AGENDA E-3
September, 1980

M E M O R A N D U M

TO: Council Members, SSC, and AP

FROM: Jim H. Branson
Executive Director

DATE: September 16, 1980

SUBJECT: Bering Sea/Aleutian Island Groundfish FMP Amendments for 1981

ACTION REQUIRED

Set public hearing dates and locations for the 1981 amendment.
Call for amendment proposals for the 1982 amendment.
Preliminary approval of the revised DAH for 1981 to go forward as an amendment with final action at the October Council meeting.

DISCUSSION

The Draft Environmental Impact Statement for the Bering Sea/Aleutian Groundfish Plan and the 1981 amendment has been printed. A notice of availability is expected to be published in the Federal Register on September 26th. We can start distribution of the DEIS at that time. The 1981 amendment package is completed except for final comments and revision of the Regulatory Analysis. As soon as that is done, they will be printed and distributed. Public hearings on the Plan amendment can start in conjunction with king crab hearings in October and combined DEIS/amendment hearings can be held in December, again in conjunction with king crab hearings.

Having once chosen the king crab hearing sites and dates, no further action is needed to set Bering Sea Groundfish hearings unless the Council wishes to add hearings to the schedule, which should not be necessary.

I recommend that we call for proposed amendments from the public and industry for the 1982 fishing year at this meeting, setting a cut-off date for proposal submission of January 1, 1981.

The Domestic Annual Harvest in 1980 has been a great deal higher than was expected, with almost all of it in the joint venture fishery. If these fisheries are to continue at their present level, or to expand in 1981, the FMP must be revised immediately to reflect a higher DAH. The proposed amendment is Attachment E-3(a).

If the Council approves the proposed amendment at this meeting, we can circulate it for public comment, hold a hearing in conjunction with the October Council meeting, approve the amendment for submission to the Secretary at that time, and have it in place in time for the 1981 fishery.

SEP 19 1980

AGENDA E-3 (SSC)
September, 1980

MEMORANDUM

DATE : September 5, 1980

TO : Bering Sea/Aleutian Island Groundfish Plan Development Team
Bering-Chukchi Sea Herring Plan Development Team

FROM : SSC, North Pacific Fisheries Management Council

SUBJECT: Proposed options for dealing with the catch of prohibited species

The SSC has been asked to review time-area closures as a mechanism for reducing incidental harvests of salmon and herring in the Bering Sea groundfish fishery. Specific plan amendments or options have been presented for the herring and groundfish FMP's. We are requesting that the groundfish PDT, in concert with the herring PDT, provide the answers to certain questions which will enable the Council/SSC to evaluate the impacts of various options. It would be helpful if as much data as possible could be made available by the time of the Sitka meeting. The SSC will apparently be asked to comment on herring time-area closure options at that meeting.

The questions that seem pertinent are:

1. What is the effect of different time-area closures, starting with broad areas and times (e.g., BSA regulatory areas I and II for six months) on the incidental catch of salmon/herring in the Bering Sea, based upon the three years of observer data?

2. For each of the above practical closures, what would the reduction in groundfish catch have been assuming no shift in effort?

3. Based upon the three years of observer data, does the incidental catch rate vary by target species/gear type?

4. Is it possible to project how effort would shift in response to the area closures? If so, what would the impact of the shifts be on a) groundfish stocks and b) other incidental species and/or fisheries (i.e., halibut, tanner crab, and marine mammals)?

5. What effect would each practical time-area closure have on joint ventures and on the domestic groundfish fishery? (The Council will have to decide whether time-area closures apply to the domestic fisheries.)

6. What is the projected impact of the time-area closures on the economics of the foreign fishery (i.e., types of products produced and value of the catch)?

7. In any given year, what would be the economic value of the reduced incidental catch to domestic fisheries (i.e., for halibut, salmon, herring, and crab)?

8. In any given year, would the observed incidental catch have been a conservation issue? With regard to king salmon, what were the escapement goals for the last three years, and were they met for western Alaska?

The Bering Sea/Aleutian Island PDT has provided the SSC and the Council with a paper on alternative methods of controlling the incidental harvest of prohibited species. The SSC has not completed a review of this document but can see that, in certain circumstances, methods other than time-area closures may be desirable. We suggest that PDT's begin developing answers to the relevant preceding questions for each of the options presented in the paper. This information will be useful when the prohibited species comes before the SSC in December.

cc:
Steve Pennoyer, ADF&G, Juneau
Maggie Duff, NPFMC, Anchorage
Rich Marasco, NWAFC
Loh-Lee Low, NWAFC
Ron Regnart, ADF&G, Anchorage

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P. O. Box 1668, Juneau, Alaska 99802

Date : September 11, 1980

Reply to Attn. of:

To : Files for Foreign Incidental Catch of Salmon

From : F/AKR11 - Ronald J. Berg

Subject: Report of September 10, 1980, Telephone Call - 1979 Foreign and Observer Reported Incidental Catches of Salmon in Foreign Trawl Fisheries

Russ Nelson (NWAFC) summarized below the 1979 foreign reported trawl catches of salmon by vessels that had observers in comparison with observer reported catches for the Bering Sea/Aleutian Islands Area and the Gulf of Alaska. Observer reports were used to estimate the total number of trawl caught salmon in the eastern Bering Sea in 1979 at 107,706 fish.

Numbers of Trawl Caught Salmon by Vessels with Observers in 1979

	Country	Foreign Reported Catch	Observer Reported Catch
Bering Sea/Aleutian Islands Area	Japan	3,254	6,382
	U.S.S.R.	0	576
	S. Korea	0	2,167
	Poland	11	77
Gulf of Alaska	Japan	159	316
	U.S.S.R.	0	71
	S. Korea	0	425
	Poland	161	18

cc:
NPFMC

STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF FISH AND GAME

OFFICE OF THE COMMISSIONER

SUBPORT BUILDING
JUNEAU 99801

September 15, 1980

Honorable Don E. Young
House of Representatives
701 "C" Street, Box 3
Anchorage, Alaska 99513

Dear Mr. Young:

The Alaska Department of Fish and Game is quite concerned by the impact of the various high seas foreign fisheries on the salmon fisheries and stocks of Western Alaska. We appreciate the opportunity to provide you comment on this subject as requested in your letter of September 9, 1980 to Ron Regnart, our Regional Supervisor of the Arctic-Yukon-Kuskokwim Region.

My staff has prepared the attached paper containing background information relative to the questions posed in your letter with some additional stock and fisheries status information which you may find useful. I think each one of your questions are specifically addressed and I will not repeat all of this information in this letter. There are a few points however, I would like to make and items which I would like to stress.

One of the most important things to consider is that the trawl fleet interceptions are not the only fisheries which are operating or have operated on these stocks outside of Alaskan waters. The Japanese mothership gill net fishery in past years has annually taken up to 438,000 chinook of Western Alaska origin. Recent interception rates have been reduced from that level but are still significant in view of the size of Western Alaska's stocks. Future changes in the fishing patterns in this fleet could again increase the level of interception. The Japanese land-based gill net and Gulf of Alaska trawl fisheries also take a significant number of chinook for which we have very little or no continent of origin information, let alone information on whether they come from Western Alaska. In summary, it seems conceivable that all the impacts added together could amount to a third of the total catch (domestic and foreign) being taken from these runs. At times in the past it has been even higher than that.

Our management of chinook salmon in most areas of Western Alaska tends to be conservative due to the lack of biological data on these runs and the complexity of the management problems involved in achieving the proper commercial and subsistence allocations while maintaining needed escapements. There is no way to say specifically for any given river system how the trawl fishery or indeed total foreign interceptions affect our management. Certainly they have an

effect on the economic allocations to domestic fishermen. Beyond that we must deal with the run as it arrives inshore. If the run is poor we must cut back our fishermen to preserve the required brood stock. Nevertheless, given our lack of data on many of these runs, significant removal by fisheries elsewhere can only serve to make this task of conservation more difficult.

The North Pacific Fishery Management Council, in both its Bering Sea herring and Bering Sea groundfish fishery management plans is considering the question of prohibited species and particularly that of time/area closures to protect salmon and herring in the Bering Sea. The International North Pacific Fishery Commission considers the question of direct salmon interceptions by high seas gill net fisheries. There are perhaps avenues that should be explored in both these forums.

The North Pacific Fishery Management Council Bering Sea groundfish development team has suggested certain alternatives to time/area closures that may have some value. One alternative in particular is an economic disincentive whereby the foreign fleets are charged for their catch of prohibited species. If the charge is high enough it encourages them to find ways of not catching the prohibited species such as staying out of the areas in which they're harvested or perhaps avoiding gear types or fishing methods that take such species. The problem with this and indeed with the time/area closures may revolve around our data base clearly defining what is really occurring in these fisheries. Certainly one key to this is improved and expanded observer coverage.

If we could be assured that the problem was being adequately addressed in some other fashion time/area closures might not seem so desirable. Given the uncertainty regarding the conduct of foreign operations the one sure way to avoid harvest of a particular species is to prohibit all fishing in a given area and time.

The International North Pacific Fishery Commission is reviewing continent of origin of salmon particularly in the Japanese land-based gill net fishery. Unfortunately, so far the research is keyed to the primary species, sockeye and coho, and our knowledge of chinook is fragmentary. The same problem exists in the trawl fishery catches of chinook in the Gulf of Alaska. We would certainly encourage research into these problems so that we can assess the total impact of high seas salmon fisheries on these stocks.

Again, thank you for the opportunity to comment and I hope the information we provided will be of use to you in your deliberations. The North Pacific Council will again be considering the question of prohibited species at its Sitka meeting. It might assist you if you had an observer present or if you wish we could provide you with information coming from that meeting.

Sincerely,

Steve Pennoyer

Steve Pennoyer, Director
Division of Commercial Fisheries
(907) 465-4210

Enclosure

WESTERN ALASKA CHINOOK SALMON FOREIGN FISHERY INTERCEPTIONS

Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

September 1980

Introduction

Fishery Description

Chinook salmon fisheries for western Alaska occur primarily in the Port Moller area off the Alaska Peninsula, in Bristol Bay, especially the Nushagak district, Kuskokwim Bay and lower Kuskokwim River, the Yukon River and Southern Norton Sound. Most of the chinook salmon produced in western Alaska originate in the Yukon, Kuskokwim and Nushagak river systems.

Chinook salmon are taken for both commercial and subsistence purposes in all these areas. The majority of the catch is sold commercially. The harvest is conducted in nearshore coastal waters, except for the Yukon and Kuskokwim Rivers where commercial and subsistence effort takes place within the rivers themselves. The gear used to capture chinook are primarily nylon gillnets of eight inch or smaller mesh size, fished as either a set net or drift net. Some harvest by fishwheel occurs in the upper Yukon and Kuskokwim Rivers.

Approximately 4,400 commercial salmon limited entry fishing permits have been issued for the areas in western Alaska where chinooks are harvested commercially. It's estimated that approximately half that number participated in the 1980 commercial harvest of chinook salmon. A conservative estimate of 2,500 families utilize chinook salmon for subsistence food needs in Western Alaska.

The following is intended to provide a brief historical perspective of the three major chinook commercial fisheries in western Alaska.

Bristol Bay

Initial exploitation occurred from 1893 to 1899. Until 1952 virtually the entire commercial harvest was in the Nushagak district; since then approximately 25% occurs in other Bristol Bay districts, some of which is taken incidentally in the sockeye fishery.

The fishery averaged less than 100,000 per year until the mid-seventies either because of resource abundance or market limitations. Since 1976 catches have increased in response to increased effort and resource availability. Its felt that MSY for Bristol Bay fishery may be close to 100,000 per year. An indication of catch trends is given in Table 1.

Kuskokwim River

Commercial catches were first documented in 1913. The fishery remained at a low level until after statehood in the early 1960's. Effort levels have increased dramatically since the late 1960's. Commercial catches have been somewhat stabilized by a gradual reduction in fishing time allowed with large mesh nets. This is the only major chinook fishery in which subsistence utilization has always equalled or surpassed the commercial harvest. From 1975-1979 total annual harvest has averaged 87,000 chinook (34,600 commercial; 52,400 subsistence). Following a period of decreased abundance in the early and middle 1970's, catches and escapements have greatly improved over the past four years (Tables 1, 2, and 4).

Yukon River

The Yukon River commercial king salmon fishery in Alaska dates back to 1918. Since 1961 commercial catches have ranged from 63,700 to 152,000 fish and the recent 5 year average (1975-1979) is 95,000. 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. Commercial fishing effort has increased sharply since 1961.

Yukon River king salmon runs during the early 1970's generally declined in magnitude based on available comparative catch and escapement data. Countering this trend, good runs have occurred since 1977. 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 and 1977-80, escapements have not reached the levels observed during the early 1960's prior to maximum development of the commercial fishery.

Economic value of the chinook fishery in western Alaska

The value of the fishery to participants is estimated by utilizing a recent 5 year average (1975-1979) catch and applying an appropriate weight and price factor. Subsistence catches are evaluated in the same manner, assuming that the economic value of the catch is at least equivalent in price per pound.

Area	Commercial Catch (5 yr. Av. 1/)	Subsistence Catch (5 yr. Av. 1/)	$ Value of Catch to fishermen 2/
Bristol Bay	138,800	9,200	3,400,000
Yukon River 3/	95,096	21,400	2,700,000
Kuskokwim River 3/	50,380	53,060	2,400,000
Norton Sound	5,940	638	151,300
North Ak. Pen.	8,720	4/	200,560
Total	298,936	84,298	Average total value to fishermen: $8,851,86

1/ 1975-1979.

2/ Total catch times 23 lbs. per fish times $1.00/lb.

3/ Includes small coastal fisheries adjacent to river.

4/ Information not available.

Although the economic value of the chinook catch in Bristol Bay is overshadowed in comparison to the harvest value of sockeye salmon, in the Yukon River and Kuskokwim River districts the value of the harvest approaches one half of the total value of all fisheries products produced in those areas.

Foreign offshore interceptions of chinook salmon

The Bering Sea incidental trawl catch of chinook salmon must be considered in light of the other offshore fisheries that intercept western Alaska chinook salmon. Recent chinook catches in the various offshore fisheries are summarized below along with the estimated interception of western Alaska stocks where known.

	Fishery	Approximate Total Catch (1979)	Est. W. Alaska Interceptions (1979)
1.	Bering Sea Foreign Trawl	100,129	93,120 1/
2.	Japanese mothership gillnet	126,000	64,350 2/
	- dropouts 33% of catch	41,580 3/	21,235 3/
3.	Japanese landbased gillnet	162,000	unknown-may
	- dropouts 33% of catch	53,460	be substantial
4.	Gulf of Alaska foreign trawl	20,000 (1979)- 45,000 (1978)	unknown-may be substantial
	Totals	503,169-528,169	178,705

1/ from R. Major's 7/21/80 letter to B. Larkins (NMFS files). Percentage of W. Alaska chinook in foreign trawl catch estimated at 93%

2/ approximate - estimated 90% of the Bering Sea component of that catch, i.e., 71,500 x .9.

3/ approximate values based on INPFC research.

These data show a recent annual catch of in excess of 500,000 chinook salmon by all offshore foreign fisheries in the Gulf of Alaska - Bering Sea region. This is a major harvest considering this species is the least abundant and probably sustains the highest exploitation rate in inshore fisheries compared to the other salmon species.

The 178,705 figure represents a very minimum estimate of 1979 Western Alaska chinook interception. If data on stock origins were available for Gulf trawl and landbased gillnet fisheries, it is conceivable that this interception figure would be increased substantially. Some of the largest Gulf of Alaska trawl chinook catches are made near Kodiak and the Alaska Peninsula where past tagging studies have shown the presence of substantial numbers of Western Alaska chum stocks.

Estimates of the economic loss to Western Alaska commercial fishermen resulting from the 1979 Bering Sea trawl chinook catch indicate that about $1.5 million was lost by this fishery alone. When other foreign fisheries are considered, the loss from interception probably exceeds $3.0 million. Since the chinook fishery constitutes the backbone of many Western Alaska fisheries this loss is extremely significant, especially since in many of these same areas low incomes and substandard living conditions prevail. Chinook salmon are also an important subsistence species, an aspect that needs to be included in a socio-economic analysis.

A fact of disturbing importance at the present time is that the estimated interceptions by the Bering Sea trawl fishery appear to be increasing, and that they have now surpassed the high seas mothership gillnet fishery in Western Alaska chinook interceptions.

Rivers of origin of salmon intercepted by the trawl fleet.

There is no way of determining accurately the rivers of origin in western Alaska of trawl caught chinook salmon. It has been estimated by NMFS personel that 93% of the chinook taken in the Bering Sea mothership gill net fishery originated in western Alaskan streams, an estimate based on past analysis of scale characteristics. Sufficient precision in the analysis of scales is not

presently available to allow apportionment of western Alaska chinook to specific river drainage of origin.

Although information on size and sex compositions of runs in western Alaska is available from many return years it has not yet been compiled and analyzed in one place. Accurate depictions of run composition are difficult due to the bias involved in data collection. Gillnet fisheries remove selected shapes and sizes of salmon, while spawning ground surveys suffer from the fact that the fisheries have already removed certain components. Data available indicate that some year to year variability in age and sex composition is present.

Size at age of return has been analyzed for three return years in Table 5. Depicted there is the average weight in pounds of chinook taken in the inshore fisheries of Bristol Bay, the Yukon River, and the Kuskokwim River. The similarity between areas and between years is apparent.

Trawl interception impacts

It is not known whether inshore fishery harvest rates are similar between western Alaska rivers or whether differential harvest of respective stocks may occur in the trawl fishery due to varying chinook distributional patterns in the Bering Sea. Simply using relative magnitude of inshore harvests between river systems may provide some idea of potential impact of interceptions.

To calculate the ultimate inshore loss one must apply appropriate age and sex specific mortality factors to the catch. A rough approximation yields a loss to the inshore fisheries and stream escapements of 81,000 chinook salmon in Western Alaska in 1979. Based on relative inshore catches alone the distribution could be:

	Numbers of Fish
Nushagak	26,000
Togiak	6,000
North Peninsula	1,000
Kuskokwim	22,000
Yukon	24,000
Norton Sound	2,000
Total	81,000

Since river of origin of offshore catches is not known with any assurance it is possible that some river systems sustain more offshore interception than is depicted here. Stock specific management of these offshore fisheries is not feasible at this time.

During the decade of the 1970's, chinook abundance in Western Alaska apparently fluctuated from a high level during 1970 and 1971 to very low levels in 1974 and 1975. Following 1976, returns have followed a trend of increasing abundance as judged from inshore catches and escapements. Tables 1, 2, 3 and 4 will serve to illustrate these trends.

An important biological factor in determining run strength in a given year is the age, sex, and size composition of incoming runs. Reproductive potential and fishery success are affected by variations in the sex ratio, and size of average chinook in the run.

In general, Western Alaska female chinook salmon mature when they are six years old, and weigh on the average about 24 lbs. Males, on the other hand, tend to return at 4 and 5 years of age; as well as at older ages. Very often the sex ratio of chinooks in spawning streams is skewed in favor of males, sometimes as much as 2 or 3 to 1 or more. This is apparently due to at least three factors. The first involves the tendency of males to mature and return at an earlier age than females. Secondly, gillnet fisheries targeting chinooks utilize mesh sizes to optimize the capture of the larger salmon which are often females, and

to minimize the capture of younger, more streamlined males. Third, and important for this discussion, is that since females return at an older age, they are subject to both natural marine mortality factors, and offshore fishing for a longer time period. Offshore interception fisheries which occur during the marine life history thus further exacerbate a natural tendency in the species to produce higher proportions of males in the inshore run. Management of inshore fisheries must take this fact into account by conservative management schemes based not only on the escapement magnitudes, but on the sex and size composition of escapements.

Management

The management of the western Alaskan chinook salmon runs tends to be conservative due to the lack of biological data and the complexity of the fisheries, geographical area and the salmon stocks themselves. These problems are especially acute in the immense drainages of the Yukon and Kuskokwim Rivers.

Forecasts of chinook salmon returns in actual number are unavailable. Escapement/return relationships have not been developed. Except for the Bristol Bay area (Nushagak River system) total escapement estimates are not available. In-season management is essentially limited to analysis of comparative catch data assuming that catches reflect the abundance of the run. The catch data itself is difficult to compare since the fisheries have undergone changes in recent years (mesh size restrictions, reduced fishing time, delayed openings of the seasons, increased fishing efficiency, etc.).

In addition to the lack of biological data there are several other factors which hamper proper management. Chinook salmon are generally subjected to intensive commercial fisheries in the lower rivers (Yukon and Kuskokwim) or in the coastal waters near the mouths of major river systems (Nushagak River). Often spawning tributaries are located several hundred miles and several weeks from mouths of the major river systems which are turbid. Consequently, escapement information is not available for in-season management. The Yukon and Kuskokwim River fisheries fish on mixed stocks and some stocks, especially smaller ones, may be subjected to overfishing since it is impossible to manage each stock separately.

Although western Alaskan chinook salmon stocks are of lesser abundance than other species, they are usually subjected to greater fishing effort. This is a result of their high market value in the commercial fishery and the importance for human consumption in the subsistence fishery. In the major river systems (Yukon and Kuskokwim), chinook salmon bound for upriver spawning tributaries several hundred miles from the mouth are fished intensively along the main stem rivers prior to reaching their natal streams.

Further complicating management of the chinook salmon fisheries are allocation problems that exist between various competing user groups. Probably this is most acute in the Kuskokwim and Yukon rivers. In the Yukon River drainage for example (330,000 square miles) commercial and subsistence fisheries are scattered over more than 1,400 river miles in the main stem of the Yukon and Tanana Rivers. Also significant commercial and subsistence fisheries occur in the Canadian portion of the drainage. After passing through the lower river area where the major commercial fishery is concentrated, chinook salmon are subjected to additional fishing pressure from the upper river areas. In most salmon fisheries elsewhere, once the commercial harvest is taken at the mouths of rivers or in bays, the surplus is available for escapement. In the Yukon River management of the downriver fishery must also provide for the upriver fishery and escapement requirements.

Regulation of both the commercial and subsistence fisheries has become more restrictive in recent years as fishing effort and efficiency has increased. Fishing time has been sharply reduced in most of the fisheries. In the lower Kuskokwim River allowable fishing time during the season has been cut back drastically (only 12 hours were allowed in 1976 compared to 228 in 1961). Other restrictions imposed in recent years on the various chinook fisheries include conservative guideline harvest levels, delayed season openings, gill net mesh size and depth limitations, and in-season fishing time reductions and season closures.

Table 1. Yukon River Comparative Chinook Salmon Data.

Year	Total Catch 1/	Subsistence Catch 1/	Commercial Catch 1/	Numbers of Commercial Fishing Vessels 2/		Hours open to Commercial Fishing 3/	Test Fishing Catch/Hour 4/	Escapement Index 5/
				Licensed Fishing Vessels	Actual Fishing Vessels			
1961	155,570	31,364	123,706	322	-6/	852	6/	1,650
1962	120,381	21,610	98,771	447	-6/	818	6/	1,218
1963	152,247	32,970	119,277	385	-6/	774	6/	484
1964	119,672	22,877	96,795	415	-6/	606	6/	652
1965	140,086	19,723	120,363	433	-6/	720	6/	655
1966	109,529	14,272	95,257	478	-6/	552	6/	507
1967	151,554	19,661	131,893	507	-6/	744	.37	533
1968	123,744	15,006	108,732	464	-6/	746	.65	476
1969	106,863	15,000	91,863	454	-6/	660	.70	334
1970	98,854	15,974	82,880	492	-6/	636	.67	1,057
1971	142,169	28,044	113,685	561	559	528	.86	1,348
1972	116,524	21,868	94,609	579	579	552	.41	794
1973	103,657	26,433	77,224	625	605	540	.49	523
1974	123,476	23,343	100,133	619	550	576	.26	805
1975	82,785	15,645	66,740	708	590	420	.20	696
1976	116,477	19,329	92,171	716	642	372	.48	783
1977	121,422	20,388	101,034	598	580	386	.19	1,247
1978	130,874	30,297	100,577	6/	633	336	.36	1,943
1979	170,436	35,205	135,231	6/	635	312	6/	2,063
1980 7/	188,400	30,000	158,400	6/	636	246	6/	2,651

1/ Catches from entire Yukon River drainage including Canada.
2/ Numbers of commercial fishing vessels in lower 150 miles of river (subdistricts 1 and 2). "Actual numbers of fishing vessels" represents those vessels delivering at least once during the king salmon season.
3/ "King salmon season" (June-early July) in lower 150 miles of river (subdistricts 1 and 2).
4/ Located in south mouth; 25 fathom 8 1/2 inch set gill nets.
5/ Average numbers of fish counted in four index areas: West Fork, Andreafsky River; East Fork, Andreafsky River; Salcha River; Whitehorse fishway, does not include counts made during "poor" aerial survey conditions.
6/ Information not available.
7/ Preliminary data.

Table 2. Kuskokwim River Comparative Chinook Salmon Data.

Year	Total Catch[1]	Subsistence Catch[1]	Commercial Catch[1]	Numbers of Commercial Fishing Vessels[2]		Hours open to Commercial Fishing[3]	Test Fishing Catch/Hour[4]	Escapement Index[5]
				Licensed Fishing Vessels	Actual Fishing Vessels			
1961	50,054	31,136	18,918	139		228	[6]	[6]
1962	29,997	14,656	15,341	252		96	[6]	[6]
1963	46,631	34,615	12,016	111		144	[6]	[6]
1964	46,166	29,017	17,149	139		96	[6]	[6]
1965	49,132	27,143	21,989	195		120	[6]	[6]
1966	75,151	49,606	25,545	189	210	120	.82	824
1967	87,861	57,875	29,986	237	233	168	1.40	[6]
1968	64,508	30,230	34,278	343	303	144	.32	972
1969	84,135	40,138	43,997	355	329	120	.45	537
1970	108,509	69,219	39,290	373	361	84	.61	932
1971	83,200	42,926	40,274	440	418	48	.35	[6]
1972	80,940	40,145	40,795	428	405	66	.42	476
1973	71,364	38,526	32,838	474	456	48	.25	191
1974	45,229	26,665	18,564	738	606	36	.27	73
1975	69,704	47,569	22,135	642	541	30	.41	419
1976	97,107	66,372	30,735	657	561	12	.65	596
1977	91,169	55,339	35,380	618	563	12	.71	1,079
1978	82,641	37,000	45,641	[6]	615	26	.73[8]	2,540
1979	94,490	55,524	38,966	[6]	591	12	0.35	[6]
1980	85,900[7]	50,000[7]	35,900[7]	[6]	553	12	[6]	[6]

1/ Catches from entire Kuskokwim River drainage; includes catches made during chum salmon season.
2/ Data from subdistrict 1 (lower 100 river miles) only, actual fishing vessel represent vessels that delivered fish at least once during the season.
3/ Data from subdistrict 1 (lower 100 river miles) only, includes only fishing time with large mesh gillnets.
4/ Data from Department of Fish and Game test fisheries site located at river mouth, 25 fathoms 8-1/2 inch mesh set gillnets.
5/ Average numbers of fish counted during aerial surveys of the following index streams: Kwethluk, Kisaralik, Aniak, (upstream of Salmon River), Kipchuk, Chukowan and Kogrukluk Rivers, does not include counts made during "poor" survey conditions.
6/ Information not available.
7/ Preliminary data.
8/ Figure adjusted for early project start-up date.

Draft FMP Amendment

ANNEX II Derivation of Expected Domestic Annual Harvest (DAH)

During March-June, 1980, the National Marine Fisheries Service surveyed the U.S. fishing industry to determine its harvesting and processing capacity and its intent to harvest and process fish in the Bering Sea/Aleutian Island area in 1981. Questionnaires were sent to 28 companies, including one that was operating a large U.S. factory trawler, to determine amounts of fish that were expected to be caught and delivered to U.S. processors (DAP); and two companies involved in joint ventures to determine amounts of fish they expected to deliver to foreign processors at sea (JVP). Also, questionnaires were sent to seven fishing associations to determine their members expectation of amounts of fish they intended to harvest. Amounts of fish intended to be harvested included some domestic non-processed fish (DNP), such as that sold for bait. Twenty-three companies, including both involved in joint ventures, and two associations responded.

ANNEX II.I. Expected Domestic Annual Processing (DAP).

Amounts of fish (metric tons) U.S. processors reported they intend to process in 1981 are shown (Table I). Rather than establish DAP at the full amounts shown for pollock and Pacific cod, recognizing that these amounts may not be reached because of problems inherent in developing this new groundfish fishery and because only 10 percent of the total DAP (2,800 metric tons) was harvested in 1980, DAP amounts currently established by the FMP (Table I) are considered to be adequate for the 1981 fishing year and will initially remain unchanged.

Small differences between survey results for the remaining species and established DAP's do not warrant amending the FMP, which contains a mechanism for the Regional Director to apportion those amounts of DAP to TALFF that he determines are excess to U.S. needs. The 1981 reserves (Table II) will be used to supplement DAH if necessary.

Table I. Amounts of fish (mt) U.S. processors reportedly intend to process in the Bering Sea (DAP) and the initial DAP established for 1981.

Species	1981 U.S. Reported Intention to Process (mt)	1981 Initial DAP (mt)
Pollock	9,982	10,500
Pacific cod	17,241	7,200
Atka mackerel	0	0
Yellowfin sole	227	1,200
Turbot	0	1,000
Flounder	907	1,200
Pacific ocean perch	454	1,100
Rockfish	227	1,100
Sablefish	522	1,000
Squid	0	0
Other species	0	1,800
Total	29,560	26,100

11.2 Expected Joint Venture Processing (JVP).

Disclosure of amounts of fish (metric tons) that U.S. companies expect to deliver to foreign processors at sea is prohibited by confidentiality laws. Joint venture catches of some species in 1980 were greater than amounts provided for in the FMP and have been increased for 1981 (Table II). Overall, joint ventures harvested approximately fifty percent of their 1980 allocation. Increases in JVP for 1981 have resulted in equal decreases in TALFF (Table III).

Table II. Amounts of fish (mt) designated for delivery by U.S. fishermen to foreign processors at sea (JVP) in 1981.

Species	1981 JVP
Pollock	9,050
Pacific cod	17,065
Atka mackerel	100
Yellowfin sole	25,000 1/
Turbot	75
Flounder	3,000 2/
Pacific ocean perch	1,660
Rockfish	450
Sablefish	400
Squid	50
Other species	200
Total	57,050

1/ A 24,150 mt increase over 1980.
2/ A 2,900 mt increase over 1980.

Reserves (Table III) established by the FMP (5 percent of the OY for each species or 73,324 metric tons) are considered adequate to supplement either the DAP or JVP components of DAH during the fishing year should amounts in either component prove inadequate.

Table III. Initial 1981 DAH, Reserve and TALFF amounts (mt).

Species	DAH	Reserve	TALFF
Pollock	19,550	50,000	1,030,450
Pacific cod	24,265	2,935	31,500
Atka mackerel	100	1,240	23,460
Yellowfin sole	26,200	5,850	84,950
Turbot	1,075	4,500	84,425
Flounders	4,200	3,050	53,750
Pacific ocean perch	2,760	537	7,453
Rockfish	1,550	500	5,677
Sablefish	1,400	500	3,100
Squid	50	500	9,450
Other species	2,000	3,712	68,537
Total	83,150	73,324	1,402,752