

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672

568 SCOMM17: JOINT INTERIM COMM. ON LIMITED ENTRY 1979

late twenties and thirties, according to Keough, and put up a couple of tons of dry fish for his own dogs with several wheels. 72/

Correspondence between merchants in the late 1920's and 1930's indicates a lively trade in salmon for dog feed between Rampart, Tanana, Fort Yukon, and Fort Selkirk, Y.T. Traders, A. S. Crane and Julius Rahmstorf shipped tons of dried fish upriver as well as small amounts of salmon strips for human consumption. James Carroll of Fort Yukon and the firm of Schofield and Zimerlee of Fort Selkirk seem to have been regular buyers. 73/

Commercial Fishing, 1932-1941.

Regulations issued in December, 1931, effective the following season, permitted limited commercial fishing off the mouth of the Yukon. The Bureau of Fisheries reasoned that with the decline in the demand for dog food, the fishery could tolerate some commercial use, and the season was open for fifteen days. Frank Kern and Chris Lauredson put up about 80 tierces of mild-cured salmon for the stateside

72/ Yukon River Survey, Record Group 22, Entry 91, Item 12, Record of U. S. Fish and Wildlife Service, National Archives. Interview with Leo Keough, North Pole, Alaska, January 25, 1980.

73/ Correspondence in author's possession. Schofield to Crane, October 10, 1929; Carroll to Rahmstorf, July 30, 1927; Carroll to Crane, September 1, 1931. One of the most striking features of this correspondence is the complaints of the buyer, who were unhappy about the fish they received.

market. Kern employed "quite a few" Natives in his operation, said Townsend. 74/

Two unnamed operators (presumably Kern & Lauredson) were in business at the mouth in 1933. Their product for the Outside market was only 132 tierces of mild-cured kings and 72 barrels of pickled kings. 75/

In 1934, four outfits engaged in commercial fishing at the mouth, preparing 447 tierces of mild-cured and 134 barrels of pickled king salmon. A waterfront strike in Seattle prevented the delivery of tierces and salt, inhibiting the operation. During February, 1934, the U. S. House of Representatives held hearings on a bill by Delegate Anthony Dimond to allow Native fishermen and bona fide permanent resident Whites to take king salmon from the Yukon and Kuskokwim for commercial purposes. Testifying on behalf of the measure, Bureau of Fisheries Alaska Agent Ward T. Bower said, "Both these rivers are large enough to support at least a limited commercial fishery under regulations of the Secretary of Commerce and thus aid local inhabitants to improve their opportunities to earn a livelihood. Their opportunities at present are very limited along this line. It would not interfere with conservation needs, as at least some of the fish now not utilized might be disposed of

74/ Alaska Fishery and Fur Seal Industries in 1932, p. 21.

75/ Alaska Fishery and Fur Seal Industries in 1933, p. 259.

outside of the territory." Commercial fishing was legalized in the Yukon River as well as the Kuskokwim and the Kuskokwim Bay by the Congress after the Hearings and approved by the President on April 16, 1934. The Yukon quota was 100,000 king salmon, of which not more than 50,000 could be taken beyond the mouth. The provisions for Native and bona fide White residents were also included, but the changes seem to have had no immediate impact on fishing activity. 76/

Frank Kern and the Northern Commercial Company fished at the mouth in 1935 and the Akularak Mission fished about 30 miles upriver from the head of Sunshine Bay. Light catches were made and the production for export was only 131 tierces of mild-cured and 48 barrels of pickled king salmon. 77/

In 1936, the quota was halved for kings. The new quota--50,000 total, of which 25,000 must be from outside the river--remained in effect until 1953. Frank Kern, the Northern Commercial Company, and Chris Lauredson were near the mouth, and the St. Mary's Mission was at Sunshine Bay. Together, these outfits put up 242 tierces of mild-cured kings for Outside. Kern sold all of his equipment to the Northern Commercial Company at the end of the season. 78/

76/ Alaska Fishery and Fur Seal Industries in 1934, p. 18. Hearings before the Committee on Merchant Marine, Radio, and Fisheries, House of Representatives, February 21, 1934.

77/ Alaska Fishery and Fur Seal Industries in 1935, p. 13.

78/ Alaska Fishery and Fur Seal Industries in 1936, p. 290.

Only the Northern Commercial Company and St. Mary's Mission salted salmon for the Outside market in 1937. The N. C. fish came from gill nets outside the river, the Mission catch from wheels inside the river. 126 tierces of mild-cured kings and some cases of canned salmon were produced. 79/

Chris Lauredson entered the fishery with the other two operators from the previous year in 1938. 198 tierces of mild-cured kings were the output. 80/

The same three outfits were in business near the mouth in 1939. Their total output was 166 tierces of mild-cured kings. The U. S. Bureau of Fisheries noted in its annual report, "Only natives are employed in this district and the industry, although on a very small scale, means a great deal to them, as it gives them an opportunity to earn a little money with which to buy necessities which they would not otherwise have." During the first part of the fishing season, a boat came in and from Nome and purchased 200 fresh kings at fifty cents each for sale in that city. 81/

Commercial fishing was conducted on what the Bureau Report called "a very small scale" in 1940, although

79/ Alaska Fishery and Fur Seal Industries in 1937, p. 88.
80/ Alaska Fishery and Fur Seal Industries in 1938, p. 102.
81/ Alaska Fishery and Fur Seal Industries in 1939, p. 112.

the output was a little bigger than the year before. The N. C. Company, St. Mary's Mission, and Lauredson prepared 229 tierces of mild-cured kings for export. The Bering Sea Trading Company operated a hand cannery aboard a barge, and a small number of pickled salmon were shipped to Seattle by a trader at Kwiguk. 82/

In 1941, commercial fishing remained on the same scale as in the past. The N. C. Company and Chris Lauredson operated outside the mouth. The N. C. also operated inside the mouth, with the Bering Sea Trading Co. and the St. Mary's Mission. The total commercial pack was 3,094 cases of kings in one pound cans, 229 tierces of mild-cured, 4,350 pounds of pickled king salmon bellies, and 6,000 pounds of dry-salted king salmon sides. Lauredson said that while fishing was his only source of income he could make a good living. Inspector Townsend said, "Everyone connected with the fishing industry reported a good season this year," and at the end of his report, Townsend made his recommendations for the following year--his final recommendations as he did not return in 1942. They are important because they illustrate what a man of more than twenty years of experience on the Yukon saw as the nature of the fishery, the needs of the people, and the best policy for the future.

82/ Alaska Fishery and Fur Seal Industries in 1940, p. 11.

The information for 1944-1952 is negligible. A brief serial survey of the Yukon was made in 1948, revealing the run of kings was "light." In 1950, another serial survey was made. Local residents reported that the run of kings was normal and cohos were in abundance during August. 86/

George Warner was assigned to a permanent management position for the Arctic-Yukon-Kuskokwim area (which lasted only two years) in 1953 and provided the first comprehensive report of the fishery since 1941. Warner said that the people in the villages throughout the Yukon region were living in a primitive economy. Fish was still the principal item of food in every outlying village, as it had been before the war. But Warner observed some important changes in the fishery.

It is interesting to compare the amount of gear used now in the personal use and dog food fisheries with years ago. The number and location of fish wheels were plotted several times this summer on the Yukon and Tanana Rivers. A total of 111 fish wheels were found between Fairbanks and the Kwiguk slough. . . The average number found by C.F. Townsend for the years 1929 to 1941 was 212 for the same area. . . . The average number of small salmon . . . those other than kings . . . dried annually in this area was 511,000 fish for the period 1929-1941. My estimate for 1953, based on personal observations and estimates made by individuals in most every area is 380,000 fish. 87/

Warner, like others before him, noted that air travel had

86/ Alaska Fishery and Fur-Seal Industries for 1948, p. 17. Alaska Fishery and Fur Seal Industries for 1950, p. 21.

87/ George Warner, 1953 Annual Report Kotzebue-Yukon-Kuskokwim, p. 18.

reduced the need for a large number of dogs, but he also pointed out that trapping had declined because of lower fur prices--which had an impact on the number of dogs kept too. 88/

In 1954, Warner found that subsistence fishing had increased somewhat over what he had seen in 1953. Thirty more wheels were in operation. "Natives of the Yukon had a very good fishing season and plenty of salmon was dried or smoked for winter use. . .", Warner wrote. 89/

In 1955, coverage of the Yukon was limited and the reports are contradictory. Lawrence Knapp, writing in 1958, said the subsistence catches were about average for the year; the State researchers, writing in 1965, said the runs and subsistence catches were good. The Branch of River Basins, U. S. Fish and Wildlife Service, made a survey of the Upper Yukon River Basin above Carmacks, Y.T. "The residents of that area said the run was poor and late in arriving. No extensive count was made." 90/

The Branch of River Basins made a similar survey of the upper river, from Eagle to Carmacks, in 1956. Fishing was at a low level, with only 144 people and 120 dogs

88/ Warner, p. 18.

89/ George Warner, 1954 Annual Report Kotzebue-Yukon-Kuskokwim, p. 3.

90/ Lawrence Knapp, History of Regulations and Pack on Yukon: Personal Use and Rundown of Salmon Runs (1958), p. 18. Pennoyer-Middleton-Morris, p. 31.

dependent or partially dependent on salmon. There were nine fish wheels and 25 gill nets in the area, with a catch of roughly 11,500 king and chum salmon. A Fish and Wildlife partial survey of subsistence fishing on the rest of the river confirmed Warner's observations about changes in subsistence fishing activities since Townsend's time but noted that the amount of gill nets in the Lower District (below the mouth of the Anuk River) showed an increase over previous years. Gordon Watson, Fish and Wildlife Administrator from Anchorage, also was on the Yukon in 1956 and issued a brief report on the fishery's condition. Watson learned from various people along the river that 1956 was a good year. At Kwiguk, for example, a smoke house with a capacity of 20,000 chums had been built and by July 29, 14,000 fish had been taken. 91/

Watson returned to the river in 1957. Most of his report is confined to the commercial fishery, but he did make the "tentative conclusion" that the salmon fisheries in the Yukon-Kuskokwim-Kotzebue district had been and were in decline, although the Yukon was probably declining at a lower rate than the other rivers. River Basin personnel back on the river surveyed the subsistence fishery from

91/ U. S. Fish and Wildlife Service, Progress Report No. III, 1956 Field Investigations, Fishery Resources of the Upper Yukon Basin between Eagle, Alaska and Carmacks, Yukon Territory, U. S. Fish and Wildlife Service, Progress Report No. II, General Information Relative to the Fish and Wildlife Resources of the Yukon River Basin. Gordon Watson, "Annual Report--Yukon District, 1956."

Anvik to Marshall. They observed that the location of wheels has an influence on the number of fish caught and Natives would not change the location of their wheels--just as Townsend had complained many years before.

Although annual fluctuations in the number of chums taken for personal use is dependent in part upon the numbers of fish in the river, many other factors influence the catch. One of the more important seems to be the Natives' reluctance to relocate their wheels from year to year. They fish the same site even though the current patterns and water levels vary. Although such water currents and levels certainly influence the travel routes of the salmon within the river, the 'ancestral' location is fished. It is common to see a fish wheel making excellent catches, yet wheels 300 feet above or below the successful fish wheel may be taking only a few fish. 92/

It was further noted that employment patterns have an impact on fishing. "In many years, no summer employment is available and the fishing effort is intensive. In 1957, a large number of men worked on forest fire suppression throughout most of the summer; and, as a result, several wheels were not installed." 93/

In 1958, Lawrence Knapp of the Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service, made a study of the fishery and outlined its history as well. Knapp said there were 161 families living in fish camps along the main

92/ Gordon Watson, "Annual Report--Yukon District, 1957," p. 3. U.S. Fish and Wildlife Service, Progress Report No. V. Fish and Wildlife Resources of the Yukon River Basin (Anvik to Marshall), p. 39.

93/ Progress Report No. V, p. 39.

stem of the river. In July and August, they operated 82 wheels and 73 gill nets, taking 179,654 chums, 8,856 kings, 3,235 cohos and a negligible amount of the other two species. It was the consensus of those along the river that there had been a gradual decline in the chum catches (as Warner said in 1953). The greater part of the fishermen believed that the 1958 catch was between poor and average. Knapp estimated that the catch would not equal half the need. 94/

It was clear to Knapp that there had been an increase in job opportunities, such as fire fighting and road construction or work with the C.A.A. and Air Force, as well as an increase in welfare and other forms of relief payments, yet

Dependency on salmon as a source of food appears to be at a very high level throughout the main stem of the Yukon . . . and especially so at the mouth of the river where the Eskimos retain most of their old customs. All the non-fishing natives who were interviewed stated that they would much prefer to live on salmon than on white man's food. They all said they still eat a great deal of salmon and other fish during the winter months. 95/

Knapp returned to the river in 1959. Residents near the mouth said that the king run was one of the largest in history. "Good catches of king salmon were realized in all camps along the Yukon where concerted effort was usually put forth to capture them." Complaints about a poor run

94/ Lawrence Knapp, "Annual Report, Arctic Area, 1958."

95/ Lawrence Knapp, History of Regulations and Pack on Yukon: Personal Use and Rundown on Salmon Runs.

only came from those camps where little fishing effort was made. The chum run was good too, and the subsistence catch was estimated at twice that of 1958. 96/

Commercial Fishing, 1942-1959:

Five small plants were in operation during 1942, as in 1941. The pack consisted of 3,691 cases of kings, plus 184 tierces (151,000 pounds of mild-cured kings and small amounts of pickled and dry-salted king salmon. 97/

Three small scale operators were in business in 1943, taking mostly king salmon. The Bering Trading Company at Alakanuk and the Northern Commercial Company at Kwiguk had small canneries, and the N.C. did a very limited amount of mild-curing. The Weisner Trading Company of Rampart prepared fresh king salmon for local use: this is the first year Weisner is mentioned in the records. The total pack was 5,640 cases of kings and 158,190 pounds of mild-cured kings. 98/

No records are available for 1944-1946.

In 1947, four small companies produced 9,704 cases of kings. 99/

Only two operators were in business in 1948, taking kings to render 5,852 cases. A little over one hundred tierces of mild-cured kings were put up. 100/

96/ Pennoyer-Middleton-Morris.

97/ Alaska Fishery and Fur-Seal Industries for 1942, p. 9.

98/ Lawrence Knapp, History of Regulations and Pack on Yukon: Personal Use and Rundown on Salmon Runs.

99/ Knapp.

100/ Knapp.

In 1949, two operators put up 8,849 cases of kings and the Northern Commercial Company packed 104 tierces of kings. 101/

In 1950, 9,865 cases of kings and several hundred tierces of mild-cured were packed. Additionally, Weisner cured 2,152 pounds of salmon. 102/

The Bering Trading Company and the N.C. Company put up 10,367 cases in 1951. Weisner experimented with canned kings, packing 109 cases. About 270 tierces of kings were mild-cured. 103/

The same three packers put up 8,072 cases in 1952, of which Weisner had only 43. About 85,000 pounds of kings were mild-cured. Bertel Johnson, Fishery Management Agent for the Bristol Bay District, noted in his annual report that increasing interest was being shown in the further development of the commercial fishery. 104/

St. Mary's Mission joined the other canners in 1953. The four produced 12,458 cases of kings, of which St. Mary's had only 205 cases and Weisner 86. 61,907 kings were mild-cured. Dominic Vernetti, a trader at Koyukuk since 1924, had a small wholesale business that smoked 800 pounds of kings and obtained 55,000 chums for dog feed. The N. C. Company froze 1,778 kings and 8,966 chums at Fort Yukon and

101/ Knapp.

102/ Knapp.

103/ Knapp.

104/ Knapp. Bertel Johnson, "Annual Report Bristol Bay District, 1952."

Frontier Airways purchased 3,000 pounds of dressed king salmon and sold them in Fairbanks. 105/

Regulations establishing sub-districts for commercial fishing were set in 1954 to better regulate the Yukon fishery. 50,000 kings could be taken below the mouth of the Anuk River, 10,000 between the mouths of the Anuk and Anvik Rivers, and 5,000 above the mouth of the Anvik River. 37,678 kings or 10,779 cases were packed that year. 20,028 kings were mild-cured. St. Mary's Mission put up 235 cases and Weisner put up 130. Verneti purchase 23 tons of fish from the Holy Cross area. 106/

In 1955, 42,934 kings were canned and 15,750 were salted. 107/

Gordon Watson's 1956 Yukon report provides much better information about commercial fishing in the 1950's than other sources available for the decade. Watson reported that in the lower sub-district, with a 50,000 king quota, four operators packed 10,674 cases, 111 half tierces, and 145 1/2 full tierces. A total of 52,129 fish (a bit over the limit) were taken in all. The middle sub-district (10,000 fish quota) processed 10,479 fish into 2,159 cases and 118 half tierces. Two operators on the upper subdistrict (5,000 fish quota) took 17,061 pounds of kings. About 9,500 pounds of fish were sold fresh and 110 cases were processed. Watson said that law enforcement activities were relatively

105/ Knapp. Warner, 1953.

106/ Knapp, Warner, 1954.

107/ Knapp.

easy on the Yukon, and he expressed that the Yukon (as well as other rivers in the Yukon-Kuskokwim-Kotzebue District) should remain closed to the taking of all salmon, except kings, for the protection of the residents.

This recommendation is made for two reasons. First, the dependency of the Eskimos and Indians upon the dogs, cohos, and pinks and reds as their staple food supply and basis of economy, and second, we have no firm biological knowledge of fish usage within the Yukon District which would indicate any reason why these fish should or should not be taken commercially. Until such knowledge is obtained, I feel our responsibilities should be extended toward the residents and their personal use requirements. 108/

In 1957, the daily catch was more stable and consistent, Watson reported, though extremely high waters and large amounts of driftwood made for erratic catches in some areas. 63,623 king salmon were taken in all. On the upper river, Ira Weisner of Rampart had six wheels fishing for him and caught about 1,030 fish, of which about 300 were sold fresh in Fairbanks and the rest packed into 167 cases. The N. C. Company at Fort Yukon purchased about 7,500 fish for freezing and sale, with ten to twelve fish wheels fishing for them. Unlike 1956, this year Watson was worried about illegal activities.

During recent investigations by the Branch of River Basin Studies it has become apparent that illegalities of the commercial fishing laws are taking place all along the Yukon River over nearly its entire length in Alaska. We know that in many

108/ Gordon Watson, "Annual Report--Yukon District, 1956."

villages a commercial operation is being carried on for king salmon completely outside the seasonal quota and registration requirements of the regulations. These operations are in the form of smoked, salted and frozen fish and in the aggregate would probably constitute a considerable number of king salmon which should be included in the quota. These practices have been going on for many years and in many cases provide the base economy for many individuals. It is extremely difficult to drop into a village and inform the 'operators' that they must register and adhere to the seasonable quota due to the nature of the districts and of the Yukon. . . Some consideration should be given to the establishment of sub-districts or additional districts in the Yukon to either legalize or curtail what is currently taking place and prevent excessive additional effort or at least determine what the total commercial take is along the Yukon River. 109/

In 1958, Knapp reported 5 small canneries and 6 small salteries in operation. Together, they took 63,259 fish (12,452 cases and 203 tierces). Approximately 550 king salmon were purchased in Rampart and sold fresh in Fairbanks. Dominic Verneti of Koyukuk purchased 31,732 chums (a little over 19 tons). Knapp commented, "Mr. Vernetie (sic) sells these salmon back to the fishermen at a period later in the winter when their stocks are running low. The bartering process helps to keep the natives in clothing, white man food, and luxuries, such as pop, alcoholic beverages and candy. Vernetie (sic) also has a market in Fairbanks and other smaller towns for these particular salmon." Terrence Wharton, an Anvik trader, purchased seven tons of dried chums from local Natives, some to be sold later locally but

109/ Gordon Watson, "Annual Report--Yukon District, 1957."

the greater part "destined to be sold in Fairbanks for sled dog feed." 110/

A Brief Note on Regulations 111/

State researchers Pennoyer, Middleton, and Morris are correct when they say, "The history of regulation on the Yukon and Kuskokwim has been one of trying to protect the large Eskimo and Indian subsistence fisheries in these rivers." This has usually been done through the restriction of commercial fishing. Nothing we know as modern management was done before 1953 when a U.S. Fish and Wildlife biologist was assigned to the Yukon part-time, but the history of regulation dates to the Carlisle controversy and is as follows:

1919: The pack of canned salmon was limited to 30,000 cases a year in the Yukon river, including the waters of the delta to and including the area 500 yards outside each mouth or slough of the delta at mean high tide. The pack was further limited to 1,000 barrels of pickled and 200 tierces of mild-cured. Commercial fishing was prohibited above the mouth of Clear River, 114 miles above the mouth of the Yukon.

1921: Fishing inside the Yukon for export was

110/ Lawrence Knapp, "1958 Annual Report, Arctic Area."
111/ Based on Steven Pennoyer, Kenneth Middleton & Melvan Morris, "Arctic-Yukon-Kuskokwim Area Salmon Fishery History," Informational Leaflet #70, Alaska Department of Fish and Game (Juneau, 1965).

prohibited. (The phrase "for export" is tricky as salmon continued to be sold in Canada without any apparent interference by authorities.)

1924: All commercial fishing was prohibited at all times in the Yukon area (all territorial, coastal and tributary waters of Alaska from 61 degrees N. Latitude to 64 degrees No. Latitude.)

1931: Limited commercial fishing off the Yukon mouth was approved. Yukon District fishing was allowed from June 15 through June 30. No more than 50,000 king salmon could be taken from the Yukon.

1934: Commercial fishing was legalized on the Yukon. The Yukon quota was boosted to 100,000 king salmon, of which not more than 50,000 kings could be taken outside the mouth. Fish wheels were made legal commercial gear for Natives and permanent White residents.

1936: The quota was reduced to 50,000 king salmon. Not more than 25,000 could be taken inside the mouth. The season was extended to permit fishing from 6a.m. June 1 through 6p.m. July 31.

1940: Control of the fishery passed from the Department of Commerce, Bureau of Fisheries to the Department of Interior, Fish and Wildlife Service.

1954: A weekend closure was imposed on subsistence fishing in the Yukon District from 6p.m. Saturday to 6a.m. Monday (except after 48 hours following the closure of

commercial fishing in any sub-district.) Three sub-districts were created, with quotas, as follows: Anuk River to the mouth, 50,000 king salmon: Anvik River to the mouth of the Anuk River, 10,000 king salmon: above the mouth of the Anvik River 5,000 king salmon.

THE TRANSBOUNDARY RIVER QUESTION

By: Beth Kerttula

Douglas Pope

Appendix C

THE TRANSBOUNDARY RIVER QUESTION

By Beth Kerttula - Douglas Pope

The fact that the Yukon is an international river creates a potential for significant impact on the fishery when and if negotiations are concluded that contain agreements respecting allocation of salmon stocks between the nations of Canada and the United States. 1/ Research in

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- 1/ This memorandum primarily focuses on potential effects of the status of the Yukon as a transboundary international river. Its focus is based on the premise that an international allocation agreement regarding salmon stocks of the Yukon River between Canada and the United States is potentially the most significant event that could effect the long range economic and biological status of the river fishery in Alaska. It is not the intent of this memorandum to disregard other significant international questions regarding the stocks that are subject to commercial harvest in the Yukon River.

In recent years the decline of the Yukon River king salmon is believed to be partially attributed to the Japanese high seas fishery. The high seas king salmon catches have averaged 284,000 fish annually during the period 1966 to 1976. A record 554,000 kings were taken in this fishery in 1969. In some years the Japanese catch has exceeded the total Western Alaska catch (subsistence and commercial). Based on tagging and analysis studies by the Department of Fish and Game it is estimated that in excess of 80% of the Alaskan king salmon catches are bound for the Yukon, Kuskokwim and Bristol Bay drainages. The I.N.P.F.C. Treaty has been recently negotiated to afford increased protection for western Alaska salmon stocks. Improved Yukon River king salmon returns beginning in 1980 can be expected as a result of the reduced high seas interceptions. The single remaining issue with regard to high seas catches of Chinook salmon bound for the Yukon River involves an incidental trawl catch. That catch appears to be increasing, while the estimated interceptions and Japanese catch itself are declining. Further policy decisions increasing the protection over the incidental trawl catch and maintaining the current rate of decline of the harvest and other interceptions will likely result in significant increases in chinook salmon moving into the Yukon River in the future.

this area has revealed a lack of knowledge about this international situation at most levels of state government other than Department of Fish and Game. For example, it appears that Yukon River king salmon migrate beyond the 200 mile economic zone established by the Fishery Conservation and Management Act of 1966 (16 U.S.C. §1801 seq.). The FCMA extends sovereignty over anadromous species beyond the economic zone, subject to certain limitations. However, when staff to the North Pacific Management Council was contacted regarding the issues and/or negotiations with regard to the Yukon River as an international river we encountered a general lack of knowledge. In contrast, the Department of Commercial Fisheries who has closely monitored developments with regard to international rivers.

This discussion of transboundary-international river questions which may affect the Yukon fishery in the future will include the international perspective of the river as well as a discussion of international policy which is applicable to the Yukon. All persons with a knowledge of the international issues agree that the changes in government in Canada will likely result in the deferral of any negotiations to date and could quite possibly result in a change in the negotiation posture of the Canadians. For this reason predictable effects of any allocation agreements on the Yukon River fishery must be based upon the positions of the Canadian government prior to the recent changes in administration, and should be reviewed with that

disclaimer in mind.

INTERNATIONAL PERSPECTIVE OF THE YUKON RIVER

It seems appropriate to include the current international perspective of the Yukon rather than to rely upon our understanding and knowledge. For this reason the summary of the "Report of the U.S./Canada Ad Hoc Technical Committee on Rivers of Joint Concern" is included:

The Yukon River originates in British Columbia within 30 miles of the Gulf of Alaska and flows 2,300 miles through Yukon Territory and Alaska before emptying into the Bering Sea, draining an area of approximately 330,000 square miles. All five species of Pacific salmon spawn in the Yukon, but Pink and Coho Salmon are uncommon and Sockeye Salmon are extremely rare. Only Chum and Chinook are abundant in Canada with Coho spawning in very small numbers. Chum salmon, the most abundant salmon species, occur in distinct summer and fall stocks. Only the fall stock penetrates into Canada in significant numbers.

Commercial and subsistence fisheries operate along the Yukon River in both Alaska and the Yukon Territory. In both areas the fisheries are carried out by means of gill nets and fish wheels. The bulk of the commercial catch in Alaska is taken in the lower 300 miles of the Yukon River although the fishery takes place along 1,400 miles of river. The commercial fishery in Alaska is restricted by law to outlets and the mainstem of the Yukon River and to one of its tributaries, the Tanana River. Fishing effort in the Alaskan commercial fishery has increased sharply since 1961. The number of fishing vessels has doubled since 1965. Fishing effort in the Alaskan subsistence fishery declined during the 1960's as the need for Chum salmon as dog food declined following replacement of dog teams by snowmobiles. After 1972, fishing effort increased again when subsistence fishermen were permitted to sell salmon roe but it is expected to decline following a ban on sale of salmon roe from the subsistence fishery in 1978. In the Yukon Territory the fisheries take place mainly along the mainstem of the Yukon River and the Porcupine River in the

vicinity of Old Crow. Annually in the Territory about 35 licenses are issued to commercial fishermen, about 35 licenses are issued to non-Indians to take salmon for domestic use, and permits are issued to Indian bands for their members to take salmon for their personal use.

Chum:

As indicated earlier, two distinct runs of Chum salmon, the summer and fall runs, occur in the Yukon River. The summer chum salmon run enters the river in June and early July while the fall run enters from mid-July through September. The commercial catch of summer chum in Alaska has increased from 11,000 in 1967 to 720,000 in 1975 and 600,000 in 1976. Recent estimates of the total return of summer chum have ranged from 1.6 million in 1971 to more than 5 million in 1975. The commercial catch of fall chum in Alaska also has increased dramatically from an average of 40,000 fish in the early 1960's to more than 200,000 in the present decade. Fall chums make up the most of the chum catch in the Alaska subsistence catch along the Yukon River. The catches of chums in this fishery have declined from 330,000 annually in the 1960's to a low of 130,000 in 1972 but have increased since to about 200,000 annually. During the period of 1967 to 1976 the chum catch in the Yukon Territory, which consist almost entirely of fall chums, average about 2,200 fish in the domestic and Indian food fishery. The total returns of fall chums have fluctuated sharply. For example, escapements of fall chums to the Fishing Branch River, a Canadian tributary to the Porcupine River, have varied from about 500,000 in 1974 to 13,000 in 1976. Major spawning areas for fall chum on the U.S. side are in the Tanana and Chandalar Rivers with some spawning in other Yukon River tributaries. Recent estimates of the total returns of fall chums to the Yukon River have ranged from a high of 970,000 in 1975 to a low 230,000 in 1976.

Chinook:

Commercial fisheries for Yukon River chinook date back to 1918 in the United States and to 1898 in Canada. The United States catch has increased from an average of less than 30,000 fish for 1955 to about 65,000 in the late 1950's to about 100,000

in the 1960's with a peak of 130,000 in 1967. In 1976 the commercial catch in Alaska was 89,000 chinook, close to the average catch since 1970. Subsistence catches of Yukon River chinooks in Alaska have fluctuated between 11,000 and 25,000 since 1961. During the period 1967 to 1976 the Canadian catch of Yukon River chinook have averaged 2,400 fish in the commercial fishery and 2,400 in the domestic and Indian food fisheries.

Marked recovery studies carried out by United States scientists indicated an average return of about 200,000 Yukon River chinooks annually in the years 1969 to 1971. Id. pp. 9-11. 2/

INTERNATIONAL FISHERIES POLICY APPLICABLE TO THE
INTERNATIONAL STATUS OF THE YUKON

A. BACKGROUND.

The primary concepts that have affected and guided the development of international fisheries policy are "abstention", "economic zones" and a blending of the two.

1. Abstention. With respect to anadromous

- 2/ The distinguishing feature of this summary is the lack of relevant data that should be included. For example, representatives of the Alaska Department of Fish and Game have undertaken the responsibility of monitoring escapement in several drainages within the Yukon Territory, most notably the Fishing Branch tributary of the Forcupine River. That information is most definitely relevant to the American position that abstention as a concept with regard to this transboundary river is not appropriate. The application of policy of abstention to guide any negotiations presupposes that Canada is taking sole responsibility for the biologic management of the anadromous fish which spawn within its jurisdiction. The presupposition is clearly negated, in part, by the presence of the representatives of the Alaska Department of Fish and Game in Canada to monitor adequate escapement.

species, the bases for abstention developed from concern of the state of origin which had virtual sole responsibility for the continued existence of the anadromous stocks. 3/ The most concise statement of the principle of abstention is that the nation which provided the research and regulation necessary to maintain a high level of productivity in coastal or anadromous fisheries should be entitled to the full utilization of those resources. Other nations are therefore entitled to participate in fisheries only when the coastal states managing the stock are unable to utilize it to its maximum sustained use. 4/

3/ This sole responsibility, of course, is manifested in the form of regulation restricting the catch by citizens of the state of origin, enhancement policies, and other major efforts to ensure continuation of the runs.

4/ In 1958, Canada and the United States proposed the following to the Geneva Law of the Sea Conference:

"Where the nationals of a coastal state, alone or with the nationals of one or more other states, are (a) fishing a stock of fish in an area of the high seas adjacent to the territorial sea of the coastal state of such intensity that an increase in fishing effort will not result in a substantial increase in the yield which can be maintained year after year, and (b) where the maintenance of the current yield, or when possible, the further development of it is dependent upon a conservation program carried out by those states, involving research and limitations upon the size and quantity of the fish which may be caught, then (c) states whose nationals are not fishing the stock regularly which have not theretofore done so within a reasonable period of time, shall abstain from fishing such stock, provided however that this shall not apply to any coastal state with respect to fishing any stock in water adjacent to its territorial sea."

The exemption for coastal states fishing stocks in "waters adjacent to its territorial sea" is not a pure abstention concept, but developed more from the concepts of economic zones. The convention did not accept the proposal forwarded by Canada and the United States.

The opponents to the principle of abstention have primarily been Japan and Denmark, whom advanced the principle of free trade in contrast. The Japanese opposition has focused against the United States in the North Pacific, while the Denmark opposition has been primarily focused against Canada in the North Atlantic. For the purposes of this discussion the only significance of the Japanese position lies in that country's objections to the International North Pacific Fisheries Convention signed by Japan, Canada and United States in 1953. Much of the control theory of that treaty is based upon the principle of abstention, and it set the now historic abstention line at 175° West longitude. Despite being a signatory to the treaty that was developed from the 1953 convention the Japanese have consistently opposed the position of abstention, and bases its opposition as much upon what they perceive to be a weakened negotiating position at the time of the convention as much as their advocacy of a basic doctrine of freedom of the seas. See, Parker, International Fisheries Regimes of the North Pacific, Alaska Sea Grant Report No. 73-13, p. 27. It is clear that the abstention line did not protect King Salmon stocks spawning in Alaska from overharvest on the high seas. The economic zones of the Fisheries Conservation and Management Act of 1976 do not adequately protect the Yukon king salmon but more recent agreements have relieved much of the pressure. see. n. 1. Although the FCMA claims sovereignty over an

anadromous species throughout the migratory range of each such species beyond the economic zone, it is apparent that the Japanese will resist the application of abstention to King salmon on the high seas in any further treaty negotiations.

Canada's experience in urging sovereignty not only over the maintenance and productivity of anadromous fish but also to the economic benefit of the harvest are discussed in detail in Fairley, Fisheries Jurisdiction and the Atlantic Salmon: Fact and Law from a Canadian Point of View, 3 Dalhousie Law Journal, 69 (1976) and Johnston, Legal and Diplomatic Developments In the Northwest Atlantic Fisheries, 5 Dalhousie Law Journal 37 (1978). This experience was dramatic after the high seas concentrations of the Atlantic salmon were pinpointed in the early 1960's. Denmark initiated heavy fishing in those concentrations which resulted in virtual annihilation of the species within 10 years. During this time Canada forcefully pursued an agreement regarding the Atlantic salmon based upon the principle of abstention in the International Commission for the North West Atlantic Fisheries. Canadian experience in the ICNAF revealed consistent frustration in their efforts to protect the Atlantic salmon. The frustration generated a growing militancy within Canada to impose economic sanctions upon the Danes, and, in fact, the Danes did not retreat to more reasonable positions until economic sanctions were imposed

by Congress.

2. Economic Zone. With regard to fisheries, economic zones are exclusive fisheries areas claimed by states asserting a primary economic interest and defined by standards which may either be arbitrary or related to historic concepts. Economic zones are primarily contiguous to geographic and territorial boundaries. 5/ Although through the Fishery Conservation and Management Act of 1976 the United States was the first major power to declare unilaterally a 200 miles exclusive fisheries zone, economic zones have been a part of world history for centuries. Recent examples are the Bartlett Act (16 U.C.S. §§ 1081-86, repealed by FCMA), the Contiguous Fisheries Zone Act (16 U.C.S. §§ 1091-94, repealed by FCMA) and the Truman Proclamation. The Proclamation established a policy of economics zones contiguous to the United States:

5/ For example, at the 1958 Geneva Convention on the Territorial Sea in the Contiguous Zone, to which the United States and Japan are signatories, Art. 24 provides in relevant part:

1. In a zone of the high seas contiguous to its territorial sea, the coastal state may exercise the control necessary to:

- (a) Prevent infringement of its customs, fiscal, immigrations, or sanitary regulation within its territorial or territorial sea.

In view of the pressing need for conservation and protection of fisheries resources, the government of the United States regards as proper to establish conservation zones in those areas of the high seas contiguous to the coast of the United States wherein fishing activities have been or in the future may be developed and maintained on a substantial scale. For such activities have been or shall hereafter be developed and maintained by its nationals alone, the United States regards it as proper to establish explicitly bounded conservation zones in which fishing activities shall be subject to the regulation and control of the United States. Such activities then or shall hereafter be legitimately developed and maintained jointly by nationals of the United States and such other states; and all fishing activities in such zones shall be subject to regulation and control as provided in such agreement. The right of any state to establish conservation zones of its shores in accordance with the above principles is conceded, provided that corresponding recognition is given to any fishing interests the nationals of the United States which may exist in such areas.

3. Blending of the Concepts. Nations are apparently finding it advantageous to blend the concepts of economic zones with the concept of abstention. The Fishery Conservation and Management Act of 1976 stated the primary purpose of the Act:

To take immediate action to conserve and manage the fishery resources found off the coast of the United States, and the anadromous species and Continental shelf fishery resources of the United States, by establishing (a) a fishery conservation zone within which the United States will assume exclusive fishing management, authority over all fish, except highly migratory species, and (b) exclusive fishery management authority beyond such zone over such anadromous species and continental shelf fishery resources. Act, §(b)(1).

In 1937 the agreement produced by the Frazier River Convention for the protection of sockeye salmon was ratified. The agreement established the International

Northern Pacific Salmon Fisheries Commission with regulatory powers and a budget shared equally by both countries. The salmon run had been depleted drastically due to overfishing and also due to a rock slide in 1915 blocking upstream migration. The commission sponsored the construction of the world's largest fish ladder at Hell's Gate and this, together with the regulation of fishing methods and population management, has substantially restored the run. The agreement which is still operative provided for an equal division of the total catch between Canada and the United States. This is a division which the Canadians apparently feel is no longer equitable.

The Frazier River is an exclusively Canadian river. It empties into the Canadian territorial sea. The agreement is an example of reciprocal fishing privileges agreements, which are playing a larger diplomatic role with regard to fisheries policy between Canada and the United States. The essence of these agreements are recognitions of both nations that the state owning or controlling the spawning rivers system has a primary right to anadromous fish stocks from those rivers. Historic fishing rights suffer a considerable loss of statute in these agreements, but the very presence of an allocation of the catch reflects a continuing recognition of historic fishing interests of one state in the economic zone of another state.

B. THE YUKON AS A TRANSBOUNDARY RIVER.

In 1871 the United States and Great Britain ratified the Treaty of Washington which included a certain article pertinent to the Yukon.

The navigation of the rivers Yukon, Porcupine, and Stikine, ascending and decending, from, to, and into the sea, shall forever remain free and open for the purposes of commerce to the subject of her Britanic Majesty, and to the citizens of the United States, subject to any laws, and regulations of either country within its own territory, not inconsistent with such privilege of free navigation.

The language "purposes of commerce" are arguably disputable, however, the treaty modifies the term commerce by the referral to "such privilege of free navigation." This article of the treaty is still effective, and notwithstanding the problem of interpretation of the article, it does reflect an early recognition of the importance of commerce and navigation of the international rivers beginning in Canada and flowing through Alaska.

With regard to those three rivers, the positions of both countries to date reflect an understanding that negotiations will result in allocation formulas for the fisheries of each country. An early draft of a United States Commission statement on transboundary salmon stocks focuses on establishing principals for the allocation of the various stocks to each country.

Using these principals, as the acquisition of appropriate knowledge permits, application formulas for the fisheries of each country will be jointly developed for the designation of stocks. Draft U.S. position statement on transboundary salmon stocks, September 3, 1976.

Currently negotiations have progressed to the point of delineating the points of view for a U.S. - Canada salmon interception treaty. The relevant portions of the proposed language of each country are discussed herein.

The treaty envisions the creation of a commission, perhaps similar in form to the Frazier River Commission. The basic position of the United States is hinged upon their interest in establishing allocation agreements through an ad hoc process and giving the proposed commission advisory powers only. Additionally, the United States is urging that each party recognize the other state's right "to maintain long standing traditional fisheries."

The Canadian position is more specific.

If Canada initiates or extends a fishery in its own portion of a transboundary river in order to harvest either existing salmon production in that portion of the river or salmon production generated by future development projects undertaken by Canada, the United States shall adjust its fisheries to the extent necessary to allow Canada to harvest such production without affecting escapement levels set pursuant to this agreement.

With regard to the United States actions, the Canadians take a position that "if the United States develops or enhances a stock originating in its portion of a transboundary river, and the harvesting of the increased production results in increased interception of salmon originating in the Canadian portion of the river" then the Canadians assert that Canada has the right to "compensatory entitlements equivalent to increased interceptions" and that "if Canada decides to

increase the production of the intercepted stock, it shall be granted access to the United States water to harvest an amount equivalent to that increased production."

Canada is advancing a more extreme claim of sovereignty over the fish than is reflected in the principal of abstention. The abstention principal with regard to the high seas distinguishes between species which were being fully utilized by the coastal state under the management principal of maximum sustained yield and those fisheries which were not being fully utilized. The Canadian position advanced in the current draft treaty reflects a fundamental private property concept, and assumes a remedy of compensation in several forms, regardless of whether the fishery is being fully utilized.

The United States' position, based upon its interests in maintaining longstanding, traditional fisheries is also divergent from the principal advanced against the Japanese on the high seas. The basic agreement however does envision that the end products will eventually be specific allocation formulas of different stocks.

PREDICTABLE EFFECTS ON THE YUKON RIVER FISHERY
RESULTING FROM A U.S. - CANADA SALMON INTERCEPTION
TREATY ALLOCATION TRANSBOUNDARY SALMON STOCKS.

Transboundary rivers are apparently not at the top of the priority list with regard to reciprocal fishing agreement and negotiations between Canada and the United States. It is obvious, however, that several events could

possibly trigger a strong interest in pursue and complete a reciprocal agreement that could affect the Yukon River fishery. If a reciprocal agreement or treaty is adopted pursuant to the direction of the Fishery Conservation and Management Act of 1976, then the attendant momentum could also result in an interception agreement regarding trans-boundary salmon stocks. 6/ If either country seriously initiates a plan to construct a dam on the Yukon, then a reciprocal agreement seems inevitable.

The most relevant situation with the potential for triggering a push from the Canadian side for a reciprocal agreement are reduced escapement levels. The current Canadian position with regard to the transboundary rivers focuses on the Canadian right to expand the development of "a fishery" (with an attendant reduction in the United States catch), and a Canadian interest in compensation if the United States develops or enhances "a stock." The focus on United States actions is directed toward the biologic species rather than the entire picture of a fishery. Should the escapement levels of Yukon King or Chum Salmon diminish due to the increased take by fishermen in Alaska, then it

6/ 16 U.S.C. §1812 asserts jurisdiction over "all anadromous species throughout the migratory range of each such species beyond the fishery conservation zone." See, n. _____. 16 U.S.C. §1822(b) directs the Secretary of State to promptly initiate the renegotiation of any treaty which pertains to the fishing of anadromous species.

can be expected that Canada will move to protect its expanding commercial fishery on the Upper Yukon and its tributaries. It is also apparent that as long as escapement levels are satisfactory or that the American catch does not dramatically increase, then the Canadian interests in the species should not be triggered.

MEMORANDUM

TO: DOUGLAS POPE
FROM: ROBERT H. WAGSTAFF
RE: PROPERTY INTERESTS AND
LIMITED ENTRY PERMITS

Appendix D

MEMORANDUM

To: Douglas Pope

From: Robert H. Wagstaff

Re: Property Interests and Limited Entry Permits

In your letter of September 27, 1979, you asked me to prepare a memorandum addressed to the threshold question:

A.S. 16.43.150(e) provides that "an entry permit constitutes a use privilege which can be modified or revoked by the legislature without compensation."

What is the effect of this section with regard to the use and value of a limited entry permit?

I would first like to give you some background orientation. In the course of preparation of this memorandum I have reviewed both state and federal constitutional law as is reflected in the decisions of the appropriate courts. I have consulted with you as well as others involved in Limited Entry including John Havelock, Attorney General at the time the present limited entry plan was adopted in 1973. I have no conscious economic bias with regard to limited entry permits. I do not own a permit myself, do not desire to fish commercially, nor do I represent anyone who is involved in any litigation concerning limited entry permits.

In order to answer your question as to whether the holding of a limited entry permit constitutes the possession of a property interest calling for compensation in the event of termination or modification I have necessarily examined the entire concept of what limited entry is and what it is

not. I must initially report that it is my conclusion based upon my research, experience and judgment that the present scheme of limited entry squarely violates both the state and the federal constitutions. I hope that you are able to convince the appropriate legislative committee of the gravity of the situation and of the inevitability of a meaningful legal challenge. There are, however, probably ways of making the present system less repugnant from a constitutional view. I will comment on these matters as it relates directly towards the existence or nonexistence of any property interests in limited entry permits.

The present scheme of limited entry gives exclusive rights to fish commercially in certain areas to individuals and their families in perpetuity. It is clear that other Alaskans may not participate in commercial salmon fishing. The primary problem with the existing scheme of limited entry is that it creates a special privilege and exclusive right to fish among a limited and fortuitous class of persons.

THE ALASKA CONSTITUTION SPECIFICALLY PROHIBITS THE
PRESENT METHOD OF LIMITED ENTRY.

In an effort to allow some form of limited entry the Constitution of the State of Alaska was amended in 1972 with a second sentence to read as follows:

Article VIII, § 15.

No Exclusive Right of Fishery. No exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the State. This section does not restrict the power of the

State to limit entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon them for a livelihood and to promote the efficient development of aquaculture in the State.

Retained within Section 15 was the first sentence specifically prohibiting exclusive rights and special privileges. There was no explanation on the ballot nor a voter pamphlet issued in conjunction with the ballot. By its plain language the amendment allows only a limiting of entry into any fishery for the stated purposes which, parenthetically, are in the conjunctive. Limiting entry appears to mean limiting access to in terms of numbers. The constitutional amendment does not authorize the creation of an exclusive right of special privilege of fishery as has been done by the present scheme of limited entry. This seems particularly clear as the sentence preceding the amendment in Section 15 specifically prohibits just that. Under rules of construction the second sentence is subordinate to the first. Hence any limiting of entry would have to be done on an egalitarian and democratic basis. In Metlakatla v. Egan, 362 P.2d 901 (Alaska 1961) the Alaska Supreme Court noted:

These migrating schools of fish, while in inland waters, are the property of the state, held in trust for the benefit of all the people of the state, and the obligation and authority to equitably and wisely regulate the harvest is that of the state. (emphasis supplied).

This position is buttressed by the preceding Sec. 3 of Art. VIII which provides:

Art. VIII, Section 3. Common Use. Wherever occurring in the natural state, fish, wildlife, and waters are reserved to the people for common use.

The present scheme of limited entry removes salmon from common use and gives them to an exclusive few. Moreover, Sec. 1 of Art. I provides under general egalitarian principles that:

Art. I, Section 1. Inherent Rights. This constitution is dedicated to the principles that all persons have a natural right to life, liberty, the pursuit of happiness, and the enjoyment of the rewards of their own industry; that all persons are equal and entitled to equal rights, opportunities, and protection under the law; and that all persons have corresponding obligations to the people and to the State.

But wasn't all of this hashed out when the constitutional amendment and limited entry were adopted and didn't the attorney general's office issue an opinion endorsing limited entry of the type adopted? Simply stated, the answer stated is no. The limited entry concept as used by the legislature is a term of art, whereas under popular usage as stated in the amendment only a democratic and egalitarian limitation of access would be permitted, not the creation of an exclusive right in a fishery and the granting of special privileges. According to John Havelock and my research this point was not considered.

In addition to violating specific sections of the State Constitution the existing scheme of limited entry also, in my judgment and experience, violates the equal

protection clauses of both the state and federal constitutions. Limited entry additionally, in my judgment, directly contravenes existing case law. There has been an apparent attempt to answer the glaring questions raised by these cases with the "free transferability". The governor's study group on limited entry report entitled "Limited Entry Program for Alaska Fisheries" states on page 9:

Once entry permits are issued for an area, that does not mean that only those people holding them can fish for all time. Subject to close supervision by the commission, entry permits may be transferred or sold. This will permit new entry so that the number of fishermen can be stabilized without creating a special closed class of fishermen. To create a closed class of fishermen would almost certainly be unconstitutional.

It is my opinion that allowing people to "buy in" does not create an open class and indeed a closed class of fishermen functionally exists which, in the words of the report, is "almost certainly" unconstitutional. The idea that equal protection is obtained if you are willing to pay \$100,000 is sophistic at best. It is my conclusion that very little thought was given to this provision, perhaps because it was not envisioned at that time by the legislature that the permits would become as expensive as they now are.

In the constitutional analysis as found on page 282 of the report the statement is made that limiting entry into the salmon fishery is no different in principle than the state's regulation of the permit system of private appropriation of state waters. Distinguishing is that

appropriation rights to water is not given exclusively to a fortuitous few with any newcomers being required to pay for access. Rather all persons are properly treated equally.

The statement is made in the report that "the courts will also look unfavorably upon any regulatory system which creates a completely closed class of fishermen. Some new entry must be permitted". A closed class of fishermen has in fact been created.

These ideas are more than abstract constitutional concepts. The constitutional requirements of equal protection for all people and that resources belong to the people in common is a statement and reflection of a fundamental political revolutionary belief in democracy.

Existing case law seems to preclude the form of limited entry chosen. The most relevant case is Bozanich v. Reetz, 297 F.Supp. P. 300, (1969), in which a three judge district court declared a similar entry scheme unconstitutional. The case was reversed by the United States Supreme Court on the grounds of federal abstention, not related to the merits. When the state courts did eventually consider the issue the law was ruled unconstitutional. No appeal was taken. The original case was heard by federal Circuit Judge Ely, and Alaska District Judges, Plummer and von der Heydt. This three judge panel found that the statutes which limited issuance of salmon fishing licenses to those who held licenses in the same regions since 1965 or had held commercial fishing

licenses in that region for any three years since 1960 violated the equal protection clause of the federal constitution as well as stood in violation of the Alaska State constitution. Irrespective of what the 1972 constitutional amendment to Section 15 may have done the amendment could not have any affect on the Fourteenth Amendment to the Constitution of the United States. The Bozanich panel noted that the Fourteenth Amendment to the Constitution of the United States was violated as "the only persons that can presently qualify for net gear licenses were those already vested with the local privilege". The court tellingly stated:

Although a state may enact fishing regulations in the legitimate interest of conservation and safety, it may not, to achieve those ends, employ arbitrary and irrational means which create or protect local monopolistic interest. Ibid. p. 305.

The existing scheme of limited entry has as its heart the protection of local monopolistic interests and creates a closed class of fishermen unless someone has the \$100,000 to buy in. Moreover, this closed class of fishermen does not have to sell, which leaves the control of who may enter up to private interests, another objection that the panel had in Bozanich.

The panel went on to find that Sections 3 and 15 of Article VIII of the state constitution were violated. The decision notes that the history of Sec. 15 permitting no exclusive right of fishery was based upon the White Act of

June 6, 1924, 44 Stat. 464, which, as interpreted by the United States Supreme Court in Hynes v. Grimes Packing Co., 337 U.S. 86 (1949), found that the Secretary of Interior's closure of certain Alaskan waters to all those except of the Karluk Indian Reservation violated the Act. Reservation occupants were being granted the privilege of exclusive commercial fishing rights.

The panel noted that the scheme "would tend to establish monopolistic trade guilds not thought desirable by the framers of Alaska's Constitution". It is difficult to shield the existing scheme of limited entry from the impact of this decision. Equal protection of the law is not dependent upon the status of a bank account. I see no difference between persons being denied equal opportunity for commercial access to fish which are held in common for all people and allowing a black child an equal right of education only as long as he pays a tuition of \$100,000. This simply does not satisfy the requirements of equal protection.

The Supreme Court of the State of Washington came to a similar decision in 1936 in the case of State v. Huse, 59 P.2d 1101. The court found the state owned the fish in its waters in its propriety capacity but held title as trustee for all people of the state and for the common good and, therefore, any regulations made for the use of the common property must bear equally on all persons. The

provisions of the Washington law forbidding issuance of license to take salmon by gill net except to those holding such licenses previously was held invalid as creating an arbitrary classification and conferring special privileges.

The court noted:

Respondent begins with the premise that one of the fundamental objects sought by the act was the conservation of the state's supply of food fish. This may be conceded. Respondent then advances, as a reason for the discrimination and classification, the fact that, at the time of the adoption of the initiative measure, it was recognized that there was a large number of people in the state whose sole means of livelihood was gill netting within the prohibited area, and that it would have been a grave injustice to deprive them of their livelihood; hence, by the provisions of section 4 of the act, such persons were to be permitted to follow their accustomed vocation during the remainder of their lives, while all others were to be prohibited. The argument possesses some measure of plausibility as indicating a beneficent complaisance on the part of the sovereign state toward certain of its citizens suddenly embarrassed by the quick and decisive turn of things. But the argument, we think, is not legally sound, and its weakness is, in our opinion, demonstrable.

In the first place, as already stated, the state holds title to the fish within its waters in trust for all its people and for the common good, not simply for a limited few nor for the good of a small minority. The state cannot dispose its bounty in favor of particular persons and withhold it from all others who have equal right or claim.

* * *

The regulation, if it may be so called, if founded upon mere fortuitous circumstances and makes a gratuitous selection of individuals who shall enjoy the use of common property to the exclusion of all others. (emphasis supplied).

It is difficult to distinguish the problems the

Washington Supreme Court found in 1936 and the situation in Alaska today. Because of fortuitous circumstances those who were fishing in the past are allowed to fish in the future in perpetuity. By analogy the Huse court noted:

The state owns and controls certain highways. It maintains them, however, for use by the people at large. It is directly and immediately interested in the conservation of such highways to the end that the public use thereof may be adequately protected. Suppose that in the interest of conservation of such highways, a statute were enacted, or an initiative measure adopted, specifying that trucks of a certain size or tonnage should no longer be permitted to use such highways. It is conceivable that, in the interest of conservation, such legislation would be proper. But suppose that the statute or initiative measure should provide that only such person as had held license to drive trucks of the prohibited class during either the year 1932 or 1933 should thereafter be permitted to use them upon such highways, while all other persons, including those who held licenses immediately preceding the effective date of the legislative act, were excluded. Would that be considered a fair or legal discrimination? We think not, We believe that such action would be a dedication pro tanto of the use of the roads to a special class upon a wholly arbitrary and capricious basis.

State v. Huse, supra, at 1105.

The Washington Court concluded that "the distinction giving rise to the classification must be germane to the purpose contemplated by the particular law or may not rest upon mere fortuitous characteristic or quality of persons, or upon personal designation." The Governor's Study Group readily admits that the limited entry program is aimed "primarily at eliminating 'moonlighters' and other parttime fishermen from the salmon fishery" p. 282. These

persons have a right to be treated equally.

In Takahashi v. Fish and Game Commission, 344 U.S. 410 (1948) the United States Supreme Court overturned a California statute forbidding the issuance of commercial fishing licenses to aliens ineligible for citizenship. The decision was made under the equal protection clause of the Fourteenth Amendment. While employment may not be a fundamental right under that amendment, equal access to employment in the common occupations can be said to be such a right. Ibid at 416. See also, Toomer v. Witsell, 344 U.S. 385, 403 (1948) and CDR v. Board of Education of the City of New York, 412 F.Supp. 1164 (1976) aff'd 97 S.Ct. 721 (1977).

In summary of the above, the fish of Alaska, insofar as is possible to assert sovereignty are held in common for all people of the state. Accordingly all persons, not just all fishermen, are entitled to equal access or opportunity for access both under the state constitution and equal protection clause of the federal constitution. If it is indeed necessary to limit entry to fish then such limitation of access must be done in a egalitarian and democratic manner, not by the creation of special privileges and exclusive perpetual rights. The United States Supreme Court noted in the privilege and immunities case of Toomer v. Witsell,, supra, that "[W]e cannot agree with defendants if there is any authority to avoid the effect of privilege and

immunities clause solely under the guise of avoiding economic losses to residents." Ibid 102. Similarly, the effects of the equal protection clause cannot be avoided under the guise of economic loss to local monopolistic interests.

It should be noted that the limited entry scheme that we presently have is the fourth attempted in the State of Alaska, the first three being held unconstitutional by federal courts. See, Hynes v. Grimes Packing Co., 337 U.S. 86 (1949); Brown v. Anderson, 202 F.Supp. 300 (Alaska 1969). I find it impossible to constitutionally distinguish the present scheme from the foregoing case. Nor have I found anyone who has been able to.

A LIMITED ENTRY PERMIT IS NOT A PROPERTY RIGHT WHICH, IF TAKEN, ENTITLES THE OWNER TO ANY COMPENSATION.

The foregoing general analysis of the present limited entry act relates directly to the question that you have asked me to address. Because of the constitutional provision of Sec. 15 of Art. VIII prohibiting the creation of an exclusive right or special privilege fishery the Legislature has no choice but to adopt the position that limited entry permits are not property subject to compensation for taking. To do otherwise would be an admission that there is an exclusive right or special privilege, which is in fact specifically prohibited. 1/

1/ The buy back provisions of the Act, A.S. 16.43.310 represents an internal inconsistency indicating possible legislative acknowledgement of a creation of an exclusive right or special privilege.

Moreover, under any analysis I believe that no compensation is required. It should initially be recalled that any distinction between rights and privileges was abolished by the United States Supreme Court in Graham v. Richardson, 403 U.S. 365 (1971). Rather impact as a whole is examined. The limited entry statute itself states that permits may be modified or revoked by the Legislature "without compensation". A.S. 16.43.150(e). I believe that this is constitutionally correct. However this issue is inextricably intertwined, at least in theory, with the entire constitutionality of the act.

There are many state and federal cases which deal with the issue of the taking of property and required compensation. It is doubtful that a limited entry permit constitutes property as such not only as prohibited by the constitution but "property" is almost universally defined as real property.

EMINENT DOMAIN.

In LeClair v. Swift, 76 F.Supp. 720 (Ed. Wisc. 1948), it was held, in an attack against a state regulation by a commercial fisherman, that commercial fishermen have no absolute right to fish in waters under the control of the State of Wisconsin and any property right of fish lies with the state prior to the catching of the fish. The court further held that the state has a right and duty to preserve the fish from destruction whether by improvidence or greed and as trustee for the people the state may conserve fish

and wild life by regulating or prohibiting the taking thereof. Significantly the court held that Wisconsin commercial fishing licenses were not contractual in nature and created no vested or permanent rights.

Plaintiff is licensed as a commercial fisherman by the State of Wisconsin. Without a State license he would not be permitted to engage in commercial fishing in Wisconsin streams or waters of Lake Michigan controlled by Wisconsin. Such licenses are not contracts and create no vested or permanent rights.

In Tlingit and Haida Indians of Alaska v. United States, 389 F.2d 778 (U.S.C. Cl. 1968) the Court of Claims held that no awards should be made to the Tlingit and Haida Indians of Alaska in respect to any takings of purported fishing rights. The court noted:

Since the primordial decision in Geer v. Connecticut, 161 U.S. 519, 16 S.Ct. 600, 40 L.Ed. 793 (1896), it has been uniformly held that there is no property right in any private citizen or group to wild game or to freely-swimming migratory fish in navigable waters. Fish are ferae naturae, capable of ownership only by possession and control. No citizen has any right to the fish nor to exclude any other citizen from an equal opportunity to exercise his right to possession. Shively v. Bowlby, 152 U.S. 1, 14 S.Ct. 548, 38 L.Ed. 331 (1894). This court has repeatedly adhered to that rule of law. Aleut Community of St. Paul Island v. United States, 117 F.Supp. 427, 431, 127 Ct.Cl. 328, 334 (1954). Cf. Bishop v. United States, 126 F.Supp. 449, 130 Ct.Cl. 198 (1954) cert. denied, 349 U.S. 955, 99 L.Ed. 1279, 75 S.Ct. 884 (1955); Fleming v. United States, 352 F.2d 533 173 Ct.Cl. 426 (1965). There are no exclusive rights to fish in Indians. United States v. Winans, 198 U.S. 371, 25 S.Ct. 662, 49 L.Ed. 1089 (1905).

The court went on to specifically hold that fishing rights are not property rights.

So too with Alaska. There is no property right in fish inasmuch as fish are by constitutional definition held in common by the state for the people. It is only the taking of "vested rights" which demands the guarantees of due process and just compensation. See generally, Cuyahoga Power Co. v. Northern Ohio Traction and Light Co., 252 U.S. 388 (1920). The recent case of Andrus v. Allard decided by the United States Supreme Court on November 27, 1979, 48 LW 4013 is instructive. The case concerned the Eagle Protection Act which prohibits all transactions involving protected birds with no exceptions for preact takings. The court ruled that the regulations did not constitute the taking of property of those engaged in the trade of preexisting Indian artifacts containing protected bird parts. The court stated:

Penn Central Transportation Co. v. New York City, 438 U.S. 104, 123-128 (1978), is our most recent exposition on the Takings Clause. That exposition need not be repeated at length here. Suffice it to say that government regulation--by definition--involves the adjustment of rights for the public good. Often this adjustment curtails some potential for the use or economic exploitation of private property. To require compensation in all such circumstances would effectively compel the government to regulate by purchase. 'Government hardly could not be diminished without paying for every such change in the general law.' Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 413 (1922); see Penn Central, supra, at 124.

The Takings Clause, therefore preserves governmental power to regulate, subject only to the dictates of "justice and fairness." Penn Central, supra, at 124; see Goldblatt v. Hempstead, 369 U.S. 590, 594 (1962). There is no abstract or

fixed point at which judicial intervention under the Takings Clause become appropriate. Formulas and factors have been developed in a variety of settings. See Penn Central, *supra*, 123-128. Resolution of each case, however, ultimately calls as much for the exercise of judgment as for the application of logic.

* * *

At any rate, loss of future profits unaccompanied by any physical property restriction--provides a slender reed upon which to rest a takings claim. Prediction of profitability is essentially a matter of reasoned speculation that courts are not especially competent to perform. Further, perhaps because of its very uncertainty, the interest in anticipated gains has traditionally been viewed as less compelling than other property-related interests. Cf. *e.g.*, Fuller & Perdue, The Reliance Interest in Contract Damages (pt. 1), 46 Yale L.J. 52 (1936).

Regulations that bar trade in certain goods have been upheld against claims of unconstitutional taking. For example, the Court has sustained regulations prohibiting the sale of alcoholic beverages despite the fact that individuals were left with previously acquired stocks. Everard's Breweries v. Day, 265 U.S. 545 (1924), involved a federal statute that forbade the sale of liquors manufactured before passage of the statute. The claim of a taking in violation of the Fifth Amendment was tersely rejected. 265 U.S., at 563. Similarly, in Jacob Ruppert, Inc. v. Caffey, 251 U.S. 264 (1920), a federal law that extended a domestic sales ban from intoxicating to nonintoxicating alcoholic beverages "on hand at the time of the passage of the act," *id.*, at 302, was upheld. Mr. Justice Brandeis dismissed the takings challenge, stating that "there was no appropriation of private property, but merely a lessening of value due to a permissible restriction imposed upon its due." *Id.*, at 303. See Mugler v. Kansas, 123 U.S. 623 (1887).

It seems clear that any "privilege" obtained under the Limited Entry Act can be cancelled by repeal of the law. Rights created by legislation can be extinguished by

legislation. See, Wheeling and Belmont Bridge Co. v. Wheeling Bridge Co., 138 U.S. 287. The Supreme Court of Alaska in Herscher v. State, 568 P.2d 986 (Alaska 1977) stated:

We recognize that there is a difference between the state's plenary control of the natural resources and the taking away of a formerly granted license. The state's power over natural resources is such that it can entirely eliminate the role of hunting guides and no problem over due process will arrive. Id., at 1003.

I therefore conclude that limited entry permits may be revoked or modified without having to pay the holder any compensation.

You have asked several other questions recently that I will comment on to the best of my ability based upon my research to date. You have inquired:

DO YOU BELIEVE THE STATE HAS THE POWER TO SET A CEILING ON ENTRANTS INTO A FISHERY?

My answer is generally yes. The state may limit the total number of people fishing, however the selection of those who will fish must be done on egalitarian democratic principles. My perceived problem with the existing limited entry scheme is that it does not do that. It gives arbitrary preference only to those who were fortuitous to be present in the right place at the right time. In my judgment other means of conservation would have to be impractical before the limitation of the number of people fishing can be enforced. Resources are held in common for the people of the state and before access can be restricted on any basis it

must be shown to be necessary. Because it may be easy to limit the number of fishermen there must be need to do so. "The equal protection clause was designed to protect the fragile values of the normal citizenry from the overbearing concern for efficiency and efficacy that is often characterized in the most praiseworthy legislation." Issakson v. Rickey, 550 P.2d 365 (Alaska 1976). There is a popular misconception that the Issakson case represents the endorsement of the Alaska Supreme Court to the entire scheme of limited entry. This is not true.

DO YOU BELIEVE ALLOCATION BASED ON HARDSHIP IF EXCLUDED FROM A FISHERY IS CONSTITUTIONALLY SOUND?

I am not certain of the answer to this question at this stage of my research. There are at least two possible allocations: the initial allocation of a permit and what happens from that point forward. An argument could be framed that the initial allocation is properly based upon hardship but that the future allocations will be based on strictly democratic principles. As you will recall from the Washington case as well as some of the language from Bozanich, simply being fortuitous to have already been fishing is not acceptable in terms of equal protection. If hardship is defined as simply having been there fishing first and therefore any alternative would create hardship, it will fail as a justification for giving access to a resource held in common for all. I don't like the hardship definition of the

present limited entry act inasmuch as it is predicated generally upon past participation. Again, this question must be taken in the context of the entire act which would require more research. As I mentioned once in conference, even though I feel the act is unconstitutional and undemocratic there are ways of making its impact less so and I believe that the legislature should move in that direction if it is not going to change the entire scheme.

BASED ON WHAT YOU HAVE, CAN YOU FORM AN OPINION AS TO WHETHER STATE ACTION ESTABLISHING "OPTIMAL EFFORT" (PERMITS) IN ORDER TO ACHIEVE MAXIMUM "NET ECONOMIC YIELD" FROM A FISHERY HAS ANY FEDERAL CONSTITUTIONAL PROBLEMS?

I would really have to know more before I could answer this question. In any system of permits it must be remembered that the fishery resource is held in common for all people and any restriction of access to it will raise equal protection problems to persons similarly situated as citizens of the State of Alaska. I perceive a tendency to restrict access only to similarly situated fishermen. The fish of Alaska are not held in common for fishermen, they are held in common for all people. The idea of having the lowest number of units a year that will achieve the maximum allowable harvest at the smallest expense is questionable in light of the fact that all persons similarly situated, all citizens of Alaska, should have equal access or opportunity for access to the fishery. There must be some justification for restricting people from the fishery. The idea of doing

this on an arbitrary basis of having the least amount of persons fishing seems to raise serious question unless there is bona fide justification for it. In any event, and let me emphasize this point, I believe that the allocation of such permits must be on a democratic basis--democratic in the sense of treating all citizens of Alaska fairly with equal opportunity for access to commonly held property.

1979 YUKON AREA SALMON MANAGEMENT PLAN FOR
COMMERCIAL AND SUBSISTENCE FISHERIES

ALASKA DEPARTMENT OF FISH AND GAME
Division of Commercial Fisheries
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1979 YUKON AREA SALMON MANAGEMENT PLAN

ALASKA DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES

INTRODUCTION

This management plan was developed in order to inform fishermen, processors and other interested persons about the status of the 1979 Yukon River salmon runs and Department strategies that may be used to regulate the various fisheries. Statements made concerning anticipated run magnitudes and management strategies are based on the best information presently available. Statements regarding fishing times and relative sizes of the runs should be considered as tentative and subject to change. This management plan will be updated and improved as information from ongoing and proposed Department programs becomes available.

The overall objective of the Yukon area research and management programs is to manage the various salmon runs for sustained yield. The commercial fishery is regulated on the assumption that a harvestable salmon surplus, after providing for spawning and subsistence utilization requirements, is available.

Subsistence has been designated by the Legislature (State Law 151) as the highest priority among beneficial users of the fish and game resources. Except in areas where intensive commercial fisheries occur, the subsistence fishery is subject to few restrictions in order to give preference to subsistence users. In the major commercial fishing areas the majority of the fishermen usually take salmon for both commercial and subsistence. Therefore, in order to enforce commercial fishing regulations, it is necessary to place some restrictions on the subsistence fishery. For example, subsistence fishing is allowed only during the open periods of the commercial fishing season and during the closed periods both commercial and subsistence fishing is prohibited.

Management is made difficult by the character of the salmon runs, fisheries and the river itself. Since most of the commercial fisheries have only developed or expanded in recent years, there is a lack of adequate escapement and return data on which to fully evaluate the effects of increased commercial harvests. The various fisheries scattered over 1,400 river miles harvest mixed stocks usually several weeks and hundreds of miles from their spawning grounds. Because the Yukon River commercial fishery is essentially a "cape fishery" (fishing on mixed stocks) some tributary populations may be under or overharvested in relation to their actual abundance. For example, in a mixed stock fishery, where it is impossible to manage each stock separately, small spawning populations may be reduced to very low levels or even eliminated.

Due to the turbid water conditions of the main river and the vast size of the drainage (330,000 square miles), one-third of which is in Canada, accurate inseason assessment of the escapement immediately past the intensive downriver fishery is very difficult with the present available technology and funding. Management is also hampered by the variable run timing and pattern of entry into the lower fishery. Comparisons of catch data between years is thus made difficult.

New research projects are underway and other programs are planned,

once additional funding becomes available, to obtain the biological information necessary for better management of the salmon runs. For example, a comprehensive tag-recovery program was begun in 1976 to determine the relative timing and distribution of fall chum stocks through the commercial fishery. If individual stocks can be identified from this program and concurrent scale analysis studies, then the fishery can be more effectively regulated in order to achieve the proper balance between catch and escapement. Future salmon studies include expansion of the test fishing program, sonar assessment of run strength in the main river, and upgrading escapement documentation in the tributary streams.

As a result of the difficulty in obtaining the necessary biological information, the mixed stock situation, increased effort and efficiency of the commercial fishery, and because of the need to provide for subsistence which has been designated the highest priority by the Legislature, the management of the Yukon River salmon runs must take a conservative approach. This can be achieved by establishing harvest guidelines, mesh size, reduced weekly fishing periods, fishing season closures, etc. During the fishing season if it becomes apparent that the run is substantially smaller-or-larger than needed for escapement and subsistence requirements, then the commercial harvest rates will be adjusted through the use of the emergency order, or less frequently emergency regulation authority.

Also affecting management is the interception of western Alaskan salmon (including Yukon River stocks) by the Japanese high seas fishery. King salmon catches by this fishery have averaged 284,000 fish annually since 1966 and reached a peak catch of 554,000 kings in 1969. In some years the Japanese catch has exceeded the total western Alaskan catch (commercial and subsistence). The majority of kings taken are immature (4 year olds) averaging 6 pounds each whereas most of the adults (mostly 6 year olds) taken by Alaskan fishermen averaging 20-25 pounds. Based on tagging and scale analysis studies it is estimated more than 80% of the Japanese catches of king salmon are of western Alaska origin.

Western Alaskan chum salmon are also believed to be intercepted in substantial numbers by the Japanese fishery in the Bering Sea. This fishery annually harvests 2-4 million chums; however the degree of interception is unknown because of limited tagging studies.

An International treaty (the I.N.P.F.C.) has been recently renegotiated to afford increased protection for western Alaskan salmon stocks. Improved Yukon River king salmon returns beginning in 1980 and possibly 1979 may be expected as a result of reduced high seas interceptions.

STATUS OF STOCKS AND FISHERY:

King Salmon: The Yukon River commercial king salmon fishery in Alaska dates back to 1918. Since 1961 commercial catches have ranged from 63,700 to 129,700 fish and the recent 5 year average (1974-78) is 88,700. In addition to the Alaskan catch, the commercial fishery at Dawson (Yukon Territory) harvests 2-3,000 kings annually (recent 10 year average). Throughout the Yukon River drainage approximately 15-25,000 kings are taken annually for subsistence use.

Spawning populations of king salmon are widely distributed throughout the drainage and have been documented in the Archuelinguk River located 85 miles from the mouth of the Yukon River and as far upstream as the headwaters of the drainage in the Yukon Territory of Canada, nearly 2,000 miles from the mouth. Major spawning streams in Alaska include the Andreafsky, Anvik, Nulato, Salcha and Chena rivers. In the Canadian portion of drainage, important systems include the Big Salmon and Nisutlin Rivers.

Commercial fishing effort has increased sharply since 1961. License registration for set gill nets has more than doubled while drift gill net gear has tripled in number. In excess of 150 units of fishwheel gear are also fished (upper Yukon area only). With the advent of the Limited Entry Program, fishing effort has apparently stabilized.

Yukon River king salmon runs since 1971 have generally declined in magnitude based on available comparative catch and escapement data. Countering this trend, good runs occurred in 1977 and 1978 when 96,400 and 97,600 kings were commercially harvested. Escapements into key survey streams were also strong especially in 1978 when record escapements were documented.

Restrictions placed on the commercial fishery during the 1970's have generally resulted in improved escapements compared to the 1963-69 period. However, with the exception of 1971, 1977 and 1978, escapements have not reached the levels observed during the early 1960's prior to maximum development of the commercial fishery.

Summer Chum Salmon: Prior to the mid 1960's summer chums were used primarily for subsistence purposes, mostly for sled dog food. As the snow machine replaced the dog sled, subsistence fishing for summer chums declined. Beginning in 1967 commercial fishing regulations regarding summer chums were gradually liberalized. As a result of regulation changes (e.g. mesh size specifications and earlier openings of the fishing season), increased fishing effort and processor facilities, development of Japanese markets and the occurrence of very large runs in recent years, the Yukon River summer chum salmon commercial harvest has increased sharply. Only 11,000 summer chums were taken commercially in 1967 while a record 1,053,200 fish were harvested in 1978. The recent 5 year average commercial harvest (1974-78) is 704,900 fish. The majority of the commercial harvest takes place in subdistricts 1, 2 and 4. It is estimated that 197,000 summer chums are taken annually (1974-78 average) for subsistence in the Yukon River drainage.

Summer chums exhibit similar run timing as the kings, entering the lower river during June and early July. Major spawning tributaries include the Andreafsky and Anvik Rivers and several others upstream to and including those of the Koyukuk River drainage. Department tag and recovery population estimates indicated total Yukon River runs of 3.2 and 1.6 million summer chums in 1970 and 1971, respectively. The total Yukon River summer chum salmon run in 1975 was estimated to be in excess of 5 million fish based on commercial and subsistence catch documentation and aerial survey estimates. An escapement of over one million summer chums was estimated in 1975 in the Anvik River. Overall, Yukon River summer chum escapements have been good in recent years, however escapements in that portion of the drainage upstream of the Koyukuk River mouth have been variable.

Fall Chum Salmon: The commercial fishery for fall chum salmon in the Yukon River began in the early 1960's, however the fishery has undergone recent expansion since 1968. Commercial catches have ranged from 8,300 in 1964 to 273,100 in 1974 and the recent 5 year average (1974-78) harvest is 238,800 fish. In the face of increasing fishing effort and catches, the Department established a 250,000 maximum harvest limit for the entire river until future returns from current levels of harvest can be evaluated. This maximum harvest was used beginning in 1974 as a basis for establishing subdistrict quotas.

Because of their good quality (bright, silvery appearance, large size, robust body shape and high oil content) which is related to their upriver spawning destinations, fall chums are in great demand and are harvested in all fishing subdistricts. The majority (approximately 80%) of the fall chum commercial catches are presently taken in the lower three subdistricts. Fall chums are of less importance for subsistence than summer chums throughout the Yukon River drainage except upstream of the mouth of the Koyukuk River where it is estimated that fall chums comprise 60-75% of the total subsistence harvest. The annual subsistence catch of fall chums in the Yukon River drainage is approximately 89,000 fish (1974-78 average).

Fall chums enter the lower Yukon River beginning in mid-July and continue through early September. Major spawning areas are located in the Tanana River (Toklat River, Delta River and the upper Tanana River near Big Delta) and the Porcupine River (Sheenjek and Fishing Branch Rivers) drainages. Tagging studies indicate that the early run (late July-early August) of fall chums is bound for the Porcupine River system and Yukon Territory systems. The late run of fall chums (mid August-early September) is believed destined primarily for the Tanana River. Tanana River drainage escapements in general appear more stable and experience less fluctuation than the Porcupine River system. For example, recent escapements to the Fishing Branch River have ranged from 353,000 (1975) to 13,000 (1976).

In recent years, as additional information has become available (comparative catch and escapement data), it has been evident that the size of the Yukon River fall chum runs has fluctuated sharply depending on brood year run strength and environmental factors. In order to provide for more flexible management of the variable fall chum runs, the Board of Fisheries replaced the rigid quotas with guideline harvest levels (range of 147,500 to 322,500) and reduced fishing time effective for the 1979 fishing season.

Coho Salmon: This species is of minor importance in both in the commercial and subsistence fisheries. The commercial catch since 1961 have ranged from 350 to 38,000 and the recent 5 year average (1974-78) is 17,600 fish. Cohos first enter the lower Yukon River about one week later than fall chums and the run peaks during late August. Spawning occurs discontinuous throughout the drainage with the largest spawning concentrations documented in the tributaries of the upper Tanana River drainage.

The commercial harvest of cohos is dependent upon fishing effort exerted on the more numerous fall chums. Consequently, no specific management strategy has been developed for coho salmon. Future expansion of the coho fishery appears unlikely at this time.

OUTLOOK FOR 1979

King Salmon: In most years the dominant age class returning are 6 year old fish, however, 5 and 7 year old fish may also contribute substantially to the run. The 1973 brood year run (6-year olds) was below average to average in abundance as indicated by comparative catch and escapement data. Escapement of king salmon in the Salcha and Chena Rivers was especially poor in 1973 and was attributed to poor survival of the 1967 brood year as a result of the August 1967 Tanana River flood. Seven year old fish (1972 brood year) are expected to contribute substantially to the return in 1979 based on the strong return of 6 year olds (approximately 72%) in 1978. Also five year olds (1974 brood year) may contribute significantly to the return in 1979 because of average-above average brood year run strength and possible reduced high seas interceptions.

In summary, based on evaluation of brood year run size data, it is expected that the 1979 Yukon River king salmon run will be below average to average in magnitude. The expected commercial catch should range between 70-80,000, the guideline harvest level for the entire river.

Summer Chum Salmon: Normally the Yukon River summer chum (dog salmon) runs are composed of four year old fish, although in some years five year old fish are present in large numbers. The return of four year olds in 1979 will be dependent on the strength of the 1975 brood year and the survival of the resulting offspring. Based on the available catch and escapement data, the 1975 summer chum run was considered substantially above average in magnitude. Also the return of five-year-old (1974 brood year) fish may contribute significantly to the run in 1979.

In summary, the magnitude of the Yukon River summer chum run in 1979 is expected to be above average. The expected commercial harvest should total 750,000-1,500,000 fish for the entire river.

Fall Chum Salmon: Similar to the summer run, the majority of the fall chums returning each year are four year old fish. Based on comparative catch and escapement information, the 1975 brood year run (4 year olds) was generally considered substantially above average in magnitude. It is expected that the return of five year olds (1974 brood year) may also contribute significantly to the return in 1979.

In summary, the 1979 Yukon River fall chum salmon run is expected to be above average in magnitude. The expected commercial harvest should range between 250,000-325,000 fish, the upper end of the guideline harvest level for the entire river.

Coho Salmon: The coho salmon run annually is much smaller than the fall chum run, and the harvest is dependent on the duration of the fishery for fall chums. The harvest is expected to total 20-30,000 fish for the entire river.

MANAGEMENT STRATEGY, LOWER YUKON (SUBDISTRICTS 1, 2 AND 3) FISHERIES

King and Summer Chum Salmon: Sustained yield management of the king and summer (dog) chum salmon runs is complicated by the fact that both species exhibit similar run timing. However, chum salmon are more abundant than king salmon, and during some recent years additional

numbers could have been harvested. The harvest of summer chums in the lower river is dependent on the regulations and management strategies employed toward the more intensively managed king salmon fishery. Even if an exceptionally large run of summer chum salmon develops, the harvest of summer chums may not be more than average because of the overriding importance of king salmon, especially if the king run is small.

The lower Yukon River king and summer chum fisheries (set and drift gill nets only) are primarily regulated by scheduled weekly fishing periods. The fishing schedule is normally two periods a week, totaling 2-1/2 days (24 and 36 hour periods) which allow effort to be distributed throughout the run. Fishing periods may be changed by emergency order depending on the strength of the run as indicated by analysis of comparative catch statistics. The fishing season opens by regulation June 10 which affords protection to the early part of the run. Later in the season during late June-early July only six inch maximum mesh size gillnets may be operated (there is no mesh size restrictions earlier in the season) which allows the harvesting of the normally more abundant summer chums while affording protection to the late king run.

A commercial guideline harvest of 70-80,000 king salmon for the entire river in Alaska has been established. Adherence to this guideline harvest level is essential in order to provide for additional escapements because of recent declines in the run and increasing fishing effort. This guideline harvest should not be exceeded unless an exceptionally large run is indicated, as such occurred in 1977 and 1978. In subdistricts 1 and 2, the combined harvest should not exceed 63-73,000 kings. The subdistrict 3 king salmon fishery is governed by a 1,800-2,200 guideline harvest level. (The upper Yukon subdistricts are limited by a combined 4,500-5,500 king salmon guideline harvest level).

If the king salmon run is small, fishing time in subdistricts 1 and 2 will be initially reduced from 2-1/2 to 2 days a week not later than June 20-25 (for normal run timing). Additional reductions in fishing time or an early closure of the season may be necessary if indicated low abundance of kings continues in order to provide for adequate escapements and subsistence requirements.

A reduction in fishing time, because of a poor king run, is favored instead of complete early season closure in June as this would prevent any harvest of summer chums. Achievement of an optimum harvest of summer chums while providing protection of king salmon, especially during small runs, is a complex problem facing management.

An additional option other than a season closure is the regulation which allows by emergency order a changeover to 6 inch or less mesh nets during June 27-July 5. This regulation allows harvesting of the more abundant chums during this period and minimizes the catch of kings. It should be clearly stated that the Department recognizes the importance of the long established king salmon fishery. The intention of the 6 inch or less maximum mesh size regulation in the lower two subdistricts is to allow an optimum harvest of chum salmon after a normal harvest of king salmon, consistent with spawning ground and subsistence fishery requirements, has been made.

In some years because of an early breakup substantial numbers of king salmon are present in the lower river during early June. It may be desirable to allow a limited harvest on this early segment of the run in order "to spread" the catch over most of the entire run. Often during "early years" the run is essentially over by late June. If an exceptional early breakup and run occurs, test fishing and subsistence catches will be closely monitored. An early opening (before June 10) of the season in subdistricts 1 and 2 with restricted fishing time (24 hour fishing periods) may be allowed by emergency order only if large, sustained test fishing and subsistence catches are occurring.

In subdistrict 3 the changeover date to gillnets of 6 inch or smaller mesh will take place after a date between July 5-15 following the closure of the king salmon season. The reopening of the commercial fishing season will be dependent on the timing of the salmon runs in order to minimize the incidental capture of the late run of kings which are traditionally utilized for subsistence in this subdistrict. Also the reopening of the season will be dependent on the market quality of summer chums.

During years of very large summer chum salmon runs the processing capacity of some lower Yukon operators has been exceeded resulting in wastage by both processors and fishermen. This problem occurs more frequently when only 6 inch or smaller mesh gillnets are fished. Processors are encouraged to avoid wastage problems by placing their fishermen on limits for example.

If the summer chum run is judged to be considerably below average than expected in 1979 then a reduction in fishing time in late June - mid-July may be required.

Fall Chum and Coho Salmon: Effective for the 1979 fishing season the Board of Fisheries made two important regulation changes affecting the lower Yukon fall chum and coho salmon fisheries: establishing guideline harvest levels and reducing fishing time.

The 200,000 chum quota in effect after mid July for subdistricts 1, 2 and 3 combined was replaced by a flexible guideline harvest level of 120,000 to 220,000 chums. In those years when the fall chum run is of average magnitude, the harvest should approximate 170,000 fish, the midpoint of guideline harvest level range. This midpoint harvest level represents 30,000 less fish than the previous 200,000 quota as the Board of Fisheries reallocated 30,000 additional fish to the upper Yukon area. If the fall run is substantially below or above average then the harvest will likely be at the lower (120,000) or higher (220,000) range of the guideline harvest level.

The Board of Fisheries also reduced weekly fishing time in all lower Yukon subdistricts by one day. In subdistricts 1 and 2 (after July 15) allowable fishing time was reduced 3 to 2 days per week and in subdistrict 3 fishing time (after July 25) was reduced from 4 to 3 days per week. Similar reductions in fishing time were also implemented by emergency order in 1977 and 1978.

The reduction in fishing time will help minimize overharvesting of certain run segments (especially the early portion); spread out the effort over a greater portion of the season; and result in a better

allocation of the guideline harvest between subdistricts in the lower Yukon area. A reduced fishing schedule will also minimize the possibility of processors being "swamped" with huge deliveries (up to 75,000 fish taken during a single fishing period in subdistrict 1) that have occurred in the past. Furthermore, extension of the season would provide for additional harvest of the coho salmon run which peaks later (after August 15).

In subdistricts 1 and 2 the fishing schedule during the fall chum run of two 24 periods per week also affects subsistence fishing since during the closed commercial periods subsistence fishing is prohibited. An additional fishing period each week for subsistence may be allowed beginning on or about August 10 by emergency order. Continuation of these special subsistence fishing periods during the season will be based on available enforcement surveillance by Protection officers and if violations are minimal. In 1978 a special 24 hour subsistence fishing period was allowed, however some violations occurred (selling of subsistence caught fish). After August 20, if the commercial fishing season has closed, subsistence fishing will be allowed seven days a week.

MANAGEMENT STRATEGY, UPPER YUKON (SUBDISTRICTS 4, 5, AND 6) FISHERIES

King and Summer Chum Salmon: As in the lower Yukon area, the king and summer chum (dog) salmon runs in the upper Yukon area exhibit similar run timing. The upper Yukon area the commercial king salmon fishery is primarily regulated by a 4,500-5,500 fish guideline harvest level (adopted by the Board of Fisheries in December, 1978 to replace the previous quotas) apportioned to the various subdistricts. Presently there is no guideline harvest levels on the numbers of summer chums that may be taken. The management of the summer chum salmon fishery is based on in-season assessment of run strength.

Also in section 4-A of subdistrict 4, where the majority of the summer chum harvest is taken in the upper Yukon area, the weekly fishing schedule was reduced from a single 5 day period to two-2 day periods by the Board. This action was taken because of increased fishing effort and the necessity to provide for balanced harvests and escapements for the various run segments.

If either a weak run of kings or summer chums develops during 1979 in the upper Yukon area then the Department would consider various restrictions. These restrictions would probably vary in each subdistrict because of the different types of fisheries and the importance of the species harvested.

Fishermen in subdistrict 4 usually retain their kings for subsistence rather than sell them in order to allow the commercial fishing season to remain open for the more abundant and commercially valuable summer chums. However, because of a substantial increase in fishing effort due to the rapid development of the commercial fishery, the total harvest of kings (commercial plus subsistence) may exceed traditional harvest levels in these subdistricts.

If the king salmon guideline harvest level (900-1,100 fish) is taken (before July 10) in subdistrict 4, the commercial fishing season

would be closed by emergency order. The season would be reopened during the period July 10 to July 31 to fishing with gill nets of six inch or smaller mesh and fishwheels. This action would minimize additional harvest of large king salmon and still allow continued commercial fishing on the more abundant summer chums. (Subsistence fishermen who do not fish commercially would be exempt from using 6 inch or smaller mesh nets).

If the summer chum salmon run was below average in magnitude, then fishing time in subdistrict 4 would be reduced. A reduction in fishing time would lessen the harvest and allow the fishery to be "more spread out" over a greater portion of the run.

In subdistrict 5 kings are of greater importance and are mostly taken with gillnets for both commercial and subsistence purposes. Summer chums are not abundant and are mainly retained for subsistence. Once the king salmon quota was taken in this subdistrict the fishery would be closed until the fall season.

If the king run was poor, then fishing time would be reduced.

In subdistrict 6 (Tanana River drainage) fishwheels are primarily used to harvest kings and summer chums for both commercial and subsistence purposes.

It is anticipated that the 1979 return of king salmon to the Tanana River drainage will be considerably below average in abundance based on poor production of the dominant 6 yr old age class in 1967 and 1973. The 1967 escapement was adversely affected (loss of eggs; disturbance of spawning beds) by the Tanana River flood in August of that year. In 1973 king salmon escapements to the Salcha and Chena Rivers were the lowest ever recorded.

In order to bolster king salmon escapements in view of the expected poor run, the Department is considering reducing fishing time (presently 5 days a week) in subdistrict 6 by emergency order either prior to the opening of the season (June 15) or during the season. Another option under consideration would change the fishing schedule by providing for two fishing periods a week instead of the present single 5 day period. Reducing fishing time and/or providing for split periods will spread out the effort and minimize overharvest of various run segments.

If the return of king salmon was larger than expected and the king salmon guideline harvest level was taken, then the commercial fishing season would be closed. A season closure would also aid in bolstering summer chum salmon escapements since Tanana River drainage summer chum salmon runs are not large. If subsistence summer chum catches taken during the season closure appear average or above average in abundance, then a reopening of the commercial season on a reduced fishing schedule would be considered.

Fall Chum and Coho Salmon: In the upper Yukon area fall chum and coho salmon are present during the period from mid-August through September. The commercial salmon fishery during this period is primarily regulated by a 27,500-102,500 combined chum and coho salmon guideline harvest which is apportioned to three subdistricts. This guideline harvest level, adopted by the Board of Fisheries for 1979, replaced the previous 50,000 quota. Unless there are indications that the fall chum run is either very small or very large, the midpoint (65,000 fish) of the guideline harvest level will be the expected catch. As in the lower Yukon area, cohos are of minor importance and are taken incidentally to the more abundant fall chums.

Also effective for the 1979 fishing season the Board reduced fishing time for the fall chum and coho fishery (after August 15) from 5 to 4 days a week in section 4-B of subdistrict 4, section 5-A of subdistrict 5 and subdistrict 6. Also the fishing schedule was split into two-2 day periods. Reducing the weekly fishing time will provide for better balanced harvests and escapement.

If a weak run of fall chums is indicated (based on lower Yukon area catches), then a closure of the season rather than a reduction of fishing time would be implemented by emergency order. A season closure of the commercial fishery would have less impact on subsistence fishing than a further cutback in fishing time.

The lower end of the guideline harvest level may be taken in some subdistricts if a weak run occurs. On the other hand, if the runs are large, then the upper end of the guideline harvest levels will be allowed to be taken by providing for additional fishing time.

In subdistrict 6 a delay in the opening of the fall season will be implemented by emergency order to provide for a more equitable harvest. In some years, the greater majority of the catch quotas were taken in the lower portions of subdistrict 6. A delay in the opening of the season, would allow the fall chum run to distribute itself throughout the subdistrict. This in turn would provide a more equitable harvest among various fishermen groups. Also, more importantly, balanced escapements of all spawning stocks would be realized since the harvest would be "spread out" over a longer period of time. This strategy has been endorsed by the Board of Fisheries.

ENFORCEMENT

The Board of Fisheries at its December 1977 meeting adopted a public proposal to repeal regulations which administered the legislation pertaining to the sale of subsistence caught salmon roe. The 1978 Legislature did not pass a bill to allow continuation of subsistence roe sales in view of the Board's action. Therefore, sale of subsistence roe is illegal.

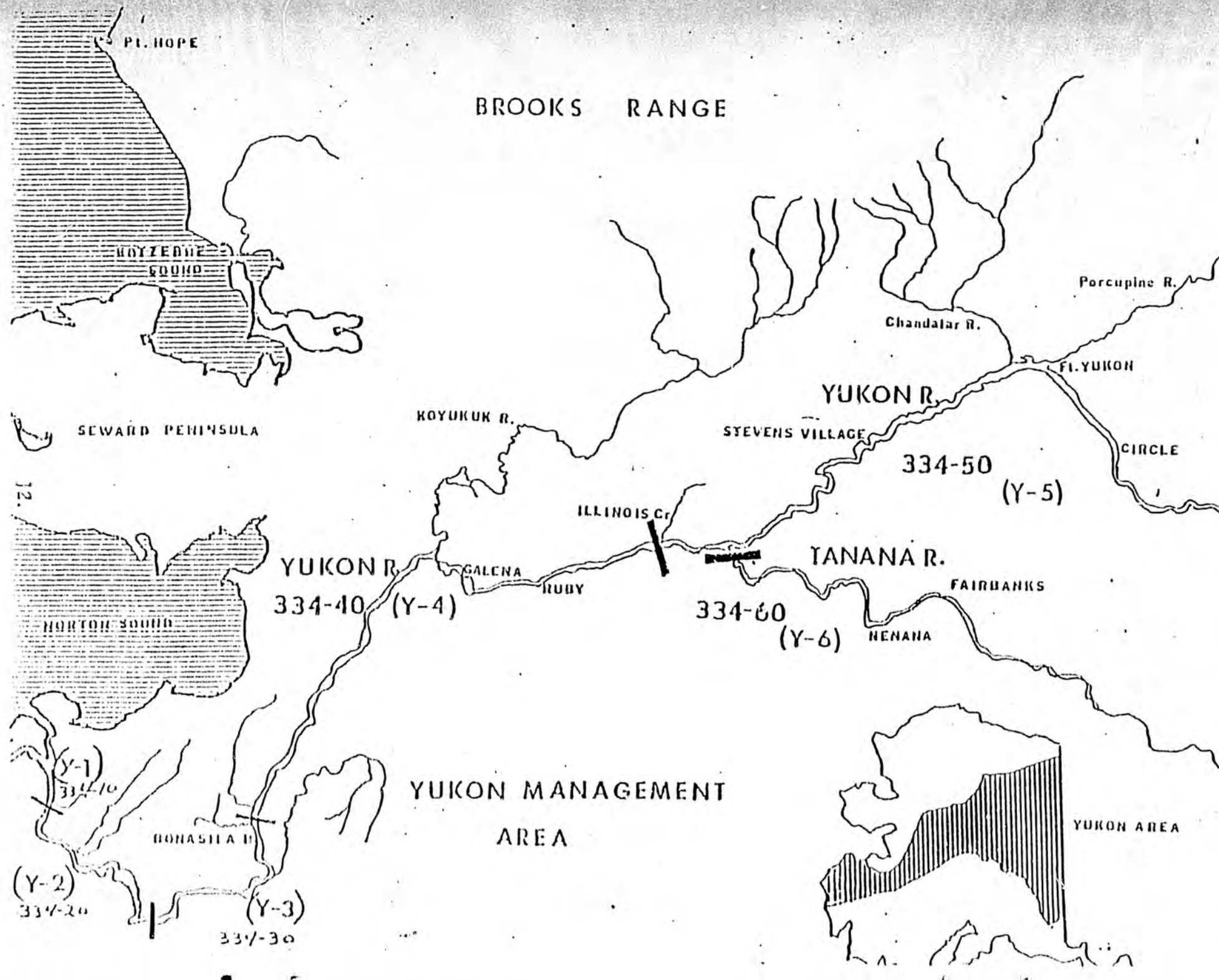
At the April 1979 meeting the Board adopted a proposal requiring the immediate removal of the dorsal fin from subsistence caught salmon in subdistrict 6. This action was necessary for enforcement purposes in order to distinguish between subsistence caught and commercially taken salmon. In recent years subsistence caught salmon have illegally entered commercial channels.

Fishermen are requested to report any instances of fishery violations to Department of Fish and Game or Division of Fish and Wildlife Protection (Dept. of Public Safety) personnel in order that follow-up action may be taken.

Questions or comments concerning the 1979 Yukon Area Salmon Management Plan should be directed to:

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Commercial salmon catch and effort data Yukon area, 1973

Subdistrict	Fishing Vessels	Kings	Summer Chums	Fall Chums	Total Chums	Cohos	Total
1	429	57,890	388,492	135,065	523,557	16,262	597,709
2	204	32,335	225,440	51,646	277,086	5,835	315,256
3	<u>22</u>	<u>2,917</u>	<u>27,201</u>	<u>11,527</u>	<u>38,728</u>	<u>758</u>	<u>42,403</u>
Subtotal Lower Yukon	655	93,142	641,133	198,238	839,371	22,855	955,368
4	82	701	364,387	11,230	375,617	32	376,350
5	53	3,115	4,897	21,010	25,907	7	29,029
6	<u>38</u>	<u>644</u>	<u>34,675</u>	<u>13,259</u>	<u>47,934</u>	<u>3,066</u>	<u>51,644</u>
Subtotal Upper Yukon	173	4,460	403,959	45,499	449,458	3,105	457,023
Total	828	97,602	1,045,092	243,737	1,288,829	25,960	1,412,391

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SOCIOECONOMIC ANALYSIS FOR FISHERY
AREAS AND CENSUS DIVISION

January 21, 1980

Prepared for the
Limited Entry Study Committee

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INTRODUCTION

This report presents the results of economic research conducted for the Limited Entry Study Committee under the terms of a contract with the Legislative Affairs Agency effective September 1, 1979. As specified in the clause on "statement of work," the research was to cover the following objectives:

- "A To assess the relative economic wellbeing of Alaska fishing communities and thereby identify areas of particular hardship;
- "B To provide a data base for development of possible legislative solutions to limited entry problems;
- "C To provide information to Steve Langdon for his analysis of the economic impacts of limited entry permit transfers;
- "D To evaluate the possible economic impacts of proposed legislative changes to the limited entry program and to mitigate undesirable impacts."

The sections of this report are keyed to the above statement of objectives. The first section presents an analytical framework for the analysis of the structure and functioning of local economies geographically defined by the boundaries of major fisheries management and licensing areas, and the assessment of relative economic well-being of local fishing "communities" statistically defined in terms of the census divisions generally used in the compilation of economic and social data for Alaska. In combination with the data base series presented in the second section of the report, this meets the requirements of the first objective.

The second section consists of a series of statistical tables designed to meet the second and third objectives of the contract. These series were developed simultaneously with the parallel work of Dr. Steve Langdon on transfer patterns of permit holders. The present report and that of Dr. Langdon are designed to be used in combination to further meet the objectives of the two contracts under which they were produced.

Most of the research effort under this contract has been devoted to the development of this data base which will serve many other purposes than the immediate one of enabling the Committee to evaluate the effects upon local areas of the changes to the present limited entry program. Very little relevant and useable economic information is available for Alaska's important fisheries and the related local economies, and the generation and compilation of the key statistical series in this study should be considered as a pioneering effort. Further work is required to expand and improve what is presented here.

During the five months of this work, the Committee's proposed legislative changes were still emerging in the form of preliminary statements of options and the beginnings of draft legislation. Because of this, the contractors' evaluation of possible economic impacts as required in the fourth objective of the work, is preliminary only. The substance of these comments were presented in written form at the Committee's December meeting and are reproduced here as an appendix.

I. SOCIO-ECONOMIC ANALYSIS METHODOLOGY.

Regional Basis of Analysis

The approach used in compiling the statistical data of this study is designed to provide a basis for the regional analysis of (1) local functioning economies and (2) the distribution of income from all sources to the residents of fisheries areas. For the first type of analysis the total area of Alaska's commercial fisheries was divided into manageable geographic entities embracing meaningful combinations of forms and processes of interaction of the economic variables of analysis. These units had to be large enough to cover reasonably homogenous and inter-related natural resource areas and the economic systems represented in the harvesting and local processing of these resources, and the support elements of a total local economy. Data on fish harvesting is available by fisheries management areas and sub-units and the other economic data for census divisions or labor market areas. These existing statistical units were combined to provide appropriate analytical units.

The following table lists the resource, gear and area codes used by the Commercial Fisheries Entry Commission for the classification of Alaska fisheries. This study combined the thirteen salmon areas into six areas meeting minimum economic analytical requirements. Although the greater number of units is appropriate for the definition of fisheries, the larger economic contexts in which these activities take place required these combinations to approximate the geographic area of the relevant economic systems. For example, the Yakutat area is not economically autonomous, but is tied to and part of the Southeast Alaska area economy. In many studies Yakutat is treated simply as part of that larger region. The study's Southwest region combines three salmon areas for similar reasons, although a more detailed follow up study might support further breakdown and combination. A case could be made for a different combination of fishing areas, of course, but for present purposes this organization appeared the most reasonable and meaningful.

The second type of analysis deals with the distribution of income from fisheries and all other sources, without regard to location of the source, to the residents of local areas. The personal income received by residents is estimated by the U.S. Bureau of Economic Analysis for the State of Alaska and since 1969 for the census divisions. The methodology and data sources used in these estimates are discussed in the introduction to Table 2 in Section II, below and will not be repeated here. The boundaries of census divisions have been drawn to most appropriately deal with the basic concern of the U.S. Bureau of the Census, to enumerate and collect characteristics of persons by their "usual place of residence" or the "place where he lives and sleeps most of the time." The census data for each state is broken down by counties, standard metropolitan statistical areas, minor civil divisions, incorporated places and unincorporated places. Because Alaska has no counties, the statistical areas called census divisions were devised as the primary division of the State of Alaska. Because of Alaska's relatively small population, with the exception of a few large incorporated places such as Anchorage, these are the only census areas for which economic and social information beyond number of inhabitants by sex, age and race are available. They have been taken, therefore, as the basic geographic unit for analysis in

TABLE I-1

Explanation of Codes on Permit FileFISHERY RESOURCE CODES

B Halibut
 C Black Cod
 D Dungeness Crab
 F Freshwater Fish
 G Herring
 K King Crab
 L Herring Spawn on Kelp
 M Bottomfish *
 P Shrimp
 R Razor Clams
 S Salmon**
 T Tanner Crab
 Z Other

GEAR CODES

01	Purse Seine***	15	Power Troll
02	Beach Seine	17	Beam Trawl
03	Drift Gill Net	18	Shovel
04	Set Gill Net	21	Pound
05	Hand Troll	22	Dredge
06	Long Line Gear (Vessel under 5 net tons)	61	Long Line Gear (Vessels 5 net tons or over)
07	Otter Trawl	91	Pot Gear**** (Vessel register length over 50 feet)
08	Fish Wheel	99	Other
09	Pot Gear**** (Vessel register length 50 feet or less or undocumented vessel)		

19 Scallop Dredge

AREA CODESSALMON

A Southeastern
 D Yakutat
 E Prince William Sound
 H Cook Inlet
 K Kodiak
 L Chignik
 M Peninsula-Aleutians
 P Upper Yukon
 T Bristol Bay
 W Kuskokwim
 X Kotzebue
 Y Lower Yukon
 Z Norton Sound

HERRING

(Herring Purse Seine)

A Southeastern Sac Roe
 C Southeastern Winter
 D Yakutat
 E Prince William Sound
 Sac Roe
 G Prince William Sound
 Winter
 H Cook Inlet
 J Westward

(Herring All other Gears)

A Southeastern
 D Yakutat
 E Prince William Sound
 H Cook Inlet
 J Westward

KING CRAB

A Southeastern-Yakutat
 E Prince William Sound
 H Cook Inlet
 K Kodiak
 M Peninsula
 O Dutch Harbor
 Q Bering Sea
 R Adak
 S Western Aleutians

OTHER FISHERIES

B Statewide-Permit
 Valid in any area
 V Port Clarence

* Does not include halibut or black cod

** Interim-use permit (I) for salmon hand troll Statewide fishery only, otherwise entry permits (E,P) are required.

*** Purse Seine includes hand purse seine.

**** Includes king crab, tanner crab, Dungeness crab, bottomfish, black cod and shrimp.

this study. The following map identifies the boundaries of these divisions.

The contract calls for analysis of the community level without defining this term. For purposes of this second type of analysis "community" has been taken to mean the smallest statistical area for which economic and social data are available. To provide such data for towns and other places within the rural census divisions of Alaska would result in violation of Federal and State confidentiality of information laws. Aside from this very practical reason for using the census divisions as the equivalent of communities, there are sound economic and sociological reasons for the choice. Many of the places within the rural census divisions are not true communities but are merely clusters of population. The definition of community must embrace an area large enough to contain a population sufficient in scale to permit the organization of social life for the pursuit of one or more common interests and the necessary support systems. In this study the common interest is the harvesting of fish and the "community" is the population group which is focused on that activity. More study is needed on this subject to more accurately identify a system of true communities in rural Alaska, but the rationale behind the establishment of the census divisions can be taken as a reasonable first approximation.

In order to provide the bridge between the two types of analysis (the functioning of economic systems focused on the geographic area in which the underlying activities take place, and the distribution of income which focuses upon the place of residence of the recipients) the economic analysis is in terms of employment and population only and some of the key fisheries data are presented on the basis of both the economic areas or regions and the census divisions. Income data, which is on the basis of census divisions and payment to residents of these divisions, has been grouped into the census division combinations which approximate the fisheries areas of the economic analysis to permit ready cross-reference. A comparison of the study regions, the Commercial Fisheries Entry Commission fisheries areas, and the U.S. Bureau of the Census Divisions is presented in the Table I-2 on the following page.

Some comment should be made on the census divisions which have been grouped in an "other" classification in most of the tables which follow. Although approximately 500 gear operators give the Anchorage census division zip codes as their home address, this census division has not been included with the Cook Inlet economic analysis area for two reasons. First, the Anchorage economy is so large in comparison with that of the Cook Inlet that the combination would completely overwhelm and obscure the functioning and structure of the economy centered on the Kenai and Cook Inlet. Secondly, from an analysis of the gear operators resident in Anchorage for the period 1969-76, the percentage who fished in the adjacent Cook Inlet fisheries fluctuated between 45% and 64% of the total. The balance fished in more distant fisheries having no geographic tie to the Anchorage census division. Although a commercial salmon fishery area does exist in the census divisions of the upper Yukon, this has also been included in the "other" classification because the fishery is small and of recent origin and is totally lost in the larger Fairbanks defense and oil and gas economy. Furthermore, it is the subject of another study.

Census Divisions

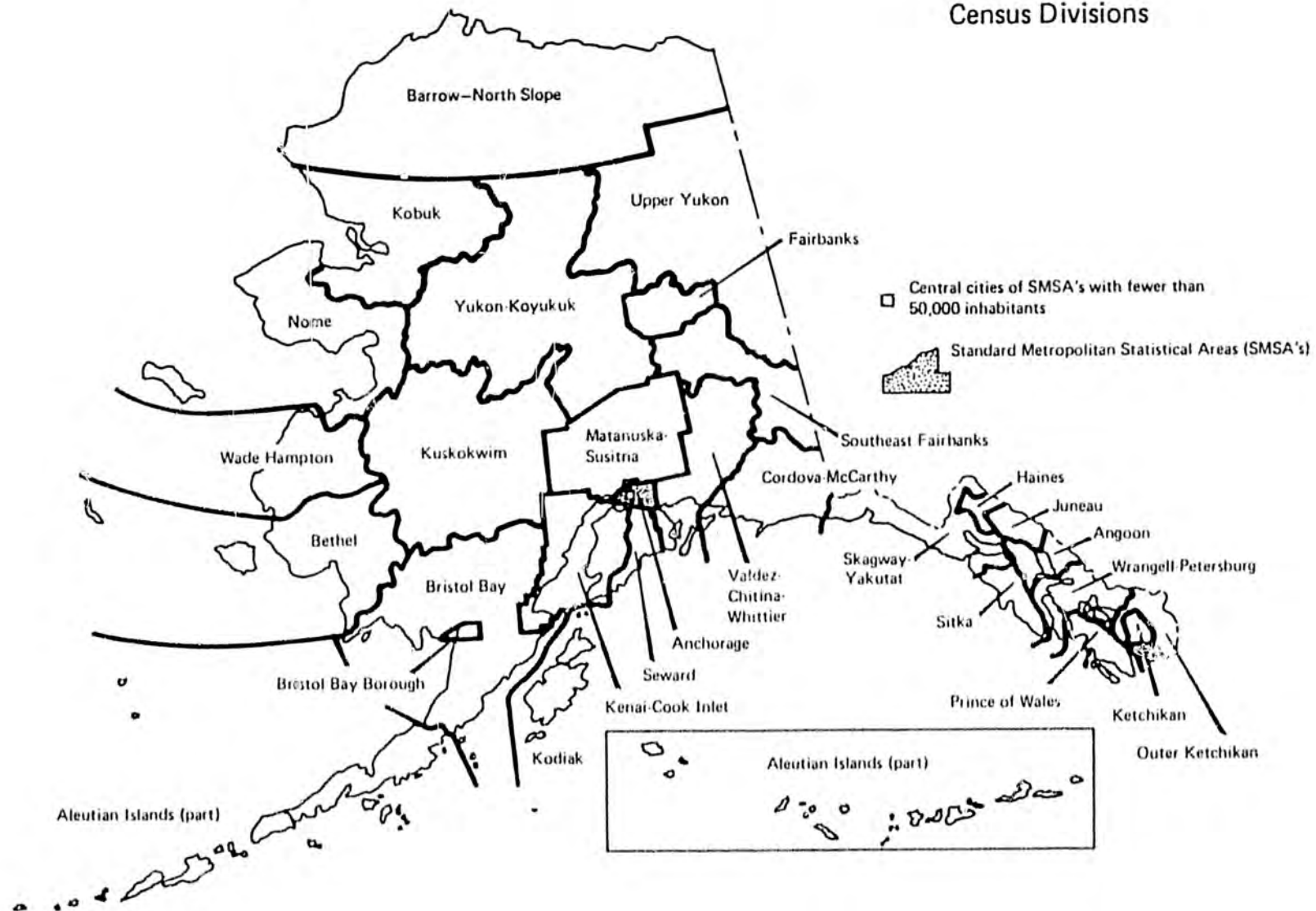


TABLE I-2

STUDY REGIONS AND
CORRESPONDING STATISTICAL REPORTING AREAS

Salmon Fisheries

Study Region	Areas (CFEC)	Census Divisions (U.S. B.C.)
1. Southeast	A. Southeastern D. Yakutat	{ Angoon Haines Juneau Ketchikan Outer Ketchikan Prince of Wales Sitka Skagway/Yakutat Wrangell/Petersburg
2. Prince William Sound	E. Prince William Sound	{ Cordova/McCarthy Valdez/Whittier/Chitina
3. Cook Inlet	H. Cook Inlet	{ Kenai/Cook Inlet Seward
4. Southwest	K. Kodiak L. Chignik M. Peninsula-Aleutians	{ Kodiak Aleutian Islands
5. Bristol Bay	T. Bristol Bay	{ Bristol Bay Borough Bristol Bay Division
6. Arctic/Yukon/ Kuskokwim (excluding Upper Yukon)	W. Kuskokwim X. Kotzebue Y. Lower Yukon Z. Norton Sound	{ Bethel Kuskokwim Wade Hampton Nome Kobuk
7. Upper Yukon	P. Upper Yukon	{ Upper Yukon Yukon/Koyukuk
8. Other		{ Anchorage Matanuska/Susitna Fairbanks Southeast Fairbanks Barrow/North Slope

CFEC = Alaska Commercial Fisheries Entry Commission
U.S. B.C. = U.S. Bureau of the Census

The Models of Analysis

A great deal can be learned from simply reviewing the historical data on resource production, employment and population, but to assess the actual role of a particular segment of a local economy, in this case the activity of harvesting and processing fish, it is necessary to examine the relationship between it and the balance of the subject economy. The simplest and most useful regional analytical tool for this purpose is the "export-base" model. In this type of model, the various segments of the economy are classified as belonging either to the "export" sector, which is created and sustained by forces located outside the local region, or to the "base" sector, which is determined by forces located within the region (the needs of local residents and the export sector) and which responds to changes in the "export" sector in some determinable manner. Other labels have been used for the sectors of this model, for example, export sector and local service sector. Because this analysis in this study will be in terms of employment, the terms used will be primary employment and induced employment.

Industries located within the primary sector are considered to be the principal source of change within a local economy. Those within the induced sector change only in response to fluctuations in the export sector. For example, the establishment of new bottomfish harvesting and processing activities in a local area will introduce new jobs and money into the local economy and eventually will cause further expansion through the additional support employment in the induced sector (retail trade, services, transportation, schools, etc.). On the other hand, in the absence of any change in the primary sector, a new grocery store would merely fight for a share of the existing market.

The actual classification of the industrial segments of the local economies covered by this study into the two sector model requires considerable local insight and knowledge. For example, in most regions government would be considered as part of the local service or induced sector, but in the Southwest region because of the large defense bases of Adak, Shemya and Kodiak and in Southeast region because of the location of the State Capitol, most government employment is more accurately classified as part of the primary sector as it exists to serve needs beyond the boundaries of the local economy. These are obvious examples, but in other cases (e.g. construction) the distinction is not so clear.

Because of the lack of time, the present rapport does not present the final model for use in each region or area. The statistics have been organized in accordance with an arrangement based upon the industrial classification of the U.S. Census and the Department of Labor which, however, permits the final organization of data appropriate to the model. The general industrial groups are combined into three major sectors: commodity producing industries (commercial fishing, fish processing or food processing, other manufacturing, mining, construction), government (federal-military, federal-civilian, state and local), and distributive industries (transportation, communications, public utilities, retail and wholesale trade, finance, insurance, real estate, services). Appropriate local economic models can be devised from these tables. For example, commodity producing and federal government (both military and civilian) can be tentatively classified as primary sector and all distributive industries and state and local government as the induced or local service

areas. Further refinement and adjustment can then be made as more local information is available.

Selected Results of Analysis

Table I-3 selects a few economic indicators for the year 1976 which can be calculated from the data in this study. For the month of July and for the year, the first set of indicators compare the relative importance of fish harvesting and processing in each of the major regions of the study. The remaining indicators provide a means of comparing the relative economic well-being of the regions. Per capita income is given for all residents of the regions and all income. Because of the importance of defense and other government employment and income in these regions, per capita calculations are also made for all non-government persons and income in the regions. The relative importance of "transfer payments", most of which are social welfare payments, gives a further measure of the degree to which income from employment and other normal economic activities must be subsidized.

Other statistical series in the following section of the report provide the basis for calculating the employment and income effects of changes in the levels and structure of specific fisheries activities upon the local economies and upon personal income received by residents.

TABLE 1-3 - SELECTED ECONOMIC INDICATORS, CALENDAR YEAR 1976

	FISHERIES REGION					OTHER REGIONS	
	<u>Southeast</u>	<u>Prince William Sound La</u>	<u>Cook Inlet</u>	<u>Southwest</u>	<u>Bristol Bay</u>	<u>Arctic Yukon Kuskokwim</u>	<u>Anchorage</u> <u>Other</u>
1. <u>Importance of Fish Harvesting & Processing Employment:</u>							
As percentage of total employment							
Month of July	20.9	69.7	27.9	42.4	75.8	26.3	--- 1b
12 Month Average	9.3	49.3	11.8	33.6	36.7	3.5	--- 1b
As percentage of Non-government employment							
Month of July	27.2	77.7	32.2	71.6	89.5	41.3	--- 1b
12 Month average	15.7	64.8	14.7	64.2	63.2	16.4	--- 1b
2. <u>Residents' Per capita Income</u>							
All residents of region	\$9,406	\$7,620	\$8,869	\$8,837	\$5,382	\$4,867	\$10,466 \$13,182
Non-government residents of region	\$9,047	\$6,653	\$8,537	\$7,580	\$3,826	\$3,501	\$10,430 \$14,154
As % Anchorage	86.7	63.8	81.9	72.7	36.7	33.6	100.0 135.7

1a Excludes Valdez because of abnormally high pipeline construction employment and income in 1976 and transformation of port to tanker traffic. 1976 per capita income for Valdez residents was \$21,544 as compared with \$10,466 for Anchorage.

1b Minor commercial fishery in upper Yukon not included. High per capita income reflects pipeline construction wage and salary income.

II. SOCIOECONOMIC DATA BASE FOR FISHERY AREAS AND CENSUS DIVISIONS

Considering the importance of Alaska's fishery industry to the State's economy and its residents, it is surprising that so very little concrete economic information is available in this area. The reasons for this scarcity of data are numerous. There are the difficulties of devising and collecting statistics for a geographic area as large as that covered by Alaska's fisheries and for groups as diverse, independent and mobile as Alaska's fishermen. Until the passage of Alaska's Commercial Fisheries Entry Act of 1973 and the U.S. Fishery Conservation and Management Act of 1976, the principal and almost exclusive objective of management was oriented to the resource rather than those who used the resource. Past management programs, therefore, have for the most part ignored economic and social objectives and the need for related data. But the principal cause of this dearth of data appears to be insufficient funding of fisheries economic research and data gathering.

The end result of this lack of current information is that some of the data series presented in this report, have had to be estimated from outdated or generalized sources. Although a great deal of time was spent in developing accurate estimation techniques, this report should not be considered a substitute for the extensive and time-consuming field work which is necessary to obtain reliable economic information.

Given the time and budgetary restraints of this interim project, the data in this provide a reasonably accurate picture of the relative economic condition of the various fisheries and regions of the state and a basis for estimating and analysing the effects of changes in the levels and nature of fish harvesting upon these local areas. It is important, however, that the limitations of the data and the need for further research be kept in mind.

The selection of statistics to be compiled or developed was determined by the two underlying objectives of this project, an analysis of the composition and functioning of local economies (and in particular the isolation of the role played by fisheries) and the distribution of income from economic activities among the residents of the local communities. The bulk of the source materials used to prepare estimates was from records that Federal and State government agencies maintain for their own purposes or to administer a program. Examples are the derivation of fish harvesting employment estimates from Alaska Department of Fish and Game fish ticket print outs and other employment from unemployment insurance reports. The major exception to this rule are the cost estimates used in Table 8 to estimate net earnings from fisheries.

One alternative to this approach would be to mount extensive field surveys to generate the needed information. This would provide more complete and detailed coverage, but would not only be costly, but would be of uncertain reliableness and even if perfect would be appropriate only for the time the survey was made. The use of existing data sources provides for economy, continuity and reliableness. The incorporation of such measures into legislation also minimizes the risk of legal challenge. An intermediate alternative between this approach and the total generation of data by survey would be that employed by the U.S.

Bureau of Economic Analysis in the preparation of annual State and county or census division estimates of personal income. This uses existing data sources but checks the methodology and application of these data used in their routine annual estimates by periodic bench-year surveys and revisions.

The tables which follow fall into two general groups. The first four tables deal with the application of established and generally recognized statistical tools to the subject of this study: employment by area and industrial classification, and personal income received by residents of census divisions. The remaining tables deal with fisheries employment and income, the data providing the means for estimating and analysing the local employment and income impacts of changes in the level and nature of fisheries (defined as a specific combination of species, gear and area) and hence of the impacts of proposed legislation revision of fisheries programs.