafter, when in his opinion the interests of the Territory shall require and the welfare of the said Indians be promoted, remove them from either or all of the special reservations hereinbefore make to the said general reservation, or such other suitable place within said Territory as he may deem fit, on remunerating them for their improvements and the expenses of such removal, or may consolidate them with other friendly tribes or bands; and he may further at his discretion cause the whole or any portion of the lands hereby reserved, or of such other land as may be selected in lieu thereof, to be surveyed into lots, and assign the same to suc individuals or families as are willing to avail themselves of the privilege, and will locate on the same as a permanent home on the same terms and subject to the same regulations as are provided in the sixth article of the treaty with the Omahas, so far as the same may be applicable. Any substantial improvements heretofore made by any Indian, and which he shall be compelled to abandon in consequence of this treaty, shall be valued under the direction of the President and payment made accordingly therefor.

ARTICLE 8. The annuities of the aforesaid tribes and bands shall not be taken to pay the debts of individuals.

ARTICLE 9. The said tribes and bands acknowledge their dependence on the Government of the United States, and promise to be friendly with all citizens thereof, and they pledge themselves to commit no depredations on the property of such citizens. Should any one or more of them violate this pledge, and the fact be satisfactorily proven before the agent, the property taken shall be returned, or in default thereof, of if injured or destroyed, compensation may be made by the Government out of their annuities. Nor will they make war on any other tribe except in selfdefence, but will submit all matters of difference between them and the other Indians to the Government of the United States or its agent for decision, and abide thereby. And if any of the said Indians commit depredations on other Indians within the Territory the same rule shall prevail as that prescribed in this article in cases of depredations against citizens. And the said tribes

agree not to shelter or conceal offenders against the laws of the United States, but to deliver them up to the authorities for trial.

ARTICLE 11. The said tribes and bands agree to free all slaves now held by them and not to purchase or acquire others hereafter.

ARTICLE 12. The said tribes and bands further agree not to trade at Vancouver's Island or elsewhere out of the dominions of the United States, nor shall foreign Indians be permitted to reside in their reservations without consent of the superintendent or agent.

ARTICLE 13. To enable the said Indians to remove to and settle upon their aforesaid reservations, **and to clear, fence, and break up a sufficient quantity of land for cultivation, the United States further agree to pay the sum of fifteen thousand dollars** to be laid out and expended under the direction of the President and in such manner as he shall approve.

ARTICLE 14. The United States further agree to establish at the general agency for the district of Puget's Sound, within one year from the ratification hereof, and to support for a period of twenty years, **an agricultural and industrial school, to be free to children of the said tribes and bands in common with those of the other tribes of said district, and to provide the said school with a suitable instructor or instructors, and also to provide a smithy and carpenter's shop, and furnish them with the necessary tools, and employ a blacksmith, carpenter, and farmer for the like term of twenty years to instruct the Indians in their respective occupations.** And the United States finally agree to employ a physician to reside at the said central agency, who shall furnish medicine and advice to their sick, and shall vaccinate them; the expenses of said school, shops, persons employed, and medical attendance to be defrayed by the United States, and not deducted from the annuities.

ARTICLE 15. This treaty shall be obligatory on the contracting parties as soon as the same shall be ratified by the President and Senate of the United States.

In testimony whereof, the said Isaac I. Stevens, governor and superintendent of Indian affairs, and the undersigned chiefs, headmen, and delegates of the aforesaid tribes and bands of Indians, have hereunto set their hands and seals, at the place and on the day and year hereinbefore written.

Issac I. Stevens,
Governor and Superintendent. (L.S.)

Seattle	his x mark	Chief of the Dwamish and Suquamish tribes
Pat-ka-nam	his x mark	Chief of the Snoqualmoo, Snohomish and other tribes
Chow-its-hoot	his x mark	Chief of the Lummi and other tribes
Gonah	his x mark	Chief of the Skagits and other allied tribes
Kwallattum	his x mark	Sub-chief of the Skagit tribe
S'hootst-hoot	his x mark	Sub-chief of Snohomish
Snah-tale	his x mark	Sub-chief of Snohomish
Squush-um	his x mark	Sub-chief of the Snoqualmoo
See-alla-pa-han	his x mark	Sub-chief of Sk-tah-le-jum
He-uch-ka-nam	his x mark	Sub-chief of Snohomish
Tse-nah-talc	his x mark	Sub-chief of Snohomish
Ns'ski-oos	his x mark	Sub-chief of Snohomish
Wats-ka-lah-tchie	his x mark	Sub-chief of Snohomish
Smeh-mai-hu	his x mark	Sub-chief of Skai-wha-mish
St'hau-ai	his x mark	Sub-chief of Snoqualmoo
Lugs-ken,	his x mark	Sub-chief of Skai-wha-mish
S'heht-soolt	his x mark	Sub-chief of Snohomish

Do-queh-oo-satl	his x mark	Snoqualmoo tribe
John Kanam	his x mark	Snoqualmoo sub-chie
Klemsh-ka-nam	his x mark	Snoqualmoo
Ts'huahntl	his x mark	Dwa-mish sub-chief
Kwuss-ka-nam	his x mark	Sen., Skagit tribe
Hel-mits	his x mark	Skagit sub-chief
S'kwai-kwi	his x mark	Skagit tribe, sub-chief
Seh-lek-qu	his x mark	Sub-chief Lummi tribe
S'h'-cheh-oos	his x mark	Sub-chief of Lummi tribe
Whai-lan-hu	his x mark	Sub-chief of Lummi tribe
She-ah-delt-hu	his x mark	Sub-chief of Lummi tribe
Kwult-seh	his x mark	Sub-chief of Lummi tribe
Kwull-et-hu	his x mark	Lummi tribe
Kleh-kent-soot	his x mark	Skagit tribe
Sohn-heh-ovs	his x mark	Skagit tribe
S'deh-ap-kan	his x mark	Skagit tribe
Chul-whil-tan	his x mark	Sub-chief of Suquamish tribe
Ske-eh-tum	his x mark	Skagit tribe
Patchkanam	his x mark	Skagit tribe
Sats-Kanam	his x mark	Squin-ah-nush tribe
Sd-zo-mahtl	his x mark	Kik-ial-lus band
Dahtl-de-min	his x mark	Sub-chief of Sah-ku-meh-hu
Sd'zek-du-num	his x mark	Me-sek-wi-guilse sub-chief
Now-a-chais	his x mark	Sub-chief of Dwamish
Mis-lo-tche	his x mark	Sub-chief of Suquamish
Sloo-noksh-tan	his x mark	Suquamish tribe
Moo-whah-lad-hu	his x mark	Suquamish tribe
Too-leh-plan	his x mark	Suquamish tribe
Ha-seh-doo-an	his x mark	Dwamish tribe
Hoovilt-meh-tum	his x mark	Sub-chief of Suquamish
We-ai-pah	his x mark	Skaiwhamish tribe
S'ah-an-hu	his x mark	Snohomish tribe
She-hope	his x mark	Skagit tribe
Hwn-lah-lakq	his x mark	Lummi tribe
Cht-simpt	his x mark	Lummi tribe
Tse-sum-ten	his x mark	Lummi tribe
Klt-hahl-ten	his x mark	Lummi tribe
Kut-ta-kanam	his x mark	Lummi tribe
Ch-lah-ben	his x mark	Noo-qua-cha-mish band
Noo-heh-oos	his x mark	Snoqualmoo tribe
Hweh-uk	his x mark	Snoqualmoo tribe
Peh-nus	his x mark	Skai-whamish tribe
Yim-ka-dam	his x mark	Snoqualmoo tribe
Twooi-as-kut	his x mark	Skaiwhamish tribe
Luch-al-kanam	his x mark	Snoqualmoo tribe
S'hoot-kanam	his x mark	Snoqualmoo tribe
Sme-a-kanam	his x mark	Snoqualmoo tribe
Sad-zis-keh	his x mark	Snoqualmoo
Heh-mahl	his x mark	Skaiwhamish band
Charley	his x mark	Skagit tribe
Sampson	his x mark	Skagit tribe
John Taylor	his x mark	Snohomish tribe
Hatch-kwentum	his x mark	Skagit tribe
Yo-i-kum	his x mark	Skagit tribe
T'kwa-ma-han	his x mark	Skagit tribe
Sto-dum-kan	his x mark	Swinamish band

Be-lole	his x mark	Swinamish band
D'zo-lole-gwam-hu	his x mark	Skagit tribe
Steh-shail	his x mark	Skaiwhamish band
Kel-kahl-tsoot	his x mark	Swinamish tribe
Pat-sen	his x mark	Skagit tribe
Pat-teh-us	his x mark	Noo-wha-ah sub-chief
S'hoolk-ka-nam	his x mark	Lummi sub-chief
Ch-lok-suts	his x mark	

Executed in the presence of us - -

M. T. Simmons, Indian agent.
C. H. Mason, Secretary of Washington Territory.
Benj. F. Shaw, Interpreter.
Chas. M. Hitchcock.
H. a. Goldsborough.
George Gibbs.
John H. Scranton.
Henry D. Cock.
S. S. Ford, Jr.
Orrington Cushman.
Ellis Barnes.
R. S. Bailey.
S. M. Collins.
Lafayetee Balch.
E. S. Fowler.
J. H. Hall.
Rob't Davis.

And whereas, the said treaty having been submitted to the Senate of the United State for its constitutional action thereon, the Senate did, on the eighth day of March, one thousand eight hundred and fifty-nine, advise and consent to the ratification of its articles by a resolution in the words and figures following, to wit:

"In Executive Session,

" Senate of the United States, march, 8, 1859.

" Resolved, (two-thirds of the senators present concurring.) That the Senate advise and consent to the ratification of treaty between the United States and the chiefs, headmen and delegates of the Dwamish, Suquamish, and other allied and subordinate tribes of Indians occupying certain lands situated in Washington territory, signed the 22nd day of January, 1855.

" Attest: " Asbury Dickins, Secretary."

Now, therefore, be it know that I, James Buchanan, President of the United States of America, do, in pursuance of the advice and consent of the Senate, as expressed in their resolution of the eighth of March, one thousand eight hundred and fifty-nine, accept, ratify, and confirm the said treaty.

In testimony whereof, I have caused the seal of the United States to the Herto affixed, and have signed the same with my hand.

Done at the city of Washington, this eleventh day of April, in the year of our lord one thousand eight hundred and fifty-nine, and of the independence of the United States the eighty-third.

James Buchanan

Appendix B: Lummi Constitution and Bylaws

PREAMBLE

We, the members of the Lummi Tribe of Indians of the Lummi Reservation in the State of Washington, in order to make the tribal government, established by the constitution and bylaws approved April 10, 1970, more responsive to the tribe, to develop our community resources, administer justice, protect our tribal interests, and promote the economic and social welfare of ourselves and our descendants, and to preserve our land base, culture, and identity, do hereby establish this constitution and bylaws, which shall revoke and replace said constitution and bylaws approved April 2, 1948, and shall henceforth constitute the governing document of the Lummi Tribe.
[Amended: Resolution #98-23, March 6, 1998.]

ARTICLE I - TERRITORY AND JURISDICTION

The jurisdiction of the Lummi Nation shall extend to: (a) all lands, waters and other resources within the territorial boundaries of the Lummi Reservation as established by the Treaty of January 22, 1855 and added to the Lummi Reservation by the Executive Order of November 11, 1873; (b) all lands, waters and other resources as may be hereafter added to the Lummi Reservation; (c) all lands, waters and other resources owned by the Lummi Nation or held in trust for the Nation or its members; (d) persons and activities within or affecting the lands, waters, and other resources subject to the Nation's jurisdiction; (e) the exercise of treaty reserved rights, including but not limited to, fishing, hunting and gathering; (f) all cultural property, resources and activities of the Lummi People; (g) all members or individuals eligible for membership in the Lummi Nation and their descendents.

[Amended: Resolution #2006-019, February 7, 2006]

ARTICLE II - MEMBERSHIP

Section 1. The membership of the Lummi Tribe shall consist of the following:

(a) All persons of Indian blood whose names appear on the Official Census Roll of the Tribe as of January 1, 1942, provided that such roll may be corrected by the Lummi Business Council with the approval of the Commissioner of Indian Affairs.

(b) Any person of Indian blood who were residents of the reservation on January 1, 1947, and whose names would have been placed on a census roll of that date had one been prepared.

(c) All other persons of Indian blood resident on the reservation at any time between January 1, 1942, and the effective date of this constitution, who were accepted by the general council as members of the Lummi Tribe.

(d) All children born between January 1, 1942, and the effective date of this constitution, to any member of the tribe who was living on the Lummi Reservation at the time of the birth of said child.

(e) All children of one-fourth (1/4) degree or more Indian blood born between January 1, 1942, and effective date of this constitution, to any member of the tribe not living on the reservation at the time of the birth of said child.

(f) All children of one-fourth (1/4) degree or more Indian blood born to any member of the tribe after the effective date of this constitution.

Sec. 2. The Lummi Business Council shall have the power to pass ordinances subject to the approval of the Commissioner of Indian Affairs, governing future membership, abandonment of membership, and the adoption of new members, provided that all adoptions must be approved by the general council.

ARTICLE III - GENERAL COUNCIL

Section 1. The general council shall consist of the entire voting membership of the Lummi Tribe when it is convened officially for official business. The annual general council meeting shall be called during the first week of January, provided that special meetings shall be called by majority vote of the business council or upon the request, in writing, of twenty voting members of the tribe. Public notices of all special general council meetings shall be made at least ten (10) days prior to such meetings. It shall also be the duty of the chairman to make a report at the annual general council meeting of the activities of the business council throughout the past year and to outline proposed plans for future economic and social betterment of the tribe.

Sec. 2. Voter Qualifications. Any member of the Lummi Tribe, eighteen (18) years of age, or over, who has maintained legal residence on the reservation or within the boundaries of Whatcom County, Washington, for at least six (6) months immediately preceding any election, shall be qualified to vote on all matters before the general council meetings.
[Amended: Resolution #98-23, March 6, 1998.]

Sec. 3. The duties of the general council shall consist of but need not be limited to the following:

(a) Act on all adoptions recommended by the business council, as provided in Section 2, Article II of this constitution;

(b) Review the actions of the business council at the annual meeting;

(c) Recommend actions to be taken by the business council;

(d) Appoint a committee to certify all elections to the business council;

(e) Consider the recall of members of the business council, as provided in Section 2, Article V, and consider all referendums, as provided in Article VII of this constitution.

ARTICLE IV - GOVERNING BODY

Section 1. The governing body of the Lummi Tribe shall be a business council consisting of eleven (11) members duly elected to serve for a three-year term, as provided in Section 4 of this Article, provided that a minimum of seven (7) members must live on the reservation.

Sec. 2. Qualifications. Any eligible voter shall be qualified to serve as a member of the Lummi Business Council, provided that he has been living within the boundaries of Whatcom County, Washington for at least one (1) year immediately preceding any election, and complies with Section 1 of this Article.

Sec. 3. Selection of Officers. The business council so organized shall, on a yearly basis, elect from within its own number: (1) a chairman, (2) a vice-chairman, (3) a secretary, and (4) a treasurer, and may appoint or employ such other officers or committees as may be necessary.

Sec. 4. Election of Business Council Members. After the ratification and approval of this constitution and bylaws, the first business council under this constitution shall be the council existing under the 1948 constitution. Members of that body shall draw lots in order that the terms of office of the present members can be determined for one, two, or three years, and thereafter an election shall be held at the next regular general council meeting for the positions held by the three councilmen who drew the one-year lots with an election of these three positions every three years thereafter. In the other years, four councilmen shall be elected at the regular general council meeting, first for the positions held by the four councilmen who drew the two-year lots and then for the positions held by the four councilmen who drew the three-year lots.

ARTICLE V - VACANCIES AND RECALL

Section 1. Vacancy. If any member of the business council shall die, resign, or move outside the boundaries of Whatcom County, or shall be found guilty of a felony, or a misdemeanor involving dishonesty in any Indian, State, or Federal court, a vacancy in his office shall automatically be created, and at its next regular or special meeting, the business council shall appoint a person qualified pursuant to Article IV to fill the office until the next annual general council meeting, at which time a successor shall be elected pursuant to Article IV, to fill the office for the balance of the unexpired term, provided that whether vacancies are filled by appointment or election, the number of council members required to live on the reservation pursuant to Section 1, Article IV, shall be maintained.

If a business council member changes his residence from the reservation to elsewhere within Whatcom County during his term of office, and if such move results in less than the number of business council members required to live on the reservation by Section 1, Article IV, that council member's position shall automatically become vacant and shall be filled pursuant to this section.

Sec. 2. Recall. The members of the general council shall have the power to initiate recall of any member of the business council by filing a petition with the secretary of the business council signed by at least twenty-five percent (25%) of the number of those voting at the last regular general council meeting, asking for the recall of said member of the business council; or, the business council may, by majority vote, initiate recall of any councilman for neglect of duty or gross misconduct, provided that in neither procedure shall a person be recalled except at a special meeting of the general council called for that purpose within thirty days after the business council action or the filing of the voter petition, provided that he shall be given in writing a statement of the charges against him at least ten (10) days prior to the general council meeting, provided further, that he shall be given an opportunity to answer any and all charges. A two-thirds (2/3) majority vote of those attending the meeting shall be required to effect recall. The general council's decision shall be final.

Sec. 3. Unexcused Absence. Any councilman who shall absent himself from three (3) successive meetings without being excused for cause, shall forfeit all rights to his office.

ARTICLE VI - POWERS AND DUTIES OF THE BUSINESS COUNCIL

Section 1. The Lummi Business Council shall have the following powers, subject to any limitation imposed by Federal statutes or by the Constitution of the United States:

(a) To administer all tribal property and assets, by ordinance where required;

(b) To borrow money from the Federal Government, or other sources, and to direct the use of such funds for productive purposes, or loan money to members of the Lummi Tribe, as defined in Article II;

(c) To collect and expend any Lummi tribal funds within the exclusive control of the tribe, and to recommend the expenditure of any other tribal funds;

(d) To purchase or lease in the name of the Lummi Indian Tribe any land or other property the council may deem beneficial to said Lummi Tribe;

(e) To enforce regulations contained in approved tribal resolutions and ordinances for the protection of tribal property, fish and wild life, and other natural resources of the Lummi Tribe;

(f) (1) To levy assessments or license fees on nonmembers doing business or obtaining special privileges within the reservation, subject to the approval of the Lummi Nation General Council.
[Amended: Resolution #97-38, February 11, 1997.]

(2) To promulgate rules and regulations and enforce assessments or license fees on members exercising special privileges or profiting on general resources from tribal property;

(g) To negotiate with the Federal, State, and local governments on behalf of the tribe;

(h) To employ legal counsel, the choice of counsel and fixing of fees to be subject to the approval of the Lummi Nation General Council;
[Amended: Resolution #97-38, February 11, 1997.]

(i) To prevent the sale of tribal lands or interests in tribal lands without the consent of the general council;

(j) To exclude from the restricted land of the Lummi Reservation persons not legally entitled to reside therein, under ordinances which shall be subject to the approval of the Lummi Nation General Council;
[Amended: Resolution #97-38, February 11, 1997.]

(k) To promulgate and enforce ordinances, which shall be subject to the approval of the Lummi Nation General Council, governing the conduct of members of the Lummi Tribe, and providing for the maintenance of law and order and the administration of justice by establishing a reservation court and defining its duties and powers;
[Amended: Resolution #97-38, February 11, 1997.]

(l) To safeguard and promote the peace, safety, morals, and general welfare of the Lummi Reservation by regulating the conduct of trade and the use and disposition of property upon the reservation, provided that ordinances directly affecting nonmembers of the tribe shall be subject to approval of the Lummi Nation General Council;
[Amended: Resolution #97-38, February 11, 1997.]

(m) To adopt resolutions regulating the procedure of the business council itself and subordinate tribal organizations, and tribal officials over whom it has jurisdiction;

(n) To promote public health and education, encourage Indian handicrafts, the administration of charity, the conservation and utilization of natural resources, and such other services which may contribute to the social advancement of the tribe;

(o) To make rules and procedures not inconsistent with the provisions of this constitution governing all tribal elections, which shall, among other things, provide for secret balloting;

(p) to delegate to subordinate boards or to cooperative associations which are open to all members of the tribe, any of the foregoing powers, reserving the right to review any action taken by virtue of such delegated powers, provided that all final action must be taken by the business council.

Sec. 2. Future Powers. The Lummi Business Council may exercise such further powers as may, in the future, be delegated to the business council.

Sec. 3. Reserved Powers. Any rights and powers heretofore vested in the tribe but not expressly referred to in this constitution shall not be abridged by this article, but may be exercised by the people of the Lummi Reservation through the adoption of appropriate bylaws and constitutional amendments.

ARTICLE VII - REFERENDUM

Upon receipt of a petition of at least twenty-five percent (25%) of the voting membership of the tribe, or upon the request of the majority of the full membership of the business council, the chairman shall call a special meeting of the general council to be held within thirty (30) days of receipt of such petition or request, to consider any enacted or proposed ordinances or resolutions, and the vote of the majority of the voting membership attending the special meeting will decide whether the enacted or proposed ordinances or resolutions shall thereafter be in effect, provided that twenty-five percent (25%) or more of the eligible voters shall vote in such referendum. Public notices of all special meetings shall be made in accordance with Section 1, Article III.

ARTICLE VIII - BILL OF RIGHTS

All members of the Lummi Indian Tribe shall be accorded equal rights pursuant to tribal law. No member shall be denied any of the rights or guarantees enjoyed by non-Indian citizens under the Constitution of the United States, including, but not limited to, freedom of religion and conscience, freedom of speech, the right to orderly association or assembly, the right to petition for action or the redress of grievances, and due process of law. No member shall be denied any of the rights or guarantees as provided in Title II of Public Law 90-284 -- the Act of April 11, 1968 (82 Stat. 77 and 78) as follows:

No Indian Tribe in exercising powers of self-government shall ---

(1) make or enforce any law prohibiting the free exercise of religion, or abridging the freedom of speech, or of the press, or the right of the people peaceably to assemble and to petition for a redress of grievances;

(2) violate the right of the people to be secure in their persons, houses, papers, and effects against unreasonable search and seizures, nor issue warrants, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched and the person or thing to be seized;

(3) subject any person for the same offense to be twice put in jeopardy;

(4) compel any person in any criminal case to be a witness against himself;

(5) take any private property for a public use without just compensation;

(6) deny to any person in a criminal proceeding the right to a speedy and public trial, to be informed of the nature and cause of the accusation, to be confronted with the witnesses against him, to have compulsory process for obtaining witnesses in his favor, and at his own expense to have the assistance of counsel for his defense;

(7) require excessive bail, impose excessive fines, inflict cruel and unusual punishments, and in no event impose for conviction of any one offense any penalty or punishment greater than authorized by the Indian Civil Rights Act, Title II of Public Law 90-284, as amended from time to time;
[Amended: Resolution #2001-022, February 6, 2001.]

(8) deny to any person within its jurisdiction the equal protection of its laws or deprive any person of liberty or property without due process of law;

(9) pass any bill of attainder or ex post facto law; or

(10) deny to any person accused of an offense punishable by imprisonment the right, upon request, to a trial by jury of not less than six persons.

ARTICLE IX - AMENDMENTS

This constitution and bylaws may be amended by a two-thirds (2/3) vote of the General Council voting at an election called for that purpose, provided that at least thirty percent (30%) of the General Council entitled to vote shall vote in such an election.

It shall be the duty of the Lummi Indian Business Council to call an election upon a two-thirds (2/3) vote of the members of the business council present at a duly convened meeting or upon receipt of a petition signed by thirty (30) eligible voters of the General Council of the tribe.
[Amended: Resolution #96-28, February 8, 1996.]

BYLAWS OF THE LUMMI TRIBE

ARTICLE I - THE BUSINESS COUNCIL

Section 1. The chairman of the business council shall preside over all business and general council meetings of the tribe. He shall be allowed to vote only in case of a tie. He shall exercise any authority specifically delegated to him by the business council.

Sec. 2. The vice-chairman of the business council shall assist the chairman when called upon to do so. In the absence of the chairman, he shall preside, and when so presiding, have all the rights, privileges, and duties, as well as the responsibilities, of the chairman.

Sec. 3. The secretary shall prepare all tribal correspondence and shall not sign notices or documents unless authorized by the business council. It shall be the duty of the secretary to keep a complete and accurate record of all matters transacted at council meetings and to submit copies of minutes of all meetings of the business council and general council to the Western Washington Agency.

Sec. 4. The treasurer shall have custody of and be responsible for all funds in the custody of the business council. The treasurer shall deposit all such funds in such federally insured banks or elsewhere as directed by the business council and shall keep proper records of such funds. The treasurer shall report on all receipts and expenditures and the amount and nature of all

funds on hand at the annual general council meeting and upon request of the business council. The treasurer shall not pay out any funds except when authorized to do so by the business council and all checks must be signed by the treasurer. The business council shall decide when the amount of funds being handled by the treasurer has become large enough to justify the need for an annual audit. It shall then require that the books and records of the treasurer shall be audited by either a competent auditor or by a Federal employee appointed by the Commissioner of Indian Affairs or his authorized representative. The treasurer will be required to have a surety bond satisfactory to the business council and the Superintendent of the Western Washington Agency. The surety bond will be obtained at the expense of the tribe.

Sec. 5 Appointive Officers. The duties of all appointive committees and officers appointed by the business council shall be clearly defined by resolution of the business council at the time of their creation or appointment. Such committees or officers shall report from time to time, as required, to the business council and their activities and decisions shall be subject to review by the business council upon petition of any person aggrieved.

ARTICLE II - INSTALLATION OF OFFICERS AND COUNCIL MEMBERS

Newly elected members who have been duly certified shall be installed thereafter at the next regular meeting of the business council. Each member of the business council and each officer or subordinate officer, elected or appointed hereunder, shall take an oath of office prior to assuming the duties thereof, by which oath he shall pledge himself to support and defend the Constitution of the United States and this constitution and bylaws.

Oath: "I,_____, do solemnly swear that I will support and defend the Constitution of the United States and the constitution of the Lummi Tribe; that I will carry out, faithfully and impartially, the duties of my office to the best of my ability; that I will cooperate, promote, and protect the best interests of my tribe, in accordance with its constitution and bylaws."

ARTICLE III - TIME AND PLACE OF MEETINGS AND PROCEDURE

Section 1. Regular meetings of the business council shall be held on the first Friday of each month. The date of regular meetings may be changed by resolution of the business council. Meetings shall be held at the business office or such other places as the business council may designate from time to time. Special meetings may be called by written notice to all councilmen, signed by the chairman, or by a majority of the business council, and when so called by written notice to all councilmen, the business council shall have power to transact business as in a regular meeting.

Sec. 2. The annual election and general council meeting shall be held during the first week in January of each year, or at such other time as the business council determines.

Sec. 3. Quorum. No business shall be transacted unless a quorum is present. A quorum of the business council shall consist of six (6) members of that council. A quorum of the general council shall consist of twenty-five (25) eligible voters; provided, however, that the lack of a quorum shall not be cause for postponing the annual election of tribal officials.

Sec. 4. The order of business for all meetings is that established in Robert's Rules of Order, Revised Edition.

ARTICLE IV - RATIFICATION OF CONSTITUTION AND BYLAWS

This constitution and bylaws, when adopted by a majority vote of the adult voters of the Lummi Tribe, voting at a special election authorized by the Lummi Indian Business Council in which at least thirty percent (30%) of those entitled to vote shall vote, shall be submitted to the Lummi Indian Business Council for its approval. It shall be in force from the date of such approval.
[Amended: Resolution #98-23, March 6, 1998.]

APPROVAL

I, James F. Canan, Commissioner of Indian Affairs do hereby approve the foregoing Constitution and Bylaws of the Lummi Tribe of the Lummi Reservation, Washington, as provided for in Article IV of the bylaws **-RATIFICATION OF CONSTITUTION AND BYLAWS** of said document.

S/ James F. Canan
Acting - Commissioner of Indian Affairs

Washington, D.C.

DATE: April 10, 1970

CERTIFICATION OF APPROVAL OF AMENDMENT "A" (Article IX)

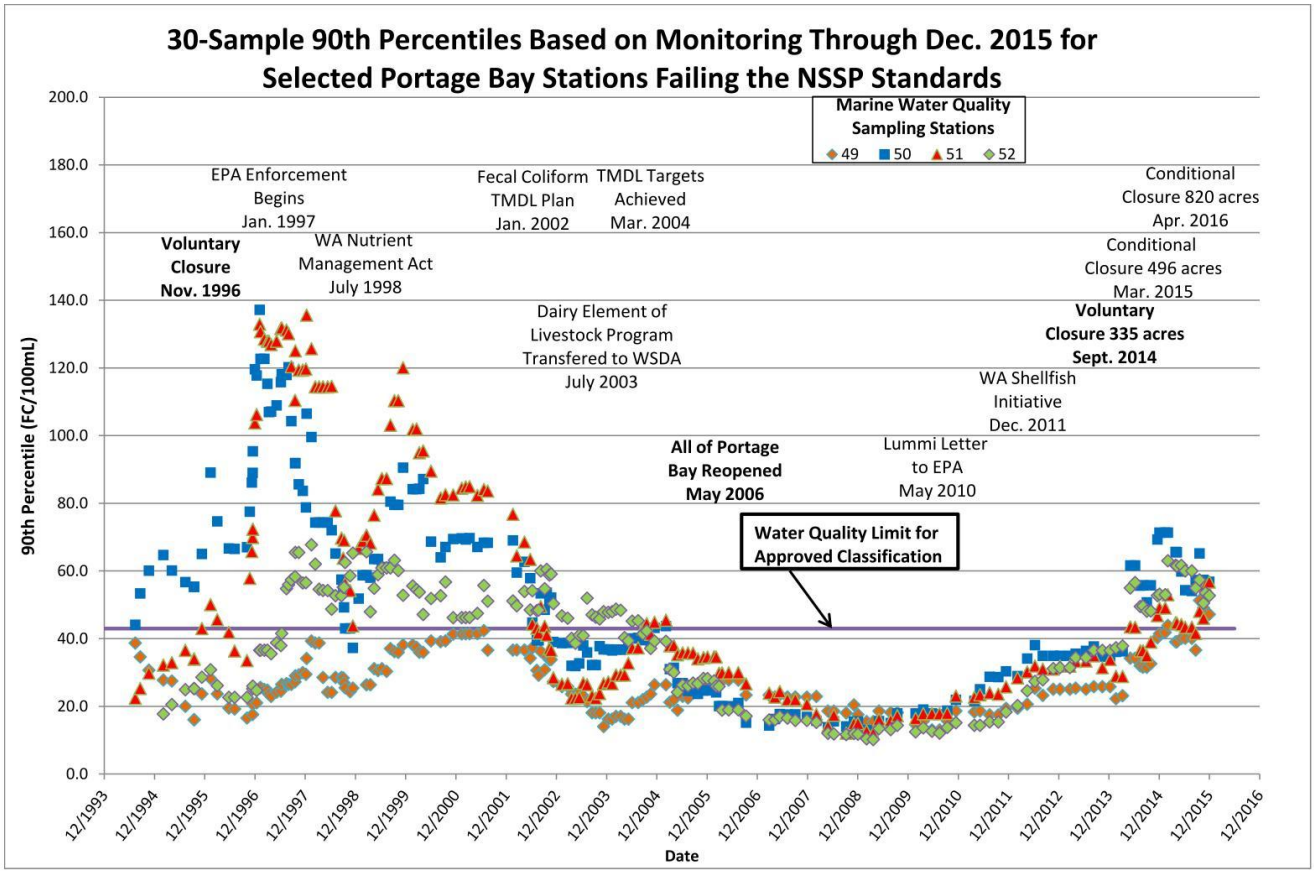
I, Hilda A. Manuel, Deputy Commissioner of Indian Affairs, by virtue of the authority delegated to me by Article IX of the Constitution and Bylaws of the Lummi Tribe of the Lummi Reservation, Washington hereby approve Amendment A. This Amendment is effective as of this date, PROVIDED, that nothing in this approval shall be construed as authorizing any action under this document that would be contrary to Federal law.

S/ Hilda A. Manuel
Deputy Commissioner of Indian Affairs

Washington, D.C.

DATE: June 20, 1996

Appendix C: Fecal coliform in Portage Bay



Appendix C shows a graph the fecal coliform trends as of December 31, 2015. The three water quality stations that are highlighted were the first stations to not meet the National Shellfish Sanitation Program (NSSP) standards in 1996. In December 2011 the Washington Shellfish Initiative was launched and the Nooksack River watershed identified as one of two focus areas. The Initiative resulted in the hiring of a coordinator and two Ecology field inspectors. The inspectors were hired during the summer of 2012 and following training became operational in March 2013. The success of this four year effort will be reflected in the water quality sampling results both in the Nooksack River watershed and Portage Bay.