

SJR

34

STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE

REQUEST: _____

Bill Version: SJR 34
Publish Date: 3/27/87

Revision Date: 3/27/87
Title: Relating to the interception of Alaska salmon on high seas
Sponsor: Binklev, Jones, et.al.
Requestor: Senate Resources

Agency Affected: ADF&G
BRU: _____
Components: _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

| OPERATING | FY 87 | FY 88 | FY 89 | FY 90 | FY 91 | FY 92 |
|-------------------|-------|-------|-------|-------|-------|-------|
| PERSONAL SERVICES | -0- | | | | | |
| TRAVEL | -0- | | | | | |
| CONTRACTUAL | -0- | | | | | |
| SUPPLIES | -0- | | | | | |
| EQUIPMENT | -0- | | | | | |
| LAND & STRUCTURES | -0- | | | | | |
| GRANTS, CLAIMS | -0- | | | | | |
| MISCELLANEOUS | -0- | | | | | |
| TOTAL OPERATING | -0- | | | | | |

| | | | | | | |
|---------|-----|--|--|--|--|--|
| CAPITAL | -0- | | | | | |
|---------|-----|--|--|--|--|--|

| | | | | | | |
|---------|-----|--|--|--|--|--|
| REVENUE | -0- | | | | | |
|---------|-----|--|--|--|--|--|

FUNDING: (Thousands of Dollars)

| | | | | | | |
|---------------|-----|--|--|--|--|--|
| GENERAL FUND | -0- | | | | | |
| FEDERAL FUNDS | -0- | | | | | |
| OTHER | -0- | | | | | |
| TOTAL | -0- | | | | | |

POSITIONS:

| | | | | | | |
|-----------|-----|--|--|--|--|--|
| FULL-TIME | -0- | | | | | |
| PART-TIME | -0- | | | | | |
| TEMPORARY | -0- | | | | | |

ANALYSIS :

Prepared by: Roland Shanks
Division: Commissioner's Office
Approved by Commissioner: Quinn Callensworth
Agency: Fish and Game

Phone: 465-4100
Date: 4/8/87
Date: 4.8.87

Distribution (by preparer):

- Legislative Finance
- Legislative Sponsor
- Requestor
- Office of Management and Budget
- Impacted Agency(ies)
- Senate Secretary

HOUSE COMMITTEE REPORT

(9)

Date referred: 4/22/87

FURTHER REFERRALS:

DATE: May 8, 1987

The Resources Committee has considered SJR 34

Relating to the interception of Alaska salmon on the high seas.

RECOMMENDS:

- replace with _____ the same title
- attached amendment(s) a new title
- do pass
- do not pass
- no recommendation
- individual recommendations
- additional referral to the _____ Committee

ADOPTS: _____ letter of intent

ATTACHES NEW FISCAL NOTE(S):

- fiscal impact same as previous fiscal note published _____
- zero fiscal note same as previous zero fiscal note published _____
- zero with analysis

SIGNING DO PASS:

SIGNING OTHER RECOMMENDATIONS:

| | | | |
|--------------------------|----------|--------------------|--------|
| <u>Adelheid Herrmann</u> | Herrmann | <u>Dick Shultz</u> | Shultz |
| <u>Wynne Pearce</u> | Pearce | | |
| <u>_____</u> | Sund | | |
| <u>Cliff Davidson</u> | Davidson | | |
| <u>_____</u> | Hoffman | | |
| <u>_____</u> | Cotten | | |
| <u>Heinrich Springer</u> | Springer | | |

Adelheid Herrmann Herrmann
Chairman's signature

**STATE OF ALASKA 1987 LEGISLATIVE SESSION
FISCAL NOTE**

REQUEST: _____ Bill Version : SJR 34
Publish Date : May 8, 1987

Revision Date: _____ Agency Affected : None
Title : _____ BRU : _____

Sponsor : Binkley, Jones, Hensley, et al Components : _____
Requestor : _____

EXPENDITURES/REVENUES: (Thousands of Dollars)

| OPERATING | FY 87 | FY 88 | FY 89 | FY 90 | FY 91 | FY 92 |
|------------------------|-------|-------|-------|-------|-------|-------|
| PERSONAL SERVICES | | | | | | |
| TRAVEL | | | | | | |
| CONTRACTUAL | | | | | | |
| SUPPLIES | | | | | | |
| EQUIPMENT | | | | | | |
| LAND & STRUCTURES | | | | | | |
| GRANTS, CLAIMS | | | | | | |
| MISCELLANEOUS | | | | | | |
| TOTAL OPERATING | 0 | 0 | 0 | 0 | 0 | 0 |
| CAPITAL | | | | | | |
| REVENUE | | | | | | |

FUNDING: (Thousands of Dollars)

| | | | | | | |
|---------------|---|---|---|---|---|---|
| GENERAL FUND | | | | | | |
| FEDERAL FUNDS | | | | | | |
| OTHER | | | | | | |
| TOTAL | 0 | 0 | 0 | 0 | 0 | 0 |

POSITIONS:

| | | | | | | |
|-----------|--|--|--|--|--|--|
| FULL-TIME | | | | | | |
| PART-TIME | | | | | | |
| TEMPORARY | | | | | | |

ANALYSIS : (Attach a separate page if necessary)

Prepared by: House Resources Committee Phone: 465-3711
Division : _____ Date: May 8, 1987

Approved by Commissioner: Adelheid Herrmann Date: _____
Agency : _____

Distribution (by preparer) :
Legislative Finance
Legislative Sponsor
Requestor
Office of Management and Budget
Impacted Agency(ies)
Senate Secretary

Senator Johne Binkley

Alaska State Senate
P.O. Box V • Juneau, Alaska 99811 • (907) 465-4985



FINANCE COMMITTEE
1000

M E M O R A N D U M

May 6, 1987

TO: REPRESENTATIVE ADELHEID HERRMANN, CO-CHAIR
REPRESENTATIVE SAM COTTEN, CO-CHAIR
House Resources Committee

FROM: SENATOR JOHNE BINKLEY *[Signature]*

SUBJ: SJR34, relating to the high seas interception of
Alaska salmon

I am extremely concerned over recent developments regarding the status of certain western and interior Alaska salmon stocks and actions taken by the Japanese with respect to onboard observers on their high seas salmon fleets. The recently negotiated U.S./Japan high seas salmon agreements are completely unsatisfactory in providing adequate protection for certain severely depleted western and interior Alaska salmon stocks. Furthermore, I believe that the recent position taken by the Japanese by refusing to allow United States observers on Japanese catcher vessels operating in international waters off the coast of Alaska makes folly of the recent salmon renegotiations between our two countries.

For the past several years, United States observers have been allowed on Japanese catcher vessels operating in international waters off the coast of Alaska to monitor compliance with international salmon harvest agreements. Without independent onboard observers there is little incentive for the Japanese high seas fleets to respect the negotiated chinook salmon quotas.

Some western and interior Alaska salmon stocks are so severely depressed that extraordinary conservation measures are required again this year. The proposed restrictions include the reduction and elimination of certain directed salmon fisheries, as well as additional subsistence restrictions. Conservation problems for the Kuskokwim and upper Yukon chinook stocks appear to be long-term, as escapements in these river systems have been far below Alaska Department of Fish and Game (ADF&G) objectives for the past four to five years.

Representative Adelheid Herrmann
Representative Sam Cotten
May 6, 1987
Page 2

The Yukon and Kuskokwim region in western Alaska is one of the most economically disadvantaged in the United States. Commercial fisheries represent the single most important source of cash income, yet produce an average of less than \$7,000 per fisherman per year. The ADF&G estimates that total losses from the proposed conservation restrictions on the Kuskokwim fishery may total \$1 million this year from a fishery in which the total amount paid to the fishermen averages \$3 million per year.

In a March 20, 1987 letter to Ambassador Negroponte, the ADF&G states that conservation problems for Kuskokwim and upper Yukon chinook stocks are worse than were known during the recent renegotiations. The ADF&G believes this warrants additional action on the part of the Japanese.

One mechanism to generate leverage for Japanese concessions on the interception problem is through the issuance of the marine mammal permit. I recommend that we appeal to National Oceanic and Atmospheric Administration Administrator Calio through Senate Joint Resolution 34 to not issue the permit until the Japanese have agreed to allow United States observers on their vessels in international waters. Moreover, I further recommend that we request Administrator Calio impose, at a minimum, the restrictions recommended by Administrative Law Judge Dolan on the number of certain marine mammals that can be taken by the Japanese fleets incidental to their salmon harvest.

I am optimistic that a reduction in the marine mammal take by the Japanese high seas salmon fleets will result in a reduced harvest of Alaska salmon.

We are experiencing a conservation crisis with respect to this important American resource. Our local fishermen are being shut down so that the Japanese can catch our salmon in our waters. This situation is unacceptable to me and to the thousands of western Alaskan fishermen who depend on salmon for income and food.

Thank you for your consideration and support of this most important resolution.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

STEVE COWPER, GOVERNOR

P O BOX 3-2000
JUNEAU, ALASKA 99802-2000
PHONE (907) 465-4100

March 20, 1987

The Honorable John D. Negroponete
Assistant Secretary
Oceans and International Environmental
and Scientific Affairs
Department of State
Washington, DC 20520

Dear Ambassador Negroponete:

Harold Sparck has indicated that he had a chance to discuss the Japanese high seas salmon fishery and your forthcoming trip to Japan. Harold requested that I follow up with you regarding the status of Western Alaska chinook stocks and the economic and biological implications of high seas interceptions of these fish.

Enclosed is a department paper outlining western Alaska chinook stock status. I apologize for its length, but it is mostly for background to use as you see fit. I will summarize the findings and their implications for the 1987 season.

Conservation problems exists for two of the major stock components in this area--the Yukon and Kuskokwim. These are not short-term problems, as escapements in both rivers have been depressed for four or five years. In the case of the Kuskokwim, this problem is so severe that it will preclude a directed commercial fishery and may require some restrictions in the subsistence fishery. Protection of chinook will also probably mean a reduction in the number of chums and reds which can be taken commercially as well, since the timing of these stocks overlap. Total losses to the Kuskokwim fishery from these restrictions may be as much as \$1 million in a fishery that only averages about \$3 million ex-vessel value per year.

The Yukon and Kuskokwim region is one of the most economically depressed in the United States. Fisheries are the single most important source of cash income in this area as well as an important food source to the subsistence economy of most villages. Despite its importance to the area, the average commercial fisherman makes less than \$7,000.00 per

year for his efforts. Obviously, interception of salmon on the high seas has a very significant economic impact to the Indian and Eskimo residents of this region.

Estimates of interception of western Alaska chinook salmon average about 100,000 fish per year for recent years prior to the latest INPFC renegotiations. An additional loss is incurred by fish which drop out of the nets uncounted which is only partially offset by the fact that some of these fish would have died from natural mortality before returning inshore. The net result was probably an average loss of 160,000 western Alaska chinook salmon per year. The renegotiation will result in a zero interception in the Central Bering Sea, but it takes eight years to totally close this area. It does not substantially reduce interceptions in our EEZ, but hopefully the U.S.S.R. quota of 50,000 chinook salmon will be more closely adhered to since their catches are being better monitored by our negotiated increase in observer coverage. Overall, the renegotiation should reduce known interceptions by about one-half over time.

To make a long story short, it would be desirable from a conservation and economic standpoint to reduce their interceptions of western Alaska chinook as far as possible as soon as possible. Adherence to the U.S.S.R. quota level in our zone will help, but we would also like to ensure that we get more help, faster in the central Bering Sea (donut) area than currently envisioned under the treaty eight year phase out. The Soviets also have a 20,000 fish chinook quota in the donut area. We would like to have a better feeling for how tightly the Soviets will try to make the Japanese adhere to this figure, but beyond that we would like some assurances the actual catch is monitored. The Soviets do have observers on Japanese motherships in this area but not on catcher boats. There is no way to determine if catcher boat operators are discarding chinook to avoid the ceiling without this coverage.

For the last several years, the U.S. has had an industry agreement with Japan that allowed us to leave our catcher-boat observers onboard when their boats went to the donut from our zone. Japan has now indicated that this agreement ended with the 1986 season and they refuse to renew it. This is unacceptable to us since it will leave us with no ability to monitor catch levels in the donut area. We may have large increases in retained or non-retained catch during this period of phaseout with a very negative impact on our ability to rebuild these stocks.

Even with better catch monitoring and assuming the Soviets force Japan's compliance with their quotas, the net impact of Japanese interceptions (known catch and dropout) could

The Honorable John D.
Negroponte

-3-

March 20, 1987

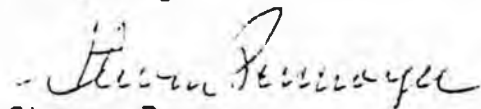
total 80,000 western Alaska chinook in 1987. The alternative of an unmonitored central Bering Sea fishery is potentially much worse. We have no way to apportion these catches by river system, but the Yukon and Kuskokwim account for the majority of the western Alaska runs, so we would assume a substantial portion of these fish would be bound for these rivers.

In summary, our conservation problems on Kuskokwim and Upper Yukon chinook stocks are worse than was known during the recent negotiations. We believe this warrants additional action on the part of the Japanese. The actions which we think need to be taken are:

1. Maintenance of prior levels of U.S. catcherboat observer coverage in the central Bering Sea (donut) area.
2. Assurance by Japan that their mothership fishery catches of chinook salmon in the central Bering Sea and our EEZ during the period of phaseout under the current agreement will not exceed those of recent years which have generally been less than the Soviet quotas for these areas.
3. Reduction in these catch levels in at least the short term in each area to take into account the severity of the current conservation problem.

Thank you for your assistance. Please feel free to contact me for any further information you may need. We would be pleased to meet with you and Japanese government or industry representatives to explain these issues if required.

Sincerely,



Steven Pennoyer
Deputy Commissioner

Enclosure

cc: Senator John Binkley
John Katz
Rod Swope

WESTERN ALASKA CHINOOK STOCK STATUS

INTRODUCTION

This report summarizes catch, escapement, and stock status for western Alaska chinook salmon (Oncorhynchus tshawytscha). The geographical bounds of western Alaska include the following areas: Kotzebue Sound, Norton Sound, Yukon River, Kuskokwim Bay, Kuskokwim River, Bristol Bay, the North side of the Alaska Peninsula, and the Aleutian Islands (Figure 1).

Chinook salmon are found throughout western Alaska. The commercial and subsistence fisheries are concentrated in the Port Moller area off the Alaska Peninsula; in Bristol Bay, especially in the Nushagak and Togiak areas; Kuskokwim Bay and the lower Kuskokwim River; the Yukon River; and southern Norton Sound. There are negligible amounts of chinook salmon harvested in the Aleutian Island area. More than 90 per cent of the chinook salmon produced in western Alaska originate in the Nushagak, Kuskokwim, and Yukon Rivers. Although western Alaska chinook salmon are harvested for subsistence, and sport purposes, the majority are taken in commercial fisheries (Table 1). The fisheries are conducted in nearshore coastal waters, except for the Yukon and Kuskokwim Rivers where commercial and subsistence fisheries are prosecuted within the rivers. The gear used to capture chinook is primarily nylon gillnets with mesh size 9 1/2 inches or smaller. Some harvest of chinook occurs with fishwheels in the upper Yukon and Kuskokwim Rivers.

THE FISHERIES

Chinook salmon were first harvested for subsistence purposes. Remnants of salmon net stone sinkers have been found in old village sites at Cape Denbigh in Norton Sound that date back to 400 B.C. (ADF&G 1972). Periodic subsistence catch reports available since 1920 for some western Alaska locations are presented in Table 2. However, the quality and completeness of subsistence statistics was poor until 1960. Since 1960, the average annual subsistence chinook harvest has been approximately 81,000 fish. Subsistence harvest has averaged 22 % of the total harvest of chinook during this same period (Table 1). In some locations, such as the Kuskokwim River, the subsistence harvest has frequently exceeded the commercial harvest. The subsistence fishery is managed by a permit system which specifies a guideline harvest level. In recent years management measures have become more restrictive than in the past.

The first significant commercial harvest of chinook salmon began in Bristol Bay during the late 1800's and in the Alaska Peninsula, Kuskokwim and Yukon areas during the early 1900's (Table 3). The average commercial harvest of chinook salmon in

western Alaska since 1960 is approximately 296,000 fish (Table 1). Management of the commercial fishery is primarily by gear restrictions and time - area closures. In recent years management measures have become more restrictive, primarily through reduction in fishing time.

CATCH, ESCAPEMENT, AND STATUS OF STOCKS

The Alaska Department of Fish and Game is concerned over the current abundance level of Western Alaska stocks of chinook salmon. Catches of Western Alaska Chinook salmon have been steadily declining since 1983 (Figure 2), with the 1986 harvest the lowest since 1976. In 1986, escapement levels were substantial less than desired levels for chinook stocks that are harvested in the Kuskokwim River, Goodnews Bay, Nushagak, and Togiak fisheries. Escapement levels for the upper Yukon River (mostly spawning in Canada) chinook stocks in 1986 were also less than desired levels. The following sections outline in greater detail the status of stocks for the most important chinook salmon commercial fisheries in western Alaska, Bristol Bay, Kuskokwim, and Yukon areas.

Bristol Bay.

Prior to 1952 virtually all of the commercial harvest of Bristol Bay chinook was in the Nushagak district. Since then approximately 25% occurs in other Bristol Bay districts, with the Togiak district being the most important of the other districts. Some of the chinook harvests occurs incidentally in the sockeye fishery. The commercial fishery has averaged less than 100,000 chinook per year until the mid-seventies (Table 3), either because of low stock abundance or market limitation. Catches have increased markedly since 1976, in response to a combination of factors including: increased resource availability, increased effort, and more favorable markets. Subsistence harvests have been increasing (Table 2) and have averaged 10,600 fish per year since 1975.

Escapement levels in the Nushagak and Togiak Rivers, based on aerial surveys, have increased markedly since the mid-seventies (Table 4). This suggests that the increased catches of chinook during this same period was, in part, due to increased abundance of chinook.

The 1986 return of chinook salmon to Bristol Bay was very poor. The catches of chinook in the Nushagak and Togiak districts was the lowest since 1975. The combined aerial survey estimate of chinook escapement to the Nushagak and Togiak River in 1986 was the lowest ever observed (aerial surveys were initiated in 1967). Because escapements of chinook salmon in Bristol Bay River Systems have been near or above goals until this year, there remains a favorable potential for continued strong returns of

chinook salmon to Bristol Bay River systems. However, in view of the weak 1986 Bristol Bay chinook return, fisheries should be managed with some degree of caution until run strength is assured.

Kuskokwim Area.

Kuskokwim Area commercial catches were first documented in 1913. However, the fishery remained at a relatively low level until the early 1960's. The Kuskokwim area commercial fisheries have been somewhat stabilized by a gradual reduction in fishing time allowed with large mesh sizes that are more efficient in capturing chinook salmon. Note that Kuskokwim Area fisheries include the Quinhagak and Goodnews Bay fisheries.

The Kuskokwim chinook fishery is the only major chinook fishery in Alaska where the subsistence utilization has frequently surpassed the commercial utilization. Since 1975, the total annual harvest has averaged 118,300 fish (55,800 subsistence; 62,500 commercial).

Escapements of chinook salmon to Kuskokwim area rivers have been declining since 1981 (Table 5). Escapement levels of chinook salmon in the Kuskokwim River have been less than desired levels since 1982, with levels during the period 1983 - 1986 being 52%, 43%, 35%, and 33% of desired goal, respectively.

In response to the low escapement in recent years and a poor 1986 return, no directed fishing was allowed for chinook salmon in the Kuskokwim River during 1986. The commercial harvest of chinook included only subsistence and incidental catches in fisheries directed at chum and sockeye salmon. During 1986, the Goodnews Bay chinook fishery was closed for most of the season, with most of the commercial harvests of chinook incidental to directed harvest of chum and sockeye salmon.

Yukon River

The Yukon River commercial king salmon fishery dates back to 1918. Since 1961 commercial catches in Alaska have ranged from 63,800 to 158,000 fish, with the recent 5 year average being 127,500 fish. In addition to the Alaska catch, the catches of chinook in the commercial fishery at Dawson (Yukon Territory) have ranged from 3,000 to 13,000 fish and averaged 7,800 fish (Table 3). The catches in the Canadian fishery have increased sharply since the early 70's (Table 3).

Commercial fishing effort has increased sharply since 1961 until the mid-70's when entry to the fishery became regulated. Yukon River chinook salmon returns generally declined during the early 70's. However, returns since then have been increasing. Restrictions placed on the Alaskan fishery during the 70's coupled with increasing returns have resulted in improved (in qualitative terms) escapements compared to the 1963 - 1969.

Since 1972, escapements to the lower and middle Yukon River spawning grounds, have been very stable (Table 6). Recently however, escapements to the upper Yukon area spawning grounds have been decreasing.

In the Yukon River, the Department is concerned most about the escapement levels for the upriver stocks of chinook salmon. Because these stocks are at the end of the gauntlet of fisheries, beginning with high seas drift net fisheries and ending with the Canadian fishery, these stocks have been harvested at a rate that cannot be sustained. Because of this concern and low upriver escapements beginning in 1982, the lower Yukon River fisheries were severely restricted in 1986. As a result of these restrictions the 1986 catches were reduced by approximately 40 thousand fish from the 1985 level. Escapements to the lower river stocks were above goals in 1986, and near the goal for the midriver stocks. Escapements for the upriver stocks in 1986 were above the 1985 level but much lower than desired, in spite of severe restrictions of the 1986 lower river fishery.

CONCLUSIONS

Because of low chinook salmon escapements that have occurred for several years in many Western Alaska River systems, the outlook is for continued lower returns of chinook salmon in the near future. In particular, the State of Alaska faces critical problems with the conservation of stocks of chinook salmon that spawn in the Kuskokwim River drainage and the upriver areas of the Yukon.

Table 1. Commercial, subsistence, and total catch of Western Alaska (including Canadian catches of upper Yukon chinook stocks), 1960 - 1986

| Year | Commercial Catch | Subsistence Catch | Total Catch |
|----------------------------------|------------------|-------------------|----------------|
| 1960 | 199,784 | 25,956 | 225,740 |
| 1961 | 246,578 | 62,198 | 308,776 |
| 1962 | 217,085 | 35,652 | 252,737 |
| 1963 | 210,402 | 74,002 | 284,404 |
| 1964 | 263,203 | 54,684 | 317,887 |
| 1965 | 265,254 | 55,966 | 321,220 |
| 1966 | 209,448 | 71,988 | 281,436 |
| 1967 | 286,124 | 84,875 | 370,999 |
| 1968 | 261,148 | 57,022 | 318,170 |
| 1969 | 289,285 | 66,216 | 355,501 |
| 1970 | 293,395 | 93,947 | 387,342 |
| 1971 | 286,419 | 79,118 | 365,537 |
| 1972 | 225,827 | 72,085 | 297,912 |
| 1973 | 179,452 | 75,537 | 254,989 |
| 1974 | 183,391 | 63,217 | 246,608 |
| 1975 | 129,150 | 75,690 | 204,840 |
| 1976 | 245,044 | 88,334 | 333,378 |
| 1977 | 300,798 | 85,551 | 386,349 |
| 1978 | 382,549 | 79,512 | 462,061 |
| 1979 | 428,615 | 102,788 | 531,403 |
| 1980 | 331,202 | 129,770 | 460,972 |
| 1981 | 510,176 | 115,546 | 625,722 |
| 1982 | 507,909 | 111,272 | 619,181 |
| 1983 | 493,113 | 119,307 | 612,420 |
| 1984 | 339,391 | 121,342 | 460,733 |
| 1985 | 403,356 | 108,063 | 511,419 |
| 1986 | 267,873 | 114,984 | 382,857 |
| Average 1960 - 1985 | 295,696 | 81,140 | 376,836 |

Table 2. Subsistence harvest of Western Alaska chinook salmon (including Canadian harvests of upper Yukon chinook) by area and year, 1920 - 1986.

| Year | Yukon River | | | Bristol Bay | Total Western Alaska |
|------|-------------|--------|-----------|-------------|----------------------|
| | Alaska | Canada | Kuskokwim | | |
| 1920 | 20,000 | --- | --- | --- | 20,000 |
| 1921 | --- | --- | --- | --- | --- |
| 1922 | 15,000 | --- | --- | --- | 15,000 |
| 1923 | 17,500 | --- | --- | --- | 17,500 |
| 1924 | --- | --- | 14,700 | --- | 14,700 |
| 1925 | 15,000 | --- | 10,800 | --- | 25,800 |
| 1926 | 20,500 | --- | --- | --- | 20,500 |
| 1927 | --- | --- | --- | --- | --- |
| 1928 | --- | --- | --- | --- | --- |
| 1929 | --- | --- | --- | --- | --- |
| 1930 | --- | --- | --- | --- | --- |
| 1931 | 26,693 | --- | --- | --- | 26,693 |
| 1932 | 23,160 | --- | --- | --- | 23,160 |
| 1933 | 19,900 | --- | 6,290 | --- | 26,190 |
| 1934 | --- | --- | 20,800 | --- | 20,800 |
| 1935 | 20,400 | --- | 22,930 | --- | 43,330 |
| 1936 | 22,750 | --- | 33,500 | --- | 56,250 |
| 1937 | 5,528 | --- | --- | --- | 5,528 |
| 1938 | 19,244 | --- | 10,153 | --- | 29,397 |
| 1939 | 18,050 | --- | 14,000 | --- | 32,050 |
| 1940 | 14,400 | --- | 8,000 | --- | 22,400 |
| 1941 | 17,703 | --- | 8,000 | --- | 25,703 |
| 1942 | --- | --- | 6,400 | --- | 6,400 |
| 1943 | --- | --- | 6,400 | --- | 6,400 |
| 1944 | --- | --- | --- | --- | --- |
| 1945 | --- | --- | --- | --- | --- |
| 1946 | --- | --- | --- | --- | --- |
| 1947 | --- | --- | --- | --- | --- |
| 1948 | --- | --- | --- | --- | --- |
| 1949 | --- | --- | --- | --- | --- |
| 1950 | --- | --- | --- | --- | --- |
| 1951 | --- | --- | --- | --- | --- |
| 1952 | --- | --- | --- | --- | --- |
| 1953 | --- | --- | --- | --- | --- |
| 1954 | --- | --- | --- | --- | --- |
| 1955 | --- | --- | --- | --- | --- |
| 1956 | --- | --- | --- | --- | --- |
| 1957 | --- | --- | --- | --- | --- |

Table 2. (Cont.) Subsistence harvest of Western Alaska chinook salmon (including Canadian harvests of upper Yukon chinook) by area and year, 1920 - 1986.

| Year | Yukon River | | | Bristol Bay | Total Western Alaska |
|------|-------------|--------|-----------|-------------|----------------------|
| | Alaska | Canada | Kuskokwim | | |
| 1958 | 11,890 | 8,000 | --- | --- | 19,890 |
| 1959 | --- | 5,957 | --- | --- | 5,957 |
| 1960 | --- | 5,393 | 20,361 | --- | 25,900 |
| 1961 | 21,488 | 9,800 | 30,910 | --- | 62,198 |
| 1962 | 11,110 | 9,900 | 14,642 | --- | 35,652 |
| 1963 | 24,862 | 7,794 | 37,246 | 4,100 | 74,002 |
| 1964 | 16,231 | 4,200 | 30,853 | 3,400 | 54,684 |
| 1965 | 16,608 | 3,113 | 31,143 | 5,100 | 55,966 |
| 1966 | 11,572 | 2,510 | 53,606 | 4,300 | 71,988 |
| 1967 | 16,488 | 2,963 | 61,224 | 4,200 | 84,875 |
| 1968 | 12,106 | 2,830 | 34,986 | 7,100 | 57,022 |
| 1969 | 14,000 | 984 | 43,732 | 7,500 | 66,216 |
| 1970 | 13,874 | 2,052 | 71,376 | 6,645 | 93,947 |
| 1971 | 25,684 | 3,269 | 45,465 | 4,700 | 79,118 |
| 1972 | 20,258 | 3,960 | 43,335 | 4,532 | 72,085 |
| 1973 | 24,317 | 2,323 | 41,697 | 7,200 | 75,537 |
| 1974 | 19,964 | 3,823 | 29,390 | 9,840 | 63,217 |
| 1975 | 13,045 | 3,000 | 51,045 | 8,600 | 75,690 |
| 1976 | 17,806 | 1,525 | 60,603 | 8,400 | 88,334 |
| 1977 | 17,581 | 2,807 | 58,163 | 7,000 | 85,551 |
| 1978 | 30,297 | 2,906 | 38,209 | 8,100 | 79,512 |
| 1979 | 31,005 | 4,200 | 57,283 | 10,300 | 102,788 |
| 1980 | 42,724 | 13,046 | 59,900 | 14,100 | 129,770 |
| 1981 | 29,690 | 9,216 | 63,640 | 13,000 | 115,546 |
| 1982 | 28,158 | 8,268 | 61,146 | 13,700 | 111,272 |
| 1983 | 49,478 | 5,625 | 50,704 | 13,500 | 119,307 |
| 1984 | 42,428 | 6,610 | 61,004 | 11,300 | 121,342 |
| 1985 | 39,771 | 6,428 | 52,189 | 9,675 | 108,063 |
| 1986 | 45,282 | 9,267 | 45,718 | 14,747 | 114,984 |

Table 3. Commercial harvest of Western Alaska chinook salmon
(including Canadian catches of upper Yukon chinook)
by area and year, 1893 - 1986.

| Year | Kotzebue Sound | Norton Yukon River Alaska | Canada | Kuskokwim | Bristol Bay | North Alaska Pens. | Total Western Alaska |
|------|----------------|---------------------------------|--------|-----------|----------------|--------------------------|----------------------------|
| 1893 | | | | | 44,000 | | 44,000 |
| 1894 | | | | | 10,500 | | 10,500 |
| 1895 | | | | | 19,925 | | 19,925 |
| 1896 | | | | | 17,301 | | 17,301 |
| 1897 | | | | | 19,897 | | 19,897 |
| 1898 | | | | | 19,260 | | 19,260 |
| 1899 | | | | | 38,259 | | 38,259 |
| 1900 | | | | | 58,307 | | 58,307 |
| 1901 | | | | | 106,047 | | 106,047 |
| 1902 | | | | | 109,089 | | 109,089 |
| 1903 | | | | | 86,506 | | 86,506 |
| 1904 | | | | | 97,953 | | 97,953 |
| 1905 | | | | | 116,855 | | 116,855 |
| 1906 | | | | | 143,194 | 1,530 | 144,724 |
| 1907 | | | | | 137,677 | 1,725 | 139,402 |
| 1908 | | | | | 90,009 | 600 | 90,609 |
| 1909 | | | | | 130,489 | 1,500 | 131,989 |
| 1910 | | | | | 101,755 | | 101,755 |
| 1911 | | | | | 113,163 | | 113,163 |
| 1912 | | | | | 97,728 | 940 | 98,668 |
| 1913 | | | | 7,800 | 74,249 | 600 | 82,649 |
| 1914 | | | | | 100,964 | 8,090 | 109,054 |
| 1915 | | | | | 148,028 | 13,953 | 161,981 |
| 1916 | | | | 949 | 105,124 | 44,244 | 150,317 |
| 1917 | | | | 7,878 | 91,145 | 20,006 | 119,029 |
| 1918 | | 12,239 | | 3,055 | 87,048 | 9,679 | 112,021 |
| 1919 | | 104,822 | | 4,836 | 201,954 | 19,632 | 331,244 |
| 1920 | | 58,467 | | 34,853 | 127,350 | 19,001 | 239,671 |
| 1921 | | 69,646 | | 9,854 | 91,982 | 12,474 | 183,956 |
| 1922 | | 16,825 | | 8,944 | 74,020 | 10,431 | 110,220 |
| 1923 | | 13,393 | | 7,254 | 67,013 | 9,075 | 96,733 |
| 1924 | | 27,375 | | 19,253 | 71,663 | 10,493 | 128,784 |
| 1925 | | | | 1,664 | 97,448 | 10,550 | 109,662 |
| 1926 | | | | | 74,604 | 23,925 | 98,529 |
| 1927 | | | | | 83,846 | 16,495 | 100,341 |
| 1928 | | | | | 66,075 | 4,604 | 70,679 |
| 1929 | | | | | 150,663 | 4,067 | 154,730 |
| 1930 | | | | 7,515 | 105,428 | 3,846 | 116,789 |

Table 3. (Cont.) Commercial harvest of Western Alaska chinook salmon (including Canadian catches of upper Yukon chinook) by area and year, 1893 - 1986.

| Year | Norton Kotzebue Sound | Yukon River Alaska | Canada | Kuskokwim | Bristol Bay | North Alaska Pens. | Total Western Alaska |
|------|--------------------------|-----------------------|---------|-----------|----------------|--------------------------|----------------------------|
| 1931 | | | | 8,541 | 47,175 | 1,837 | 57,553 |
| 1932 | | 4,739 | | 9,399 | 68,286 | 3,255 | 85,679 |
| 1933 | | 2,829 | | | 49,308 | 1,145 | 59,282 |
| 1934 | | 25,365 | | | 45,945 | 1,619 | 72,929 |
| 1935 | | 7,265 | | 6,448 | 3,573 | 991 | 18,277 |
| 1936 | | 20,963 | | 624 | 21,703 | 983 | 44,273 |
| 1937 | | 6,226 | | 480 | 36,629 | 1,633 | 44,968 |
| 1938 | | 13,727 | | 627 | 43,934 | 5,902 | 66,187 |
| 1939 | | 9,987 | | 124 | 33,408 | 3,918 | 47,447 |
| 1940 | | 18,053 | | 247 | 15,267 | 741 | 34,308 |
| 1941 | | 29,905 | | 187 | 30,661 | 716 | 61,469 |
| 1942 | | 22,487 | | | 19,006 | | 41,493 |
| 1943 | | 27,650 | | | 41,146 | 183 | 68,979 |
| 1944 | | 14,232 | | | 16,373 | 70 | 30,675 |
| 1945 | | 19,727 | | | 26,609 | 86 | 46,422 |
| 1946 | | 22,782 | | 2,288 | 27,401 | 2,458 | 54,929 |
| 1947 | | 54,026 | | 5,356 | 41,641 | 82 | 101,105 |
| 1948 | | 33,842 | | | 49,116 | 2,164 | 85,122 |
| 1949 | | 36,379 | | | 50,752 | 712 | 87,843 |
| 1950 | | 41,808 | | | 45,261 | 1,101 | 88,170 |
| 1951 | | 56,278 | | 4,210 | 40,183 | 1,272 | 101,943 |
| 1952 | | 38,637 | | | 52,856 | 661 | 92,154 |
| 1953 | | 58,859 | | | 42,556 | 808 | 102,223 |
| 1954 | | 64,545 | | 57 | 56,016 | 3,379 | 123,997 |
| 1955 | | 55,925 | | | 75,429 | 4,119 | 135,473 |
| 1956 | | 62,208 | | | 66,377 | 4,154 | 132,739 |
| 1957 | | 63,623 | | | 91,420 | 1,040 | 156,083 |
| 1958 | | 63,735 | 3,000 | | 103,207 | 14,989 | 184,931 |
| 1959 | | 78,370 | 2,477 | 3,760 | 84,289 | 28,692 | 197,588 |
| 1960 | | 67,597 | 4,058 | 5,985 | 111,703 | 10,441 | 199,784 |
| 1961 | | 5,300 | 119,664 | 3,446 | 23,462 | 88,656 | 246,578 |
| 1962 | 12 | 7,386 | 94,736 | 4,037 | 20,869 | 84,047 | 217,085 |
| 1963 | 7 | 6,613 | 117,048 | 2,283 | 18,581 | 62,269 | 210,402 |
| 1964 | | 2,034 | 93,587 | 3,208 | 21,246 | 139,536 | 263,203 |
| 1965 | | 1,449 | 118,014 | 2,265 | 24,428 | 112,967 | 265,254 |
| 1966 | 1 | 1,553 | 93,315 | 1,942 | 25,823 | 77,472 | 209,448 |
| 1967 | 1 | 1,804 | 124,430 | 2,187 | 29,986 | 127,193 | 286,124 |
| 1968 | 2 | 1,045 | 106,526 | 2,212 | 43,157 | 103,723 | 261,148 |
| 1969 | | 2,394 | 90,720 | 1,640 | 64,777 | 124,908 | 289,285 |

Table 3. (Cont.) Commercial harvest of Western Alaska chinook salmon (including Canadian catches of upper Yukon chinook) by area and year, 1893 - 1986.

| Year | Kotzebue | Norton Sound | Yukon Alaska | River Canada | Kuskokwim | Bristol Bay | North Alaska Pens. | Total Western Alaska |
|------|----------|--------------|--------------|--------------|-----------|-------------|--------------------|----------------------|
| 1971 | 1 | 2,593 | 110,507 | 3,178 | 44,936 | 123,015 | 2,189 | 286,419 |
| 1972 | 3 | 2,938 | 92,840 | 1,769 | 56,939 | 69,546 | 1,792 | 225,827 |
| 1973 | 5 | 1,918 | 75,353 | 2,199 | 51,374 | 44,044 | 4,559 | 179,452 |
| 1974 | | 2,951 | 97,919 | 1,808 | 29,752 | 45,662 | 5,299 | 183,391 |
| 1975 | | 2,394 | 63,868 | 3,000 | 27,803 | 23,992 | 2,093 | 129,150 |
| 1976 | 3 | 2,248 | 88,269 | 3,500 | 50,103 | 95,968 | 4,953 | 245,044 |
| 1977 | 10 | 4,500 | 96,757 | 4,720 | 58,796 | 130,526 | 5,489 | 300,798 |
| 1978 | 146 | 10,002 | 99,168 | 2,975 | 64,460 | 191,539 | 14,259 | 382,549 |
| 1979 | 227 | 10,803 | 127,743 | 6,175 | 53,687 | 212,873 | 17,107 | 428,615 |
| 1980 | 223 | 6,322 | 153,985 | 9,500 | 48,839 | 95,528 | 16,805 | 331,202 |
| 1981 | 79 | 7,929 | 158,018 | 8,593 | 79,378 | 237,304 | 18,875 | 510,376 |
| 1982 | 67 | 5,892 | 123,644 | 8,640 | 79,816 | 259,737 | 30,113 | 507,909 |
| 1983 | 100 | 10,300 | 147,910 | 13,027 | 93,676 | 198,600 | 29,500 | 493,113 |
| 1984 | 100 | 8,500 | 119,900 | 9,885 | 74,006 | 102,000 | 25,000 | 339,391 |
| 1985 | | 19,500 | 146,200 | 12,573 | 74,083 | 122,000 | 29,000 | 403,356 |
| 1986 | 100 | 6,300 | 99,719 | 10,797 | 44,957 | 84,000 | 22,000 | 267,873 |

Table 4. Bristol Bay chinook salmon escapement indices, 1967 - 1986.

| Year | Bristol Bay | a/ |
|------|-------------|----|
| 1967 | 74,000 | |
| 1968 | 86,000 | |
| 1969 | 43,000 | |
| 1970 | 65,000 | |
| 1971 | --- | |
| 1972 | 39,000 | |
| 1973 | 46,000 | |
| 1974 | 85,000 | |
| 1975 | 81,000 | |
| 1976 | 114,000 | |
| 1977 | 85,000 | |
| 1978 | 170,000 | |
| 1979 | 115,000 | |
| 1980 | 153,000 | |
| 1981 | 177,000 | |
| 1982 | 164,000 | |
| 1983 | 184,000 | |
| 1984 | 111,000 | |
| 1985 | 130,000 | |
| 1986 | 31,000 | |

a/ Combined aerial survey estimates for Nushagak and Togiak Rivers.

Table 5. Kuskokwim Area chinook salmon escapement indices, 1972 - 1986.

| Year | Kuskokwim River Index 1 | a/ | Kuskokwim River Index 2 | b/ | Holitna River Weir |
|------|-------------------------------|----|-------------------------------|----|--------------------------|
| 1972 | --- | | 7046 | | --- |
| 1973 | 24.0% | | 10262 | | --- |
| 1974 | --- | | --- | | --- |
| 1975 | 24.0% | | 8380 | | --- |
| 1976 | 66.0% | | 16953 | | 5507 |
| 1977 | 162.0% | | 10725 | | 2548 |
| 1978 | 152.0% | | 29198 | | 13132 |
| 1979 | 59.0% | | 20792 | | 11063 |
| 1980 | 146.0% | | 17718 | | 6572 |
| 1981 | 303.0% | | 31727 | | 16075 |
| 1982 | 78.1% | | 15505 | | 10990 |
| 1983 | 74.0% | | 5886 | | 3009 |
| 1984 | 37.0% | | 8902 | | 4928 |
| 1985 | 26.0% | | 9231 | | 4307 |
| 1986 | 28.0% | | 7744 | | 3450 |

a/ Combined aerial survey count as a percent of combined escapement objectives for only those index streams where a survey occurred. Index streams include Kwethluk River, Canyon Creek, Kisaralik River, Kasigluk River, Tuluksak River, Aniak River, Salmon River at Aniak, Holitna River, and Salmon River at Pitka.

b/ Combined aerial survey count of the following index streams. When a stream could not be surveyed the combined count was expanded. Index streams included the Cheenestnuk, Eek, Holitna, Holokuk, Kisaralik, Kwethluk, Salmon River at Pitka, and Tuluksak Rivers. Note that the Holitna index includes weir counts.

Table 6. Yukon River chinook salmon escapement indices, 1972 -1986.

| Year | Lower River | a/ | Middle River | b/ | Upper River | c/ |
|------|-------------|----|--------------|----|-------------|----|
| 1972 | 2578 | * | 1331 | * | 1247 | |
| 1973 | 2226 | * | 412 | * | 341 | * |
| 1974 | 834 | * | 2892 | | 493 | * |
| 1975 | 2228 | | 1371 | | 829 | * |
| 1976 | 3262 | | 2172 | | 359 | * |
| 1977 | 5365 | | 1765 | | 670 | * |
| 1978 | 5793 | | 5225 | | 1733 | * |
| 1979 | 5305 | | 5948 | | 2712 | * |
| 1980 | 5111 | * | 9298 | | 4803 | |
| 1981 | 3975 | * | 1837 | * | 6139 | |
| 1982 | 2125 | * | 4607 | | 2009 | |
| 1983 | 4379 | * | 4514 | | 2348 | |
| 1984 | 5107 | * | 1532 | | 3264 | |
| 1985 | 7696 | | 4588 | | 1924 | |
| 1986 | 9204 | | 5399 | | 1989 | |

* Poor survey conditions and/or incomplete surveys with one or two streams not surveyed.

a/ Combined aerial survey count for East Fork + West Fork Andreafsky River, Anvik River, and Nulato River.

b/ Combined aerial survey count for Chena and Salcha Rivers.

c/ Combined aerial survey count for Big Salmon and Nisutlin Rivers plus the fishway count for the Whitehorse Dam. Note that, the upper Yukon index areas are in Canada.