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Changes in the Economy of the Lummi Indians of Northwest Washington

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CHANGES IN THE ECONOMY OF THE LUMMI INDIANS OF NORTHWEST WASHINGTON

A Thesis

Presented to

the Faculty of

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In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts

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by

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INTRODUCTION

The arrival of Indians in North America from Asia some 15,000 years ago following the last ice age, is a generally accepted premise.[1] During this epoch movement to the continent began via Siberia, the Bering Strait, the Aleutian Islands, and Alaska. Upon coming to America they spread southward and eventually inhabited the Southern Hemisphere. With the advent of Europeans to the Western Hemisphere around 1500, the aboriginal population north of Mexico was estimated to be between 1,000,000 and 3,000,000.[2] Under the domination of whites, the Indians did not fare well, for they decreased in numbers and lost their lands. There are now about 525,000 indigenes in the United States whose only claim to their original territory is found in reservations.[3]

These reservations were established by the United States Government after the Indians were subdued, in exchange for large land concessions. Not infrequently, the locations of reservations, along with some conditions of wardship were important cultural factors in the relegation of the Indians to an implied status of second class citizenship. This is exemplified by the fact that the natives, at least until recently, have

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[1]Harold E. Driver, Indians of North America (Chicago: University of Chicago Press, 1965), p. 4.

[2]Ibid., p. 35.

[3]U. S., Bureau of the Census, Statistical Abstract of the United States: 1968 (89th edition) (Washington: U. S. Government Printing Office, 1968), p. 29.

not been considered seriously as full participants in our society.[4]

Today there appears to be a resurgence of interest in minority groups such as the aborigines. Many citizens are becoming aware that the millions of dollars spent with good intent on behalf of the Indians has frequently done little to improve their lot. What has been undone in many cases cannot be mended. For instance, in this writer's opinion, the return of aboriginal Indian lands as has been mooted occasionally, is out of the question. In other ways, however, the native may be helped to help himself. Such a step is reflected in the Indian Reorganization Act of 1934.[5] What assistance may be designed, however, must be based upon the concept that the people concerned be full participants in both planning and execution.

The Lummi Indians of Northwest Washington are one specific aboriginal people who are now beginning to receive attention from various interested groups. Once prevalent throughout the San Juan Islands, they fell under the domination of whites. In the process of being subdued, they suffered cultural and economic losses which cannot be recovered. Perhaps these may to some extent be substituted by assisting them in the process of acculturation. This study offers no solutions, but does provide, hopefully, some insight into certain economic changes which are occurring among the Lummi Indians in the process of acculturation. This in itself justifies the investigation, but also, in some small way, it may contribute knowledge of them to others directly responsible for efforts to be expended on their behalf.

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[4]Carlos B. Embry, America's Concentration Camps (New York: Van Rees Press, 1956), Foreword, ix-xiv; Text, pp. 3-21, 195-229.

[5]William Brandon, The American Heritage Book of Indians (New York: Dell Publishing Company, Inc., 1964), p. 367.

The Problem

A comparison and contrast of the Lummi Indian economy of northwest Washington between pre-white culture contact times and the present reveals a radical shift in the support base. There has been a decline in the traditional sustenance of fishing, and a movement toward industrial occupations as a means of livelihood. These new endeavors are spatially oriented away from the reservation. The purpose of this study is to confirm this trend and to analyse pertinent causal factors in the changing emphasis.

Preceding Works

Studies of individual groups of North American Indians abound. Many are primarily oriented to the reconstruction of aboriginal conditions. As well, some studies of the acculturation process have been made. With Northwest Coast Indians ample works exist which attempt to construct historic times, but little has been done on acculturation. Unfortunately, the concentration of attention upon these peoples has not been evenly distributed, and emphasis has favored the more northern societies such as the Kwakiutl of the British Columbia coast. By way of examples, Ruth Benedict's classical contribution to anthropology devoted one chapter to various cultural practices of the tribe, while another author, in this case a teacher, recently completed an ethnographic study of a contemporary Kwakiutl village on a small island off the B. C. coast.[6]

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[6]Ruth Benedict, Patterns of Culture (Boston: Houghton Mifflin, 1959), pp. 173-222. Also to be mentioned here is the ethnography of Harry F. Wolcott, A Kwakiutl Village and School (New York: Holt, Rinehart and Winston, 1967), pp. 132. Other works relevant to the Northwest Coast, which supply information valuable in a cultural assessment of these peoples are: Tom McFeat, Indians of the North Pacific Coast (Seattle: University of Washington Press, 1967), pp. 270; Philip Drucker, Cultures of the North Pacific Coast (San Francisco, Chandler Publishing Company, 1965), pp. 243.

Puget Sound Indians have received little specific attention, possibly because many groups are small and appear less spectacular than their northern neighbors. With urbanization has come the realization that many groups have been shattered because of overpowering white impact, and that something should be done to at least understand historical times.[7] The most prominent work in the Puget area is a general ethnography of the Sound Indians, emphasizing mainly the Snohomish, the Snuqualmi and the Nisqually. There is some information relevant to the Skykomish and Skagit, and occasional references are made to other Puget Sound groups.[8]

The Lummi Indians, located near Puget Sound, are one of the tribes which make up the Coast Salish. At least three studies have been done by ethnographers concerning these Indians. The first is a cultural treatise, basically a historical construction. Of the other two works, one forms part of a doctoral dissertation on the Coast Salish, while the other sketches various cultural and economic changes which have occurred since European contact. All three offer valuable background information regarding such topics as crafts, economic life, dress and personal care, social and religious life.[9] So far as is known, there has been no geographically oriented economic study such as developed in this thesis.

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[7]Smith, M. W. (ed.), Indians in the Urban Northwest (New York: Columbia University Press, 1949), pp. 370.

[8]Herman Haeberlin and Erna Gunther, The Indians of Puget Sound (Seattle: University of Washington Press, 1967), pp. 85.

[9]The following references are given in order of their mention in the paragraph: B. J. Stern, The Lummi Indians of Northwest Washington (New York: Columbia University Press, 1934), pp. 127; Wayne Prescott Suttles, "Economic Life of the Coast Salish of Haro and Rosario Straits," (Unpublished Ph. D. Dissertation, Department of Anthropology, University of Washington, 1951), pp. 512; and, Wayne Prescott Suttles, "Post-Contact Culture Changes Among the Lummi Indians," B. C. Historical Quarterly, XVIII (January to April, 1954), pp. 27-102.

Methods

Consequently, there was limited previous work upon which to draw for this investigation. Except for the library oriented historical and geographical research, and the analysis of data such as that supplied by the State of Washington, Department of Fisheries, the results of this study are the product of field work, which extended intermittently over a six month period beginning in July, 1968.

The methods of approach are to some degree reflected by the various divisions of the treatise. Evidence of the physical geography (including the site, climate, and vegetation) and of the historical study of human migration and sequent occupation of the region, all of which are discussed in Chapter II, was readily obtainable from library sources. Chapter III, which traces the historical Lummi fishery, was developed by a combination of library research and informant recall. Chapters IV to VII, which dwell on current fisheries, their decline, and the native movement into alternative economic endeavors, were based upon the analysis of various statistical data and field work which involved inspection of the reservation, and interviews with numerous informants. Figuring prominently in the research techniques was the informal interview, the use of which incorporated over thirty people, some of whom were contacted several times.

Throughout the study many figures are quoted. Some were based upon reliable sources such as the State of Washington, Department of Fisheries. It should be kept in mind, however, that much information was dependent upon estimation, recall, and inconclusive data, some of which appeared to have been gathered by questionable techniques. Thus most values and amounts stated are approximations.

CHAPTER II

THE PHYSICAL-CULTURAL SETTING

The Site

The basis for the Lummi Reservation was created by the Treaty of Point Elliott (Muckl-te-oh), 1855.[1] Under Treaty terms, various coastal Indian tribes surrendered their domains, and from these, general preserves were founded. The present Lummi Reservation was established from these lands by executive order, November 22, 1873.[2] Lying about six miles west of Bellingham, Washington, it forms the most westerly part of the Bellingham Lowland in western Whatcom County. Fringing the reservation and lowlands are mountains of the Cascades to the east and south, and the Fraser Lowlands to the north. Waters and islands adjacent to the reserve include: Lummi Bay, Hale Passage, Bellingham Bay, Lummi Island, and the San Juan Islands. Forming part of the eastern margin of the reservation is the Nooksack River which, upon reaching the lowlands from Mount Baker in the Cascade Mountains, debouches into Bellingham Bay. Once a major distributary of the Nooksack, the Lummi (Red) River enters the northeastern sector of the reservation and flows in a southwesterly direction across the region to discharge into Lummi Bay. Now effectively blocked by dyking at the main river it is little more than a drainage

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[1] C. J. Kappler (comp.), Indian Affairs, Laws and Treaties, Vol. II: Treaties (Washington: Government Printing Office, 1904), pp. 669-673.

[2] Ibid., Vol. I: Laws, p. 917.

ditch for the surrounding area through which it passes.

The area of the reservation is approximately 12,500 acres. A perusal of Appendix I reveals, however, that much of the land has been alienated either by direct sale or leasing. Approximately 40 percent has been removed from Lummi control by sale, while an additional 20 percent has been leased to whites as farmland.[3]

The reservation has four distinct physiographic units: the Lummi Peninsula and Portage Island (Point Frances); the Nooksack and Lummi River flood plains; the southern extension of Mountain View Upland; and Sandy Point.[4] Surface relief, which is uncomplicated, bears a distinct relationship with the several soils found in the area. The interrelationship of these may be found by the inspection of Figure 1.

The highest lands reaching a maximum elevation slightly in excess of 200 feet are found on the northwestern part of the reservation, the central portion of the peninsula, and on Portage Island. Soils of these three locations are composed of till and recessional outwash of the geologically recent Vashon glaciation, a grey, blue, hard, intimate mixture of clay, silt, sand, and gravel. These were created some 10,000 to 15,000 years ago during the Pleistocene epoch. Flanking the till and recessional outwash, and merging with the Nooksack and Lummi river flood plains are two small areas of recessional outwash of the Vashon glacia-

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[3]Interview with Mr. Forrest Kinley, Community Action Program Director, Lummi Indian Reserve, July, 1968. Further, in an interview with Mr. Harlow Nasewytema, Officer of Tenure and Management, B. I. A., Everett, in January, 1969, the importance of the alienation was stressed, and a map showing the current land disposition was placed at the author's disposal.

[4]State of Washington, Department of Conservation, Division of Water Resources, Water Supply Bulletin No. 12, Water Resources of the Nooksack River Basin (And Certain Adjacent Streams) (Olympia: State Printing Press, 1960), pp. 4-6.

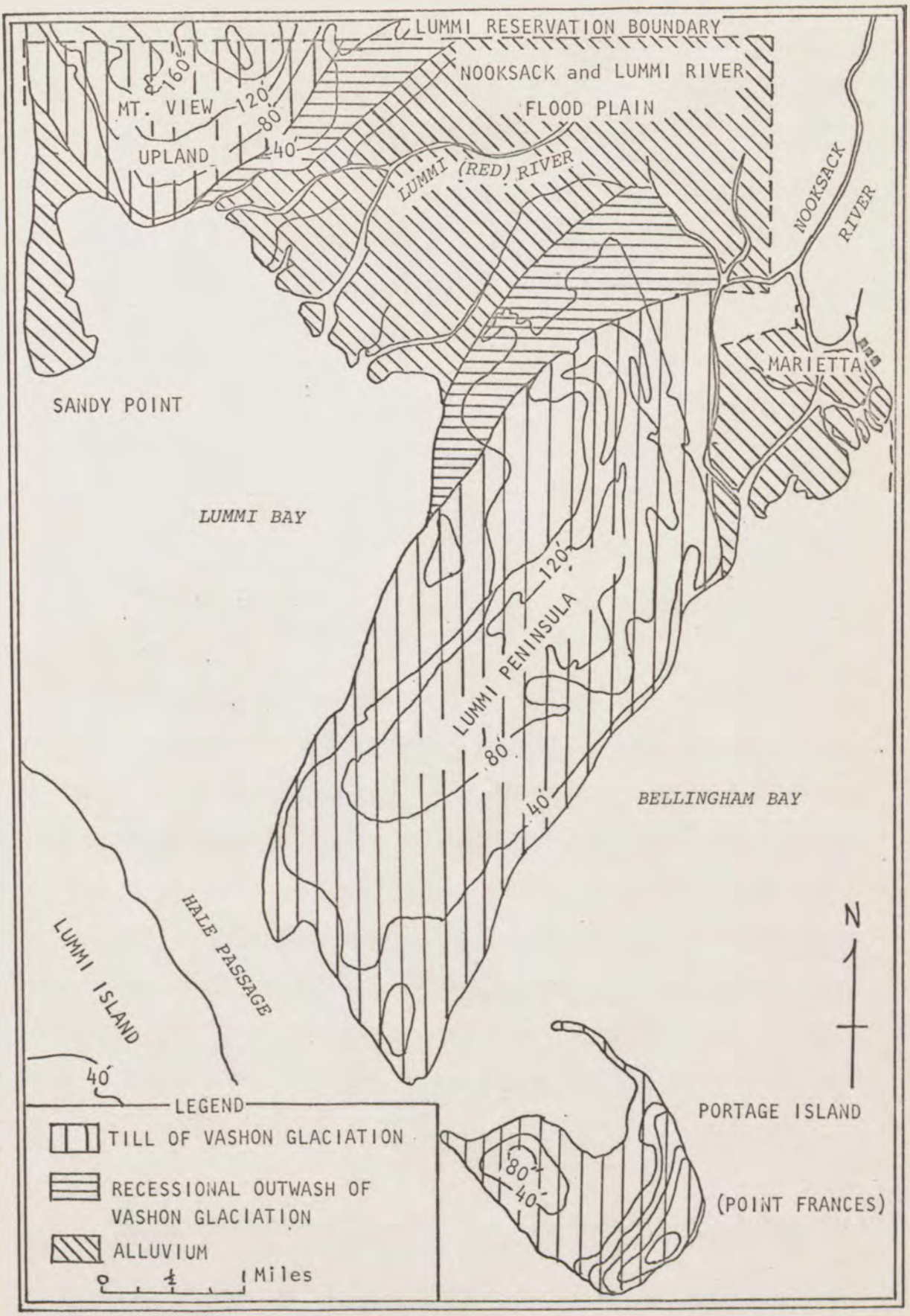

FIGURE 1 LUMMI RESERVATION SOILS AND TOPOGRAPHY

Adapted from W.H. Pierson

tion, composed of sand, clay, silt, and gravel. In these regions heights range from approximately twenty to sixty feet. The lowest elevations, generally under twenty feet, coincide with the flood plains. Here is deposited alluvial soil, a mixture of clay, silt, peat, sand, and gravel, which lies in an arc north of the peninsula, stretching from Lummi Bay to Bellingham Bay. Fringing the entire littoral of the reservation are strands of sand and gravel, most glacially deposited, and rearranged by tidal action.[5]

Climate

Bellingham, Washington, situated near the reserve has, according to Trewartha (1968), a Temperate Oceanic Climate (Do) which is described as follows:

D: 4 to 7 months inclusive over 50°F (10°C)

o: Oceanic or marine: cold month over 32°F (0°C) [to 36°F (2°C) in some locations inland].[6]

Influenced in winter by the moist westerlies and cyclonic storm activity, and in the summer by the stable air of the Hawaiian subtropical high pressure cell, it is characterized by mild winters, warm summers, and summer drought. Neither diurnal or annual temperature ranges are great. For instance, the January daily minimum average is 28.9°F while the maximum is 43.1°F; the July maximum is 73.3°F and the minimum 47.7°F. Bellingham with an annual average temperature of 48.9°F has a January average temperature of 36°F and a July average of 60.5°F. The city has an annual precipitation of 32.64 inches, which displays a distinct

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[5]Ibid., Supplemental map entitled, Geologic Map of the Nooksack River Basin (And Certain Adjacent Streams).

[6]G. T. Trewartha, An Introduction to Climate (3rd ed. rev.; New York: McGraw-Hill, 1968), p. 250.

seasonal variation. December, the wettest month, has a precipitation of 4.7 inches, while the driest months, July and August, both have 1 inch of rainfall. The climatic characteristics of Bellingham are well illustrated by Figure 2, and because of its proximity to the reservation, truly reflects the climate there.[7]

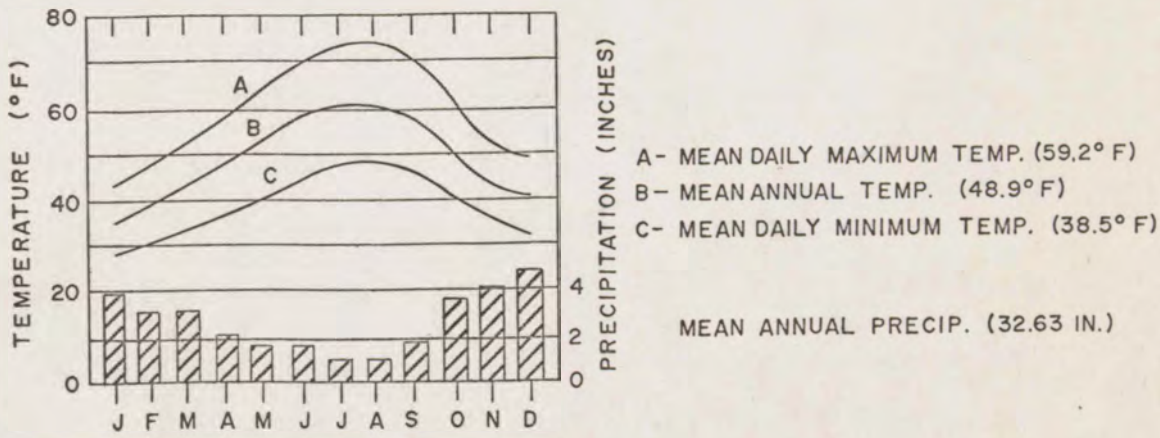

FIG. 2 CLIMAGRAPH – BELLINGHAM, WASHINGTON

Vegetation

The original vegetation of the Bellingham Lowland and Lummi Peninsula consisted of West Coast Marine Forest, the principal species of which was Douglas fir. Rising in height to over 200 feet, and over six feet in diameter at the base, these trees accounted for more than 90

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[7]U. S., Department of Commerce Weather Bureau (in cooperation with the Bellingham Chamber of Commerce), Climatography of the United States, No. 20-45, Climatological Summary--Station: Bellingham, Washington, R60-12, n. d.

percent of the original timber volume. Two other important species were hemlock and western red cedar. Scattered in lowland areas were forests of aspen and alder.[8] Today the areas have virtually no commercial timber left. All that remains on the Lummi reservation is predominantly a mixture of red alder, vine maple, white birch, and willow. The northern portion of the preserve in the Nooksack and Lummi River flood plains has been devoted to crop farming.[9]

The fertility of the land, the general topographic nature of the region, and forests were reflected upon by a writer in The Coast (July, 1902):

> The country around is rich and abundant in resources. Here are acres of rich and fertile soil well adapted to agriculture, fruit-raising, and dairying. Valuable forests extend over hills and valleys.[10]

Flooding, A Specific Problem

Although there is relatively little recorded information on the occurrence of floods in the Nooksack River Basin, they are known to have occurred since before the turn of the century. The earliest major inundation of this area appears to have occurred about 1894, and since that time about six notably destructive ones have been recorded. Minor floodings are frequent. Almost without exception, the most destructive overflows happen during winter, and are characterized by peaks of relatively high magnitude and short duration. They are caused primarily by rainfall.

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[8] W. H. Pierson, The Geography of the Bellingham Lowland, Washington (Chicago: Department of Geography, University of Chicago, 1953), pp. 81-82.

[9] Ibid.

[10] "Whatcom and Fairhaven," The Coast, July, 1902, p. 186.

occasionally augmented by snowmelt.[11] There is little doubt that the removal of the forest cover intensifies the runoff.

The repercussions of the phenomenon for this study are the temporary displacement of the Indians who live along the river, and the damage done to fish spawn. A classic example of these consequences occurred in 1969. On January 5, the Nooksack River, swollen by ice and snowmelt, and its egress impeded by debris piled immediately upstream from the new bridge under construction at Marietta, broke through the dykes. Flooding was extensive enough to inundate an estimated 70 percent of the Nooksack and Lummi River flood plain to a depth of several feet.[12] In the town of Marietta, immediately east of the reservation, assessments of water depth ran between four and six feet. Damage was severe enough for Western Whatcom County to be declared a disaster area by the Small Business Administration, thus making long term, low interest funds available to those who were eligible.[13] A number, however, were not and received emergency aid through the Red Cross. Damage to the salmon spawn, especially that of the chum species is unknown, but according to Washington State Fisheries Department officials interviewed in January, it is expected to be high.

Having examined the physical framework of the reservation, its site, climate, vegetation, and a special problem of flooding, attention

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[11]State of Washington, Department of Conservation, Division of Water Resources, Water Resources..., pp. 95-98.

[12]Information supplied by the U. S. Department of Agriculture, Soil Conservation Service, Bellingham, January, 1969.

[13]In order to be eligible for a loan from the S. B. A., one must demonstrate the ability to repay the debt. This precludes anyone on welfare, and consequently many of the Indians. Interview with Mr. M. S. Caver, Loan Officer, S. B. A., and Mrs. Corrine Barnes, Manager, Whatcom County Chapter, American Red Cross, January, 1969.

will now be focussed upon the historical occupation of the area by the people who are the main concern of this investigation, the Lummi Indians.

The People

The Coast Salish peoples inhabited regions of southern British Columbia and western Washington lying along inland waterways. According to Suttles (1954) these aborigines formed a "social continuum" that extended from northern Georgia Strait to southern Puget Sound, and possibly beyond. Within their region, sub-cultural classifications larger than the tribe could be distinguished. One such group Suttles named the "Straits Division of the Coast Salish." To this association belonged the Lummi.[14] The Straits Division could be distinguished from the other coastal groups by two characteristics. The first, was speech, a dialect which differed slightly from others of the Coast Salish. Second, and most important was the main subsistence activity, the catching of salmon, particularly sockeye. The annual Fraser River run provided the most important sockeye harvest. Tribes associated with the Lummi through extended kinship were the Samish and Semiahmoo of the Washington mainland, and the Sooke, Songish, and Saanich of southeastern Vancouver Island.[15]

By legend, the Lummi were descendents of aborigines who once lived only on the San Juan Islands. Three stories were told of their arrival at the present peninsular location, the most common account of which centered upon retribution for a murder. A warrior of the Swallah, people located on East Sound, Orcas Island, received a spirit to kill all but a

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[14]Wayne Prescott Suttles, "Post-Contact Culture Changes Among the Lummi Indians," B. C. Historical Quarterly, XVIII (January to April, 1954), pp. 29-31.

[15]Ibid.

few Skalakhans (people located on the Lummi Peninsula) who had been accused of murdering his brother. The surviving Skalakhans gave to this hero and his descendants the Nooksack River on which to construct a salmon weir, "whereupon people established themselves upon what is now the reservation."[16]

Consequently, immediately prior to European contact, the tribe's territorial extent as shown in Figure 3 consisted of the region associated with their customary geographical dispersion throughout the San Juan Islands, and the peninsula which had become their winter location and principal base. This native domain was documented by Suttles (1951) as follows:

> The territory of the Lummi included a few miles of mainland shoreline and about half the area of the San Juan Islands. In the islands it included the northern and eastern shores of San Juan Island (facing Spieden and San Juan Channels), the western and northern shores of Lopez Island (facing San Juan, Upright, and Harney Channels), all of Shaw and Orcas Island, possibly Waldron Island, possibly the northern shores of Blakely Island, the smaller islands northeast of Orcas, and Lummi Island. And on the mainland it included the shore from Point Whitehorn or Cherry Point to Chuckanut Bay and inland as far as Lake Terrell in the northwest and perhaps the outlet of Lake Whatcom in the southeast, and in the center the mouths of the Nooksack River and its course up to a spot just below Ferndale.[17]

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[16] Ibid., p. 51.

[17] Wayne Prescott Suttles, "Economic Life of the Coast Salish of Haro and Rosario Straits," (Unpublished Ph. D. dissertation, Department of Anthropology, University of Washington, 1951), p. 33.

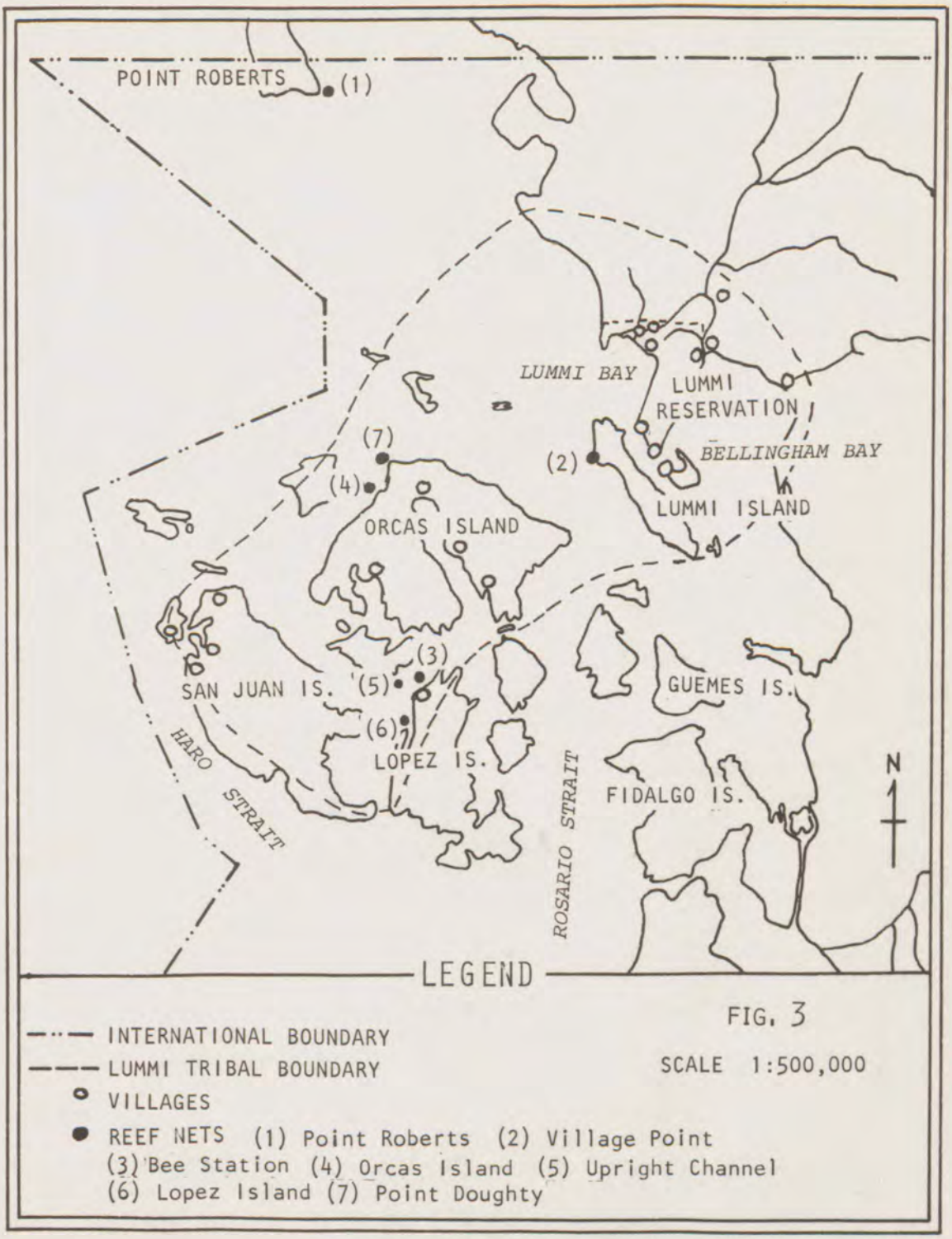

FIG. 3

SCALE 1:500,000

HISTORIC VILLAGE AND REEF NET SITES

SOURCES:

VILLAGE SITES; SUTTLES, "ECONOMIC LIFE...," pp.34-35
REEF NET SITES; B.J. STERN, THE LUMMI INDIANS OF NORTHWEST WASHINGTON, p. 126
BASE MAP; BELLINGHAM SECTIONAL AERONAUTICAL CHART. SEPTEMBER, 1958

CHAPTER III

EARLY ECONOMIC SUPPORT: PRE-CULTURAL CONTACT FISHERIES

This chapter outlines briefly the fisheries as they existed prior to the extensive European contact of the 1850's, from location, fishing seasons, methods and catch volume, to preservation and distribution.

Similar to other tribes of the northwest Pacific coast the Lummi had, before white contact, developed a subsistence economy based upon fishing, hunting, and gathering. As mentioned previously, they were primarily fish eaters whose principal food was salmon. Other fish which supplemented their diet included halibut, cod, herring, and flounder.

Harvest Locations

To exploit this natural resource, strategically located village sites were built throughout tribal territory. Suttles (1951) listed nineteen places which seemed to have more or less enjoyed permanent occupation. These locations which are listed below, are shown in Figure 3, page 15:

> (1) Mitchell Bay, San Juan Island, (2) Open Bay, Henry Island, (3) Garrison and Wescott Bays, San Juan Island, (4) "The Fitzhugh Place," north shore, San Juan Island, opposite Spieden Island, (5) West Sound, Orcas Island, (6) East Sound, Orcas Island, (7) Rosario, Orcas Island, (8) Olga, Orcas Island, (9) Flat ("Sandy") Point, Lopez Island, (10) Gooseberry Point, Lummi Indian Reserve, (11) north end of "The Portage," north of Portage Island, Lummi Indian Reserve, (12) south end of "The Portage," (13) Lummi River, about three miles above its mouth, (14) one mile above the mouth of the Lummi River, (15) a creek that flows into the river from the east below Tennant Lake, (16) mouth of Squalicum Creek, (17) a site just north of Fish Point, (18) a site on Lummi Bay below the

mouth of Smuggler's Slough, (19) Marietta.[1]

Dispersed among the islands and the mainland were reef net sites. Also shown in Figure 3 are the seven traditional places noted by B. J. Stern (1934):

> (1) Point Roberts (Tceltenum), (2) Village Point on Lummi Island, (3) Bee Station north of Sandy Point on Lopez Island (Xwitcosang), (4) a point on Orcas Island south of Freeman Island (Xoxalos), (5) in Upright Channel south of Shaw Island (Xwitcosang), (6) a point on Lopez Island opposite Lopez (Sxoletc), (7) Point Doughty on Orcas Island (Tlqwoloqs).[2]

These sites were significant, for besides being notable family possessions as a source of prestige and wealth, they were a means by which food was distributed. The leader chose the annual participants, who were usually family members, for the reef net operation. Each man to share in the fish catch was responsible for supplying one or more net sections, and his portion was awarded accordingly.

> Fishing locations are owned by members of families who secure their rights through inheritance. These men, who usually act as captains of the canoes, choose those who participate in the season's activities. The men who they choose must each furnish the sections of the net, and the share to which each is entitled is in proportion to the net furnished. The owner of the location hires skilled hunters to gather provisions which he furnishes to his helpers during the fishing season. A particular way of allotting the fish after the haul must be observed out of respect to the fish. Ten piles of fish are made for the ten men participating and as the catch is distributed, the captain must count, "one-one," "two-two," "three-three," and so on repeating each number up to ten as he deposits ten fish in each pile before he goes on to the next one. After he has dropped ten fish in each of the piles, he begins with the first one again, until the entire catch is allotted. The fish are distributed after each haul until each person participating obtains his share. Then the rest of the fish, comprising the largest portion, belong to the owner of the location. No matter how early in the season a person obtains his share, he must continue in the party until the season which extends through July and August is over.[3]

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[1]Suttles, "Economic Life of the Coast Salish...," pp. 36-40.

[2]Bernard J. Stern, The Lummi Indians of Northwest Washington (New York: Columbia University Press, 1934), p. 126.

[3]Ibid., p. 46.

The Fishing Season

The annual migration for food began in the spring when people left the winter base at Lummi for the San Juan Islands to troll for spring salmon, jig for halibut and cod, rake herring, dig clams and camas bulbs, and hunt deer. In June and July the natives moved to reef net locations to profit from the sockeye run.

During September and October the Lummi began to move back to the peninsula, fishing on the way for chum (dog salmon), pinks (humpies), and coho (silvers). Once located on the mainland, attention was focussed on the weirs situated on the Lummi and Nooksack Rivers. In preparation for the fall salmon runs, repairs were effected to old structures, and new ones were built.[4]

Methods

Fishing techniques varied with the species sought. Halibut, sturgeon, and cod were caught by jigging. This consisted of lowering a line to the bottom with a baited hook attached, and then jerking it up and down. Smelts and herring were taken with rakes (long sticks inset with rows of sharp bone), close mesh nets, and weirs. Reference is also made to the fact that smelt were plentiful enough to be shovelled aboard a canoe with a paddle.[5] Flounders were usually harpooned near mud-bottomed shores. Salmon were harvested by several methods depending mainly upon location. Because of the importance of the quantities of salmon caught, the two most important methods, the reef net and salmon weir, merit special consideration.

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[4]Ibid., p. 49.

[5]Suttles, "Economic Life of the Coast Salish...," p. 128.

The reef net was an ingenious invention which at one time was, "a favorite device of the Puget sound [sic] natives for catching sockeye salmon."[6] It was made principally of nettles and willow sapling bark. With these the Indians spun twine of varying thicknesses, and then made a net about twenty-five feet in width and forty feet in length. Ropes were made from cedar withes. This was done by taking the withes which had been procured from swampy areas, and steaming them with water heated by hot rocks. After the fibres had been sufficiently softened, they were twisted into substantial ropes. These were used primarily as the main lines and anchor ropes. The remaining equipment consisted of two canoes, two logs about the same length as the canoes, heavy stone anchors, other miscellaneous weights, markers, and kelp.[7] A model, similar to the description is shown in Figure 4.

The operation of the reef net was simple and effective. First, once on location at a reef or shoal, the logs at the shoreward end were attached to the heavy stones by about 100 feet of rope. At the offshore end of each timber a main line led off, about fifty feet in length, diverging from the other by about 45 degrees. To each of these were fastened stalks of kelp, or lines, of increasing lengths, the shortest being at the canoe end, so as to form a slope. These were weighted with stones. At the end of each diverging main line was a marker. Thus all the lines and rope could be manipulated in such a way that in the tide, the logs, with the aid of additional anchors dropped about twenty feet on the outside of each one, were held over the reef about twenty feet apart from one another. The floor of the apparatus consisted of a series of trans-

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[6]J. A. Kerr, "The Siwash Reef Net," Pacific Fisherman Yearbook, 1917, pp. 60-61.

[7]Ibid.

of the ceremony attached to the first reef net catch of the sockeye season is to be found in Appendix II.

The weir, similar to that shown in Figure 5, was a form of river barricade. It was another imaginative contrivance. Although structures varied in detail, a basic form dominated. Staging was erected by driving a series of poles into the stream bed. To these were fastened transverse stringers, one of which stretched across the stream from bank to bank forming a walkway. Latticework attached to the poles and stringers extended from the crosspieces to the stream bottom, allowing the free passage of water, but blocking the upstream migration of salmon. Small holes allowed the fish to pass through this restriction into pens or traps, from whence they were removed by dip net, harpoon, or gaff.[9] The illustration of Philip Drucker (1965) suggests complete stream blockage.[10] However, according to one Lummi informant, the native weirs only partially crossed the Nooksack River, for it carried considerable debris which piled up against the screen, not only making complete interception impossible, but also threatening disastrous consequences for the weir. Consequently, it was necessary to construct several works at strategic intervals to reap the desired harvest.[11]

Catch Volume

There is little doubt that salmon were plentiful in the Pacific Northwest, as illustrated in the following statement by Netboy (1968):

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[9]Robert Emmett Hawley, Skee Mus or Pioneer Days on the Nooksack (Bellingham, Washington: Miller and Southerlen Printing Company, 1945), pp. 43-44.

[10]Philip Drucker, Cultures of the North Pacific Coast (San Francisco: Chandler Publishing Company, 1965), p. 14.

[11]Interview with Mr. Forrest Kinley, July, 1968.

Fig. 5.--A weir, similar to that constructed by the Lummi. Note that the Lummi weirs did not extend completely across the river as this one appears to. The picture was taken on the Cowichan River, Vancouver Island, British Columbia. No date available.

> Craig and Hacker, in their classic study, "The History and development of the Fisheries of the Columbia River," estimate that the Indian population of the Pacific Northwest in the early Nineteenth Century was about 50,000. If every man, woman, and child consumed one pound of salmon per day--a not unreasonable assumption--the annual catch was at least 18 million pounds.[12]

How many fish the Lummi took from local waters in early times is unknown, for before 1935 no record was kept of their catch. However, an annual subsistence harvest weight was appraised based upon the use of the animal as food. Two figures were used in the calculation: (1) the Commissioner of Indian Affairs Lummi population figure for 1875 of 600, (2) the Craig and Hacker quoted estimated Indian daily intake of one

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[12]Anthony Netboy, "Salmon Face an Atomic Age," American Forests, 47 (January, 1968), p. 30.

pound of salmon per person per day.[13] From these two sources, an approximate total consumption of 200,000 pounds per annum was derived. If, as suggested by informant Mr. Al Charles, six hundred Lummi is an underestimation, then it is not unreasonable to assume an ultimate subsistence consumption in the neighborhood of 300,000 pounds.[14] To this, of course, would have to be added unknown amounts to be reserved for feasts and trade.

Fish Preservation

The catch was preserved several ways. Although in the spring and summer, some smoking was done, halibut, herring, and salmon were generally dried. They were cut open, and either were placed on drying racks to be sun cured, or were skewered to be dehydrated by means of an open fire. Herring eggs, ingeniously gathered with the aid of cedar branches, were also dried for later consumption. The fall salmon catch was generally smoked, using especially constructed "smokehouses." A description of such a building, typical of that constructed by the Lummi, is to be found in Appendix III.

Because they were small, smelt were dried or smoked uncut. Apparently the eulachon smelt, the oil of which was so important to the more northern tribes was not caught, at least in quantity, by the Lummi. Mr. Kinley seemed unaware of the rendering process as described by Drucker (1965), and the November run of the Nooksack River smelt mentioned by the informant does not conform in time with the normal eulachon run on the

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[13]U. S., Secretary of the Interior, Annual Report of the Commissioner of Indian Affairs for 1875 (Washington: Government Printing Office, 1875), p. 118.

[14]Interview with Mr. Al Charles, December, 1968.

Fraser River from March to June.[15]

Disposal

Disposal of the catch satisfied the needs of a subsistence economy. Most of the fish such as halibut, herring, and salmon, which were not consumed immediately were dried or smoked and stored for winter use, and potlatch feasts. Some of the preserved food was traded with inland groups. The extent of this traffic, however, has not been fully ascertained. Nothing has been written of Lummi trade, but some mention of general Coast Salish activity gives an idea of goods exchanged by coastal tribes. Drucker mentioned the fact that coastal groups in general sought, "dressed deer and moose hides, ermine pelts, tailored skin clothing, coppers, and possibly jadeite for celt blades."[16] Suttles (1951) suggested that the dried clams, salmon, woven root hats, cedar-bark mats and sea-lion gut of the Coast Salish were bartered with interior Indians up the Fraser and Skagit Rivers for coiled baskets, and a few fibres or grasses. The negotiation of dried salmon for iron, copper, and blue beads was another trade possibility.[17] Mr. Kinley suggested the interchange of Lummi caught salmon with the Yakima for arrowhead material and buckskin.

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[15]Interview with Mr. Dale Ward, Supervisor, Fisheries Statistics, Washington State Department of Fisheries, Olympia, January, 1969.

[16]Drucker, Cultures..., p. 110.

[17]Suttles, "Economic Life of the Coast Salish...," pp. 318-319.

CHAPTER IV

CURRENT LUMMI FISHERIES

Location

One of the most significant features of the current Lummi fisheries is the confined area within which it functions. For a variety of reasons the island locations and traditional techniques have been abandoned. Although Chapter V, The Decline of the Lummi Salmon Fishery, deals in depth with the areal contraction and technological changes within the traditional economic mainstay, a brief mention of certain outstanding factors here affords an appreciation of the present area of operations.

By the 1890's Europeans were competing intensively with the natives for the available salmon resource. Subsequently, certain basic changes commenced in the native activity. One such transformation was brought about by the introduction of the fish trap. Because white fish traps were bigger, better built, and more efficient than reef nets, they could be strategically placed to block the approaches and intercept the fish. Under such circumstances the nets could no longer produce an adequate yield, and consequently, reef netting began to disappear as a principal Indian fishing technique.

Another significant modification to the Lummi economy, coinciding with the decline of reef netting was the loss of traditional harvest sites. During the decline of reef netting, net locations slipped from Lummi control partially through abandonment, and partially through inability to

legally defend them.[1]

The principal native workboat was the canoe, some twenty-five feet in length, and propelled by a combination of oar, paddle, and sail. These dugouts, illustrated in Figure 6, (as well as being employed for fishing the island sites and river mouth) were used in inter-island and coastwise transportation. After about 1900 these boats were gradually replaced by a number of other vessel types, one of the more recent and most important being the purse seine boat. The acquisition of a purse seine fleet, which reached its height in the 1950's, was important for the Lummi, for to some extent it compensated for the loss of reef net sites, by allowing the Indians to maintain participation in the fisheries of the San Juan Islands. However, the attempt at purse seining proved abortive, and today the natives own no purse seine vessels.

For these principal reasons, the Lummi fishery is almost exclusively restricted to the Nooksack River below Marietta, and the shores of the Lummi Peninsula. Few fish outside these areas.

Methods

As in aboriginal times, salmon form the most important species fished. Chinook (king) salmon are caught from April through September;

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[1]Suttles, "Post-Contact Culture Changes...," p. 72. Suttles did not explain what he meant by "legally." Waters in Washington State come under the jurisdiction of the State legislature, and with them, the allocation of reef net sites. These are outlined in the Revised Code of Washington, 1965 Supplement under Title 75, Food and Shellfish, Chapter 75.12, Taking of Foodfish, Shellfish, 1955, pp. 6-19. Since 1915 when reef net licenses were first issued, they have been distributed only to individuals, not locations. Indians on the other hand, require no such licenses. In addition, Indians claim right to their traditional sites by virtue of Article 4 of the Treaty of Point Elliott, 1855, which accords the native, "The right of taking fish at usual and accustomed grounds and stations..." This may be found in Kappler, Indian Affairs..., Vol. II Treaties, p. 670. Thus the state of affairs stands, and is at present a sensitive issue with the Lummi.

coho (silvers) are harvested from late August to late November; chum (dog salmon) are taken during November and December; and pinks (humpies) are gilled during the odd-year interval in late November. Steelhead salmon are captured from late November through March. Smelt are netted in November, and herring reaped during the spring and early summer. Because of the loss of the reef net sites and the purse seine fleet, sockeye salmon are no longer caught by the Lummi in great quantity. Clams are now not important in the native economy; however, a small crab business is flourishing.[2]

Fig. 6.--An Indian canoe, typical of the ones used in early fishing. B. N. McDonough, an early store keeper who is mentioned in the text, is seated second from the right. This picture was taken circa 1880.

The principal fishing gear used by the Lummi is the gill net, and it

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[2]Interview with Mr. Don Lewis, fish buyer, Marietta, December, 1968.

is employed several ways. One technique features the use of gill net boats, similar to that shown in Figures 7 and 8. They are from 25 to 30 feet in length, and carry up to 300 fathoms of net, 70 to 120 feet in depth.[3] Reservation Indians own two such vessels, one of which operates in the Bellingham Bay vicinity.

In recent years, there have never been more than a few such vessels, the reasons for which are not fully understood. Some considerations, however, are worth advancing. When Lummi commercial fishing began to expand after World War II, a native preference was shown for purse seining. Evidently when some of the leading fishermen chose these vessels, others followed suit. Again, many of the problems which decimated the purse seiners applied as well to the gill netters.[4] In addition, the nature of the area now fished by the Indians contains an important disadvantage for this type of vessel. Because the fishery is river oriented, the draft and manouverability of these craft make them unsuited to the narrow channelled, debris-infested waters of the lower Nooksack River.

In their place, the natives have developed a smaller, cheaper vessel, better adapted to river conditions--the sixteen foot roller-equipped skiff, powered by an outboard motor of from fifteen to twenty-five horsepower. Examples of these, along with river conditions, are to be found in Figures 9 and 10.

In truth it is a modification, completed by the end of World War II, of the previously described canoe. Each boat is equipped with about four nets of different mesh sizes to cope with the various salmon species.

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[3]Interview with Mr. Forrest Kinley, July, 1968.

[4]The specific problems of the Lummi purse seine fleet are discussed in depth in Chapter V, The Decline of the Lummi Fishery.

Fig. 7.--A gill net boat, similar to that used by the Lummi.

Fig. 8.--Same gill net boat showing drum and rollers. Drum holds approximately 300 fathoms of net.

Fig. 9.--A portion of the Nooksack River west bank showing 16' skiffs.

Fig. 10.--The Nooksack River near Marietta, Washington. River debris may be seen in the background.

These nets reach a depth of about ten feet, and vary in length up to 150 fathoms.[5] With the aid of data supplied by the Washington State Department of Fisheries, it is possible to estimate that between seventy and eighty such skiffs operate on the Nooksack River below Marietta, and on the tidal flats.[6] Fully equipped, the purchase price of a new operation costs between $1500 and $2000. If the fisherman builds his own and buys a used outboard motor, this price is reduced.

These boats are employed in what is the most popular use of the gill net, "drifting." In this operation, the net is stretched U-shape across the river, with the skiff on one end and a marker on the other. This is accomplished by paying out the net as the boat goes upstream beside one bank of the river, and then across, and down the other side. Once the desired length of net is payed out, the entire assembly is allowed to float downstream. In this way, fish passing upstream are gilled as they hit the net. Drifting rights are established on a first-come-first-serve basis. Each person goes to a particular drift location and awaits his turn to "plug in."[7]

Another method of fishing involving the use of the gill net is called "staking." A stake set, in effect, is a modified fish trap. Up to twenty of these are in operation on the reservation, along the eastern shores of Lummi Peninsula. Looked at from above, the stake operation appears umbrella-like to the observer. A series of poles, which can be

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[5]Interview and fishing trip with Mr. Sam Finkbonner, Lummi fisherman, November, 1968.

[6]Letter from Mr. Dale Ward, Supervisor, Fisheries Statistics, State of Washington, Department of Fisheries, October 29, 1968.

[7]Interview and fishing trip with Mr. Sam Finkbonner, November, 1968.

up to 22 feet long, and driven by hand 4½ feet into the mud, reach out from shore. Suspended from the poles of this "lead" are the nets which are held below the water surface by the use of a lead line. On the shoreward end of the "lead" is the "hook", simply a few poles and net so arranged as to deflect any fish close to the beach back into the "lead." Arranged in a semi-circle beyond the offshore end of the "lead" is another series of poles and nets called the "pot". At either end of this arc is another hook. In the operating process, the fish swim into the "lead;" those that are not gilled here work their way along to the "pot" where they are caught in the net. The fisherman, using the skiff as a tender, then raises the net and extricates the fish. Specific locations are designated, and "staking" rights, like those of "drifting", are established daily on a first-come-first-serve basis.[8]

Because of its efficiency, so the Indians claim, the natives who "stake" apparently do better than their counterparts who "drift" on the river. It should be observed, however, that a number of fishermen practice both methods.

The river may be fished twenty-four hours a day during the fishing season, which coincides roughly with that laid down by the Washington State Department of Fisheries. In addition, there are rules specified by the Lummi Business Council. As revealed in Appendix IV, for example, in 1968 the river had a closed period from 4:00 p. m. on Friday, to 4:00 p. m. Sunday. Further, "staking" times differed from those on the river, for besides observing the weekend closures, fishing was restricted to daytime.

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[8]Interview with Mr. Sam Cagey, Vice Chairman, Lummi Business Council, October, 1968.

Nets which were set during daylight, were to be removed at sunset.[9]

Purse seining is practiced by several reservation Lummi. Two men skipper company boats and fish in waters outside of Bellingham Bay: one of these bottom fishes during the winter. Both captains hire Indian crews, but few of these are employed all year. Commercial trolling is no longer of any consequence in the Lummi economy.

Harvest Characteristics

Figure 11 illustrates graphically the salmon landings for Puget Sound and for the Lummi Indian Nooksack River-Bellingham Bay areas. The Nooksack River region is by far the greatest source of salmon to the natives, and the landings also figure in the Puget Sound total. Thus a comparison and contrast of the two landings highlights the characteristics of the principal Indian fish catch. One feature shared by both is the highly erratic nature of the harvests, a reflection of the yearly fluctuations of the salmon runs, which are exaggerated by the "boom and bust" pink flows. In contrast, three points are to be observed. First, there is little correlation between the yearly cycles of the two hauls. Second, whereas the Lummi statistics exhibit a slight overall increase in the Indian catch, the Puget Sound data, since 1953, reveal a distinct decline in landings. Finally, the small percentage of the Indian harvest compared to the entire Puget Sound landing must be mentioned--approximately 2 percent of the total, in 1966. Washington State Department of Fisheries officials intimate that the erratic Lummi harvest, as indeed with that of the rest of the State, is being maintained by a combination of: periodic closures and gear restrictions on the Sound, the recent success of hatchery techniques, and

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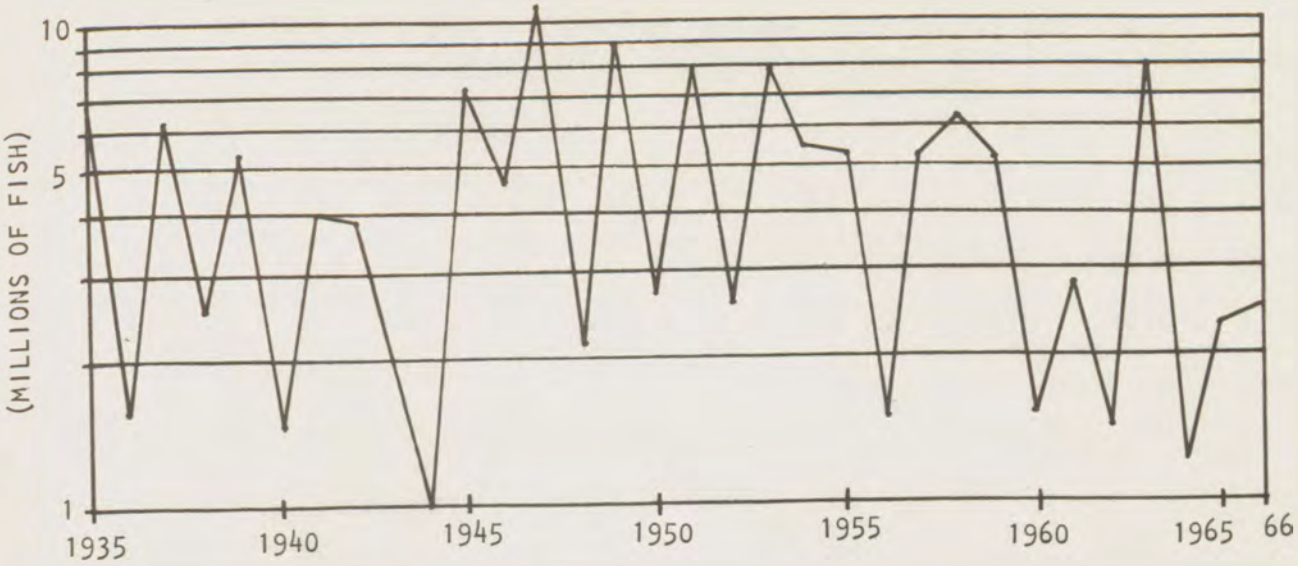
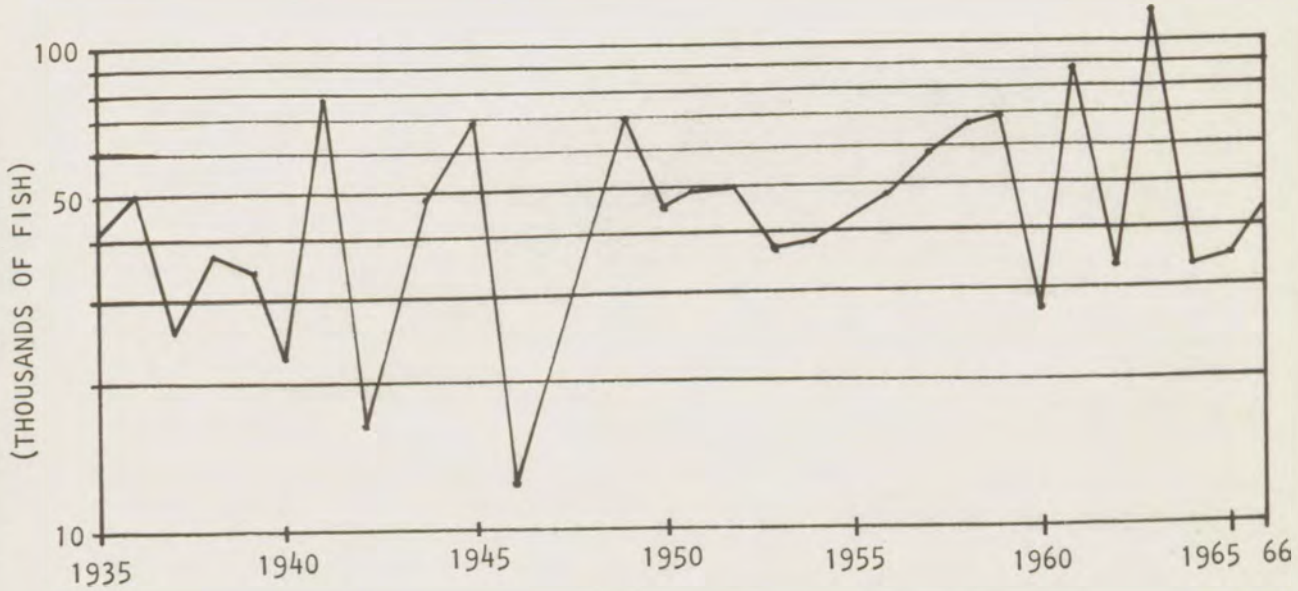
[9]Ibid.



PUGET SOUND SALMON LANDINGS 1935-1966



LUMMI-NOOKSACK RIVERS, BELLINGHAM BAY
SALMON LANDINGS 1935-1966

SALMON LANDINGS — 1935-1966

SOURCE: WASHINGTON STATE DEPARTMENT OF FISHERIES, 1966 FISHERIES STATISTICAL REPORT.

FIG. 11

the direct plantings of fry into the Nooksack River and its tributaries.

Harvest Quantity and Value

The Lummi fishery harvest consists of two quantities: those taken on the river and in Bellingham Bay, and those caught outside these regions. As revealed in Table 1, based on 1967 figures, the river spring to fall fishery yielded 485,882 pounds of salmon valued at $129,659.[10] To this amount must be added the winter steelhead. Although no definite landings statistics have been kept since 1960, Department of Fisheries officials calculate that about 1500 steelhead per year are taken from the river. These fish weigh approximately ten pounds each, and in 1967, fetched an average price of $.40 per pound from fish buyers. On this basis, 15,000 pounds yielded $6000 to Lummi fishermen.

The two remaining amounts to be evaluated are those landings of the two purse seine vessels, and the two gill net boats. Again, based on figures quoted by fisheries officials, $45,000 was grossed by reservation Indians through purse seine operations in 1967, while gill net activities earned $10,000.

In total, then, the gross value to the Lummi of the 1967 salmon fishery, for all sources, was nearly $191,000.

Catch Disposition

The Indian salmon landings reach the market via several routes. The total catch taken by gill netters and purse seiners from outside waters is sold directly to on-site buyers, who in turn dispose of their

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[10]All statistical evidence, and much of the information related to the disposition of the Lummi fish catch was supplied by Mr. Dale Ward. Because of the nature of some of the information, figures arrived at are approximations. For example, fish weights are estimates.

TABLE 1

LUMMI INDIAN NOOKSACK RIVER AND
BELLINGHAM BAY FISH CATCH
IN NUMBERS OF FISH
1967

	Chinook	Chum	Pink	Coho	Total
Number of fish	7,564	11,577	17,008	13,410	49,569
Average fish weight in pounds	20	12	6	7	-
Total weight in pounds	151,280	138,684	102,048	93,870	485,882
Price per pound to fishermen*	.414	.172	.137	.311	-
Total average catch value in dollars	62,630	23,854	13,981	29,194	129,659

*Values are for Puget Sound Indian salmon landings only.

Source: Lummi salmon landings and fish prices were supplied by Mr. Dale Ward in personal correspondence dated October 29, 1968.

cargos to canneries. Of the spring-to-fall fish taken by reservation Indians, about 80 percent is dispensed to two principal buyers, located on or near the reservation. These buyers then vend to various fish companies in Bellingham such as Bornstein Seafoods Incorporated and Bellingham Fish Company, Incorporated. Fish prices to the buyer in the city vary, but the following range for 1968 was suggested by one Bellingham concern:

Coho	25-40	cents	per	pound
Chinook	25-70	"	"	"
Pink	20	"	"	" *
Chum	15-23	"	"	" [11]

*Price quoted is for 1967 pink. 1968 is the off-year for the catch.

[11]Information supplied by the Bellingham Fish Company Incorporated, November, 1968.

The price received by the fishermen is affected by several factors. First is the fish condition. Frequently river caught fish have begun to deteriorate and change color, thus acquiring a dark unattractive appearance which detracts from the full price potential. Further, reservation buyers charge a small haulage fee, approximately two cents per pound. Consequently, should a fisherman choose to deal directly with the buyer, he must pay the price. Additionally, there appears to be a locational factor. Frequently by the time fish are ascending the river, the local market is being satisfied to a degree by supplies caught outside the Bay. Because of the effect of supply and demand, there is a depression of fish prices. In toto, these conditions may result in a fish price reduction up to 10 percent from the values quoted by the company.[12]

The remaining 20 percent of the salmonoid catch is personally disposed of by the fishermen three ways. Most reach the fresh fish market in Bellingham, where they fetch the best prices. Small quantities may be smoked for custom orders, and a few are retained for personal use.

The winter catch of steelhead is not sold locally. Because the animal is classified as a sportsfish in the State of Washington, it cannot be disposed of commercially. Therefore, most of those caught by the Lummi are transported either to Oregon or British Columbia for sale.

Conclusions

Reflection upon this chapter reveals some important changes. First is the relocation of the fishery. Formerly located as far afield as the San Juan Islands, activities are now virtually restricted to the Lummi Peninsula. Second, fishing techniques have altered to suit the confined

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[12]Combined information supplied by Dale Ward and Don Lewis.

area of present activity. The Indians have lost one of their important methods due to white incursion, and have not successfully retained one of the principal techniques presently used on Puget Sound, the purse seine. Third, traditionally fish were preserved to satisfy the needs of a subsistence economy--food, feasts, and trade. Today, few are retained, and former subsistence values are expressed in dollars. Finally, $191,000 if all found, would supply $5000 annually to approximately 39 families.[13] If there are 800 Lummi, then there are assuredly more than this number of family units.[14] It would appear, therefore, that in a cash economy, unlike that of aboriginal times, fish are unable to satisfy the needs and desires of the population. The picture given, then, is one of change which can only be classified as a decline, both in value, and the ultimate importance of salmon to the Lummi economy.

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[13]The figure of $5000 is one that was given by several Lummi, that they considered to be an average maximum. Further, the reader is reminded that $191,000 is a gross figure.

[14]See Chapter VII, Emergent Economic Alternatives, p. 70.

CHAPTER V

THE DECLINE OF THE LUMMI SALMON FISHERY

No documentary has been written concerning the Lummi salmon decline. The results of investigation, however, indicate a two period diminution. The first contraction, beginning in the 1880's and terminating in the 1930's, is focussed on the attrition of reef net locations. The second curtailment, occurring during the late 1950's and early '60's is centered on the loss of the Lummi purse seine fleet. The wane of the native sites and vessels has resulted in a partially quantifiable reduction in harvest values, and a relative diminution of the importance of fish in the people's economy. In consequence, a movement away from halieutics to other endeavors may be observed.

Early Contraction

By the 1890's whites were fishing intensively on Puget Sound, and the abandonment of native reef net sites and reef netting was in progress. There appears to be at least three reasons for this phenomenon. First, in 1884 allotments, each varying in size from 80 to 160 acres, were assigned by the federal government to individuals domiciled on the reservation.[1]

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[1]"An Act to provide for the allotment of lands in severalty to Indians on the various reservations, and to extend the protection of the laws of the States and Territories over the Indians, and for other purposes." An abstract of this act is to be found in: Sixteenth Annual Report of the Board of Indian Commissioners (Washington: Government Printing Office, 1884), pp. 38-40. This Act is also referred to as Senate Bill No. 48, or simply, the Coke Bill.

Several Lummi subsequently abandoned their island village and net sites for land donations on the Lummi Peninsula. Second, after reef net licenses were first issued by the Washington State Department of Fisheries in 1915, several Indians refused to purchase them, and subsequently vacated their locations.[2] Third, and most important, many sites, the majority of which were situated on the western side of Lummi Island and on the mainland between Point Roberts and Chuckanut Bay, were deserted after the appearance of fish traps. The first one of these was built at Cannery Point, Point Roberts, 1880.[3] The traps, larger and more efficient than reef nets, could be strategically placed to intercept the salmon before they reached Indian gear.

It appears that trap encroachment developed along two paths. On occasion, some verbal consent was reached between a fish company and the Indians. Two examples of such agreements were given by one informant. The first simply involved an exchange of labor: the Caucasians helped the natives set up their reef nets, while the natives, on the other hand, aided the whites in constructing traps. The other accord featured the payment of liquor to the natives for aid in trap construction.[4] In the most common procedure the company simply placed its apparatus near net sites to intercept the fish. Once traps were established, more appeared, and the smaller reef nets were effectively blocked. At the time of their

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[2]Interview with Mr. Al Charles, December, 1968.

[3]G. A. Rounsefell, and G. B. Kelly, "The Salmon and Salmon Fisheries of Swiftsure Bank, Puget Sound and the Fraser River," Bulletin No. 27, U. S. Department of Commerce, Bureau of Fisheries (Washington: U. S. Government Printing Office, 1938), p. 714.

[4]Interview with Mr. Herman Olson, retired reef netter, November, 1968.

outlaw in 1935, traps had replaced most reef net operations.[5]

During this period of attrition, the Lummi specialized in other methods of fishing such as gill netting and purse seining. When reef netting began to return after 1935, locations had passed to white control for the natives were, as one informant claimed, "asleep at the switch," because of their other activities. Apparently the Lummi no longer control any sites; they do, however, operate locations licensed by whites.[6]

Recent Decline

The second more recent decline of the Lummi fishery, emphasized by the disappearance of the purse seine fleet in the late 1950's and early 1960's is related to emergent problems of the Pacific salmon fisheries, such as: (1) the debilitating effects of excessive competition for a dwindling resource, (2) increasing costs unmatched by proportionate increases in fish prices, and (3) low, unstable earnings.[7] As the traditional native activity is part of the Pacific coast industry, an understanding of the significant Indian loss involves some appreciation of these factors in the general fishery decline.

A fundamental characteristic of the Pacific salmon fishery in Washington State is the privilege of unrestricted entry. In short, any-

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[5]Sessions Laws of the State of Washington, 24th Session, January-March, 1935, Chapter I: Fish Traps and Fishing Regulations, pp. 3-8.

[6]A further discussion of the reef net areas and Lummi aspirations regarding them is to be found in: Lummi Indian Nation Overall Economic Development Program, Lummi Indian Reservation Redevelopment Area (Marietta: Lummi Indian Office of Economic Opportunity, 1968), pp. 67-68.

[7]A manuscript on the economics of the Pacific salmon fisheries is currently being prepared by J. A. Crutchfield and Giulio Pontecorvo. This was reported in: Resources For the Future, Annual Report (Washington: Resources for the Future Incorporated, December, 1968), pp. 97-99.

one who purchases a license may fish. The upsurge of movement into the fisheries came after World War II, when sectors of the male labor force, previously preempted for essential wartime duties, were released. In addition resource stocks were plentiful and fish prices improved, making fishing a lucrative venture. This uncontrolled admittance, which reached its peak about 1955, is revealed in Table 2. The next five year period was one of retraction, mainly for purse seine fishermen, and it was during this era that the natives lost much of their fleet. Since 1960, the total number of fishermen in these selected industries has not changed appreciably, due to the fact that although the trolling sector experienced a drop in members, the purse seining and gill netting divisions have shown, once again, increased participation. The net effect of unrestricted entry has been that more fishermen must share the available resource.

TABLE 2

NUMBER OF FISHERMEN IN SELECTED FISHERIES
PUGET SOUND DISTRICT

Year	Purse	Gill	Troll	Total
1945	836	422	779	2037
1950	2415	780	1127	4322
1955	2831	1159	1205	5195
1960	1833	1117	1033	3983
1965	1959	1180	801	3940

Source: Calculated from: U. S., Bureau of Commercial Fisheries, Fishery Statistics of the U. S. (Washington: U. S. Government Printing Office), including the following publications: 1945 Statistical Digest 18, p. 271; 1950 Statistical Digest 27, p. 318; 1955 Statistical Digest 41, pp. 292-293; 1960 Statistical Digest 53, p. 341; 1965 Statistical Digest 59, p. 414.

A corollary to the principle of unrestricted entry is an increase in operating units. Much of the same pattern of rise, decline and

recovery is revealed in Table 3.

Commensurate with the influx of men and ships into the industry has been the development of more efficient gear. For example, Royce, et al (1963) stated that by the 1950's power blocks and drum seines had been perfected. Power blocks "doubled or trebled the number of sets a day a seine can make," while a drum seiner "may make as many as fifteen sets a day." Again, nylon nets, with about twice the fish catching capacity of their natural fibre counterparts, replaced those made of cotton and linen.[8] Besides adding to the costs of fishing, the efficient gear has intensified competition between fishermen, and has further increased pressure upon the available resource.

TABLE 3

NUMBER OF VESSELS IN SELECTED FISHERIES
BOATS AND VESSELS COMBINED
PUGET SOUND DISTRICT[a]

Year	Purse	Gill	Troll	Total
1945	102	359	467	928
1950	304	669	698	1671
1955	395	1014	777	2186
1960	264	992	741	1997
1965	578	1035	632	2245

[a]Boats are under 5 tons registered weight

Source: The figures for this table are calculated from the same sources as for that of Table 2, p. 42.

Unrestricted entry, increased unit operation and gear efficiency imply increasing fish landings. Such is not the case. "Salmon in both

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[8]W. F. Royce et al., Salmon Gear Limitation in Narthern Washington Waters (Seattle: University of Washington Printing Press, 1963), pp. 2-4.

the Atlantic and Pacific, blue whales of the Antarctic, North Sea herring, Pacific sardines and many other species are becoming less plentiful.[9]

Table 4 illustrates the disastrous salmon landing decline in Washington State since World War II. This diminution has been due recently to a reduction of chum and pink salmon yields. While the chum run has been reduced by approximately 42 percent between 1963 and 1966, the large pink run of 1963 produced in 1965 the lowest odd-year return yet recorded.[10] The causes of this erosion of the landings are not yet fully understood. It is thought, however, that on Puget Sound, besides fishing pressure, flooding has played an important role in the pink decline, while

TABLE 4

COMPARATIVE WASHINGTON SALMON LANDINGS
BY TWO YEAR PERIODS

Year	Pounds of Salmon
1945-46	120,575,479
1947-48	125,656,334
1949-50	121,620,381
1951-52	125,695,989
1953-54	133,746,858
1955-56	90,464,518
1957-58	99,209,513
1959-60	58,796,611
1961-62	52,754,100
1963-64	76,257,201
1965-66	62,641,404

Source: State of Washington, Department of Fisheries, 1966 Fisheries Statistics Report, p. 15.

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[9]F. T. Christy and Anthony Scott, The Common Wealth In Ocean Fisheries (Baltimore: John Hopkins Press, 1965), p. 1.

[10]Taken from the table entitled, "Washington Salmon Landings by Species (All Districts) In Numbers of Fish," State of Washington, Department of Fisheries, 1966 Fisheries Statistics Report, (Olympia: State Printing Press, 1967), p. 20.

urbanization has figured heavily in chum losses.[11] Landings of chinook and sockeye, which prior to about 1957 had been generally declining, have been stabilized and improved by the success of hatchery techniques and harvesting controls.[12]

A consequence of unrestricted entry, increased efficiency, and a dwindling resource is the significant decline of the average potential catch per license, as shown by Figure 12. From a high mean of approximately 9868 fish per license for the odd-year highs from 1945 to 1953, the catch has diminished to a mean of 2801 fish per license for the odd-year highs during the 1961 to 1966 period.[13]

Another affliction of the state fishery is that of increasing costs. New vessel prices, obtained through personal contact with shipbuilders, evince most readily the inflation of expenditures for labor and materials since World War II. By inference, increased maintenance costs are reflected by these figures. One Seattle builder, who wished to remain anonymous, claimed that the construction cost of a 57 foot steel seine boat, completely equipped, rose from $49,000 in 1955 to $133,000 in 1968. A second builder located in Blaine, suggested that for a 58 foot "Alaska limit" boat, the price rose from $50,000 in 1945 to $110,000 in 1968.[14]

Of interest, too, is the cumulative valuation of one Lummi operated 58 foot seine boat: (1) new price, 1953--$35,000, (2) first resale price,

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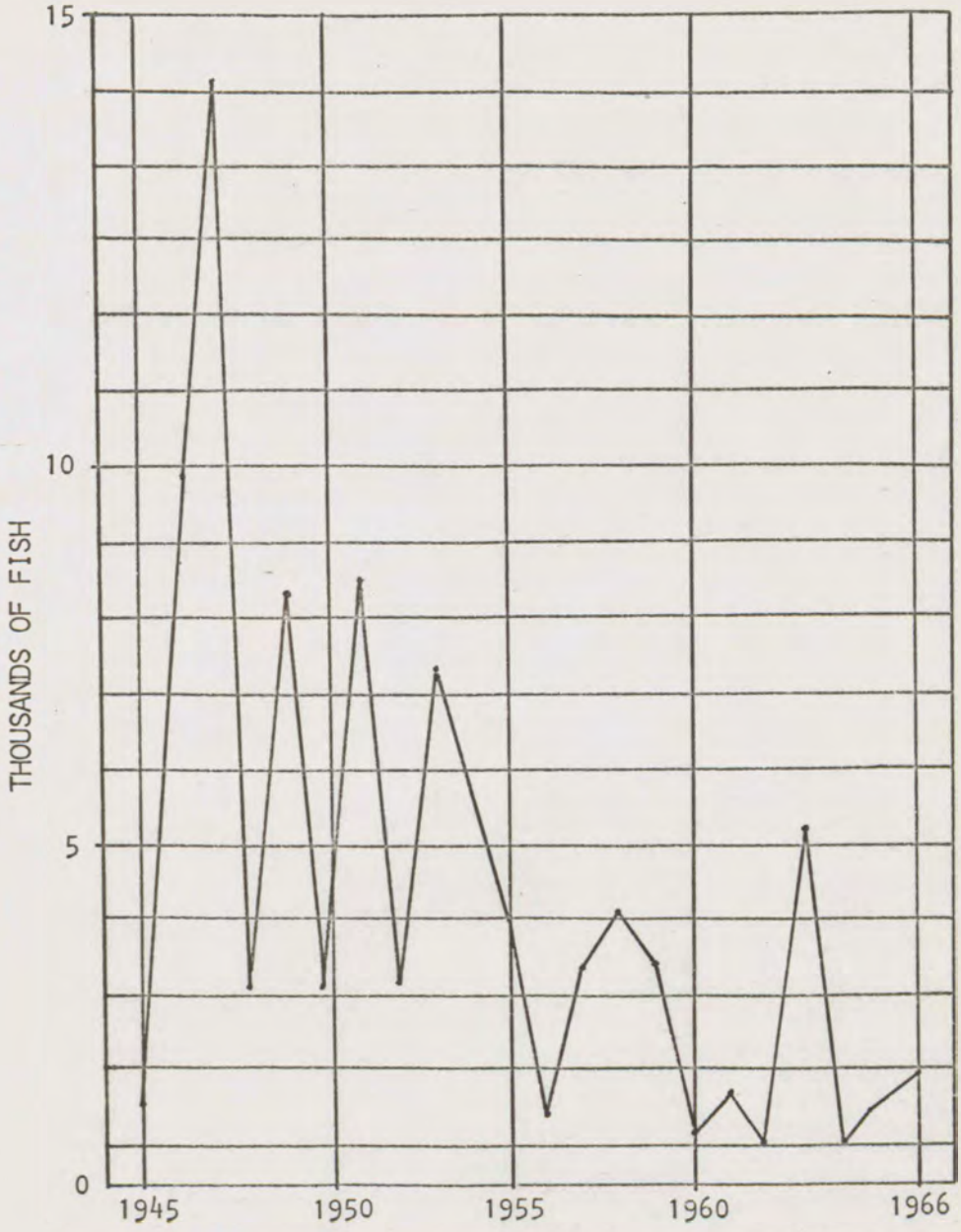
[11]Conversation with Washington State Department of Fisheries Officials, January, 1969.

[12]Ibid.

[13]The mean of 9768 fish is somewhat high because 15,115 fish per license were caught in 1947, nearly double that of the average of the other odd-year figures.

[14]Interview with Mr. Carl Berg, President, Berg Shipyard, Incorporated, November, 1968.



CATCH PER LICENSE[A] PURSE SEINE, GILL NET COMBINED

(ALL SALMON, PUGET SOUND)

[A] ASSUMES THAT ALL LICENSES WERE USED

FIG. 12 SOURCE: WASHINGTON STATE DEPARTMENT OF FISHERIES, 1966 FISHERIES STATISTICAL REPORT

1956--$55,000, (3) insurance appraisal, 1968--$85,000, (4) replacement value, 1968--over $100,000.[15]

Admittedly new vessels have more powerful engines, carry more sophisticated gear, and are made of more durable materials which require less maintenance. The fisherman must finance the additional costs, and to do so, he must enhance his earnings by landing more produce, or, if not, by realizing a consistent price increase per pound for the fish landed.

With regard to fish value, unfortunately, inconsistency has been the rule. Although the trend recently has been upward, Table 5 demon-

TABLE 5

Average Value per Pound - Selected Salmon Landings

Year	Chinook	Chum	Pink	Coho
1951*	$0.278	$0.130	$0.160	$0.222
1952*	.251	.114	.134	.177
1953*	.254	.099	.116	.183
1954*	.270	.120	.140	.190
1955*	.273	.170	.140	.231
1956*	.380	.230	.160	.340
1957*	.286	.127	.141	.217
1958*	.341	.125	.168	.282
1959*	.325	.172	.151	.276
1960**	.413	.244	.255	.407
1961**	.416	.212	.171	.311
1962**	.503	.190	.254	.318
1963**	.368	.194	.122	.279
1964**	.407	.185	.203	.295
1965***	.355	.133	.146	.240
1966***	.351	.163	.152	.284
1967***	.414	.172	.137	.311

* Values are for statewide salmon landings.
** Values are for Puget Sound salmon landings.
*** Values are for Puget Sound Indian salmon landings only.

Source: Correspondence from Mr. Dale Ward, Supervisor, Fisheries Statistics, State of Washington, Department of Fisheries, October 29, 1968.

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[15]Interview with Mr. John Kinley, former purse seine fisherman, October, 1968.

strates the basic price instability in the industry. For the four species considered, per pound rates on Puget Sound actually declined between 1960 and 1964, and within this same period, price fluctuations were substantial. With the Puget Sound Indian catch, pinks experienced one price decline. This occurred between 1966 and 1967 when the price fell from $.146 to $.137 per pound. From 1965 to 1967 the overall average increase to the Indian for the four species was slightly in excess of $.01 per pound per year.

From the preceding discussion comes the presumption that financially the average salmon fisherman has not fared well. The problem of low, unstable incomes is well illustrated by Figure 13. During the ten year period from 1957 through 1966 for which annual figures were available, a mean

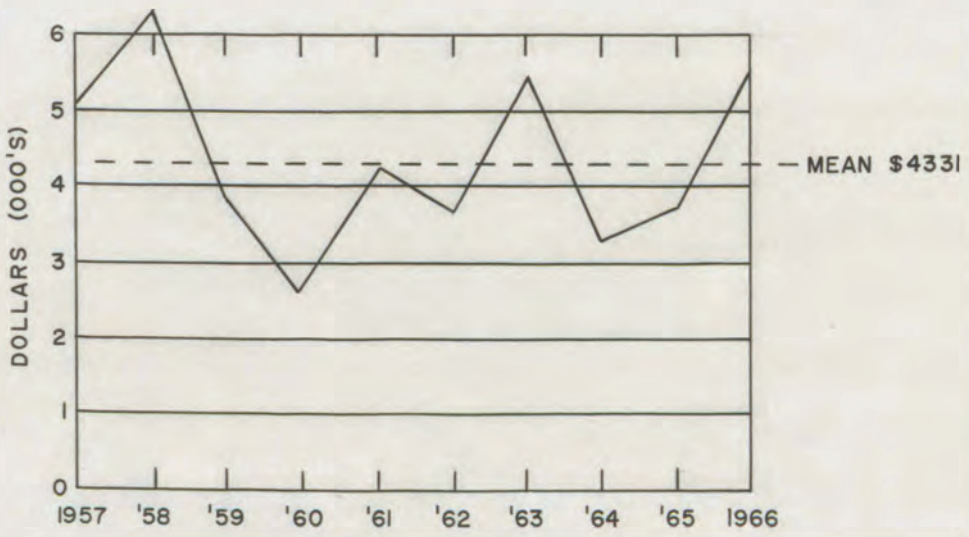

Fig. 13.--Washington State Average Salmon Catch Value per Licence: Troll, Gill, Purse, and Reef Net Licences Combined.[a]

[a]Assumes that all licences were used.

Source: Compiled from State of Washington, Department of Fisheries, Fisheries Statistical Report, annually for the years 1957 through 1966. For example: 1966 Fisheries. . . , p. 10, p. 84.

income of $4331 per annum was derived. This was a gross figure from which expenses had to be deducted.

Two specific illustrations of low incomes for salmon purse seine fishermen were given by Royce et al. (1963) based upon answers received from two surveys covering operations from 1959 through 1961 on Puget Sound. The first example, resulting from the analysis of twenty-one questionnaires received from vessel owners, revealed that the average net profit per owner, after deducting his shares as part of the actual labor costs, was $5013. Earnings among the entrepreneurs varied considerably, from net incomes of $17,000 to actual net losses. Capital investment per boat averaged about $77,000.[16] Assuming a net income of $5013, then the return on investment was about 6½ percent. If this was calculated on a proper depreciation basis as suggested by the authors, then a net return of only 3.9 percent could be expected. In the second instance, answers to another mail questionnaire distributed to individual seine share fishermen by Local 3 of the International Longshoremen and Warehousemen's Union were broken down. In this case the individual fisherman's earning averaged less than $1100.

Generally then, unless one is prepared to bottom fish during winter months, thus utilizing equipment on a year round basis, it is difficult for an owner to earn a living commensurate with his investment, and for a share fisherman it is, "impossible to earn in purse seine fishing even half the average income received by all Washington State residents."[17]

These problems of the current salmon fishery--excessive competition

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[16]Royce, et al., Salmon Gear Limitation . . . , pp. 39-40. These pages cover the discussion of the paragraph.

[17]Ibid., p. 50.

for a declining resource, fluctuating fish prices, increasing costs, and low, unstable earnings--to some degree have all affected the Lummi, who until recently, competed with varying degrees of success with the whites. Latterly, they have been severely handicapped by the loss of their purse seine fleet. The dispossession of these vessels is the central focus of the second phase of the fishery decline, for their disappearance, besides accounting for a quantifiable decrease in volume, virtually destroyed the final competitive base of the native fishery beyond Bellingham Bay, and has been a prime factor in the current restricted activity to the present area.

Informants affirm that the fleet was built up during World War II.[18] This was encouraged by two factors. First was the bolstering of salmon stocks brought about by: (1) the outlawing of fish traps, and (2) the exclusion from the fishery of part of the labor force due to the war. Second, fish prices rose, encouraging those who fished to expand their operations.

How many natives possessed clear title to their vessels is unknown. As banks did little financing, most received financial assistance when necessary, from fish companies such as Bornstein Seafoods Incorporated, Pacific American Fisheries, and Alaska Packers Association. According to the interviewee at Alaska Packers, most Lummi who required aid carried debts for such items as boat payments, repair bills, or gear replacement. Company officials agreed to make cash advances or assume the obligation if the Indians would fish for the firm. A legal document called a First Marine Mortgage, using the vessel as collateral, was then drawn

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[18]Interview with Mr. Forrest Kinley, July, 1968, and with Mr. John Thompson, Assistant to the Blaine Supervisor, Alaska Packers Association, November, 1968; January, 1969.

up and signed by both parties. If the season went well, the loan was repaid, and a release was granted.

Fig. 14.--View of seine boat showing power block. The expense of conversion to such items as power blocks and drums, was responsible for many of the Lummi financial difficulties.

Unfortunately, by the mid 1950's the problems of the state salmon fishery were becoming pressing, and their cumulative effects, compounded in some cases by poor management, caused or threated financial embarrassment.[19] Confronted with such stress, the Indians were faced with several alternatives. First, they could sell their vessels, and buy smaller

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[19]Poor management is a difficult term to define when considering inter-cultural contacts. Differences in cultural background result in different attitudes and methods of approaching a situation. Frequently, these come in to conflict with one another. For example, white informants claimed the Indians neglected their boats, or fished intermittently, or were generally lazy. One Indian claimed, on the other hand, he abandoned fishing because he refused to adopt some of the white man's cut-throat tactics in order to catch fish.

boats, or work for the company. Second, they could keep their units, and elect a debt position in hope of better seasons, and a return to financial solvency. Those who assumed liability frequently increased their obligations, and both informants estimated that about 30 percent of the Lummi fleet was lost through foreclosure. The final option was to liquidate assets and abandon the fishery in favor of alternative occupations. Most apparently chose to sell and operate smaller units.

Although the Lummi now own no purse seine vessels, two natives run company owned boats, one of which operates all year and ventures as far afield as Alaska. Figure 14 shows a seine boat similar to that used by the Lummi.

Decline in Volume

The loss of the native sites and vessels is reflected in the diminution of the catch volume, and a decrease in the relative importance of fish in the Lummi economy. It is a well established fact that salmon were once abundant in the Bellingham Bay region. Roth (1926) made two pertinent supporting comments. First:

> As late as 1890 many farmers of Whatcom County pitchforked the lordly salmon out of the streams during the spring and summer spawning season, and used them by the wagonloads as fertilizer for the soil, or as feed for hogs. The latter soon became unprofitable, because the ration imparted a certain fishy or salmony flavor to the pork.[20]

Second, in 1925 there were eight canneries operating in Whatcom County; most were located either on Bellingham Bay or Lummi Island. That year these factories produced a combined pack of 446,108 forty-eight pound

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[20]Lottie Roth, A History of Whatcom County, Vol. I (Chicago: Pioneer Historical Publishing Company, 1926), p. 66.

cases of salmon.[21]

The decline in salmon landings due to reef net abandonment cannot be quantified for no records were kept of the Indian catch before 1935. A partial evaluation of the more recent losses may be made by considering the purse seine catches and the Nooksack River-Bellingham Bay harvest. As mentioned in Chapter IV Current Lummi Fisheries, Suttles (1954) claimed the Lummi owned 25 to 30 purse seine boats. To pursue the matter further, the investigator, with the aid of the Department of Fisheries, and informant recall, compiled a total of nineteen ships. This does not mean they were all active at the same time. In order to quantify the Indian catch, Mr. Dale Ward supplied data for two representative "good" years, 1957 and 1958, during which twelve Lummi seiners were known to be operating. The results for 1957 are shown in Table 6.

The cumulative total of 847,747 pounds represented a gross income of $174,498. These figures did not take into account two factors: (1) other Lummi operated seiners unknown to the Fisheries Department, (2) bottom fishing done in winter by any of the vessels. Because of the complexity of sorting data, and the knowledge that few fished during the winter, little could have been gained by evaluating such a catch.

Table 7 illustrates the Nooksack River-Bellingham Bay landings for 1957. In this instance 575,206 pounds of salmon grossed $104,578.

To these amounts must be added the winter steelhead landings by the Lummi from the Nooksack River. According to the State of Washington,

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[21] Ibid., p. 667. Today these canneries have disappeared. Upon investigation, only two were to be found in operation in western Whatcom County. These had a combined 1967 salmon pack of approximately 74,500 cases. Further, neither of the canneries operating in 1967 were established here in 1925. Pacific American Fisheries, the largest packer that year, went into liquidation in 1965.

TABLE 6

LUMMI PURSE SEINE SALMON LANDINGS
FOR TWELVE VESSELS
1957

	Chinook	Chum	Pink	Coho	Sockeye
Number of fish	630	13,062	60,574	1895	50,449
Average fish weight in pounds	20	12	6	7	6
Total weight in pounds	12,600	156,744	363,444	13,265	302,694
Price per pound to fishermen	.286	.127	.141	.217	.320
Total average catch value in dollars	3604	19,907	51,246	2879	98,862

Grand Totals: Weight, 848,747 pounds; Value, $174,498

Source: Compiled from data supplied in correspondence from Mr. Dale Ward, Supervisor, Fisheries Statistics, State of Washington, Department of Fisheries, October 29, 1968, and January 15, 1969.

Department of Fisheries, the Indians took 2801 fish from the river in 1957. Assuming an average per fish weight of ten pounds, and a price to fishermen of $.20 per pound, the 1957 harvest of 28,010 pounds fetched a total of $5602 from buyers.

On comparing the values of the landings, it will be observed that the seine boat catch exceeded that of the river and bay by $64,318. Gross receipts from all sources that year amounted to $284,678, and over 50 percent of this total was realized by the fleet.

Some other observations may be made. As stated in Chapter IV Current Lummi Fisheries, the value of the Nooksack River-Bellingham Bay

TABLE 7

LUMMI NOOKSACK RIVER-BELLINGHAM BAY
SALMON LANDINGS 1957

	Chinook	Chum	Pink	Silver	Total
Number of fish	7384	25,433	6498	11,906	51,221
Average weight in pounds	20	12	6	7	-
Total weight in pounds	147,680	305,196	38,988	83,342	575,206
Price per pound to fishermen	.286	.127	.141	.217	-
Total average catch value in dollars	42,236	38,760	5497	18,085	104,578

Source: compiled from the 1966 Fisheries Statistical Report, p. 68, and from data supplied in correspondence from Mr. Dale Ward, October 29, 1968.

fishery totalled $129,659 in 1967. Landings revenue from all sources was about $191,000. When compared with 1957 purse seining operations, one discovers that they exceeded the river fishery and rivalled the value of the entire catch. In 1957, the sockeye was the most valuable fish caught. As it is harvested by seining, and is not found in the river, this valuable source of income is no longer available to the Indian in quantity. To this must be added the fact that if seven people normally formed a seine boat crew, then the loss of these vessels meant that at least 84 Lummi had to find other work or some form of supplementary income.[22] If the potential work force

[22]The seven man average crew estimate was supplied by a number of informants.

of the Lummi was in the neighborhood of 340, of whom 215 were male, then the impact upon unemployment created by the displacement of the fishermen can be readily appreciated.[23] One comes to the conclusion that the elimination of the purse seine fleet from the Lummi fishing economy was nothing short of catastrophic.

Decline in Relative Value

It is beyond the scope of this study to evaluate quantitatively the relative decline in importance of the fishery in the native economy. An elementary comparison of aboriginal and present day harvests will afford the reader some understanding of their relative worth. It was stated that in 1875, an estimated 200,000 pounds of salmon satisfied the food requirements for 600 people, not including feasts and trade.[24] Because a subsistence economy existed, fishing and the maintaining of gear virtually fully employed all males. Hunting and gathering were of secondary importance. This base has been replaced by a cash equivalent for the product. If the estimated fisheries receipts of $191,000 for 1967 were all found, they would have supplied an annual income of $5000, generally considered by the native fishermen to be a maximum average wage, to thirty-nine people.

Investigation of the fishery work force revealed that there are more than thirty-nine indigenes fishing the river. In attempting to establish the number of those engaged professionally in this occupation, the author, in the course of interviewing, compiled a list of known fish-

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[23]See Chapter VI, Emergent Economic Alternatives, p. 70.

[24]See Chapter III, Early Economic Support: Pre-Cultural Contact Fisheries, p. 23.

ermen. With difficulty some thirty names were gathered. To this number must be added those who fish part time. The major participants in this activity, the total number of which is unknown, are housewives, school children, and men in other occupations who "drift" after work. These folk help crowd fishing conditions, especially when fish are known to be running, for those who choose to earn their living on the river.

It is thus not difficult to agree with informants who claim that to earn $5000 per annum on the river is the result of good luck and hard work. Because of the competition, many professionals earn less and must supplement their incomes either with alternative occupations such as logging and millwork, or with unemployment security and welfare. Because of the character of the river fishery, the erratic nature of the general state fishery, and the fact that there are about 140 households, full employment by this industry cannot be realized, nor can the needs, as in aboriginal times, be satisfied by a monetary equivalent.[25]

The Outlook

Under present conditions a recovery of the Indian commercial fishery to its previous status appears bleak.

What importance reef netting played commercially with the Indians prior to 1935 is unknown, for its influence decreased steadily after fish traps appeared in the late 1880's. Should the Lummi acquire the sites previously used, it is questionable if the yield would now satisfy needs proportionately as in earlier times. Since the return of reef netting after 1935, it has played a minor role in the total catch of salmon on Puget Sound. In 1966, for instance, 2,477,991 salmon were caught on the Sound,

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[25]Comments regarding households are to be found in Chapter VI, Emergent Economic Alternatives, p. 72.

and of these, only 68,511 were landed by the traditional device.[26] Indeed, if Indians had control of their former sites, they would catch only fractional amounts of the potential available, for because of white participation, more reef nets and sites are in operation than in aboriginal times.

The position with reference to the purse seine fleet is of course impossible until the present ills are corrected.

> As long as there is no restriction on new entry and no workable plan to reduce existing amounts of gear, the present situation of low and unstable incomes, intense rivalry among owners of different kinds of gear, and overall inefficiency will persist.[27]

Further, as has been shown, the Lummi catch since 1935 has risen slightly, but the dollar value of the total harvest is inadequate to satisfy either the basic needs of the Lummi or his rising level of aspiration. On a statewide basis, the decline of yields has a direct influence on the available catch per boat. State officials are not convinced that the downward trend has been arrested. Finally, in order to re-establish the purse seine fleet, or in some way expand their operations from the present restricted location, the Lummi require substantial financial aid. Alaska Packers Association, once a major source of assistance, no longer operates in Washington State, while other local companies are either too small to extend themselves, or operate their own fleets.

There is at least one other source of aid on a federal level, but it is available on such a limited basis, that the chances of Lummi participation are slight. In 1963, the United States Congress authorized the expenditure of $10,000,000 per year for a period of five years as a

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[26]State of Washington, 1966 Fisheries Statistics Report, pp. 32-39. Appropriate figures were extracted from tables and added.

[27]Royce et al., Salmon Gear Limitation . . . , p. 50.

shipbuilding subsidy to U. S. fishermen. The government further allocated sums to insure vessel mortgages and to provide 6 percent loans to fishermen. From December 1964 to June 1967, only twenty-two contracts had been let, because entrepreneurs were unable financially to take advantage of the situation. The expense was too great, for the cost of building could run as much as $500,000.[28] For the Indian whose income traditionally has been low, who has generally been unable to accumulate the assets considered essential as collateral, and who has had difficulty obtaining credit in the past, his chances of building under such a law are even more remote than those of his white counterpart.

It is not surprising that an examination of the present Lummi economy reveals a movement away from the salmon fishery into other endeavors.

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[28]T. H. Lineaweaver III, "Our Catch-As-Catch-Can Fisheries," The Reporter, 37 (September 7, 1967), pp. 38-40.

CHAPTER VI

EMERGENT ECONOMIC ALTERNATIVES

Introduction

The change in economic emphasis is not new nor was it caused by a specific event. Such a shift had been occurring since white men settled on the margins of Bellingham Bay. Simply because of intervening opportunity, many Indians chose other occupations which either supplemented or replaced fishing. Recently, an increasing scope of alternative endeavors combined with the inability of the fishery to provide a satisfactory livelihood for many natives has resulted in such an occupational relocation that the majority of reservation employment and income is derived from industry which is presently geographically oriented away from the reservation. A study of some of the traditional employment alternatives and current occupational patterns will elucidate the above statements.

Significant problems occurred with respect to analysis of the current economy. The paucity of data regarding the labor force was severe enough to limit the study to that amount of information which could be gathered by alternative means. Thus quantitative evidence within this sector has been replaced to a certain extent by such qualitative statements as could be supported by findings.

Traditional Alternative Economic Activities

Background

Because the development of alternative activities depended upon white contact and settlement, some appreciation of their arrival and impact upon the Lummi is appropriate. Hudson's Bay Company fur traders were among the first Caucasians to make contact with the indigenes. These merchants came initially from posts on the Columbia River, and later from Fort Victoria on Vancouver Island. White settlers began to arrive on Bellingham Bay in 1852; during that year, R. V. Peabody, J. G. Hodges, and Captain H. Roeder came from Seattle, attracted to this area by reports of fine timber and good water power.[1] They soon settled on government donation claims, located in present day Bellingham. One writer of the time clearly attested to the size and importance of Douglas fir, western red cedar, spruce, and hemlock, the prime members of this virgin west coast forest.

> The timber of this district, of which hundreds of thousands of acres are still standing, consists of fir, cedar, alder, spruce, hemlock, maple and madrona in large quantities, adapted for lumber, shingles and use in building cars and house trimming, furniture and wooden ware. The flawless fir is especially adapted to shipbuilding. This timber is excellent fuel for steam and heating purposes.[2]

These trees, together with federal land grants, became the economic foundation for permanent white cohabitation of the Bellingham Lowland.

The new settlements grew rapidly, while the indigenous peoples waned. Between the 1850's and 1903 four towns developed along the shore of Bellingham Bay: Whatcom, Sehome, Bellingham, and Fairhaven. In 1904, one year after their amalgamation, there was a combined population of

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[1] "Bellingham Bay History," The Coast, June, 1909, p. 182.

[2] "Whatcom and Fairhaven," The Coast, July, 1902, p. 189.

about 22,600.[3] Owing to an epidemic of smallpox about 1880, the number of Lummi during the same period declined from approximately 600 to 350.[4] Consequently, after fifty years of Caucasian settlement, the Indians had been overwhelmed in numbers, and significant economic changes were occurring. On the one hand, their traditional livelihood was being challenged, and on the other, alternative opportunities appeared. Of these new means of livelihood, trade, farming, shipping, fish canning, and forestry will be mentioned.

Historic Economic Alternatives

Trade with Caucasians, an extension of earlier native inter-tribal activity, first occurred with the Hudson's Bay Company. Fish, furs, and potatoes were exchanged for such items as trinkets, knives, and firearms. Soon after white settlement in the Bellingham Lowland, B. N. McDonough opened a general store in old Lummi Village, and reported transactions with the aborigines for fish oil, furs, hides, and feathers.[5]

While introducing the Indians to many useful products, trade had some deleterious effects. Two examples will serve to illustrate the statement. During the Fraser River gold rush in 1858, an unfortunate experience occurred. The Indians exchanged so many canoes for transient miners'

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[3]R. L. Polk and J. C. Parker (eds.), Bellingham City Directory, 1904-05 (Bellingham: Polk and Company, 1905), p. 6.

[4]The Lummi population figures were acquired from the following sources: U. S., Secretary of the Interior, Annual Report of the Commissioner of Indian Affairs to the Secretary of the Interior (Washington: Government Printing Office, 1875), p. 118; U. S. Department of the Interior, Annual Reports of the Department of the Interior: Indian Affairs, Part I: Report of the Commissioner (Washington: Government Printing Press, 1903), p. 646.

[5]Suttles, "Post-Contact Culture Changes . . . ," p. 64.

possessions that a boat shortage occurred, impeding the fishery.[6] Another problem was created by liquor, purchased with cash received from the sale of their canoes. In 1858 Indian agent Fitzhugh stated:

> The money they have received has been worse than nothing; it has been the means of their getting quantities of rum . . .
>
> My Indians around me are constantly drunk, and can get as much whiskey as they want.[7]

Farming was encouraged by the Commissioner of Indian Affairs in an attempt to move the natives away from hunting, fishing, and gathering. According to Suttles (1954), the first reservation farm, about forty acres in size, was mentioned in 1859. The principal crop raised was potatoes. By 1867, there were 155 acres either in crops of potatoes, vegetables and wheat, or pasture.[8] That year Agent Finkbonner noted that the Lummi Reservation had, "$1300 worth of livestock, $7000 worth in canoes, and $1500 in firearms."[9] In 1872, Indian agent Father Chirouse stated in his annual report, "The Lummi and the Muckleshoot Indians have quite a large stock of cattle, their reservation being much better adapted for stock raising."[10]

Beginning in 1884, allotments of from 80 to 160 acres were made available to American Indians by an act of Congress.[11] Informant Mr. Al

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[6]U. S. Secretary of the Interior, Report of the Commissioner of Indian Affairs, 1858 (Washington: W. H. Harris, Printer, 1858), p. 231.

[7]Ibid.

[8]Suttles, "Post-Contact Culture Changes . . . ," pp. 87-88.

[9]Ibid., p. 65.

[10]U. S., Secretary of the Interior, Report of the Commissioner of Indian Affairs to the Secretary of the Interior (Washington: Government Printing Office, 1872), pp. 349-350.

[11]Senate Bill No. 48, Sixteenth Annual Report of the Board of Indian Commissioners (Washington: Government Printing Office, 1884), pp. 38-40 (an abstract). For the full title of the Act, see Chapter V, The Decline of the Lummi Salmon Fishery, p. 39.

Charles suggested that once the Lummi began acquiring their homestead lands, they developed them communally by "working bees." There were slashing, plowing, building, sowing, and harvesting "bees." He further stated that agricultural activity reached its height between 1910 and 1915. At this time, he estimated, between 6000 and 7500 acres of the reservation were in crop, orchard, berries, and pasture. Crops raised included potatoes, turnips, cabbages, hay and oats. Orchards of apples and pears were planted. Several kinds of berries, especially raspberries, were cultivated. Animals raised on cleared land were sheep, chickens, pigs, cattle, and horses.

It must be observed that the Indian experience with farming was one of mixed blessings, for cultivation was foreign to their culture. It was not long, therefore, before friction arose with the whites.

> The presence of the Indians has become almost intolerable to our settlers . . . They not infrequently prevent immigrants from settling here by claiming certain tracts of the most desirable land; yet they are not trying to get title to any land, but are trying to hold surveyed land by "squatters' right," and at the same time claim protection and annuities from the government as Indians. They have no fences but keep scrub horses, stock, etc., running at large, which are a great annoyance and a positive injury to the farmers here . . . [12]

Today, no Lummi practice full time agriculture. Those natives who farm do so on a part time basis and raise dairy or beef cattle, and cultivate a few berries. Agricultural area has diminished to about 3500 acres, located mainly in the Nooksack and Lummi River flood-plains.[13] In the early 1900's the Lummi farmed most of their land; now much is either sold or leased to whites who raise dairy cattle or cultivate peas and corn.

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[12] Bellingham Bay Mail, March 14, 1874, p. 3.

[13] Interview with Mr. Wesley Knutsen, Soil Technician, U. S. Department of Agriculture, Soil Conservation Service, Bellingham, January, 1969.

According to the Lummi Indian Nation Overall Economic Development Program (Lummi OEDP Handbook-1968), the lease income in 1967 from 1551 acres of farmland was $24,243, averaging $9.18 per acre.[14] Because of the multiple ownership of some of the leased farmland, however, the amount received by an individual may be considerably less than this. The author came across a cheque in the amount of $.43.

There were several reasons for the decline of Indian farming, the most important of which was probably cultural. Prior to white contact, agriculture was nonexistent in the aboriginal economy. Although farming was initially successful, mainly through the stimulus of land grants, the influence of surrounding whites who were farming successfully, and the pressure of missionaries and Commissioners of Indian Affairs, it was in juxtaposition to indigent cultural heritage. First, it was a sedentary development for a people who were transhumant, used to moving in concert with the salmon season. In addition, the time of rapid crop growth conflicted with the fishing season, and instead of supplementing the traditional activity, competed with it. Consequently, any unfavorable economic pressure resulted in a native movement, such as a return to fishing, or to some other alternative activity.

This began to happen around 1915.[15] Increased competition arose from farmers outside the Bellingham Lowland, who were able to supply a larger quantity and greater variety of foods to local businesses. In addition, these merchants began to specify certain seeds, crops, and delivery dates with which the Indians were frequently unable to comply, be-

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[14] Lummi Indian Nation . . . , p. 26.

[15] Most of the information regarding the historic farming decline was supplied by Mr. Al Charles.

cause these demands required a more scientific approach to farming than had been practiced. Another activity, logging, was also influential. In addition to attracting many who were experiencing difficulty in farming, it to some extent complemented the fishing season, thus freeing many to return to their traditional occupation. Poverty played a role and frequently forced the sale of farmland. For instance, some older people, who were no longer able to compete, sold their lands in order to qualify for welfare payments. In these cases, as informant Al Charles said, "The money looked pretty good." Under these inter-related, cumulative pressures, then, farming languished.

Steamship service which had developed between Bellingham Bay and Seattle shortly after white settlement, provided another employment opportunity. In spite of the fact that working on these vessels took the

Fig. 15.--The steamship, State of Washington, circa 1900. Sehome Hill may be seen in the background.

Lummi away from their families, informant Forrest Kinley asserted that they signed on the ships as deck hands, because the sea was their home. Figure 15 illustrates a coastal steamship typical of the day.

Newly constructed fish canneries provided another means of livelihood, for the natives employed proved adept at cleaning and packing the sliced fish into cans. "In the 1893 season the Semiahmoo and Point Roberts canneries packed more than 100,000 cases, employing 130 white men, 140 Indians, and 150 Chinese."[16]

Logging camps and saw mills provided employment for the Lummi. The vastness of these industries to northwestern Washington, and their obvious employment opportunity potential for the natives, is evidenced by the following. In 1900 there were sixty-eight mills in Whatcom County employing 1200 men. The Puget Sound Sawmills and Timber Company, Fairhaven, was the largest shingle mill in the world, whose annual output was 135,000,000 shingles, and 18,000,000 board feet of lumber. It employed 440 men, not including shingle bolt camps.[17] To the Indians, companies such as this one provided jobs as fallers, buckers, and chokermen in the woods, and sawyers and packers in the mills. Such activities became the Indians' main pursuits after the fishing season. Figure 16 illustrates early Bellingham Lowland logging.

On the reservation the Lummi not only logged, but also enjoyed certain managerial control of their operations, for according to Indian agent Chirouse, in 1872:

> There are at present twelve logging camps in operation on the Reservation, three at Port Madison, one at Swiminish, and one at

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[16] Roth, History of Whatcom County Vol. I, p. 662.

[17] Ibid., p. 658.

Fig. 16.--Logging in the Bellingham Lowland, circa 1900

> Lummi. In each camp there are about eleven Indians kept constantly at work, and at the head of each camp there is one white man, who acts as foreman, attends the teams, and sees that everything goes to the satisfaction of all concerned. In order to give the Indians encouragement, I allow them to conduct their own work, choose their own teamsters, and make whatever changes that may tend to advance the work, I merely seeing that Justice is done them in the sale of their logs, and that proceeds be equally divided among them.[18]

To summarize the foregoing discussion, part of the Annual Report of the Commissioner of Indian Affairs, 1904, suggests some of the early occupational roles adopted by the Lummi in response to cultural contact:

> . . . agriculture is not, as might be expected to be, the chief industry of our Indians.
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> . . . The chief industries are lumbering and fishing upon the part of the men, many of whom work in the camps and in the canneries at

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[18] Report of the Commissioner . . . (. . . 1872), p. 349.

the proper seasons. . . [19]

Current Alternative Activities

Introduction

Comments pertinent to the present population, labor force, and employment rate provide the background for a study of current occupational activities. As previously mentioned, serious problems arose regarding the study of these sectors of the Lummi economy. Data regarding the reservation population are not reliable. No historical evidence of the Lummi work force exists prior to 1964, while present knowledge of the composition of this sector is vague, and its distribution unknown. As the acquisition of such materials in this case were beyond the resources of the individual author, the inquiry was generally limited to information gleaned from selected informants, government officials, and industry sampling. From these sources it was possible to acquire some knowledge of present occupational patterns, and substantiate the premise of a relocation in economic emphasis away from the fisheries into other activities.

Population

The lack of data and the imprecision of that available is well illustrated when considering the reservation population. Three different figures exist pertinent to this sector, one is now outdated, the other two may be considered only as approximations.[20] One of the latter, and the

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[19]U. S., Department of the Interior, Annual Reports of the Department of the Interior (Washington: Government Printing Office, 1904), p. 336.

[20]Letter from Mr. J. W. Weddel, Tribal Operations Officer, U. S. Department of the Interior, Bureau of Indian Affairs, Western Washington Agency, Everett, Washington, October 23, 1968.

most recent figure, is that which appears in the Lummi OEDP Handbook-1968.[21] No direct reference to reservation population is made, but the source claims the existence of 1600 Lummi of whom 1200 are in Whatcom County served by the United States Public Health Service. After discussion of the County figure with various informants, the population was further specified: reservation population, approximately 800; nearby Marietta, 225; elsewhere in Bellingham, 175. Although the reservation figure may be somewhat high it is used in the computation of the workforce, because the Handbook is the only source of information with reference to this sector of the Lummi economy.

Labor Force

Figures given in the Handbook pertinent to the labor force are based on a population of 1600.[22] These figures were scaled to a population base of 1025 to include the reserve and adjacent Marietta. The town was incorporated because of the imprecision of its boundary with the reserve, and the fact that one reliable study done by the Washington State Employment Security Office included it. Founded upon a reservation-Marietta population of 1025 there is a total work force, fourteen years of age and over, of 340, of whom 215 are male, and 125 are female. These figures are only estimates, and no further analysis of this group by age of distribution is possible at this time.

Because so little is known of the labor force, specific information with regard to the unemployment rate is also lacking. Although it has been acknowledged generally to have been quite high, it is known to have dropped

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[21] Lummi Indian Nation . . . , p. 18.

[22] Ibid., p. 19, 24.

somewhat from the catastrophic 1960 high of nearly 70 percent quoted in the Lummi OEDP Handbook-1968.[23] This decline has been due principally to industry newly located in Whatcom County. Supporting evidence, using different bases than the labor force quoted, comes from two reliable agencies: (1) the Washington State Public Assistance Department (WSPAD), and (2) the Washington State Employment Security Department (WSESD).

Table 8, a compilation of statistics supplied by the WSPAD reveals a recent significant reduction in the number of Lummi welfare recipients. In the main category (so designated because it contains most of the potentially employable wage earners), Aid to Dependent Children, the number of cases dropped from sixty-eight involving 300 people on November 1, 1965, to thirty-three cases including 141 individuals in June 1968-- a drop of over 50 percent.[24]

TABLE 8

NUMBER OF INDIANS RECEIVING
PUBLIC ASSISTANCE
1965 and 1968

Date	Old Age Assistance		Aid to Families With Dependent Children		Aid to Permanently and totally disabled		General Assistance	
	cases	persons	cases	persons	cases	persons	cases	persons
1965	5	*	68	300	25	*	8	*
1968	9	10	33	141	12	13	4	5

*No figure available

From February through June, 1968, a WSESD employee conducted a useful

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[23] Ibid., p. 19.

[24] Interview with Mr. Collin Carlyle, Social Service Supervisor, Washington State Public Assistance Department, Bellingham, November, 1968.

survey of the reservation and Marietta for the purposes of discerning the disposition of the native labor force (WSESD Survey-1968). Of the 143 households tallied, eighty-four were sampled. Within the sample, forty-eight heads of households were gainfully employed, while thirty-six were unemployed. Of the latter, however, twenty-four were statistically unemployable either because of age or disability, leaving a total of twelve employable unemployed, (or approximately 14 percent of the heads of households).[25]

Occupational Categories

Having examined available information regarding the population, labor force and unemployment, attention will now be focussed on certain occupational categories. With the limited information available in the Lummi OEDP Handbook-1968 and the WSESD Survey-1968, supplemented by the author's investigations, two fields of current economic endeavors, alternative to fishing, were affirmed: home and cottage activities, and industry. Although the emphasis of this chapter is upon occupational reorientation by industrialization, the inclusion here of home and cottage handicrafts is pertinent. First, they have some degree of business organization. Secondly, they fit the American's idea of a native handicraft, typically reservation centered, and representing, "a quaint, talented, primitive culture."[26] This concept provides a contrast for the non-reservation oriented industrial activity now the largest provider of jobs and income to reservation-

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[25]Interview with Mrs. Barbara Bourne, Interviewer II, Washington State Employment Security Department, Bellingham, November, 1968.

[26]W. M. Dickson and C. Edwardson, Analysis of Economic Activities of the Lummi Indians (Unpublished paper prepared for the Ocean Foundation, Hawaii on behalf of the Lummi Indian Business Council, 1968).

Marietta Indians.

Home and Cottage Activities

Three home activities are mentioned within the Lummi OEDP Handbook-1968, which have been verified by the Bureau of Indian Affairs, Everett: (1) the Lummi Knitters, (2) the Lummi Indian Weavers, (3) the Lummi Arts and Crafts.[27]

The Lummi Knitters work in their homes, knitting wool sweaters, socks, gloves and caps which are sold commercially. Not formally organized, this industry in 1967 employed sixty-five Indian knitters north of Seattle, of whom thirty-five were Lummi women. Total gross income to the sixty-five knitters $17,823.

The Lummi Weavers is now a defunct organization. Purchased from the original owners in 1963 with part of a loan of $30,000 obtained from the Bureau of Indian Affairs, it employed from six to twelve persons who manufactured and sold cloth, and finished garments including dresses, skirts, aprons, place mats, shirts, special order items, and drapes. The materials required were woven from rayon or cotton thread. Before insolvency in 1968, $75,657.24 had been paid out in wages, adding to the reservation income. $24,000 of the original debt remains outstanding.[28]

The Lummi Arts and Crafts is a part time organization specializing in ceramics, and other items, such as: totem poles, Christmas cards, carvings, basketry, and Indian jewelry. The Lummi OEDP Handbook-1968 states

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[27]Information presented is summarized from: Lummi Indian Nation . . . , pp. 25-26.

[28]Interview with Mr. O'Dean Williamson, Reservation Programs Officer, U. S. Department of the Interior, Bureau of Indian Affairs, Western Washington Agency, Everett, January, 1969.

that twenty-nine people are involved in the occupation, and in 1967 grossed $5000 from sales.

Industry

Because of the lack of an analytical treatment of the Lummi industrial labor force, industry sampling proved to be the most appropriate means of obtaining an overview of employment patterns. Such a survey containing fifty-eight reservation-Marietta Lummi is summarized in Table 9. The summation was acquired by up-dating certain information contained in the WSESD Survey-1968.[29] The information has been arranged so as to best illustrate the three dominant areas of present industrial occupation suggested by the findings: general, millwork, and primary aluminum reduction.

The survey results are enlightening. For instance, no industries are located on the reservation. By way of examples, the plastics and pulp and paper industries are situated in Bellingham; the oil refining and primary aluminum reduction works are found in the Ferndale district, about ten miles northwest of Bellingham; some of the lumber and wood products firms are situated in Deming and Everson, two towns located about fifteen miles northeast of the city. Longshoring involves movement along Puget Sound according to the available work.

Few of the included industries have many unskilled occupations.

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[29]The basic statistical data from the survey had disappeared, leaving only the summarization contained in a covering letter. Fortunately the employee involved in the survey was able to recall most of the important industries catalogued. It was upon this base that the author built. This was accomplished by contacting the firms recalled, along with all the lumber mills, logging companies, canneries and fish processing plants listed in the Bellingham and Whatcom County Telephone Directory of June, 1968. Although a few Indians are employed in canneries and fish processing plants, they are not included in the survey because the seasonal nature of the work, and the mobility of many of the workers in these industries, made an estimation of their annual income impractical.

TABLE 9

RESERVATION-MARIETTA
INDUSTRIAL
LABOR FORCE SAMPLE
November 8, 1968

Occupational Field	Number Employed	Totals	Approximate total annual income	Area Totals
General				
plastics	5		$ 31,000	
pulp and paper	3		21,800	
oil refining	2		14,000	
trucking	2		16,000	
carpentry	2		14,500	
longshoring	1	15	6,800	$104,000
Millwork				
cedar products	11		73,150*	
lumber fabricating	2	13	10,700*	83,850
Primary aluminum reduction	30	30	230,000	230,000
GRAND TOTALS		58		$417,850

*Assumes full annual employment

Again, because of cultural backgrounds, natives generally avoid highly skilled jobs requiring specific computational and reading competence, and favor those of manual dexterity. Consequently, as revealed by the sample, most Lummi are found in semi-skilled positions such as machine operators, sawyers, packers, and carpenters.[30]

Gross income to the reservation-Marietta Indians in the sample approaches $420,000. Within this cumulative amount the wage range is sub-

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[30]The observation regarding job skills is supported by the fact that in educational course choices, Lummi students tend to avoid traditional academic subjects in favor of those emphasizing manual skills. Interview with Dr. Wilfred Gunderson, Assistant School Superintendent, Ferndale School District, December, 1968.

stantial. The lowest paid worker is a lumber fabricator trainee who earns about $4700 annually, while the highest paid are three aluminum fabrication foremen who earn $10,870 each, per annum. Assuming full annual employment it is interesting to note, that unlike the fisheries, the traditional occupations of lumbering and millwork seem to be maintaining a competitive position wagewise with the recent industries. Thirteen employees in lumbering and millwork earned approximately $83,800 or about $6450 per person, while fifteen workers in general industry grossed about $104,000, or $6930 per person.

Another fact of import is that comparatively few are in mill work and logging, traditionally the most important alternatives to fishing. Of the fifty-eight sample employees, thirteen are found in this activity. Interestingly enough, none are currently logging. Although some of the logging companies contacted do employ indigenes they are either Nooksack or Canadian.

There appear to be several reasons for the decline of employment in lumbering and millwork. One former Lummi logger asserted that because of increasing distances between home and work, much time was absorbed in travel. He claimed that prior to terminating his job he was travelling seventy-five miles each day to and from the woods.[31] More stable occupations in other industries are being sought to replace the seasonal employment offered in the woods and mills. For example, several loggers abandoned these pursuits in favor of the employment stability offered by the aluminum reduction plant.[32] Another important factor in this move from

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[31]Interview with Mr. Henry Martin, former Lummi logger, November, 1968.

[32]Interview with Mr. Mike Wilson, former Lummi logger, November, 1968.

logging and sawmilling has been the demise of many small marginal sawmills which, because of competition, have been forced to suspend operations. These companies employed nemerous natives. To illustrate, the Holman and Bensen Lumber Company, formerly located at Squalicum Mall in Bellingham, closed down in December, 1965.[33] One problem figuring in the company's closure was that of the sale of logs by logging companies to Japan. Japanese interests, according to the company partner, paid more for the raw product than he could demand locally for the equivalent volume in dimensional lumber. He was thus unable to compete pricewise for the timber. When in operation, the mill produced about 3,000,000 board feet of lumber annually, and normally employed twelve people, of whom about four were Lummi.

The most significant revelation of the survey was the fact that one company, a primary aluminum reducer, has hired a substantial number of natives. Thirty of the sample are to be found working at this plant. As it is the largest single employer of the Lummi it is significant in having industry surpass fishing in terms of numbers employed and total gross income to reservation inhabitants. Further, it has accentuated the orientation of economic activity away from the reservation. Because of these factors, certain aspects of the company such as its location, processing techniques, and concomitant labor requirements merit separate consideration.

The Intalco Aluminum Corporation is the, "first joint Franco-American venture in the primary aluminum field."[34] The company occupies

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[33]Interview with Mr. Sverre Bensen, Business Manager, Holman and Bensen Lumber Company, January, 1969.

[34]Interview with Mr. G. C. McRorie, Manager, Communications and Community Relations, Intalco Aluminum Corporation, Ferndale, January, 1969.

300 acres on a 1200 acre tract on the outskirts of Ferndale, Washington. The decision to begin building at the site in 1964 was motivated by two factors: (1) the availability of large quantities of cheap hydro-electric power, and (2) the proximity to deep water port facilities, essential for receiving large shipment of alumina from Australia.[35]

The reduction process involves numerous steps before the final product emerges. These operations are divided into "departments" such as the paste plant, bake ovens, rodding shop, pot room, and cast house. The resulting molten aluminum is cast into "T" ingots, slabs, and billets. These products are then cooled, cut into convenient lengths, and shipped eastward by rail to various customers.[36]

To fulfill the substantial labor requirements of such a complex venture, the company's personnel department embarked upon a hiring policy which emphasized the employment of workers resident in Western Whatcom County. This was done because of the potential labor pool and the belief that people employed in proximity to their homes would lend stability to the work force. It was soon discovered, however, that a shortage of industrially oriented labor existed in the region. In addition there was inertia on the part of labor in reacting to a new situation. A plan was devised, therefore, whereby employment personnel made themselves available to interested groups for the purposes of explaining Intalco's labor requirements.[37]

The time for employment of the Lummi was auspicious. The industrial labor shortage, along with a growing awareness of minority groups, and the

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[35] Ibid.

[36] Ibid.

[37] Interview with Mr. R. W. Wagner, Manager of Employee Services, and Mr. R. Hollingworth, Industrial Relations Assistant, both of Intalco Aluminum Corporation, October, 1968.

fact that the Lummi were depressed economically, were factors creating interest in them. Contact was made between tribal officials and a local organization, the Friends of the Lummi. This group in turn approached Intalco management who arranged for a public meeting which was held in the fall of 1965.[38] Soon thereafter Indians began to apply and have since been regularly employed.

The thirty Lummi included in the sample represent about 2½ percent of Intalco's labor force.[39] They are not confined to any one plant sector but are found in a variety of departments such as maintenance, rodding shop, and production services. Three have been promoted to foremen. In total, approximately $230,000 in wages is earned annually by this group. The company thus represents the largest single source of income to reservation-Marietta Indians included in the sample. An analysis of the Lummi labor force, in this case, based upon forty-two natives, is to be found in Appendix V.

The major postulate of this chapter is that a shift of economic emphasis has occurred on the Lummi reservation. In substance, a majority of native employment and income is now derived, not from fishing, but from industry which is spatially oriented away from the reservation. The veracity of this statement is confirmed by contrasting the results of the labor force sample with appropriate findings in Chapter III, Current Fishing Practices. First, more indigenes are found in trades. Whereas some thirty professional fishermen were found in the historic activity, the sampling alone revealed fifty-eight in manufacturing. Second, in 1967, a fairly representative year for the Lummi salmon catch, approxi-

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[38] Ibid.

[39] Ibid.

mately $191,000 was received by the Indians from the fishery. Nearly $420,000 was earned by those included in the survey. Third, as opposed to the lower Nooksack River centered fishing, the new vocations are non-reservation oriented. Employment is found throughout western Whatcom County with a nodal emphasis on the Ferndale district. Because the sample includes the major industrial activities of the natives, and probably a substantial portion of the work force, it is unlikely that an exhaustive study based on complete labor force data would alter these conclusions.

CHAPTER VII

SUMMARY AND CONCLUSION

The proposition to which this study has been addressed is that between pre-white culture contact times and the present, a significant change has occurred in the Lummi Indian economy. The overt features of the economic reorientation are the decline of the native historic sustenance activity, salmon fishing, and the movement of people toward industry as the dominant means of livelihood.

In order to resolve the problem, several approaches were used. These included: (1) library research for geographical and historical data, (2) the analysis of current salmon fisheries statistics, and (3) field work, principally centered on the informal interview, to acquire an understanding of present Lummi fishing practices, and current Indian industrial roles.

Findings of the investigation reveal a contraction in the areal extent of fishing operations, a decrease in harvest values, and a decline in the relative importance of fisheries in the Lummi economy. The native response to the attrition of the traditional mainstay is to be found in a shift in emphasis away from halieutics in favor of industrial activities.

The Lummi salmon fisheries have suffered a significant reduction in areal extent. Historically the Indians operated from strategically located villages and reef net sites which were to be found throughout most of the San Juan Islands and at Point Roberts on the mainland. Species harvested included chum, pink, coho, chinook, and sockeye.

The contraction of the Lummi fisheries was due primarily to two occurrences: (1) the loss of reef net sites, and (2) the more recent attrition of the Lummi purse seine fleet during the late 1950's and early 1960's. The abandonment of the reef net grounds was a result of a combination of factors, the most important being the introduction of white owned fish traps. Because of their effectiveness and location they blocked the reef nets and were thus instrumental in forcing the Indians from their island sites. Most recent has been the loss of the purse seine fleet. This decline was related to problems prevalent in the Pacific coast salmon fisheries. During the late 1950's the fleet, which had been built up by the Indians during World War II, began to experience difficulties. Caught between such problems as higher costs requiring financing, and lower unstable yields, many natives were forced to seek financial assistance to maintain operations. Frequently unable to repay their obligations, they were faced with the alternatives of foreclosure or the sale of their boats. Most sold their equipment in favor of smaller units adaptable to river fishing. The loss of reef net sites and the purse seine boats severely restricted the competitive position of the Lummi beyond Bellingham Bay, and has confined current activities mainly to the Nooksack River and the eastern shore of the Lummi Peninsula.

Although the diminution of income due to the reef net decline is not easily quantified, statistics afford an appreciation of the purse seine fleet decline. For example, in 1957, a twelve boat fleet grossed $274,498, while river oriented landings for the same year totalled $110,180. Again by comparison, in 1967, the Nooksack River and Bellingham Bay catch totalled $135,659. In each year quoted, the fleet landings were more than double the value of the river catches, which are now the most important sources of fishery income.

The relative importance of the fisheries in the Lummi economy has declined. The pre-white contact subsistence economy employed most males during the salmon season, and the catch, besides satisfying basic food requirements, provided surplusses sufficient for feasts and trade. In 1967, gross receipts from the industry which approximated $191,000 would have provided thirty-nine fishermen with an average potential maximum income of about $5000 each. Because more than this number of people fish, it is difficult for a river fisherman to earn this amount. With approximately 143 households on the reservation and in Marietta, full employment in the industry is not possible, nor can the $191,000 cash equivalent satisfy the needs and desires of those who fish, as did the natural product in historic times.

Because of the evident attrition of the native fishery, it is not surprising that a movement away from the industry into other economic endeavors is taking place.

Such a reorientation is not new nor was it caused by a specific event. Since the coming of white men to the Bellingham Lowland many natives took advantage of emergent opportunities such as, trading, farming, deckhand work on coastal steamers, cannery employment, and logging and millwork. Logging and millwork became the principal alternatives to fishing because of the association of these jobs with the outdoors and the fact that to some extent, they complemented the fishing season. With the encouragement of various officials agriculture flourished temporarily. After a climax of activity around 1915, a decline in farming began because of increased competition from white farmers outside the lowland, the foreign nature of farming to the Indian's culture, and a move to take advantage of other employment. Today, there are no full time Lummi farmers.

Present trends in industry are best illustrated by an analysis of

the labor force. But in the case of the Lummi, the necessary data was not available. In order to establish some evaluation of current industrial activity, and thus be able to assess its relationship with the traditional fisheries, the labor force was sampled by industry, using the WSESD Survey-1968 as a base. The fifty-eight employees included in the sample were distributed as follows: (1) general industry--15, (2) millwork--13, and (3) primary aluminum reduction--30. Gross annual income from these activities approximated $417,150.

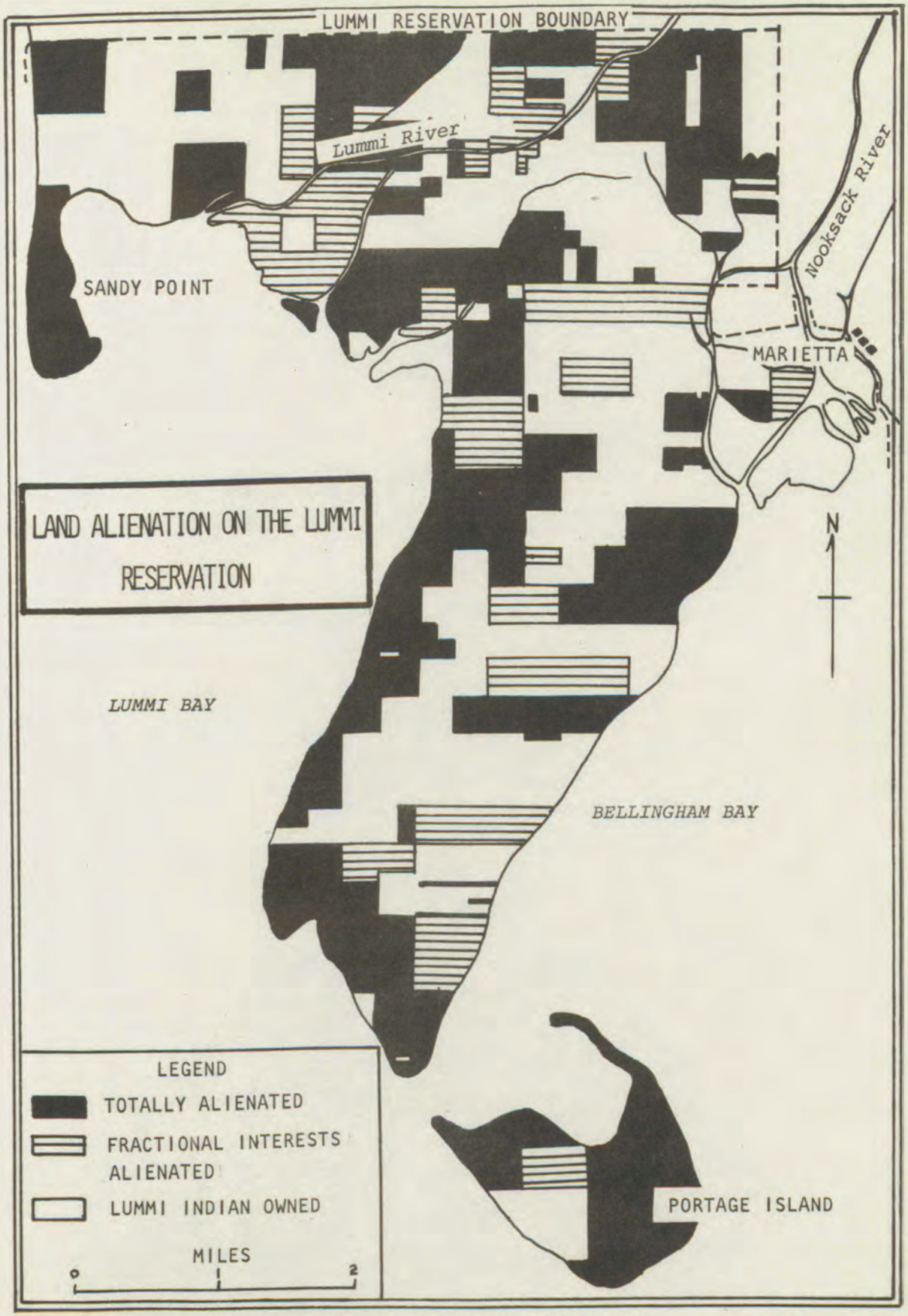
Sampling analysis suggested several observations which included: the non-reservation orientation of the industries, the emphasis on semi-skilled occupations, the wide range characteristics of the wage structure, the declining emphasis on the lumber industry, and a concentration of employees in a specialized field, primary aluminum reduction.

The decline of the fishery in areal extent, value, and relative importance to the native economy has been summarized along with the natives' response in availing themselves of traditional and emergent alternatives. To conclude, a comment illustrating the importance of industry to the indigenous economy is appropriate. This is best done by comparing the 1967 Lummi fishing activities with the industrially oriented labor force sample of November 8, 1968. Although an undetermined number of Indians fish part time, some thirty reservation-Marietta Lummi may be classed as full time fishermen. Together, these people grossed $191,000 from all sources. On the other hand, the survey, which included fifty-eight natives, showed a gross income of $417,150. If the estimated labor force of 340 for the reservation-Marietta population is reasonable, the eighty-eight people mentioned represent about 16 percent of the work force. It may be safely assumed that of the remaining 74 percent, most would be located in other industries, thereby increasing the total earned

in this field.

The Lummi society is not static, for their adaptations made during the acculturation process have been made evident by this research. New industrial opportunities are pending, and the people will participate in them. Thus the fisheries could diminish further in relative value to the indigenous economy, and therefore, may be in a stage of permanent decline.

APPENDIXES



SOURCE: BUREAU OF INDIAN AFFAIRS, EVERETT, WASHINGTON, MARCH, 1969

APPENDIX 1.

APPENDIX II

Fishing for Sockeye -

The sockeye salmon fishing season is awaited with keen anticipation by the people. For the sockeye is the "siem" or rich man of all the fishes and no fish is as highly esteemed or is surrounded with as much veneration. If treated with proper respect, the sockeye leaves his longhouse, the smoke of which is like a rainbow, and makes pilgrimages to the fishing sites to be food for the people.

When the time for setting the nets comes, each man in a group of fishermen knows his particular location and task. A pole is put through the ropes tied around the anchor rocks, which are carried between two canoes until the men reach the place where they are to fish. Men stationed on the shore direct those in the canoes where to stop by signalling with their arms. Then the canoes part and take the proper places; the anchors are dropped and the rope ladder and net are lowered. All is set and there is silence.

The captains of each canoe, fully arrayed in the traditional costume made of strands of goat wool and duck down, stand watching intently for any signs of fish. They are always hopeful and occasionally cry aloud, "Your older brother will be here soon." Suddenly the fish are seen and as they come up the rope ladder the captain shouts, "Leyit leyit leyit e e e e e e e e e." "Watch them! Watch them! e-e-e-e-e-e-e-e-"

Every man stands tense at his post firmly gripping his rope holding the net and as the fish reach the center of the net, the captain cries, "Shamit, Shamit, Shamit." "Lift, Lift, Lift." (sic).Every man pulls with all his strength to raise the net to the surface of the water. If the men at the rear of the canoe are a little slow, the captain shouts at them to lift the head of the net because there is danger of the fish passing over it. When the net is brought to the surface, the captain calls, "Yetesat, yetesat," "Release lines", and the canoes are brought together as the men pull in the net shouting as they pull. As the fish struggle at the surface of the water, a spray goes up and a rainbow can be seen extending from one end of the canoes to the other.

Stern, The Lummi Indians . . . , p. 44.

APPENDIX III

A "Smoke House"

Near the trap was a large smoke house, about 40 feet square. Here a number of families would make their home during the fishing season. Each family had its separate apartment where they kept a fire going day and night. Over head (sic), just high enough so the Indians could walk under them, were hung "cowhits" (silver salmon), and as fast as they dried and smoked, they were taken down and piled into a corner and a fresh batch put up to dry.

Usually there were from 4 to 6 families working at a time. The women dressed the fish by taking out the back-bone, and putting small sticks through the flesh across the fish, to hold them in a flat form. The men took the fish from the traps, rustled wood for keeping the fires smoking, and hung up the fish to dry. Remains of the old fish traps were still in the creek as late as 40 years ago.

Hawley, Skee Mus, p. 44.

APPENDIX IV

FISHING REGULATIONS FOR 1968

effective September 6, 1968

1. No Eddy nets within the bounds of Lummi Jurisdiction.

2. a. No extra drifts (hungry drags)
   b. Mark a designated pick up to insure a uniform drift pattern.

3. Operator of gear must operate gear himself. If help is needed, other person or persons must be holders of a Blue Card.

4. Open season 4:00 P. M. Sunday.

5. Close season 4:00 P. M. Friday.

6. Age 65 and over will be tolerated; they can't own permanent location. (Tribal rights, everyone's right to a place to fish.)

7. Staking line will be from Bushnell's Trailer to second corner of piling. Markers or buoy intersecting a line from treaty rock to Point Frances. Everything North of this line will be designated drift area.

8. Silver nets no smaller than 5" mesh, and Dog Salmon nets no smaller than 6" mesh.

9. Closure for conservation?

10. No nets staked or tied to either bank of the Nooksack river, for slack water sets, within the Lummi Boundaries.

11. Plug in time will be 4:00 P. M. Sunday, first come first serve basis. Must be on fishing grounds to claim drift.

12. a. Blue cards for identification, no dual enrollment, Lummi enrollment only.

    b. Flourescent pennant and tag plates must be displayed by large gillnet and seine boats fishing in the Lummi Reservation waters.

    c. No charter or rented boats inside Treaty Rock, Point Frances line unless owned by an enrolled Lummi Indian.

13. For the purpose of night drifting in area designated. No stakes or gear will be left to hinder others in their right to fish in these areas.

    Drifting Area, Smokehouse road north along the jump; Treaty Rock to Point Frances. Unattended nets will not be tolerated.

14. Staking gear shall be limited to 210 fathoms or 110 fathoms lead, 100 fathoms pot.

Vernon Lane Signed _____
Chairman Lummi Business Council

Sam Cagey Signed _____
Chairman Fisheries

APPENDIX V

ANALYSIS OF THE LUMMI LABOR FORCE

AT INTALCO ALUMINUM CORPORATION

FERNDALE: DECEMBER 31, 1968

Introduction

The Intalco Aluminum Corporation's economic impact upon western Whatcom County is considerable, for besides providing employment for 1145 people, some $20,000,000 annually is released to the area in wages, local purchases and taxes.[1] Because it is the first industry in the County to hire a substantial number of natives successfully for an extended period of time, the company has had a considerable impact upon the Lummi. Forty-two indigenes are employed in the primary aluminum reduction plant, and their annual payroll approximates $318,975.[2] The firm is thus the most significant employer of the natives and the most important source of income.

In recent years, unemployment has figured heavily with the Lummi running supposedly as high as 68 percent for males in 1960.[3] Recently, evidence supplied by the Washington State Public Assistance Department

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[1]Interview with Mr. G. C. McRorie, Manager, Communications and Community Relations, Intalco Aluminum Corporation, January, 1969.

[2]Information supplied by Mr. R. W. Wagner, Manager of Employment Services, Intalco Aluminum Corporation, Ferndale, November, 1968.

[3]Lummi Indian Nation Overall Economic Development Program: Lummi Indian Reservation Redevelopment Area (Marietta, Washington: Lummi Indian Business Council, 1968), p. 19.

(WSPAD), and the Washington State Employment Security Department (WSESD), suggests a substantial drop in unemployment.[4] Although the information cannot be considered conclusive, case workers at the WSPAD and interviewers at the WSESD suggest that native employment by Intalco has been a significant factor in the decline.[5]

Because of the importance of the company to the Indians' economy, any statistical analysis of the labor force contributes information helpful in an assessment of acculturation. Such data concerning their 42 Lummi employees was provided by the personnel department of Intalco, dated October 30, 1968.[6] Included in the statistics were: (1) employee name, (2) date of birth, (3) date of hire, (4) labor grade, (5) department, (6) previous training, and (7) past work history. Based upon these statistics the author was able to analyse certain characteristics of the Lummi Intalco employees. Of the native work force, 12 were interviewed. Many observations offered were the results of weighing and considering their answers as a group. Figure calculations were projected to December 31, 1968.

Analysis of The 42 Man Lummi Intalco Work Force

Age (Table V-1)

The age range varied from 19 to 55 years; the mean age was 35 years,

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[4]Interview with Mr. Collin Carlyle, Assistant Manager, WSPAD, Bellingham, November, 1968; and interview with Mrs. Barbara Bourne, Interviewer II, WSESD, Bellingham, November, 1968.

[5]Interview with Mrs. Barbara Bourne, November, 1968; and interview with Mrs. Dorothy Clements, Supervisor, New Career Programs, WSPAD, November, 1968.

[6]Statistics supplied by Mr. R. W. Wagner, Intalco Aluminum Corporation.

and the median was 31. Of the labor force, 16 were over 40 years of age; of these, two were in their 50's. One of these men was hired when he was 52. The largest number of individuals were to be found in the 26 to 30 year age bracket; 11 people, or approximately 25 percent of the workers appeared in this category. The second largest number, 8 individuals, were found in the 41 to 45 years of age bracket.

TABLE V-1

AGE GROUPING OF LUMMI INTALCO EMPLOYEES

Age	No. of Employees
19-25	7
26-30	11
31-35	6
36-40	2
41-45	8
46-50	6
51-55	2
Total:	42

There was nothing in the statistics to suggest that age had been a factor either in the selection of personnel, or the type of job held.

Education (Table V-2)

TABLE V-2

LUMMI WORK FORCE--EDUCATION

Grade Completed	No. of Employees
5	1
6	1
7	1
8	6
9	1
10	6
11	4
12	21
Total:	41 (one supplied no educational background).

The range of grades completed by the employees ran from grade 5 through grade 12. The mean grade level was 10.2 and the median was 12. It was interesting to note that 10 employees had less than a grade 10 education; one of these had completed 5th grade. Comparing age with education, assuming that the older natives would have had less education, yielded inconclusive results. It may be observed that if education had anything to do with job requirements, it was not revealed by the data supplied.

There was a definite interest among the informants in education.[7] For instance, many jobs in the plant are open to competition. Several natives expressed keen interest in the competition, and were willing to take the necessary training to complete job requirements. Besides bringing a higher wage, success itself appeared prestigious.

Previous Occupation

Most workers had a previous work history emphasizing fishing, logging, and millwork. Other former occupations included cannery employment, trucking, and machinist work. When asked what aspect of their application was most influential in their being hired, the majority who would venture an opinion claimed a good previous work record.

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[7]There appears to be a general increase in the Lummi who avail themselves of educational opportunity. Mr. James Click, Supervisor, Migrant and Indian Programs, State of Washington, stated that the Indian population in the Ferndale School District rose from 248 during the 1965-1966 school year to an approximated 329 for the 1968-1969 school year. Mr. Wilfred Gunderson, Assistant Superintendent, Ferndale School District, revealed an increase in graduates from Ferndale High School, from 3 out of 123 in 1960 to 10 out of 143 in 1968. An officer of the Bureau of Indian Affairs, Employment Assistance Department, Western Washington Agency, Everett, stated that the number of Indians participating in Bureau sponsored education programs rose from 1 in 1958 to 20 in 1967. Another officer of the Bureau stated that Indian attendance at Western Washington State College increased from 7 in 1967 to 10 in 1968. It is true that the Indian population is increasing but interviewees expressed the opinion that current participation in educational activities was in excess of this.

The fact that Intalco has taken men from the woods is reflected in the absence of loggers in the investigator's industrial labor survey appearing in the thesis body.[8]

Current Employment (Table V-3)

Intalco has been hiring workers since August, 1965. Lummi Indians were first employed in December of that year. The company, then, has been hiring natives for about 36 months. The employment range duration for this group ran from 4 to 36 months; the mean was 24 months, and the median was 30 months. The most important revelation of the current employment data was that 50 percent of the Lummi Intalco force had been with the firm over 30 months.

TABLE V-3

LUMMI EMPLOYMENT DURATION

No. of Months	No. of Employees
0-6	7
7-12	2
13-18	1
19-24	4
25-30	7
31-36	21
Total:	42

Although statistics were not available concerning the general turnover rate at the plant, one official expressed an opinion that it was quite high.[9]

Job classifications run from Labor Grade 1 through 13, for hourly workers (Table V-4). Classification 10 and above is considered skilled; below that, semi-skilled. The labor grade range for the natives ran from

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[8]See Chapter VI, Emergent Economic Alternatives, p. 77.

[9]Interview with Mr. G. C. McRorie, January, 1969.

Labor Grade 2 through 10; the mean was 6.7 and the median was 6. Not included in the data are three foremen who are salaried employees, and one Alaskan Indian.

Of interest is the fact that previous work had little influence with current plant employment. For example, a previous experience of logging was in no way relevant to duties in the Fume Control Department. Again, there was no relationship between cannery employment and work in the Rodding Shop. Any training required, then, was acquired on the job.

TABLE V-4

LABOR GRADE CLASSIFICATIONS

Labor Grade No.	No. of Employees
1	0
2	2
3	1
4	4
5	8
6	10
7	3
8	2
9	6
10	3
11-13	0
Total:	39

Conclusion

The impact of Intalco upon the Lummi Indians is significant. For the natives it is the largest single provider of employment and income, and available evidence suggests it has played an important role in the reduction of unemployment among them.

Statistical analysis has revealed that some Lummi have adapted successfully to this specific enterprise, for as a group they appear to have been employed longer than the general work force. In addition, they have expressed willingness to take such training as job requirements demand.

The facts that previous work history, age, and educational background were apparently unimportant in the company's labor requirements for certain departments enabled the Lummi to take advantage of the new situation.

Industry has been partially responsible for the recent movement away from the traditional Indian mainstay, fishing. Presumably any new venture establishing in Whatcom County and employing Indians, would enhance this trend, thus reinforcing an earlier observation that native fishing may be entering a stage of permanent decline.[10]

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[10]See Chapter VII, Summary and Conclusion, p. 85.

Indian Men at Intalco Aluminum Corporation*

October 30, 1968

Date of Hire	Labor Grade	Dept.	Previous Training	Past Work History (Major)
5-31-66	4	Prod. Ser.	G.E.D.	Fishing, taxidermy
3-9-67	9	Potline B	10th grade	Barber school, logging
4-24-68	7	Potline B	10th grade	Machinist, logging
2-7-66	5	Maint.	10th grade	11 mo. Machinist training Truck driver, clipper operator
5-9-66	6	Bake Ovens	12th grade	Vocational school, shake mill
4-26-68	5	Cast House	10th grade	Army, fishing
6-6-66	5	Maint.	G.E.D.	Army, shake packer, field work
8-23-66	9	Elect. Maint.	12th grade	16 week electrical course
8-13-66	8	Cast House	8th grade	Navy, Boeing, fishing Lumber grader, gardening
4-11-66		Foreman Maint.	12th grade	30 hrs. welding training, Mechanic 1 yr. diesel mech. school
3-16-67	6	Rodding Shop	10th grade	Army, fishing
9-30-66		Foreman Prod. Services	12th grade	Navy, patrolman, fishing
8-21-68	5	Cast House	12th grade	Marines, shake & shingle mill
8-14-68	1	Prod. Services	10th grade	Army, logging, fishing
2-14-66	8	Cast House	5th grade	Adult Ed. in Army, logging
1-3-66	10	Maint.	12th grade	Shake sawyer, fishing
4-1-66	6	Fume Control	8th grade	Logging
2-7-66	7	Paste Plant	7th grade	Army, Heavy equipment operator
6-28-66	6	Pot Relining	8th grade	Army, shake sawyer, logging
12-22-65	9	Bake Ovens	G.E.D.	Shake sawyer
7-18-66		Foreman Prod. Services	G.E.D.	Shake sawyer, Pilot's license, motor repair, fishing
9-13-66	11	Maint.	8th grade	900 hrs. of Machine Shop Oiler
5-31-66	9	Maint.	?	sheetmetal course (1 yr.) Sheetmetal
4-18-66	5	Prod. Services	6th grade	Truck driving, fishing rough carpentry
3-23-66	9	Bake Ovens	12th grade	Shake packer, sales clerk
3-23-66	10	Maint.	G.E.D.	Shake packer, fishing
8-25-67	6	Rodding Shop	12th grade	Logging
9-30-68	1	Prod. Services	11th grade	Sawyer, logging, fishing
2-7-66	6	Bake Ovens	12th grade	Truck driving, wrapping mach., fishing

Date of Hire	Labor Grade	Dept.	Previous Training	Past Work History (Major)
5-6-66	9	Potline A	12th grade	Press oper., shake mill work, fishing
3-15-67	6	Rodding Shop	11th grade	Logging
12-12-66	6	Rodding Shop	G.E.D.	Captain of fishing boat
10-12-66	4	Prod. Services	12th grade	Air Force, Hydraulics
5-31-66	5	Maint.	10th grade	Labor, landscaping, logging
7-22-68	5	Cast House	12th grade	Cannery work, gardening
5-25-66	7	Paste Plant	8th grade	Construction labor
8-13-68	3	Prod. Services	12th grade	Youth Corps, clearing land
5-20-66	5	Cast House	8th grade	Shipwright, logging, fishing
4-5-66	6	Bake Ovens	8th grade	Logging
5-9-66	6	Bake Ovens	11th grade	Edison Technical School, fishing, truck driver
9-6-68	4	Potline C	12th grade	1 yr. welding training, fishing, shake mill
9-6-68	4	Potline C	9th grade	Farm work, janitor work
7-11-66	10	Maintenance	12th grade	2166 hours of Machine Shop training, fishing, cedar mill work

*Names and dates of birth omitted to preserve anonymity.

BIBLIOGRAPHY

Primary Sources

Publications

"Bellingham Bay History," The Coast, No. 17 (June, 1909), p. 182.

Bellingham Bay Mail, March 14, 1874.

Hawley, R. M. Skee Mus or Pioneer Days on the Nooksack. Bellingham: Miller and Southerlen Printing Company, 1945.

Kerr, J. A. "The Siwash Reef Net," Pacific Fisherman Yearbook, 1917, pp. 60-61.

Pierson, W. H. The Geography of the Bellingham Lowland, Washington. Chicago: Department of Geography, University of Chicago, 1953.

Revised Code of Washington. 1965 Supplement. Title 75, Food and Shellfish. Chapter 75.12 Taking of Foodfish, Shellfish. 1955, pp. 6-19.

Rounsefell, G. A. and Kelly, G. B. "The Salmon and Salmon Fisheries of Swiftsure Bank, Puget Sound and the Fraser River," Bulletin No. 27. U. S. Department of Commerce, Bureau of Fisheries, (Washington: U. S. Government Printing Office, 1938), p. 714.

Royce, W. F. et. al. Salmon Gear Limitation in Northern Washington Waters. Seattle: University of Washington Press, 1963.

Senate Bill No. 48. Sixteenth Annual Report of the Board of Indian Commissioners. Washington: Government Printing Office, 1884, pp. 38-40. (an abstract).

Sessions Laws of the State of Washington. Chapter I: Fish Traps and Fishing Regulations. 24th Session, January to March, 1935. pp. 3-8.

State of Washington, Department of Fisheries. 1966 Fisheries Statistical Report. Olympia: State Printing Press, 1967.

Stern, B. J. The Lummi Indians of Northwest Washington. New York: Columbia University Press, 1934.

Suttles, Wayne Prescott. "Post-Contact Culture Changes Among the Lummi Indians," B. C. Historical Quarterly, XVIII (January to April, 1954), pp. 27-102.

United States. Bureau of the Census. Statistical Abstract of the United States: 1968 (89th Edition). Washington: U. S. Government Printing Office, 1968.

_____. Bureau of Commercial Fisheries. Fishery Statistics of the U. S. Washington: U. S. Government Printing Office, for the following publications: 1945 Statistical Digest 18, 1950 Statistical Digest 27, 1955 Statistical Digest 41, 1960 Statistical Digest 53, 1965 Statistical Digest 59.

_____. Department of Commerce Weather Bureau (in cooperation with the Bellingham Chamber of Commerce). Climatography of the United States, No. 2045. Climatological Summary--Station: Bellingham, Washington. R 60-12, n. d.

_____. Department of the Interior. Annual Reports of the Department of the Interior: Indian Affairs, Part I: Report of the Commissioner. Washington: Government Printing Press, 1903.

_____. Department of the Interior. Annual Reports of the Department of the Interior. Washington: Government Printing Office, 1904.

_____. Secretary of the Interior. Annual Report of the Commissioner of Indian Affairs to the Secretary of the Interior for 1875. Washington: Government Printing Office, 1875.

_____. Secretary of the Interior. Report of the Commissioner of Indian Affairs, 1858. Washington: W. A. Harris, Printer, 1858.

_____. Secretary of the Interior. Report of the Commissioner of Indian Affairs to the Secretary of the Interior. Washington: Government Printing Office, 1872.

_____. Secretary of the Interior. Report of the Commissioner of Indian Affairs for 1875. Washington: Government Printing Office, 1875.

"Whatcom and Fairhaven," The Coast, No. 4 (July, 1902), p. 186.

Unpublished Work

Suttles, Wayne Prescott. "Economic Life of the Coast Salish of Haro and Rosario Straits." Unpublished Ph. D. dissertation, Department of Anthropology, University of Washington, 1951.

Interviews

Barnes, Corrine, Mrs. Manager, Whatcom County Chapter, American Red Cross, Bellingham, 1969.

Bensen, Sverre. Business Manager, Holman and Bensen Lumber Company, Bellingham, Washington, January, 1969.

Berg, Carl. President, Berg Shipyard Incorporated, Blaine, Washington, November, 1968.

Bourne, Barbara, Mrs. Interviewer II, Washington State Employment Security Department, Bellingham, Washington, November, 1968.

Cagey, Sam. Vice-Chairman, Lummi Business Council, October, 1968.

Carlyle, Collin. Assistant Manager, Washington State Public Assistance Department, Bellingham, Washington, November, 1968.

Caver, M. S. Loan Officer, Small Business Administration, Bellingham, January, 1969.

Charles, Al. Retired Lummi fisherman, November, 1968.

Finkbonner, Sam. Lummi fisherman, November, 1968.

Gunderson, Wilfred. Assistant School Superintendent, Ferndale School District, Ferndale, Washington, December, 1968.

Hollingworth, Robert. Industrial Relations Assistant, Intalco Aluminum Corporation, Ferndale, Washington, October, 1968.

Kinley, Forrest. Community Action Program Director, Lummi Indian Reserve, July, 1968.

Kinley, John. Former Lummi purse seine fisherman, October, 1968.

Knutsen, Wesley. Soil Technician, U. S. Department of Agriculture, Soil Conservation Service, Bellingham, Washington, January, 1969.

Lewis, Don. Lummi fish buyer, Marietta, Washington, December, 1968.

Martin, Henry. Former Lummi logger, November, 1968.

McRorie, G. C. Manager, Communications and Community Relation, Intalco Aluminum Corporation, Ferndale, Washington, January, 1969.

Nasewytema, Harlow. Officer of Tenure and Management, U. S. Department of the Interior, Bureau of Indian Affairs, Western Washington Agency, Everett, Washington, January, 1969.

Olson, Herman. Retired Lummi reef net fisherman, November, 1968.

Thompson, John. Assistant to the Blaine Supervisor, Alaska Packers Association, Blaine, Washington, November, 1968.

Wagner, R. W. Manager of Employment Services, Intalco Aluminum Corporation, Ferndale, Washington, October, 1968.

Ward, Dale. Supervisor, Fisheries Statistics, State of Washington, Department of Fisheries, Olympia, Washington, October, 1968.

Williamson, O'Dean. Reservation Programs Officer, U. S. Department of the Interior, Bureau of Indian Affairs, Western Washington Agency, Everett, Washington, January, 1969.

Wilson, Mike. Former Lummi logger, November, 1968.

Correspondence

Ward, Dale. Supervisor, Fisheries Statistics, State of Washington, Department of Fisheries, Olympia, Washington, October 29, 1968.

Ward, Dale. Supervisor, Fisheries Statistics, State of Washington, Department of Fisheries, Olympia, Washington, January 15, 1969.

Weddel, J. W. Tribal Operations Officer, U. S. Department of the Interior, Bureau of Indian Affairs, Western Washington Agency, Everett, Washington, October 23, 1968.

Secondary Sources

Brandon, William. The American Heritage Book of Indians. New York: Dell Publishing Company, 1964.

Christy, F. T., and Scott, Anthony. The Common Wealth In Ocean Fisheries. Baltimore: John Hopkins Press, 1965.

Dickson, W. M., and Edwardson, C. Analysis of Economic Activities of the Lummi Indians. Unpublished paper prepared for the Ocean Foundation, Hawaii, on behalf of the Lummi Indian Business Council, 1968.

Driver, Harold E. Indians of North America. Chicago: University of Chicago Press, 1965.

Drucker, Philip. Cultures of the North Pacific Coast. San Francisco: Chandler Publishing Company, 1965.

Embry, Carlos, B. America's Concentration Camps. New York: Van Rees Press, 1956.

Kappler, C. J. (comp.). Indian Affairs, Laws and Treaties. Vol. I: Laws. Washington: Government Printing Office, 1904.

_____. Indian Affairs, Laws and Treaties. Vol. II: Treaties. Washington: Government Printing Office, 1904.

Lineaweaver III, T. H. "Our Catch-As-Catch-Can Fisheries," The Reporter, No. 37 (September 7, 1967), pp. 38-40.

Lummi Indian Nation Overall Economic Development Program: Lummi Indian Reservation Redevelopment Area. Marietta, Washington: Lummi Indian Business Council, 1968.

Netboy, Anthony. "Salmon Face an Atomic Age," American Forests, No. 47 (January, 1968), pp. 28-31; 45-49.

Polk, R. L., and Parker, J. C. (eds.). Bellingham City Directory, 1904-05. Bellingham: Polk and Company, 1905.

Roth, Lottie. A History of Whatcom County. Vol. I. Chicago: Pioneer Historical Publishing Company, 1926.

State of Washington. Department of Conservation, Division of Water Resources. Water Supply Bulletin No. 12. Water Resources of the Nooksack River Basin (And Certain Adjacent Streams). Olympia: State Printing Press, 1960.

Trewartha, G. T. An Introduction to Climate. 3rd ed. revised. New York: McGraw-Hill, 1968.