

REPORT ON THE SURVEY CONDUCTED IN TYONEK 1980

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ABSTRACT

The Native Village of Tyonek submitted several proposals in 1979 to the Alaska Board of Fisheries requesting an opening of a king salmon subsistence season on the west side of Cook Inlet. The Board was sympathetic to their request, but felt it needed more information on Tyonek before making a decision. The Subsistence Section of the Alaska Department of Fish and Game was directed to generate information on Tyonek that would help the Board reach a decision. After survey efforts in Tyonek, the Section concluded that the village is similar to a "Bush village" in its economic status and its situation of chronic underemployment and unemployment. Although a commercial fishery does exist there, it is limited and marginal in nature and hasn't provided for the subsistence needs of the village. Any potential subsistence fishery would appear to answer a need and would not, in effect, be creating a new fishery.

PURPOSE

In December 1979, the Board of Fisheries considered several proposals submitted by the Native village of Tyonek requesting an opening of a limited king salmon season for subsistence purposes. After hearing testimony from four representatives of the village, the Board was generally sympathetic to their testimony and appreciative that the village was willing to negotiate its proposals. However; the Board felt that in order to open a king salmon season on the West side of Cook Inlet, the members needed more information on Tyonek itself. The Board requested the Subsistence Section of the Alaska Department of Fish and Game to generate additional information about Tyonek and a profile of the potential user group prior to its spring meeting starting in March 1980. The following report is a summary of the Section's methods and findings.

METHODOLOGY

The Subsistence Section selected a survey as the method to develop profiles about the potential fishery participants in Tyonek. The survey questionnaire was very similar to the one used in the Copper River subsistence survey. Since the number of participants in the fishery was expected to be small, all questionnaires were to be handled in personal interviews.

A draft questionnaire was taken to Tyonek where it was reviewed by Bonnie McCord, then village council president, for appropriateness and for its value as an information-generator. After a few minor modifications, the final questionnaire was drafted and printed. Two attempts to conduct the survey in January were unsuccessful due to weather problems, illness in the village, and the upcoming general village elections. The survey was finally conducted the first week in February. The village was generous in its support of the survey and gave much assistance. Two villagers helped the researcher conduct the survey. Fedora Constantine, who represented Tyonek at the last Board meeting was invaluable as a means of communication between the researcher and the elderly Tyoneks and as a source of information for traditional Tyonek practices. Of the potential 60+ households that would be interested in the fishery, 40 were contacted and interviewed.

All survey forms were subjected to computer analysis.

RESULTS AND DISCUSSION

Tyonek, despite its proximity to Anchorage (40 airmiles) is very much like a rural bush community. It's a small village of 350 people (approximately 85 households), most of whom are Tanaina Indians. Impressions gained while visiting Tyonek and talking to its inhabitants are that of a community with limited employment opportunities, a concurrent low cash flow and a high dependence on the natural resources of the area, especially the fishery resource. The Section's survey tended to confirm these impressions as did a recent technical report (S. Braund and S. Behnke, 1980) on the socio-cultural systems in lower Cook Inlet

prepared for Bureau of Land Management's OCS office.

Most Tyoneks have-lived in their community all their lives. Seventy-eight percent of the respondents have lived in Tyonek 21-50 years and 95% have lived there more than 10 years. The average family size for responding households was 3.5 members/household. Thirty-three percent of the families surveyed had one or two members older than 55 years. A few households consisted solely of one or two elderly bachelors. Eighty-two percent of the households had 4 members between the ages of 18 and 55 years and 67% had from 1-6 members aged less than 18 years. Forty-three percent of the respondents had at least one family member living away, but dependent occasionally for support, while 10% had more than 10 such members living away.

The survey results on employment corroborated the reports given by the village representatives. Of 40 households surveyed, 28% had no members employed in any capacity. Major employment opportunities in the community are commercial fishing, government programs (village council, school, CETA grants, etc.), the store and the nearby timber chip mill. Since only the latter two offer a limited opportunity for full time employment, Tyonek residents are faced with an employment picture that is seasonal and limited. For various reasons discussed in the OCS report, despite the proximity of the timber company to the village, it employs very few villagers and the relations between the two entities are strained (S. Braund, S. Behnke, 1980). A breakdown by degree of

employment is shown below:

EMPLOYMENT BREAKDOWN BY PERCENT OF HOUSEHOLD RESPONSE				
No. of Members in Household	Fulltime Percent	Part-Time/ Seasonal	Retired	Unemployed
0	55	38	91	
1	38	54	9	26
2	7	8		16
3				26
4				16
5				10
6				3
7				3

- = No response

As a result of the limited employment opportunities and the high degree of seasonality, cash flow through the village economy is low.

The profile for Tyonek respondents was as follows:

Income breakdown by percent of household response

Total Income Dollars	% of Tyonek Households	% of Commercial Fishery Households	% of Other Households
0- 3000	13		20
3-10,000	30	16	45
10-15,000	30	47	15
15-20,000	12	21	5
20-30,000	5		5
	10	1:	10

Over 70% of all the responding households earned less than \$10,000 in gross annual income. Thirty percent of these were commercial fishermen who made up 63% of the total responding commercial fishermen.

Generally, the commercial fishermen who appeared more prosperous either had a spouse employed in some capacity or worked in the off-season in construction, timber or oil-related work. The type of aid coming into the village also was limited. Fifty-five percent of the responding households had only Native/Public health benefits, while the other 45% had additional aid in the form of social security, disability, unemployment checks, etc.

A summation of household information for Tyonek would indicate most Tyonek residents have lived in the community most or all of their life. Family size is moderate, but many members are either too old or too young to work, and even for those in their productive years, employment opportunities are limited and tend to be seasonal in nature resulting in low incomes on which to support a household. These conclusions have been corroborated by a recent OCS report (S. Braund and S. Behnke, 1980).

Most of the household interviewed had been or were involved with commercial fishing. Sixty-five percent of the households had fished commercially at least one year and 38% had fished more than 13 years - the survey's period of interest. Forty-eight percent of the respondents held a commercial license for last year, 40% had a limited entry permit and 38% used their own boat which is usually a dory. Despite the fact that so many households are involved with commercial fishing, commercial catches tend to be low as the following table indicates.

Estimated Tyonek salmon harvest - species, 1967, 1974-1979.

No. Fish Caught of all Species	1967		1974		1975		1976		1977		1978		1979	
	% of Total	% Comm. Fish	% of Total	% Comm. Fish	% of Total	% Comm. Fish	% of Total	% Comm. Fish	% of Total	% Comm. Fish	% of Total	% Comm. Fish	% of Total	% Comm. Fish
101 - 500	2	5	2	5	2	5	2	5	2	5	2	5	2	5
501 - 1000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1001 - 2000	10	21	18	37	20	42	18	37	20	42	18	37	18	37
2001 - 3000	5	11	5	11	5	11	8	16	8	16	5	11	5	11
3001 - 4000	2	5	5	11	5	11	5	11	5	11	5	11	5	11
4001 +	2	5	2	5	2	5	5	11	5	11	0	16	0	16

Comm. Fish = Commercial fishermen responding
 Total = Total Household response
 - = No response

The average catch for all responding commercial fishermen in Tyonek is estimated to range from 1 to 2,000 salmon. In cash this would generate approximately \$6-12,000. Fishing as a commercial enterprise is hampered by the lack of a processor or cannery in the vicinity, requiring that fish are either flown out, pot scows utilized or a tender cooperatively hired. There were no target species; usually a catch was made up of reds, pinks, chums, **cohos** in random proportions with a few incidental kings. A few fishermen did note that they caught mostly pinks (15%) or reds (8%), but catches were largely mixed. Because commercial catches were low, many commercial fishermen took little or no fish out for their households subsistence opting for cash sale to generate money for expenses such as electricity, heating fuel, groceries, etc. Thirty-seven percent of the respondents did divert some of their catch for subsistence with 25% diverting less than 50 fish. Many of the commercial fishermen interviewed indicated that they would bring incidentally caught king salmon home and perhaps some silvers; other indicated that they brought home a cross-section of their catch, although they would prefer kings. At least one respondent holding a commercial fishing license fished only to obtain fish for himself, his elderly father and a female neighbor. He reported his annual catch as being 300 fish and none of these were sold.

The years people have spent subsistence fishing was hard to determine, since subsistence fishing has been closed since 1968, at least for kings. Forty-two percent of the surveyed households indicated they had fished for their own consumption at least one year; 13% indicated that

they have fished for subsistence every year despite the closure. The actual number of participants is probably higher, but many people were obviously reluctant to be so candid to a representative of ADF&G.

# of Fish Caught All Species	1967		1974		1975		1976		1977		1978		1979	
	% of Total Response	% of Non C.F.	% of Total Response	% of Non C.F.	% of Total Response	% of Non C.F.	% of Total Response	% of Non C.F.	% of Total Response	% of Non C.F.	% of Total Response	% of Non C.F.	% of Total Response	% of Non C.F.
0 - 100	13	25	18	35	18	35	18	35	20	40	20	40	20	40
101 - 500	5	10	0	0	0	0	0	0	0	0	0	0	0	0

Non C.F. = Households with no commercial license for 1979 and not usually actively involved with the commercial fishery in Tyonek

The above table represents the approximate subsistence catch as reported by Tyonek respondents. As noted before, there is an undetermined amount of unreported subsistence fishing, but it is suspected that the percentage is actually much higher. Due to time constraints on the survey and the lack of continuous communication between the village and ADF&G, a more precise figure can not be derived at this time. For 1979, 16 households indicated they subsistence fished; seven indicated that all of their catch consisted of king salmon and the remaining nine said at least half their catch was king salmon. When informally asked by the researchers what kind of fish was preferred, almost all respondents answered king salmon. The reasons they gave were fairly uniform. King salmon are "oiler" than other species, therefore they do not get hard when smoked or dried. King salmon are also bigger, so it takes fewer fish to fill household needs than would be required of the other smaller species and

there is less waste. King salmon are also the traditional fish of the Tyoneks.

Tyonek respondents use various methods to process the fish they catch and few people used just one. People salt, smoke, dry, freeze, and can their fish and they also save the heads, tails and fins for soups and broths with salting the most common method used. The older people would explain the utility of king salmon and how a fish is prepared for drying and smoking, with even the backbone being used.

The Tyonek households that participated in the survey also showed a high degree of exploitation of and reliance on their natural environment. Only one person (2% of the survey) indicated no other subsistence related activity which ranged from clam digging to hunting and trapping to berry picking. The following figure indicates the number of activities pursued by the respondents.

# of Activities Pursued	% of Households Involved
1	18
3	20
4	20
	18
5	15
6	7

Dependence on the natural resources of the area was indicated by the sources of protein in the household's annual meat supply. Twenty-eight percent of the respondents felt that at least half of their meat

supply came from subsistence fishing, 8% said most came from their commercial catch and 43% got at least half of their annual meat from hunting. Most people felt that meat was too expensive to buy from the store, yet for those families who don't subsistence fish unpermitted and have no access to commercial fish or someone to hunt for them, the store becomes an expensive necessity. As indicated by Tyonek at the last Board meeting, storebought food in the village is approximately 33% more expensive than that found in Anchorage. This finding is based on a market basket survey conducted in both communities December 1979. Many families indicated that they had fish and moose given to them by others, but not enough to take care of their need.

Most households surveyed felt they did not have enough fish in the last year for their needs. Without a subsistence season, 70% of the respondents had to buy more food, 40% had to hunt more, 28% had to receive food from others and quite a few had to fish unpermitted.

The people of Tyonek are concerned about obtaining a subsistence king salmon season. Most people felt that the resource could withstand an opening and that the king salmon population has grown considerably since the closure in 1968. Sixty-five percent of the surveyed households indicated that 21-50 kings would be suitable for their needs, 8% needed less than 20 fish and 15% expressed need of more than 50 fish. Ninety percent of the families had no knowledge of the present permitting system for Cook Inlet and sixty-five percent had not known about or used the Saturday subsistence period that opened in the middle of summer last

year. Even if they had known, most felt that period was unsuitable because it opened well after king salmon run is essentially over. Sixty-eight percent of the respondents also indicated that having to go to Anchorage to secure permits would pose a financial burden due to the expense of airtravel (\$40 minimum) and taxi fare to the Fish and Game office.

Another consideration for any potential subsistence fishery is what role, if any, commercial fishermen should be allowed to play. Since so many of the Tyoneks are commercial fishermen, for 23% of the families surveyed, there would be no one else who could fish for them. No one surveyed reported that he had ever combined a subsistence catch in with his commercial catch or would feel cause to with a new subsistence season. On the other hand, most of the commercial fishermen were reluctant to take away fish from their already low commercial catch for subsistence as they need the cash for expenses for the rest of the year.

In view of the prediction of moderate king salmon escapement for the upcoming summer, the Tyoneks were asked whether jack salmon would be acceptable for at least this year. Sixty-eight percent felt that jacks would be acceptable as a temporary measure, but would prefer the older kings as soon as the resource would permit. They also preferred a May - June subsistence season, since the kings run during this period. Most Tyoneks prefer having some one from the village monitoring the fishery, with 90% favoring the idea of Tyonek helping ADF&G run a subsistence fishery there.

As noted before, Tyonek appears very much like a "bush" village despite its proximity to Anchorage. The oil and gas leases of the 1960's and the development of the timber mill have done very little to improve a traditionally poor employment picture. The recent OCS report gives a fuller explanation of the situation (S. Braund and S. Behnke, 1980) than will be discussed in this report. Tyonek remains a community with a limited employment picture and a highly seasonal aspect. Cash flow in the community as a result is limited and people remain highly dependent on the natural resources of their area. Tyonek is also a Native community with a deep commitment to retain their traditions and culture. They want development in order to stabilize their economy and provide for the inhabitants, but they are against any development that will jeopardize or disrupt the community culture and traditions that are still prevalent (S. Braund and S. Behnke, 1980). Some of their traditions place certain constraints on their activities that are not often perceived by outsiders. For example, the Tyoneks are Russian Orthodox in their religious affiliation and during Russian Orthodox Lent (7 weeks, roughly February 25 - April 13), the most devout will eat no meat. Their traditional food during this period was fish caught and stored the previous summer, but the May closure of subsistence king salmon fishing has created hardships. To buy fish for this period strains an already limited budget. The indication is that despite the closure, the Tyoneks have continued in an unpermitted subsistence fishery to a varying degree. As noted before, no accurate figure can be given for this fishery for the following reasons: (1) time constraints on the survey efforts; (2) nature of the fishery; and (3) lack of previous open dialogue and trust between the village and the ADF&G. It is sus-

pected that the level of participation in this unofficial May-June fishery is similar to what would occur in a sanctioned king salmon subsistence fishery. The persistence of this fishery to be attributed both to tradition and real need. The Tyoneks have appeared willing to cooperate with the Board and ADF&G in their Board appearances. However, because of the economic situation in their village and the traditional need of the Tyonek people, a certain amount of fishing will continue to occur outside of the limited commercial fishery, if no subsistence fishery is authorized.

Statistics supplied by the Sport Fish Division indicates that upper Cook Inlet king salmon stocks have grown since 1973. However, the three major streams around Tyonek represent only a 2-4 thousand fish escapement annually. All the fish heading towards the Susitna system pass the beaches at Tyonek; the stocks for these 3 rivers may separate out in that vicinity, may make them slightly more susceptible to a good tide and inadvertent over-fishing (K. Delaney, pers. comm. February, 1980). However, these stocks also tend to run an earlier and more limited period in the summer than the Susitna stocks. This situation might potentially be addressed by imposing gear restrictions that would not target large kings, but these are only a few of the alternatives that are available.

An opening of a subsistence king salmon season in Tyonek would appear to (1) address an apparent need and (2) legitimize an already existent fishery. It would not create a new fishery. The Tyonek request for 50-fish permits also appears reasonable because of the poten-

tially limited fishery that would occur and because of the Tyonek tradition of sharing any surplus with those households that need it.

Because of the extreme financial difficulty that trips to Anchorage pose for Tyonek residents, it would be preferable for a Fish and Game representative (Subsistence Section, Commercial Fisheries or both) to conduct permitting in the village. This would also allow the elderly Tyoneks with limited mobility and difficulties with English to be assisted by their own people in filling out a permit. Finally, permitting within Tyonek could be accomplished in at most two days and would solve the communications breakdown problems that have surfaced with other previous subsistence fisheries in Cook Inlet.

LITERATURE CITED

Braund, S. and S. Behnke. 1980. Lower Cook Inlet Petroleum Development Scenarios Sociocultural Systems Analysis. Alaska OCS Socio-Economic Studies Program. Technical Report No. 47 prepared for U. S. Department of Interior, Bureau of Land Management, Alaska Office, Anchorage, Alaska.

Tyonek Survey

1. How long have you lived here? 1-5 yrs., 5-10 yrs., 10-20 yrs., 20-50 yrs., 50+.
2. Please list all people who live in your household.

Household Member (Initials)	Age	Sex (Circle)	Relationship to you	Employed (Circle)	Occupation	Total Annual Income from all sources
1. (Yourself)		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 5,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
2.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 6,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
3.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 5,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
4.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 6,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
5.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 6,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
6.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 6,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
7.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 5,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
8.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 6,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
9.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 5,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
10.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 5,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above
11.		Male/ Female		Full Time Part Time Seasonal Retired Unemployed		0 - 3,000 3 - 5,000 6 - 10,000 10 - 15,000 15 - 20,000 20 - 30,000 30 - above

How many family members, if any, live away, but sometimes depend on you for food or money? _____

4. Do you receive help from any of these sources: (Circle one)

Social Security check	yes	no
Welfare or disability check	yes	no
Aid to families with dependent children (AFDC)	yes	no
Unemployment check	yes	no
Food stamps	yes	no
Retirement check	yes	no
Public/Native Health	yes	no
Other	yes	no

5. Have you fished for salmon during these years? What type of gear did you use? (Please check each appropriate box)

1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979

Commercial

Subsistence

6. Did you buy a sport fishing license in 1979? (Circle) yes no

7. Did anyone in your household buy a commercial fishing license in 1979?
(Circle) yes no

a. Does anyone in your household have a Limited Entry Permit?
(Circle) yes no

9. If someone does have a commercial fishing license, does he use it?
(circle) yes no If not, why not? _____

10. is he the boat owner or a crewmember? _____

11. How many salmon did your household catch in:

1967: _____ 1974: _____ 1975: _____ 1976: _____ 1977: _____ 1978: _____
1979: _____

12. What proportion of the salmon you catch is: (Circle one)

Kings	All	Most	Half	Some	None
Reds	All	Most	Half	Some	None
Pinks	All	Most	Half	Some	None
Chums	All	Most	Half	Some	None
Coilo	All	Most	Half	Some	None

13. How do you put away your catch? (Circle one)

Can:	All	Most	Half	Some	None
Dry:	All	Most	Half	Some	None
Smoke:	All	Most	Half	Some	None
Freeze:	All	Most	Half	Some	None
Salt:	All	Most	Half	Some	None
Ferment:	All	Most	Half	Some	None

14. What fish is preferred for drying and salting? _____

Why? _____

15. Do you use the heads, tails or fins of your subsistence salmon?
(Circle) yes no

What methods do you use? (Circle)

Heads:	Drying	Salting	Freeze	Age
Tails:	Drying	Salting	Freeze	Age
Fins:	D r y i	Salting	Freeze	Age

16. During this last year, did you: (Please circle)

Dig clams	yes	no
Hunt seals, beluga	yes	no
Hunt moos2	yes	no
Hunt waterfowl	yes	no
Trap	yes	no
Pick berri 2s	yes	no
Cut wood	yes	no
Other subsistence activities	yes	no

(Please specify) _____

17. How much of the total amount of meat used by your household during the last year was provided by: (Circle)

Clam digging	all	most	half	some	none
Subsistence fishing	all	most	half	some	none
Hunting & trapping	all	most	half	some	none
Commerical fishing	all	most	half	some	none
Sport fishing	all	most	half	some	none
Storebought meat	all	most	half	some	none

18. Did your family give or Tend money, equipment, or other support to other to us2 in their subsistence fishing or hunting: yes . no

19. If you did not catch enough salmon in the last 2 years to satisfy your family's subsistence needs, what did you do? (Circle)

Purchased food	yes	no
Fished somewhere 27 sa	yes	no
Hunted or trapped mot-2	yes	no
Received food from others	yes	no
Went hungry	yes	no
Other (Please specify)	yes	no

20. If you did not catch enough fish, how many more would you need?
(Circle) 1-5 5-10 10-20 20-50 50-100 100+

21. How would this additional fish be used? _____

22. Are there other traditional areas you aren't using or aren't allowed to use? yes no

23. What gear do you use when you subsistence fish? _____

24. Do you know about the current subsistence permitting system?
yes no

25. If you have to go to Anchorage to get permits, does this cause difficulties? yes no

25. Do you use the open subsistence period on Saturdays? yes no

27. What periods have you been fishing?
Which ones would you like to fish?

28. If you have a commercial fisherman in your household, how many fish did he catch last year? _____

29. What kinds? (Circle one)

	All	Most	Half	Some	None	Price Per/Pound
Kings	All	Most	Half	Some	None	_____
Reds	All	Most	Half	Some	None	_____
Pinks	All	Most	Half	Some	None	_____
Chums	All	Most	Half	Some	None	_____
Coho	All	Most	Half	Some	None	_____

30. How many fish did he take from his catch for subsistence?

31. Does he ever combine his subsistence catch in with his commercial catch? yes no
If yes, for what reason? _____

32. What would happen if commercial fishermen were not allowed to subsistence fish? _____

Would someone else fish in the family? _____

33. Are king salmon jacks acceptable for your needs? yes no

34. Do you have any feelings about how big the king salmon population is? _____

35. Are you in favor of Tyonek helping ADF&G in reporting and enforcing a subsistence fishery, if you get one? yes no