MEMORANDUM: STATUS OF SUBSISTENCE FISHERIES IN BRISTOL BAY, 1980

by
Steven R. Behnke

Technical Paper Number 42

Alaska Department of Fish and Game
Division of Subsistence
Dillingham, Alaska
November 14, 1980
MEMORANDUM

TO: Tom Lonner, Chief
Subsistence Section
Juneau

DATE: November 14, 1980

FROM: Steve Behnke
Resource Specialist II
Dillingham

SUBJECT: Status of Subsistence Fisheries in Bristol Bay, 1980

Fish continues to be an important food in Bristol Bay. Residents of the area take large numbers of all five species of salmon, as well as some twenty other anadromous, freshwater, and marine fish species. (See Table 1). The harvest of fish for domestic use continues to provide nutritional, economic, and social benefits to most Bristol Bay households.

Smoked and dried fish, primarily salmon, are staple foods for villagers throughout Bristol Bay. Fish are also frozen, canned, salted, pickled, and utilized fresh. Some species are utilized raw. Many families eat fish daily.

A variety of techniques are used to harvest fish for household use. Gill-netting is the primary method used for harvesting salmon, and the only technique recognized by regulation, but fish in Bristol Bay are also taken for personal use by hooking, seining, dipnetting, spearing, and trapping. Many fishermen keep salmon and other species from their commercial catches for personal-use, or give them to friends. In some cases by-products of commercial processing, for example the heads of silvers, are salvaged for household use.

Users of these fish resources include long-term residents of the different sub-regions of Bristol Bay, more recent arrivals, commercial fishermen, and increasingly, residents of the Anchorage and other parts of Alaska who find it profitable to harvest Bristol Bay salmon and take it back home for their own use.

Each of these groups tends to have distinctive patterns of harvest, preparation, and consumption of fish. The people of the smaller villages of the Kvichak and Nushagak rivers, for example, tend to take large numbers of sockeye salmon to smoke and dry for both family use and dogfood. They also take large numbers of kings for family use. Women do much of the fishing and preparation while their husbands fish commercially.

People of Togiak and Manokotak, on the other hand, take smaller number of salmon, since they do not keep dogteams, but harvest large numbers of other freshwater and marine species, including char, pike, smelt, and herring. People in most Bristol Bay villages harvest “fall-fish” in spawning areas to dry or “half-dry” for later use. Particular species, such as whitefish, which are available in one area, but not in another, are often shared with relatives in other communities.
In the larger, more urban, communities of Dillingham and Naknek-King Salmon, families tend to take smaller quantities of fish, and are more likely to can or freeze their catch, rather than dry it. Smelt, trout, char and other species are also harvested in these areas, but are generally used fresh, rather than stored in quantity. Often people send quantities of smoked, canned, or fresh salmon to relatives in Anchorage and Seattle.

Commercial fishermen frequently keep salmon from their commercial harvests both for immediate use, and for canning or freezing. Some commercial fishermen keep most of the kings they catch for personal-use.

People from outside the Bristol Bay area who subsistence fish in the Bay tend to take sockeye salmon, harvest relatively few fish, and preserve them by canning or freezing. Some of them come to the Bay primarily to sport-fish, and put out a subsistence net to make sure that the trip is worthwhile. Some charter or fly their own aircraft to the area. Some have received misinformation and think they can snag salmon under subsistence regulations.

Relatively few regulations have been imposed upon the personal use fisheries of Bristol Bay and those which exist deal primarily with salmon. The current regulations have evolved in a piecemeal fashion largely out of administrative and enforcement needs rather than biological considerations.

Most of the regulations dealing with subsistence salmon fishing in Bristol Bay focus on the Dillingham and Naknek areas, where commercial fishing activity and regional populations are centered. In attempting to prevent waste and/or the sale of subsistence caught fish, regulations have been passed to limit the length of gear and to limit fishing time in areas close to these population centers. Outside the commercial fishing districts few regulations have been imposed.

Increasing numbers of "subsistence" fishermen in the population centers are likely to lead to continuing demands for further regulation, however. Newcomers, unfamiliar with gill-netting and lacking the facilities for taking care of large number of salmon, are more likely to take more fish then they can use, and to waste salmon. Growth in the number of subsistence fishermen has already caused conflicts over fishing space in the Dillingham area, where accessible beaches suitable for fishing are limited. This led to changes in the regulation requiring 300 feet between subsistence nets. Nets may now be placed 100 feet apart in the Dillingham area.

Regulations have also been initiated to reduce the subsistence harvest of rainbow trout in the Iliamna lake area. Major rainbow trout spawning streams and the area within 1/4 mile of their mouths have been closed to gill-netting.

THE STATUS OF SUBSISTENCE FISH HARVEST DOCUMENTATION IN BRISTOL BAY

The quality of data on Bristol Bay subsistence fish harvests varies from year to year, area to area, and species to species. Harvests of salmon for personal-use have received the most attention by the Department of Fish
and Game in the past and fairly good information on salmon harvests exists for most areas of Bristol Bay. This data has been improving in recent years. Subsistence trout and char harvests have been sporadically documented in some areas, but information on harvest of other species is almost totally lacking.

Salmon

The Federal Bureau of Fisheries's Annual Bristol Bay management reports began to mention the success, or lack of success, in the "personal-use" salmon fishery in Bristol Bay in the 1930's and 1940's, as part of their assessment of economic conditions in the area. It was not until after statehood however, that systematic efforts were made to document subsistence salmon harvests in Bristol Bay.

Extremely low salmon escapements into the Igushik River and the Lake Iliamna-Lake Clark systems in the early 1960's created concern that the personal-use fisheries in those areas might overharvest the diminished salmon populations. This concern, and the realization by managers that little was known of the extent of the personal-use fishery, led the Department in 1963 to initiate "subsistence" surveys in the Kvichak drainage, and "subsistence permit" systems in the Naknek and Nushagak areas.

Beginning in the mid 1960's all Bristol Bay "subsistence" fishermen were required to obtain a permit and report their catch at the end of the season. The permit system was gradually introduced throughout the region in the late 1960's and early 1970's. Permits were not issued systematically in the Iliamna area until 1970, however, since village surveys were conducted there each year. Much of the growth in the number of permits issued during these years reflects increasing compliance with the permitting and reporting requirements.

The Subsistence Section has begun to develop information on how each species is harvested and used in each area of Bristol Bay and on trends in use patterns. In some cases, we have found that the subsistence salmon permit format presents a barrier to the collection of accurate information on subsistence uses of fish.

The system is apparently supposed to simultaneously accomplish contradictory objectives - to influence people's behavior in the direction of complying with regulations, and to monitor their actual behavior. It is open to question whether the system does both of these things well.

Subsistence users perceptions of the permit system have been observed to influence the validity of the information they provide about their activities. First, many traditional users view the permit as a tool for restricting the personal-use fishery. This impression is fostered by questions on the form dealing with age, weight, height, and other identification; by the fact that "guideline" limits are written into the permit; and by the intimidating statement at the bottom of the form telling the applicant that failure to return the permit can lead to loss of the right to fish the following year.
Although most people in Bristol Bay communities comply by obtaining permits and reporting harvests, this is due in many cases to coercion, rather than cooperation. Many villagers respond by reporting what they think managers want to hear. Accurate data about the full range of subsistence activities can only be collected with the cooperation of people in these communities.

On the other hand, many people in the urban areas and from outside the region are increasingly coming to view the subsistence permit as a device for documenting participation and for establishing right to participate in the subsistence fishery in the future "just in case they bring in some kind of limited entry". This may tend to skew information about effort, and harvest levels, since it provides a motive for exaggerating participation.

The focus of the subsistence permit system on salmon has led people to believe that it is unimportant to document the use of other species. While this system may meet the needs of salmon managers, the Subsistence Section's data requirement demand a broader approach.

The permit format leads many people to underreport their fish harvests. Many of them feel that they should only report fish taken under the specific provisions of the permit—those which are harvested in the location specified on the permit, with the specified gear. Since people often fish in several locations, or keep commercially caught fish for personal-use, many fish are not reported. This is particularly true of kings early in the season, when many commercial fishermen sell the other species, but keep the kings for their own use.

Similarly, administrative requirements have presented a barrier to collecting accurate data. Subsistence salmon permits are supposed to be returned to the Department by September 30 so that harvest data can be compiled. Many people, particularly in Togiak, Manokotak, Aleknagik, and to some extent in other villages harvest significant quantities of reds and silvers after this date. Although the harvest report has a box for indicating the number of "spawned-out" salmon taken, few of the fish taken in late fall are reported.

The physical form of the subsistence permit creates difficulties for accurately recording fish harvests because it is supposed to serve simultaneously as a "license" and a harvest report. In theory it must be in the possession of the permittee while fishing, but at the same time the permittee is supposed to be recording each day's harvests on the back of the permit. The paper of the permit could not stand up to such treatment over the course of a summer's fishing. In practice, many people hang the permit on a wall so they won't lose it, and so that it is accessible for recording harvests.

In view of these problems, the Subsistence Section has begun to explore some alternatives to the existing permit system and reporting formats with other Divisions. The changes envisioned include broadening the scope of the report to include other species, reducing extraneous identification questions, and adding questions dealing with reasons for variations in the quantities of fish needed and harvested. In general, the "permitting" functions of the form would be reduced, and the data collection functions increased. The form would be simplified and made easier to use.
TRENDS IN THE SUBSISTENCE SALMON FISHERY

Number of Participants

A dramatic increase occurred in the number of Bristol Bay subsistence permits issued in the summer of 1980. In 1980, 1,221 permits were issued, compared to 829 in 1979, an increase of almost 50%. This rate of increase contrasts strikingly with rates of growth in previous years, which have fluctuated between 3% and 9% per year.

The number of people harvesting subsistence salmon in Bristol Bay apparently remained relatively stable during the 1960's and early 1970's. The small increases in numbers of permits issued over this period reflect increasing compliance with the requirement to obtain subsistence permits.

In the early 1970's, poor commercial fishing years and population growth in the regional centers of Dillingham and Naknek-King Salmon continued to result in increases in the number of permits issued in those communities. Commercial fishermen had to resort to subsistence fishing to acquire fish for their own use and teachers, military personnel and other newcomers obtained subsistence salmon permits. Rates of increase generally stayed below 10% per year, however.

Most of the increase in subsistence permit issued was largely the result of Anchorage and other southcentral Alaskan residents obtaining permits. Publicity about huge Bristol Bay salmon runs in 1979 and 1980, and increasing awareness of the subsistence salmon permit system in Bristol Bay led some 480 people from outside the area to obtain permits. Some of these people came to the Bay for other purposes, to fish commercially, or work for processors, but many made trips specifically to take salmon. Some combined sport and "subsistence" fishing. For the first time the Department of Fish and Game issued Bristol Bay subsistence permits from the Anchorage office. About 160 permits were issued there in 1980.

The greatest growth in number of permits occurred in communities most accessible by air from Anchorage, particularly Iliamna and Newhalen, where permits increased dramatically in the Iliamna Lake-Kvichak River area, where the number of permits has remained relatively stable for many years. Kokhonak, where 18 permits were issued in 1979, saw an increase to 40 in 1980. Ninety-one permits were issued for Igiugig, compared to 25 in 1979. In the Naknek-Kvichak drainage as a whole the number of permits issued increased by 75% from 1979 to 1980.

HARVESTS

The number of Bristol Bay salmon harvested for personal-use also increased significantly in 1980. This increase was not proportional to the growth in the number of subsistence permits issued, however, and in fact, largely occurred in the Nushagak area where the number of permits issued did not rise nearly as dramatically as in the Naknek-Kvichak area. (Table II).

Most new permittees did not take nearly as many fish as longer-term residents of the Bay, and many of the Anchorage people who obtained permits did not even fish. This may help account for the fact that although the number of permits issued in the Naknek-Kvichak drainage increased by 75%, the number of fish harvested there increased only 10.5% from 1979 to 1980.
The major increase over 1979 in the number of fish harvested in the Nushagak drainage is more difficult to explain. Some of the factors which seem to have contributed to this large harvest, in addition to increased numbers of fishermen, include a large salmon run, a long strike early in the summer which precluded commercial fishing, and the free time for subsistence fishing and economic uncertainty which resulted from the strike. Other factors may include increasing numbers of dogs in upriver villages and increased efforts by the Subsistence Section to make permits and harvest reports available in Nushagak area villages and to publicize the value of the harvest data. This increased effort may have contributed to more completed reporting of personal-use harvests in the Nushagak district.

**TROUT, CHAR, AND OTHER FRESHWATER SPECIES**

Permits are required for gill-netting trout and char for personal-use (and for gill-netting any species in the Iliamna drainage). They have only been sporadically issued in most of Bristol Bay, however, and the freshwater fishery has never been systematically monitored.

In some communities, however, the harvest of char and other species is quite significant. Togiak residents, for example, harvest thousands of char in the fall, which are dried and smoked like salmon, as well as utilized fresh. Residents of Togiak stress the importance of char, which comes late in the season and can be dried without worry about spoilage due to wet weather or flies.

Although freshwater subsistence harvests have probably declined in recent years, a number of individuals in each village continue to take a wide variety of freshwater species. Many people put out nets in late fall and spring for pike and whitefish. Blackfish and other species are occasionally taken with fishtraps. Grayling, trout, whitefish, pike and smelt are taken by jigging through the ice in many communities. Significant harvests of freshwater species occur around Iliamna Lake, along the Kvichak and Nushagak rivers, and in Aleknagik, Manokotak, and Togiak.

**HERRING**

Herring, and herring roe-on-kelp, have been harvested for personal-use by residents of Togiak, Manokotak, Dillingham, Clarks Point, and Aleknagik, mainly in the Togiak-Kulukak Bay area. Residents of Egegik, Pilot Point and Port Heiden take some herring on the Alaskan Peninsula.

Herring and herring roe-on-kelp provide an early spring change of diet and both are dried or salted for later use. Some roe-on-kelp is also frozen for personal-use. Although no systematic efforts have been made to document Bristol Bay subsistence herring harvests, some families harvest large numbers of fish in some years.
A survey of all Togiak families (Dames & Moore, 1978, pg 68) indicated an average family harvest of 699 pounds of herring for subsistence use in that community in 1978.

Manokotak families are estimated to have taken an average of 100 pounds of herring per family (Dames & Moore, 1978, pg 70).

The great commercial herring fishing effort in the Togiak district during the 1980 season and the very visible waste which resulted apparently caused many Togiak people to reduce their subsistence effort on herring in 1980. Several people indicated that they did not wish to harvest a resource which had been so flagrantly mistreated.

No permits are required for subsistence herring harvests. Although there have not been any management conflicts some people have expressed concern that intensive management of commercial roe-on-kelp harvesting might reduce opportunities to take roe-on-kelp for personal-use.