ISSUE PAPER ON NOME RIVER SUBSISTENCE SALMON FISHERY

by

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The Nome River lies about three miles east of the city of Nome* (see Map 1 and Appendix 1). The road which follows the coast to the east of Nome crosses the river by way of a bridge about 1/2 mile upstream from the mouth. The river mouth can be reached from the road on foot or by 4-wheel drive vehicles. On the east side of the mouth, with road access, lies Ft. Davis, a traditional summer fishing community of about 25 cabins and tent frames. A road stretching north on the west side of the river provides road access at Osborne, a small cluster of summer cabins about five miles upstream, and at Dexter, a group of several cabins along the river between eight and ten miles upstream.

The river supports runs of humpies, dogs, silvers, and a small number of kings. In recent years the humpy runs have reached record levels and are in no immediate danger of depletion. Dog salmon are less abundant, and adequate escapement of this species is often cause for concern for management biologists. The silver run is smaller yet and the king run even smaller and, as yet, of undetermined magnitude. Commercial Fisheries staff have conducted aerial surveys for humpies and dog salmon escapement in recent years and began surveying the silver run as of 1980. The results of surveys of previous years are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Pinks</th>
<th>Dogs</th>
<th>Silvers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>3,405</td>
<td>2,161</td>
<td>--</td>
</tr>
<tr>
<td>1976</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>1977</td>
<td>1,726</td>
<td>3,046</td>
<td>--</td>
</tr>
<tr>
<td>1978</td>
<td>34,900</td>
<td>5,242</td>
<td>--</td>
</tr>
<tr>
<td>1979</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>1980</td>
<td>171,350</td>
<td>7,745**</td>
<td>1,145</td>
</tr>
</tbody>
</table>

Although the timing of the runs varies year to year, the dogs and humpies often will begin entering the river in significant numbers in early July. The silvers follow in August and September.

*Refer to "Report on Nome Salmon Subsistence" for a statement of research purpose for the Nome area in general and Nome River in specific. This paper is in specific response to both general concerns about the Nome River fishery and proposed regulation #3.

**Probably fewer dogs in the river than listed. Species identification is difficult due to massive quantities of pinks.
The effect of commercial effort on Nome River stocks is largely unknown due to the interceptive nature of the fishery. Salmon tagged in the Nome area have been caught as far north as Kotzebue as well as to the southeast in Norton Sound.

Sport fishing effort takes place at the mouth, at the bridge, along the river by boat, and from the shore at Osborne and further north where the river is accessible by foot. Sport effort regularly constitutes as many as 25-30 fishermen at the mouth during the peaks of the various runs. The daily bag limit is 15 salmon.

A subsistence fishery has existed at the Nome River since before contact with Western civilization. Traditionally, the summer fishing settlement was called Unakhtaguik (Ray, "19th Century Settlement and Subsistence Patterns in Bering Strait", 1964) In the past two decades there have been two occurrences which have had substantial impact on subsistence fishing in the Nome area and which resulted in an increase in effort at the Nome River (see Map I). In the 1960's the red salmon run of Salmon Lake and Pilgrim River, about 35 road miles north of Nome, was seriously over-harvested which resulted in the closure of Salmon Lake to salmon fishing during the salmon run. A limit of 20 salmon per permit was put on the Pilgrim River. These restrictions forced subsistence users to shift their fishing areas and some moved their effort to the Nome River. Then in 1974 a fall storm and flood wiped out several fish camps at Nook, a summer fishing settlement 15 miles east of Nome. Nook fishermen fish in the Eldorado and Flambeau rivers which empty into Safety Lagoon. Several of the Nook fishermen that lost their camps also had camps at Ft. Davis which is located at the mouth of Nome River. This prompted them to shift their fishing effort to the Nome River.

Due to its close proximity to Nome and easy road access, the Nome River for several years has had a high level of subsistence effort compared to other streams in the Nome subdistrict. In 1980, of the 227 permits issued in the Nome subdistrict, 96 were for the Nome River. This constitutes even a higher percentage than in previous years (for example, 66 out of 185 in 1979 and 72 out of 210 in 1978). The river with the next highest
number of permits is the Eldorado, with 27 permits in 1980, 18 in 1979, and 22 in 1978. It is the view of Subsistence Section staff that a significant factor in the 1980 increase in permits for the Nome River is the large number of short term residents that choose the Nome River as the target of their initial fishing efforts.

Logistical expenses are one source of motivation to fish in the Nome River rather than in the seven rivers of the Nome subdistrict more distant from Nome. The Snake River is closer to Nome than the Nome River but is much less heavily fished, perhaps because of smaller runs of salmon, a regulation prohibiting use of beach seines, a jetty which distorts the river mouth, and pollution from the city of Nome.

Another factor mentioned by informants as promoting harvest effort in the Nome River as opposed to others is the time involved in getting out to the more distant fish camps, which poses a problem to people working during the week. Aggravating this situation is the regulation which prohibits fishing on Sunday. An additional factor that affects the Nome River harvest level is the fact that many of the more traditionally dependent subsistence users of the Nome area are elderly and less able to make the boat trips necessary to reach some of the other rivers. Lack of equipment such as boats, trailers, and road vehicles limits the range of other subsistence fishermen.

Local regulations classify all fishermen that use gillnets or seines as "subsistence fishermen" with no differentiation being made within this group. The "subsistence" effort includes a wide range of user groups, from local Eskimos with a high level of subsistence dependency to short term residents of the Nome area with large incomes and many users falling somewhere in between these two extremes. A substantial percentage of the short term residents fish the Nome River specifically, presumably for the reasons of accessibility mentioned earlier. However, the Nome River also supports a large group of the more subsistence dependent fishermen. The summer camps of Ft. Davis at the river mouth are used by subsistence fishermen who process most of their salmon by the traditional method of drying them on racks. This group represents the people who
have traditionally subsistence fished for salmon in Northwestern Alaska and continue to rely heavily on salmon in their diet. During the 1980 season the subsistence effort in the Nome subdistrict during the commercial season was restricted to the two 48 hour periods also selected for commercial fishing: 6 p.m. Monday to 6 p.m. Wednesday and 6 p.m. Thursday to 6 p.m. Saturday. From July 21 to August 18 the subsistence fishery was opened around the clock primarily because of the large extent of the pink run. Permits were required, with one permit being allowed per household. Limits were set for permits for each river; permits were renewable if adequate escapement was realized. It was illegal to use seines or gillnets with mesh size less that 4 1/2 inches in the Nome River upstream from the regulatory markers placed near Osborne.

Due to the road access and the small size of the dog salmon run, the limits for permits issued for Nome River subsistence salmon fishing were decreased from 400 in 1975 to 100. The Subsistence Section in the winter of 1979-1980 constructed charts for 1973 through 1979 for the Nome River showing the harvest of humpies and dogs per permit holder (see Appendix 2). These charts show a majority of permits in some years after 1975 reporting exactly 100 salmon caught. The personal observation of Subsistence Section staff was that several of these households took 300+ salmon. These factors suggested that the permit harvest data for the Nome River was inaccurate and was probably giving a much lower harvest total than what was actually being taken. In order to improve the harvest data for the benefit of fishery management as well as for documentation of subsistence use, the limit was raised to 250 salmon and an increased effort was made to have permits renewed once adequate escapement was reached. (For the results for 1980, see Appendix 3.)

The reported pink and dog harvest totals for the Nome River comparing 1980 to previous years are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>PINKS</th>
<th>DOGS</th>
<th>SILVERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>4551</td>
<td>1063</td>
<td>not computed</td>
</tr>
<tr>
<td>1975</td>
<td>5955</td>
<td>673</td>
<td>&quot;</td>
</tr>
<tr>
<td>1976</td>
<td>4371</td>
<td>332</td>
<td>&quot;</td>
</tr>
<tr>
<td>1977</td>
<td>2164</td>
<td>1667</td>
<td>&quot;</td>
</tr>
<tr>
<td>1978</td>
<td>3917</td>
<td>309</td>
<td>&quot;</td>
</tr>
<tr>
<td>1979</td>
<td>3870</td>
<td>350</td>
<td>&quot;</td>
</tr>
<tr>
<td>1980</td>
<td>9076</td>
<td>1061</td>
<td>601</td>
</tr>
</tbody>
</table>
This fall, in response to the staff proposal to eliminate net fishing above a point one mile upstream from the Nome River bridge, the Subsistence Section interviewed several fishermen to determine the significance of that part of the river. A select sample of 17 households was interviewed. These were households that Subsistence Section staff had reason to believe fished in the stretch of river to be affected by the proposed regulation. When the data gathered was presented at the Norton Sound Advisory Committee meeting, it became apparent that the sample was inadequate, as an important group of Nome River fishermen had been missed. In response to this, the Subsistence Section expanded its sample to include 32 households. The discussion that follows is based on research conducted this fall and last summer and on the personal experience of Subsistence Section staff.

The location of the fishing effort of the 32 households is presented in Appendix 1. Only fishing effort involving seines and gillnets was mapped. Therefore, a few households interviewed that used only rod and reel were not mapped. In Appendix 1, the years of the fishing effort of each household are indicated for those areas that would be closed if the amended proposal were passed, i.e. all areas upstream from a marker 1 1/2 miles above the Nome River Bridge.

The map of fishing effort reveals that a significant level of effort occurs directly above the proposed one mile marker. It was this information which prompted Commercial Fisheries Division staff to amend their proposal by shifting the marker from 1 mile above the bridge to 1 1/2 miles. However, further research showed that a substantial traditional fishing spot existed at a bend of the river about 1 mile upstream from the proposed 1 1/2 mile marker. In addition there were several other spots above the marker utilized by a smaller portion of the sample. Finally, just below Osborne is an area that has been fished by several households for 30 or 40 years.

At this point a general discussion of the Nome River fishery will help to explain the significance of these areas to the people that use them.
Of the sample surveyed, most of those that fished at Osborne have fish camps and racks there. The vast majority of those that fished in the Nome River downstream from Osborne have camps and racks at Ft. Davis.

The number of households interviewed that fished in the Nome River above the proposed 1 1/2 mile marker is as follows: 11 households in 1980, 13 households in 1976-1979, 15 households in 1970-1975, 13 households in the years before 1970. At least five additional households were mentioned by sources as having fished above the proposed marker, but they were not contacted due to absence or research time constraints. Four of the households that fish at Osborne were not contacted personally but were described by the households interviewed as having fished with them during a specific time period.

The types of gear used by households interviewed are beach seines and gillnets used as beach seines. The fishing spots identified on the map are places where the salmon congregate before moving further upstream. Several sources stated that set gillnets have minimal success in the Nome River due to the clear water. The gillnets can be seen and avoided by the salmon in the long days of summer. Later, as the days shorten, gillnets have more success. Beach seining requires several people, and members of different households often work together. Upstream from the beacon, about 1 1/4 miles above the bridge, are some shallow ripples that discourage many fishermen from proceeding beyond that point. However, as indicated on the map, several households do fish or have fished beyond that point. Only two of these households stated that they used jet units to reach river areas beyond the shallow area.

Equipment can be a limiting factor for fishing effort in this area of the river. In addition to those fishermen that don't fish there because of the shallow water, one household recently stopped going that far up because they no longer had a motor. Another household without a motor, no longer has the manpower that was available in the past to pull the boat further upstream. The swift water of the ripples precludes rowing a boat beyond that point.
The different species of salmon are subject to different patterns of use by the Nome River fishermen interviewed. Humpies are primarily dried, being the preferred fish for drying for many people. Dog salmon are dried or frozen. Silvers are the preferred fish for freezing but are also smoked and salted, and some people prefer them over other salmon for drying. The manner in which the fish is processed often depends on what condition it is in when caught.

A characteristic of subsistence fishermen throughout Norton Sound who dry their salmon is a strong preference for "upriver" fish for drying, that is salmon that have been in freshwater long enough to lose their fat. These salmon dry better, have a different flavor, and become rancid less easily than fish fresh from ocean waters with fat intact. The preferred state of the fish for drying differs between households. Some find salmon caught near the mouth or bridge acceptable, whereas others have to have the fish from further up the river. Another group would prefer the leaner fish from further upstream but are unable to go that far up for the reasons mentioned earlier. This preference for leaner fish was the major reason expressed for fishing at the spots near the beacon and further upstream. Some households found the fish caught near the beacon to be acceptable, whereas others stated that those fish were too oily. Those households at Osborne that were contacted definitely preferred fish caught up there, as they are significantly leaner than fish caught in the lower river. Each household could identify the point in the river where each salmon species had become lean enough to suit their preference.

Each salmon species was described as having a different amount of fat and requiring a different length of time in freshwater to lose their fat. Silvers have the most oil and must be caught the furthest upstream to be in the desired condition. One source stated that if she couldn't fish at the holes upstream from the 1 1/2 mile marker, she wouldn't be able to dry silver salmon, as below that point they are so oily that they spoil on the racks. Several sources mentioned that they get silvers from the lower river for freezing, smoking, or salting and from further up for drying.
Drying salmon remains an important method of "putting them up" for the winter. A count of salmon drying on Ft. Davis fish racks during the months of June and July of 1980 gave a total of 8,300 salmon: 7,660 pinks and 640 dogs. The count was discontinued at the end of July due to staffing needs elsewhere and therefore did not include the harvest for August and September, which would have included silvers.

A fishing pattern described by several people was to fish the salmon at the mouth as they entered the river and then fish later in the season at the bridge or the spots upstream when the first batch of salmon had dried and been removed from the racks. With good weather, salmon will dry in 1 1/2 to 2 weeks. The best weather is dry, windy, and not too hot. Rain causes the fish to spoil; hot weather "sunburns" the fish and promotes maggot activity. This weather factor is significant in that it can cause entire racks of fish to spoil, necessitating a renewed harvest effort. On the other hand, the fishermen may wait out a bad weather period and begin fishing later. The spots above the bridge allow Nome River fishermen the opportunity to fish later in the season when the fish are no longer abundant near the mouth and bridge and when their fishing effort has been delayed due to weather or other factors. Those fishermen that prefer the upriver fish will wait until later in the season when the fish are further up.

A substantial number of the households interviewed gave another reason for why the river upstream from the 1 1/2 mile marker was important to them. This reason was that in the past, during years of few salmon, people would go up the river to get their fish. If people couldn't get what they needed in the lower river (at the mouth and bridge), they would find the salmon upstream in the holes where they congregate. One source could remember chasing the salmon all the way to Osborne. The sources stated that in recent years (from around 1973 to present) there have been plenty of fish, and they could get all they needed from areas further downstream. However, all of these households felt that the river should be left open so that in the future when there are few fish, they or their children will be able to go upstream to get what they need.
The general opinion of the fishermen interviewed was that the area proposed to be closed is not important to spawning. Two sources mentioned seeing some dogs and humpies spawning in an area about two or three miles above the bridge. One fishermen saw some silvers spawning in that area one year. However, everyone that mentioned spawning felt that it primarily occurs upstream from Osborne.

In conclusion, several factors give this area importance to the fishermen that use it. The area has been used extensively in the past, with a substantial number of households still fishing there on a yearly basis. Several sources felt that it should be kept open so that they or their descendents can fish there in years of small salmon runs, as they had done in the past. A number of households that fish at Osborne have maintained camps and fish racks there for several decades. Many people strongly prefer the condition of salmon caught in the upstream areas above the proposed 1 1/2 mile marker, and the condition of the fish is intimately related to the means and/or success of the preservation techniques used to store salmon takes for future consumption.

The proposed closure would terminate a traditional fishery in this area and would meet a high level of resistance from the residents of Nome.
APPENDIX 1
MAP OF NOME RIVER SUBSISTENCE SALMON FISHERY
Appendix 1

Location of Nome River Subsistence Salmon Fishery
(from a select sample of 32 households, each number represents a specific household)

A - 1, 2, 3, 4, 6, 7, 8, 13, 14, 18, 19
B - 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 17, 20, 24
C - 1, 5, 6, 18, 19, 21, 24
D - 18
E - 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 18, 19, 21, 24
F - 21
G - 18 (1975-80)
H - 18 (1975-80)
J - 18 (1975-80), 16 (1975-80), 12 (1975-80)
K - 19 (1975-80)
L - 18 (1975-80)
M - 17 (1980), 18 (1975-80), 19 (1975-80)
N - 21 (1975-73), 18 (1975-80)
O - 21 (1975-73), 17 (1980)
P - 21 (1975-73), 17 (1980)
Q - 32 (1940-70), 15 (1940-70), 25 (1950-70), 31 (1940-70), 29 (1950-70)
R - 32 (1940-70), 14 (1940-70), 25 (1950-70), 31 (1940-70), 29 (1940-70)
30 (1940-70)
APPENDIX 2

NOME RIVER HARVEST CHARTS FOR
APPENDIX 3

NOME RIVER HARVEST CHART FOR 1980