

THE INDIAN HERRING FISHERY
FROM THE EARLIEST TIMES
TO THE
MID-NINETEENTH CENTURY

BY

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20 JUNE 1974

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	Page
I. INTRODUCTION	1
II. THE HERRING FISHERY	3
III. THE HERRING ROE FISHERY	10
IV. USE OF HERRING AND HERRING ROE AS FOOD	11
V. LOCATIONS AT WHICH HERRING WERE TAKEN	13
APPENDIX I DIAGRAM OF HERRING RAKE	16
APPENDIX 2 DIAGRAM OF HERRING AND SEAL MAZE	17
REFERENCES	18
BIBLIOGRAPHY	19
SUPPLEMENTARY REPORT--NON-INDIAN INVOLVEMENT	20

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the Interior

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I. INTRODUCTION

This report is not intended to be a complete or exhaustive study of the Indian herring fishery. So far as I am aware, the role of the herring fishery in the aboriginal economy of the Northwest Coast has not yet been adequately surveyed or assessed. Ethnographic accounts of the coastal peoples throughout the area record the importance of the herring fishery to the particular group under study, but no comparative study has been undertaken to assess the relative importance of herring on a tribal basis or to the economy of the region as a whole.

This survey is based on a random sampling of the readily available ethnographic and historic sources. The area includes only that in the case area of U.S. v. Washington. No effort has been made to cover the available data for each tribe within the area. Instead, an effort has been made to present a reasonably adequate indication of the more important taking techniques and the more common uses to which herring were put.

Herring and herring roe were apparently taken by all Indian groups along the coast. Both the fish and the eggs were eaten fresh and dried. In cured form, herring and herring eggs formed an important article of trade to inland groups.

Herring were taken in deep waters by raking. The aboriginal herring rake is an ingenious invention apparently unique to the Northwest Coast. It was repeatedly described and pictured by early visitors to the Northwest Coast from Cook and the Spaniards down to the mid-nineteenth century.

Herring were also taken in deep waters by dip nets operated from canoes. Under certain conditions the dip net was apparently more efficient than the rake.

In shallower waters herring were taken in various kinds of traps and mazes.

Apart from its use as a food fish, the herring was highly valued as bait. It was used as bait in the troll fishery for salmon and as bait for ducks.

While herring were valued as a food fish by some tribes, other groups did not specially like them as food and prized them more highly as bait. All groups appeared to consider herring roe a delicacy.

Herring roe were collected from natural spawning areas. In addition, artificial spawning places were created by placing vegetation in shallow bays and inlets in order to collect the eggs which were then deposited by herring on them.

More detailed information from specific areas is presented in the next two sections which treat separately the herring fishery and the herring roe fishery.

The time of taking herring by raking varied from one locality to another. In contrast to the report just cited for the Klallam, the Quinault are said to have taken herring primarily in the summer months.

"Herring appeared in great numbers during the summer. They were taken anywhere within a mile of the beach. The herring rake, common everywhere on the Northwest Coast, was used from a canoe. It was simply a long sword-like stick with sharp bones set in one edge. An edgewise sweep through the water impaled the fish on the points and the fish were then shaken off in the canoe. A canoe could be filled in a short time." [3]

The implement and method of using as described for the Puyallup is somewhat fuller than the foregoing and is probably characteristic for the groups living on Puget Sound.

"The herring rake was used to catch herring in deep water when they were not spawning. Most frequently herring caught in this way only served as bait. The rake was fashioned from seasoned cedar or, in modern times, from fir. It was made all in one like a paddle, with an over all length of from ten to twelve feet. The handle was round. The blade, which was three to four feet long, was squared at its end, two and a half inches thick at its upper side and the same thickness on its under side as the small, sharp bone points which were inserted into drill holes on this side. The herring rake was used from the bow of a canoe and was brought through the water like a paddle, the blade being thrust far enough back on the upward stroke so that the fish could be shaken off into the boat." [4]

An account of the technique as he observed it in the 1850's at Fort Steilacoom was recorded by Dr. Suckley, scientist with the Pacific Railroad Survey. Suckley's account was included in Exhibit USA 25 at page 20. It is as follows.

"The present species of herring is quite common at Fort Steilacoom. The Indians, at certain seasons, take them by throwing or scooping them out of the water with poles, along the sides of which, for two or three feet, nails have been driven in closely together and their ends left standing out in rows resembling the teeth of a comb. These fish average about six inches in length, and, despite the immense number of bones,

are of excellent flavor, and may be considered an agreeable table delicacy. The Indians eat great numbers, but they principally make use of them as bait when trolling for salmon. The herring is tied to a hook of the proper size, and gently trolled with a jerking motion. The natives, in this way, take many splendid salmon. [5]

As noted earlier, there were two methods for taking herring in deep waters. The second method was by dipnetting them from a canoe.

The Skokomish used a racket-shaped dip net for herring.

"This instrument was used when the fish were driven to the surface by a small diving bird (c paq^w); they could then be dipped up from a canoe." [6]

Herring were also dipped or scooped in nets, baskets, or mats from shallower waters.

The following description is for the Puyallup-Nisqually.

"During the spawning season when large schools of herring and smelt crowded in to shore, the fish were dipped out with a loosely twined piece of matting. The matting was six feet long, about two and a half feet wide in the center and tapered to points at each end. It was made from green cedar boughs split once through the heart. Unlike other pieces of twining this was made from the center pole toward the worker and then reversed and the other half made, also toward the worker. The poles were laid flat side down, the butte of each near the tip of the last. They were kept separated in the middle by the twining which continued to within eight inches of the ends. The ends of the poles were laid on the center pole and on top of each other, forming a handle. The fisherman grasped the handles, one in each hand, the flat surface of the split poles toward him, bent the matting into a crescent-shaped curve, waded in among the spawning fish, scooped them up and dumped them on the beach beyond the water line." [7]

Among the Skokomish herring were impounded in tidal shore enclosures and net traps. The herring and seal maze used by the Skokomish is described in the following passage.

"In this structure two long leads of upright stakes and brush converged in an offshore direction and ended in a narrow aperture within a large circular end pocket, also stake-and-brush or stake-and-lattice walled. The whole structure was built offshore in tide water, or at a river mouth. Seal followed the herring into the end pocket as the tide ebbed and were impounded. [8]

A diagram of the herring and seal maze is included as the bottom figure of Appendix 2.

Although herring were taken by the Skokomish at different places throughout their territory, certain places were renowned as having large quantities available. In 1920 T.T. Waterman noted that Lilliwap Bay had quantities of herring. This was also noted in 1942 in an affidavit taken from Robert Lewis. Other places specifically mentioned as herring sites by Elmendorf in 1960 (based on earlier field work) are: Sunset Beach, Tillikum Beach and in the Quilcene Bay area. These sites are all described and mapped in Exhibit USA 23.

The availability of herring both in shallower spawning areas and in deeper waters when schooling was a vital factor in the salmon troll fishery. Not only did the Indians rely on herring as the bait for the Chinook and Coho trolling; they also caught the salmon as they followed the herring. In other words, salmon were taken not only during the salmon runs, but also as the salmon congregated following the herring schools.

The baiting of salmon hooks with herring was apparently a complex technique. It has been described in detail for several groups. The following is for the Puyallup-Nisqually. According to this ac-

count only male herring were used for bait.

"The trolling hook was baited by means of a small needle about six inches long. It was of ironwood, round and pointed like an awl, and with an eye like a mat needle. The needle was threaded with the leader and passed through a herring from tail to head. The back of the herring was away from the hook and it was slipped down the length of the straight side so that as the fish went through the water its tail protruded above the point, concealing it. Every time the hook was baited it had to be detached from the main line. The fisherman sat alone in the stern of his canoe. The main line was held in his hands along with the paddle and at each stroke the baited hook darted through the water. Only male herring were used for bait because females do not dart in this way. When the fish was brought within reach, it was landed with a gaff hook or a small spear." [9]

We noted above that the herring were important to the Indians not only directly when taken and used as bait, but also as a "non-harvested bait" when salmon were harvested as they followed the schools of herring. The same observation holds for a number of other species which feed on herring. In this connection note has already been made of the seal and herring mace which captured both species as the seal followed the herring. Large quantities of waterfowl were similarly taken as they fed on herring. The waterfowl were usually netted, either in aerial nets suspended on poles above the feeding area or in underwater nets designed to entrap the birds as they dove for the fish.

In addition to these taking-techniques, in which herring served as a live unharvested bait, some groups harvested herring in order to take waterfowl. The following account describes how the Skokomish harvested gulls by preparing herring bait.

"Gulls were killed in great numbers by the children, principally for their down, which was used in the manufacture of blankets. Teeming flocks of these birds would congregate at the mouths of rivers to pick up refuse from the up-stream camps, and during the salmon run they would follow the school to feed on dead fish. Into such flocks the Indian boys would hurl stones with their slings, frequently killing or wounding several birds with a single missile. Excessively cruel, even among primitive practices, was one of their methods of killing gulls. A double-pointed wooden skewer was thrust down the gullet of a herring, which was then cast into the water for the gulls. The stick, lodging in a bird's crop, resulted in strangulation or in a more lingering death by starvation. Among the Twana it was a favorite pastime of the children to prepare herring in this fashion, sharpening hundreds of little cedar sticks for the purpose. The women of the tribe in need of gull-down had only to paddle along the shore at any time to find all the birds for which they had any use." [10]

Klallam children also harvested gulls using herring as bait, but a different taking technique was used. The Klallam took the gulls underwater in a snare baited with herring.

"Little wicker squares were made from split willows, and upright sticks at the four corners held the loop of the snare spread. In the centre was tied a herring, and the device was then sunken and anchored with a stone, so as to be a little below the surface of the water. A gull flying above would catch sight of the bait, dive for it, and come up with its neck in the noose, which quickly tightened and choked the bird." [11]

Intermediate between the direct use of harvested herring as bait for waterfowl, and harvesting of waterfowl as they fed on "unharvested bait" lies an area in which the Indians attracted the bait in order to harvest the species which fed on it.

As noted earlier, Indians set up aerial and underwater nets to capture waterfowl as they came to herring spawning areas to feed. Some groups constructed spawning places to attract the herring in order to net the ducks which would be attracted by the herring. In this technique, the herring roe were the bait for the ducks.

"Again, at the feeding grounds where herring spawned on sea-grass, a net about five feet wide and sixty to eighty feet long was suspended perpendicularly between poles set up outside the grass beds at low tide, being placed at such a height that at flood tide it would still be above water. As the tide rose the ducks would flock in to dive for herring spawn. Then a party hidden on shore suddenly rushed down to the beach, shouting and hurling missiles, and the affrighted birds squattered and flew straight out and into the net, in which their heads were held fast until the hunters came off in canoes and removed their catch." [12]

The foregoing part of the passage describes what I have termed use of herring, in this case herring spawn, as an "unharvested bait." By this I mean simply that the Indians capitalized on a situation provided in nature. The immediately following portion of that section describes what I have termed as an intermediate situation in which the Indians directly intervene in order to attract bait so that they can harvest the feeding species.

"Nets of the same type were also stretched horizontally between two rows of stakes driven into the mud flats above a bed of green hemlock boughs, the butts of which were thrust obliquely into the mud. At flood tide the boughs and the net were submerged. The herring spawned on the hemlock, and ducks, diving outside the net, would swim under and feed on the roe, and then rise straight upward, to run afoul of the meshes of the net and drown before they could extricate themselves." [13]

In the intermediate situation described, the Indian intervention consists in providing the green hemlock bough substrata for the herring spawn. The practice of creating substrata for herring spawn was extremely widespread throughout the case area and beyond and is discussed in a separate section dealing with the herring roe fishery. The above notes were included here because they appear to me to form a natural extension of the discussion concerning use of herring as bait. Furthermore, in

this case, the ducks, not the Indians harvest the roe.

III. THE HERRING ROE FISHERY

Herring spawn in coves and inlets depositing their adhesive eggs on various kinds of marine vegetation, mainly sea grasses and algae. If spawning is unusually heavy, herring will use other sorts of substrate as well, such as shells, rocks, and dockpilings.

Indians of the area collected the herring roe from places where herring spawn, but in addition they artificially created spawning substrate in order to harvest the eggs deposited thereon. They created spawning areas by laying out substrate which were used naturally and also by providing substrate which would not normally be available to the herring.

In the former category are substrate such as kelp. Kelp would be weighted and placed so that herring would be attracted to it to deposit the eggs. The taste of the eggs is said to vary according to the vegetation on which is deposited. People like to collect spawn from different areas and from different substrates in order to get a variety of flavors.

A large part of the herring roe fishery in aboriginal times and into the historic era has depended upon roe collected upon substrate introduced by the Indians and not widely available in nature to the herring. Several species of evergreen boughs have been used for this purpose. It is said that the flavor of the eggs is influenced by the

species of bough on which the eggs are deposited.

Among the Klallam the use of hemlock is reported.

"Herring eggs are considered a delicacy and are collected in this manner: twigs of hemlock (*Tsuga heterophylla* Sarg.) are laid where the herring spawn so that the eggs are collected on them. The branches are lifted out of the water, allowed to dry and the eggs shaken off into baskets." [14]

For the Skokomish, the practice of submerging boughs is recorded, but unfortunately no mention is made of the species employed.

"Roe, especially herring, was gathered on bunches of branches or brushwood sunk offshore in tidal water." [15]

The Lummi reportedly used cedar branches on which to collect herring roe. Cedar branches have also been reported for Coast Salish of Vancouver Island, the Cowichan in particular. Stern and Suttles have both discussed herring fisheries for the Lummi and Semiahmoo.

"..the collecting of herring roe; cedar branches were sunk by sinkers and floats into an eel-grass bed a few feet above the bottom so that the roe was deposited on them. After the spawning the branches were raised and dried and the roe could be shaken off." [16]

IV. USE OF HERRING AND HERRING ROE AS HUMAN FOOD

The importance of herring as bait in the salmon troll fishery has been discussed in an earlier section. We also noted the use of herring spawn and herring as bait in harvesting waterfowl. This section is devoted to a brief survey of the use of herring and herring eggs for human consumption.

Herring were eaten fresh and they were also preserved for later use and for trade. Accounts differ as to whether or not they were gut-

ted. Perhaps this depended upon when and how they were taken. It may be that when the time comes for spawning they do not feed and that these herring do not require cleaning.

The Skokomish reportedly ate herring in both fresh and cured. If they were eaten fresh, they were usually boiled. For curing, they were dried over smudge fires and lightly smoked. They were not sun-dried. Herring roe were generally eaten fresh. It is uncertain whether the Skokomish dried or smoked herring roe. [17]

Among the Puyallup-Nisqually herring were perhaps not eaten fresh, although this seems doubtful.

"Herring were caught in great quantities and cured. They were slit and the entrails removed. Strung on cedar splints, they were roasted done enough to eat and then hung in heavy smoke. When finished the smoked herring were stored in baskets which were placed in the storage space of the houses. They would keep for a long time and could be eaten direct or toasted." [18]

Herring eggs were eaten fresh, but no information is given as to whether they were also cured.

"...Herring eggs were, also, eaten fresh with smoked salmon or, if the supply of smoked salmon were exhausted by the time herring eggs were available, they were eaten with sprouts. " [19]

The Klallam ate herring eggs both fresh and cured. No information is given as to the manner of preparing herring.

"Salmon eggs as well as herring eggs are eaten both fresh and dried. They are dried in smoke." [20]

James Swan, who served for a time as Governor Stevens' secretary and who later became renowned for his ethnological works on the Indians of the Northwest Coast, recorded a trip he made in the company of some

Makah Indians to Victoria in September 1859. His reference to the "blubber eaters" in the following passage is clearly to the Makah. The precise identification of the "Northern Indians" would be speculative. In any case it is not of prime interest in present context.

"Soon a crowd of Northern Indians collected, who commenced a brisk trade with the blubber-eaters for dried halibut, dried blubber, herring [eggs], etc., which last are found on the sea weed around Cape Flattery, and gathered during the spring, and dried by the Macahs for trade." [21]

According to Suttles, the Lummi ate herring in both fresh and dried state. They were roasted for eating fresh by putting a dozen or so lengthwise on a spit. [22]

V. LOCATIONS AT WHICH HERRING WERE TAKEN

The ethnographic literature provides only sporadic and spotty information as to locations where herring were taken in western Washington waters. Some of the published sources have already been cited in Exhibit USA.- 20-30, as for example, the Skokomish sites noted in this report.

Other herring locations could be culled from the unpublished field notes of anthropologists who have worked in the case area. For example, Wayne Suttles has unpublished notes to the effect that the Samish took herring in Bellingham Channel, and that several groups of Indians took herring at Blower Bluff, at Greenbank, and at a beach near Camano City, and so on.

Still other usual and accustomed Indian herring fishing places could be culled from contemporaneous eyewitness accounts in the historic literature. Often these do not specify the Indian groups involved, nor are they precise as to location. The following is an example. The date is sometime prior to 1879 and the author has just departed Snohomish City enroute to Port Townsend on a small schooner.

"While passing between some wooded islands, we came upon a large fleet of Indian canoes bound for the fishing-grounds, and a little later were among another party of swarthy Masaniellos, who were catching herrings in immense quantities by simply pushing a long board, covered with rows of nails, into the water, and hauling it up laden with spoil, for nearly every nail contained a herring. This fish moves in immense shoals over the Sound in June, yet few persons catch any, except the Indians, and they use them principally for bait." [23]

Having recently surveyed most of this literature, published and unpublished, contemporaneous and ethnographic, it is my opinion that a diligent search and review of available sources would be relatively unrewarding. The results of such a search would give a spurious accuracy because some areas are better reported than others. The situation with regard to salmon fishing locations was difficult enough, but there at least interest in recording the information had been fairly uniform. That situation does not apply to the herring fishery.

The herring fishery was certainly of key importance to the Indians. It did not attract the attention of anthropologists in the same manner that salmon did. There was no great ritual elaboration connected with herring and the herring were not the staple food fish of the area. Similarly herring did not have great economic importance

to pioneer settlers and commercial interests in the way that salmon did. Herring later became important as a food export and as a bait fish for the halibut industry. In the period with which we are concerned, herring received little notice in the press or in the correspondence of government officials or settlers.

APPENDIX 1
Descriptions and Diagrams of Fishing Gear -- Elmendorf (Copyright 1960,
Washington State University. Used by permission.)

FISH SPEARS, GAFFS AND HOOKS

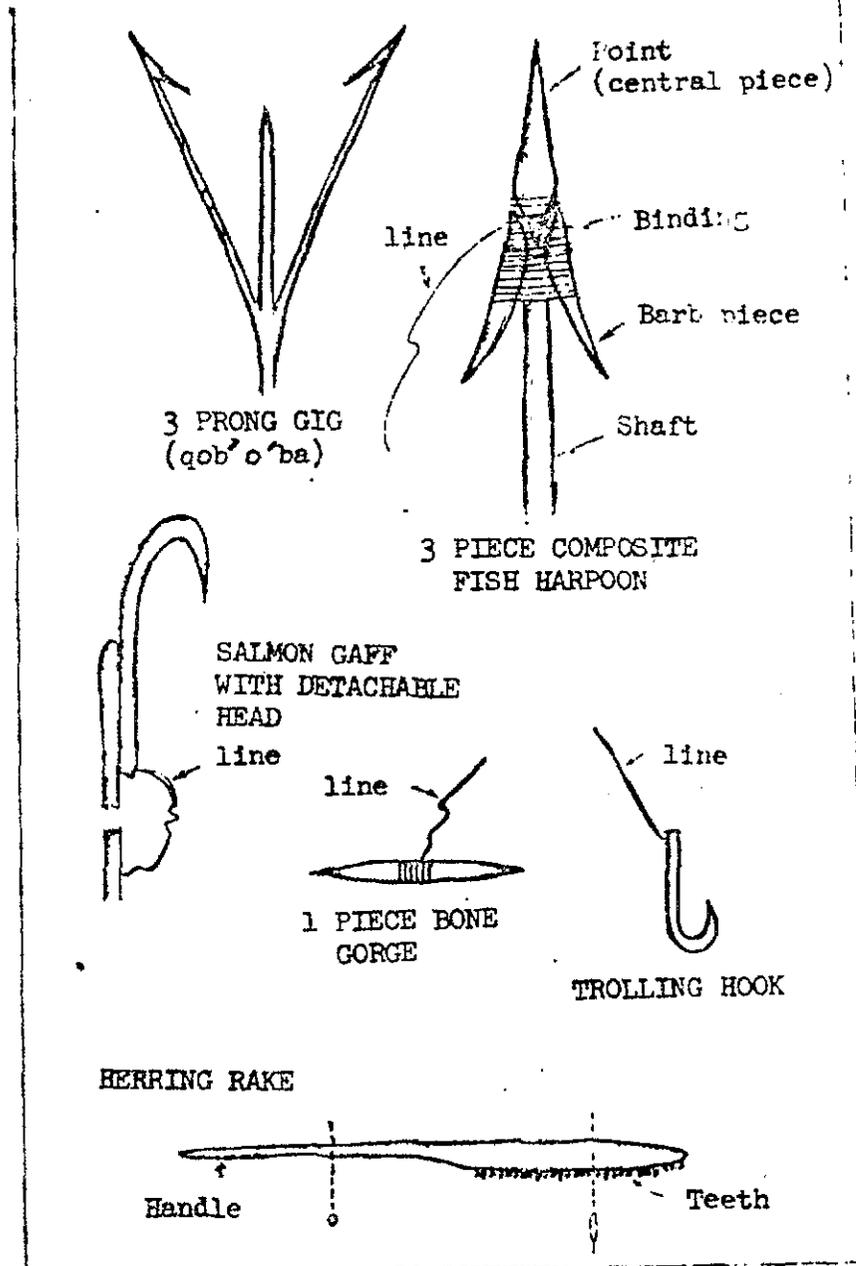


Figure 4. Fishing equipment

APPENDIX 2

Descriptions and Diagrams of Fishing Gear -- Elmendorf (Copyright 1960, Washington State University. Used by permission.)

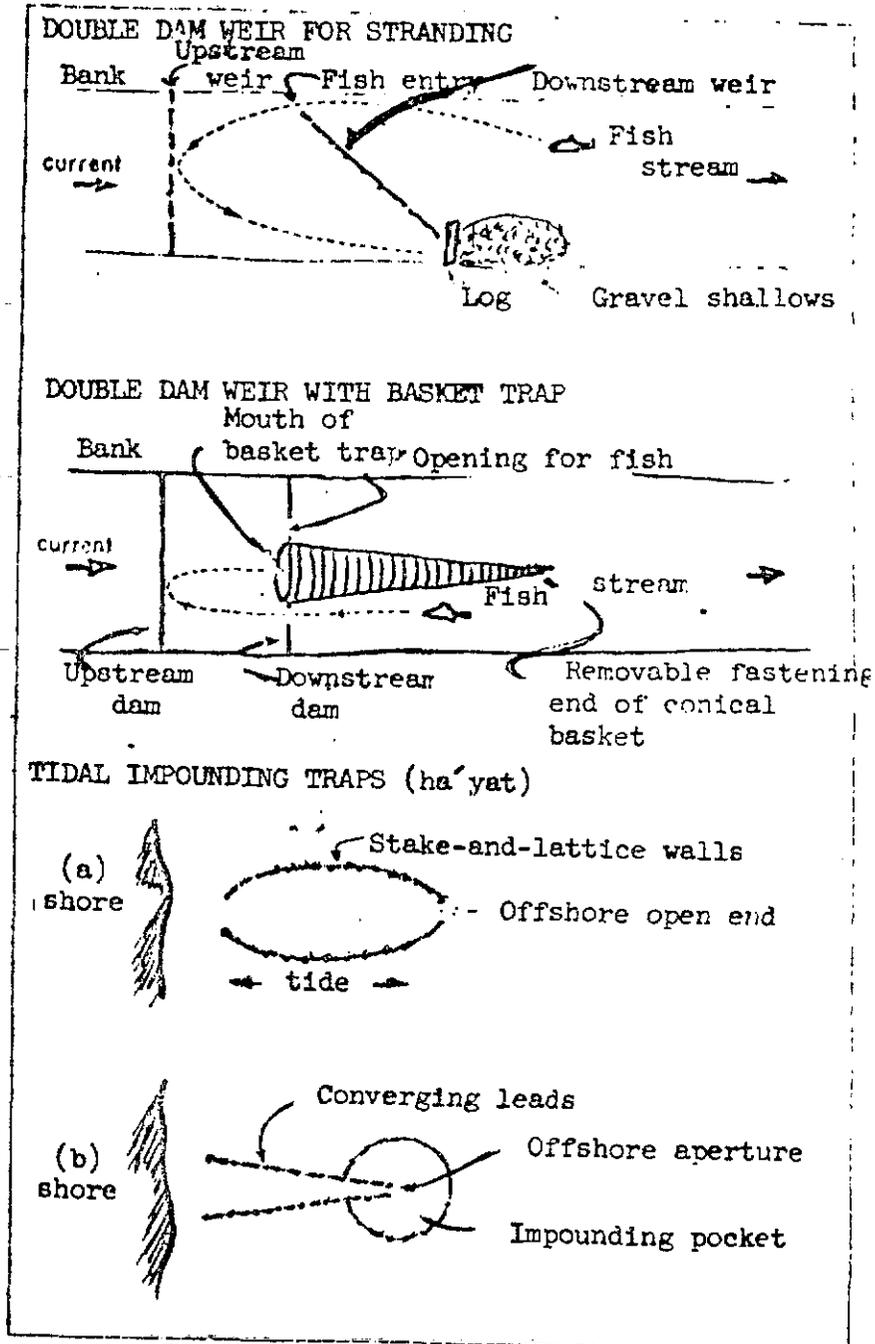


Figure 3. Various fish traps

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- [1] Elmendorf (1960:81)
- [2] Gunther (1927:202)
- [3] Olson (1936:38)
- [4] Smith (1940:256)
- [5] Suckley (1860:364)
- [6] Elmendorf (1960:81)
- [7] Smith (1940:256-7)
- [8] Elmendorf (1960:76)
- [9] Smith (1940:255)
- [10] Curtis (1913:56-57)
- [11] Curtis (1913:57)
- [12] Curtis (1913:56)
- [13] Curtis (1913:56)
- [14] Gunther (1927:202)
- [15] Elmendorf (1960:83)
- [16] Suttles (1953:128)
- [17] Elmendorf (1960:121-2)
- [18] Smith (1940:235)
- [19] Smith (1940:241)
- [20] Gunther (1927:206)
- [21] Swan (1971:68)
- [22] Suttles (1953:128)
- [23] Murphy (1879:141)

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SUPPLEMENTARY REPORT

NON-INDIAN INVOLVEMENT IN HERRING FISHERIES IN WESTERN WASHINGTON

1855 - 1880

Prior to, during and for some years after the negotiation of treaties with the Indians in western Washington the only systematic and intensive herring fisheries appear to have been those of the Indians. Non-Indian effort until about 1870 seems to have been confined to casual fishing for sport and for immediate consumption as food or bait.

According to James Swan, the non-Indians quickly adopted the Indian fish-rake technique, altering it so that herring fishing could be done from wharves rather than canoes. The Indian fish-rake was always used from a canoe. For a description of the technique refer to my earlier report on The Aboriginal Indian Herring Fishery. Swan described the non-Indian adaptation of the Indian technique as follows:

"As herring, sardines, and smelt do not bite at baited hooks in these waters, the fishermen and boys that usually find sport or profit in fishing from wharves were not slow to adopt the Indian method of impaling them on the sharp points of fish-rakes. The Indian implement was found to be too clumsy to be used from the wharf, so a method was adopted of securing fish-hooks to lines, or to wires, which are termed jiggers. These are attached to fishing rods. When used, the jigger is thrown out as far as it can reach and is then pulled swiftly through the masses of fish and is sure to impale several on the sharp hooks." (1)

In 1870 a Mr. J. P. Hammond began a commercial herring fishery at Port Madison. This was a seasonal operation in which effort was apparently confined to the period November to January for herring to be packed as food fish. The herring were also taken for their oil which was used in tannery and logging camp operations.

In 1880 David Starr Jordan wrote a review of the fisheries of the coast of Washington Territory. He summarized the Hammond herring fishery operation at Port Madison as follows:

"A herring fishery, owned by Mr. J.P. Hammond, is in operation during the winter season from about November 1 to March 1. During the last season they worked but one fine-meshed seine, 450 feet long, 3/4 inch mesh. Thirteen white men of various nationalities were employed, at wages of \$25 to \$30 per month. The herring are most abundant in February and March, when they come into the bay to spawn. They are in best condition from November to January, becoming poor and comparatively worthless as soon as they begin to spawn. The herring run into the bay in large numbers for shelter from heavy storms. The fishery has been at Port Madison since 1870. The business is constantly increasing, but there are as many or more fish than at first.

During the herring season they catch from 1 to 1,000 barrels at a haul. The herring are either smoked and dried or used for oil. The smoked fish are put up in boxes of about five dozen each, and mostly sent to San Francisco, where they are sold for 30 to 35 cents per box.

To make oil, the fish are steamed in wooden boxes and afterwards pressed. One barrel of fish produces about 1-1/2 gallons of oil, which is worth from 35 to 45 cents per gallon. The oil is used for rough purposes--for greasing skins in tanneries, and at log camps.

During the last season (1879-'80) there were put up 2,500 boxes of smoked herring and 5,700 gallons of oil; in 1877 and 1878, 5,000 boxes and 17,000 gallons." (2)

Jordan noted in the same report that herring were also caught and smoked at Gig Harbor, about eight miles from Tacoma. For some reason, this was apparently neither a large nor a successful operation. Jordan dismissed it in passing with the comment "there is little profit in it."

Herring became important as a bait fish to be used in non-Indian commercial salmon and halibut fisheries as these developed

in the 1870's and 1880's. Much of the herring so used was obtained from Indian herring fishermen.

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Submitted: 13 August 1974