Al Cratty
P.O. Box 1
Old Harbor, AK 99643

September 25, 2017

Alaska Board of Fisheries
Chairman, John Jensen
P.O. Box 115526
Juneau, AK 99811-5526

RE: Agenda Change Request #11 and
Genetic Stock Composition of Sockeye Salmon in
the Kodiak Management Area Review

Dear Fisheries Board and Chairman Jensen,

Why are we talking about this Cook Inlet issue again? We went through the whole issue for many years in the early 90s. Yes, there is fish going to Cook Inlet caught in Kodiak and Yes there have always been fish going to Cook Inlet caught in Kodiak. This new genetic study doesn't show anything we didn't already know. I just think that they looked at a couple of higher catch years. The water was abnormally warm in 2015 and 2016 and we saw lots of unusual things like large seabird dieoffs. I'm thinking that these conditions may have moved Cook Inlet fish closer to Kodiak. Nature changes back and forth. I just wish they had taken samples in 2017. I think the 2017 Cook Inlet numbers would have been more like 2014 or even lower.

I have been an Old Harbor fisherman all of my life and now my son is also a full time fisherman. When we had crab and herring seasons and before IFQs I spent about 10 months a year out fishing. Now we're just left with salmon, -- king crab are gone, tanner crab is closed, the herring market is gone and IFQs took away halibut fishing. WE JUST HAVE SALMON LEFT! Now it seems like Cook Inlet fishermen are trying to take away that too. You at the Board of Fisheries need to stop Cook Inlet from taking away the only fishery I have left. I know Cook Inlet is just talking about 5 weeks out of the season, but the reduction of my income by 20-30% would put me out of business. I'm a good fishermen but I can't keep fishing if I lose this amount of my income. That's not BS but it's my reality here in Old Harbor.

I've met most of you during your meetings in Kodiak. I believe you are fair and have listened to the concerns of us rural fishermen from the smaller communities around the island. Please hear me when I say that limiting fishing opportunities for local stocks and whatever Cook Inlet bound sockeye might show up in the Kodiak area will hurt rural fishermen that don't have other jobs more than folks in Kodiak or outsiders.

Please reject ACR#11 and when you get the additional report on Kodiak genetics please see this as more detail about what has been known for generations.

Sincerely yours,

Al Cratty, Sr.

Bruce Schactler
PO Box 2254
Kodiak, Alaska
October 1, 2017

Chairman John Jensen
Alaska Board of Fisheries
Boards Support Section
PO Box 115526
Juneau, Ak 99811-5526

Re: UCIDA Agenda Change Request #11 and Genetic Stock Composition of Sockeye Salmon in the Kodiak Management Area.

This document is to address ACR #11 that you will be considering at your October 17, work session.

First, let me say that I am against this ACR for many reasons, but specific to you r process, it does not meet any of the criteria for a valid ACR.

There is no conservation emergency nor is there any new information that corrects or even addresses the information available or considered when these various salmon management planes were adopted unanimously by the BOF. There is no previously, unknown flaw in a decision by the Board. This ACR is nothing more than an allocative attempt to bring up a subject that was put to bed 25 years ago by numerous Boards of Fish.

As you are all aware, this subject is most likely to be in front of you, in the form of many proposals at your regular cycle meeting in just 2 years. My suggestion is to gather more information through further genetic studies that are, this time, designed to the subject at hand and let science and fisheries management reality run the conversation instead of the present scientific misunderstandings, emotion and opportunistic allocative proposals of it all dominating the process!

I am a Kodiak Salmon purse seiner and have fished here as such since 1978. For as long as I have been involved in the fishery (1975) it has been common knowledge that CI sockeye travel through the Kodiak Management area. For all of these years, it is certain that the ability to target these fish is not possible in any specific manner. With the loss of the herring market, the biological loss of the Tanner Crab fishery and the privatization of Halibut, I make my living and support my family solely from the salmon fishery.

MY BIGGEST FOCUS WITH THIS LETTER, IS TO HELP YOU UNDERSTAND THAT WHILE THE GENETIC STUDY THAT BROUGHT ON THIS ACR HAS SHED A DIFFERENT COLOR OF LIGHT ON THE HARVEST OF CI BOUND

SOCKEYE IN THE KODIAK SALMON MANAGEMENT AREA, THE KNOWN PRESENCE OF THESE FISH IS VERY OLD NEWS AND THE ADFG AND BOF HAS KNOWN ABOUT AND DISCUSSED it FOR A VERY LONG TIME.

The BoF took up this subject in 1989 when they made sever restrictions through the North Shelikof sockeye Management Plan. The BOF deliberated on this same subject several times more through 1996 and still again in 2008 without making further restrictions. That is 20 years of analysis and specific discussion with KMA and UCI stakeholders and ADFG Staff. Every management plan in the KMA has been unanimously adopted and codified with full knowledge of these long and information filled BoF meetings where the harvest of CI bound sockeye was discussed in full detail.

I will not bash the genetic report as invalid or terribly flawed, but I would like to point out some things that will clarify and put into better perspective a few things:

As you will read in other informative submissions, the presence and harvest of CI bound sockeye has been a subject of study since the early 1900s...for a long time these CI bound fish were thought to be a "Middle Run " to Karluk Lake. The many traps (a map is presented for your benefit in several submitted documents) that were used by the early canneries are now used as a place for Set nets to fish. The genetic study that we are considering here used only these setnets for their sampling on the West side of Kodiak Island. For the study as a whole, this is very problematic because of the broad use of large meshed nets that seek to target sockeye and limit the number of pink salmon that they have to pick (one by one) from their nets. This larger meshed gear has the potential to skew the number of larger CI sockeye in the study. **I submit to you that considering that the old traps and the modern setnets are in the same locations, the genetic makeup of the traps in 1910 would be identical to this study that we are discussing now.** The only difference would now be the presence of the "Saltery Lake" stock that is used in our aquaculture association enhancement projects.

The percentages of sockeye stated in the genetic report are NOT percentages of the CI run, but simply of the sockeye sampled during the survey in that particular area! The study also leaves out the inclusion of the massive amount of local stocks of other species that are harvested during the same time period.

I urge caution as we laymen try to absorb and understand all of this technical language without getting confused and misunderstanding what the limited outcome and intent of this stock ID study really is. To do this, I also urge you all to ask a thousand questions of Kodiak staff as have I, to best understand what they did in this study and why and what their take on it is as it may reflect on any management plan.

As a resident of Kodiak and also a salmon fisherman of over 40 years I can tell you that the variability of CI bound Sockeye in the Kodiak Salmon fishery, is extreme. Yes, extreme! From one hour to the next, there is no way to predict where these fish will show up or when or for how long. The truth is that we are targeting our local stocks of sockeye, pinks and chums when these CI fish do show up. The time period represented in this genetic study, is when the Karkuk system is rolling with local sockeye and or pinks and when our daily harvest of sockeye is rarely less than the ACR #11 suggests we should have for the week. These management plans we fish under have been very specifically fine-tuned by ADFG, industry and BoF action to ensure the escapement, sustainability and quality of our hundreds of local stocks that are all migrating to their streams of origin within the KMA. To assume that ANY particular

component of the CI sockeye run will be harvested in the KMA is contrary to the 100 yr old history of this Kodiak fishery that has shown throughout time that there is no common timing or event that can predict these CI fish and how they move thru the KMA. It is completely random and even in years of strong runs of CI Sockeye, their migration pattern may, for the most part, avoid the near coastal fisheries of the KMA.

It has been proven over these many years that the concern for any UCI conservation or yield concern lies principally there in CI. While it appears that Susitna bound sockeye are caught in the KMA, ADFG data show that more than twice as many of those fish fail to defeat the gauntlet of gillnets in the UCI fishery. This data of course will show that any small savings of Susitna fish from the KMA will more than likely be lost in the UCI fishery. The problem and solution to UCI and Matsu valley fish volumes lies in CI, not 250-300 miles to the west in Kodiak, where we are concentrating on our own local stocks and yes, liking the bonus of a few CI sockeye as they are accidentally caught in Kodiak. We are conducting a very complicated, multi-stock fishery that is successful and proven one of the most comprehensive in the state. Even the smallest of changes to these plans has the extreme potential to harm the fishery and the associated economic engine in the Kodiak area, while showing literally no noticeable benefit to the UCI sockeye resource.

To help with your technical and historical understanding of this long discussed and considered subject, I attach as an addendum, the KSMG's report to the BoF for their consideration at the 1994 meeting.

Regards,

Bruce Schactler

KODIAK'S

HARVEST OF COOK INLET SOCKEYE

AN HISTORICAL + ECONOMIC + BIOLOGICAL ANALYSIS

KODIAK'S HARVEST OF COOK INLET SOCKEYE:

AN HISTORICAL, ECONOMIC

AND

BIOLOGICAL ANALYSIS

Compiled by the Kodiak Salmon Work Group

March 14, 1994

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EXECUTIVE SUMMARY

This overview of Kodiak's historical fishing practices and bycatch of Cook Inlet sockeye is presented to the Alaska Board of Fisheries by the newly-formed Kodiak Salmon Work Group (KSWG). This advisory group, representing a cross-section of Kodiak's salmon fishing organizations under the sponsorship of the Kodiak Island Borough, came together because of the over-arching reach of the Kenai Peninsula Fishermen's Association's (KPFA) current petition to the Board.

KPFA came to the Board after the 1992 salmon season with a petition to drastically curtail Kodiak fishing efforts, due to their concern about high levels of bycatch of Cook Inlet sockeye in Kodiak waters that year. Aside from KPFA's contention that Kodiak fishermen were unduly targeting upon migrating Cook Inlet sockeye in 1992, KPFA also warned the Board of possible escalation of such targeting in the future and of the poor prognosis for the health of Cook Inlet sockeye stocks.

The Board eventually accepted KPFA's petition in spring of 1993 but, since that time, another fishing season has occurred (1993) without substantial catches of Cook Inlet sockeye by the Kodiak fleet. Further, new information has been compiled regarding the status of Cook Inlet sockeye returns as well as the rates of potential bycatch in Kodiak waters. While the Board may have had cause to originally consider KPFA's petition, the bulk of new information now weighs heavily against the need for the Board to take action, particularly outside of its regular cycle for considering Kodiak fishery issues.

Updated forecasts of the Kenai River sockeye return for 1994, as well as reconsideration of estimates for smolt survival rates in the Kenai system, indicate that there is no conservation emergency, as was once thought. The status of other Upper Cook Inlet (UCI) stocks is also healthy. Therefore, part of KPFA's original concerns are now moot.

More importantly, analyses by the Alaska Department of Fish and Game (ADF&G), corroborated by independent work by Natural Resources Consultants (NRC), strongly indicate that the Kodiak bycatch harvest of Cook Inlet-bound sockeye is directly related to the abundance of Cook Inlet sockeye on an annual basis. Not only does the magnitude of Kodiak's

bycatch go down during years of low Cook Inlet sockeye abundance, the rate (e.g., percentage) declines as well, becoming imperceptible at anything less than average Cook Inlet returns.

The Department's methodology, using proportions of average weights in various Kodiak harvests, is augmented by NRC's analysis comparing proportional harvests across many years between the "intercept period" and the non-intercept period. NRC also examined the data for any increase over the years in the proportion of large sockeye taken in Kodiak waters during the intercept period. All three of these analyses concur that there is likely a longstanding, but low level, bycatch of Cook Inlet sockeye in Kodiak waters but, that this bycatch only reaches substantial levels when Cook Inlet is experiencing extremely high sockeye returns as in 1988 and 1992.

Review of historic information also indicates that Kodiak has harvested Cook Inlet sockeye at low levels consistently over the past century. And, while such harvests have been ongoing, the thrust of Kodiak's salmon management program has been to fully exploit, while promoting conservation of its many local mixed stocks. The complex, interlocking nature of Kodiak's management plans has fostered recovery of local stocks, high quality product, and flexibility for the fleets to maximize production - none of which has come at any substantial cost to the returns of Cook Inlet sockeye.

Biological and socioeconomic information shows that Kodiak's reliance upon its longstanding salmon fishing industry is proportionately much greater than that of the Kenai Peninsula region. The Kodiak fishery has a high level of local and village participation, as well as central importance to the state's overall fishing economy. Given that there is no biological hazard posed by Kodiak's harvest of Cook Inlet sockeye, any regulatory action by the Board must rely upon the state's allocation criteria. Examination of current information leads to a conclusion that actions to restrict Kodiak's ability to harvest its local resources and its historic share of Cook Inlet sockeye are not warranted under those criteria.

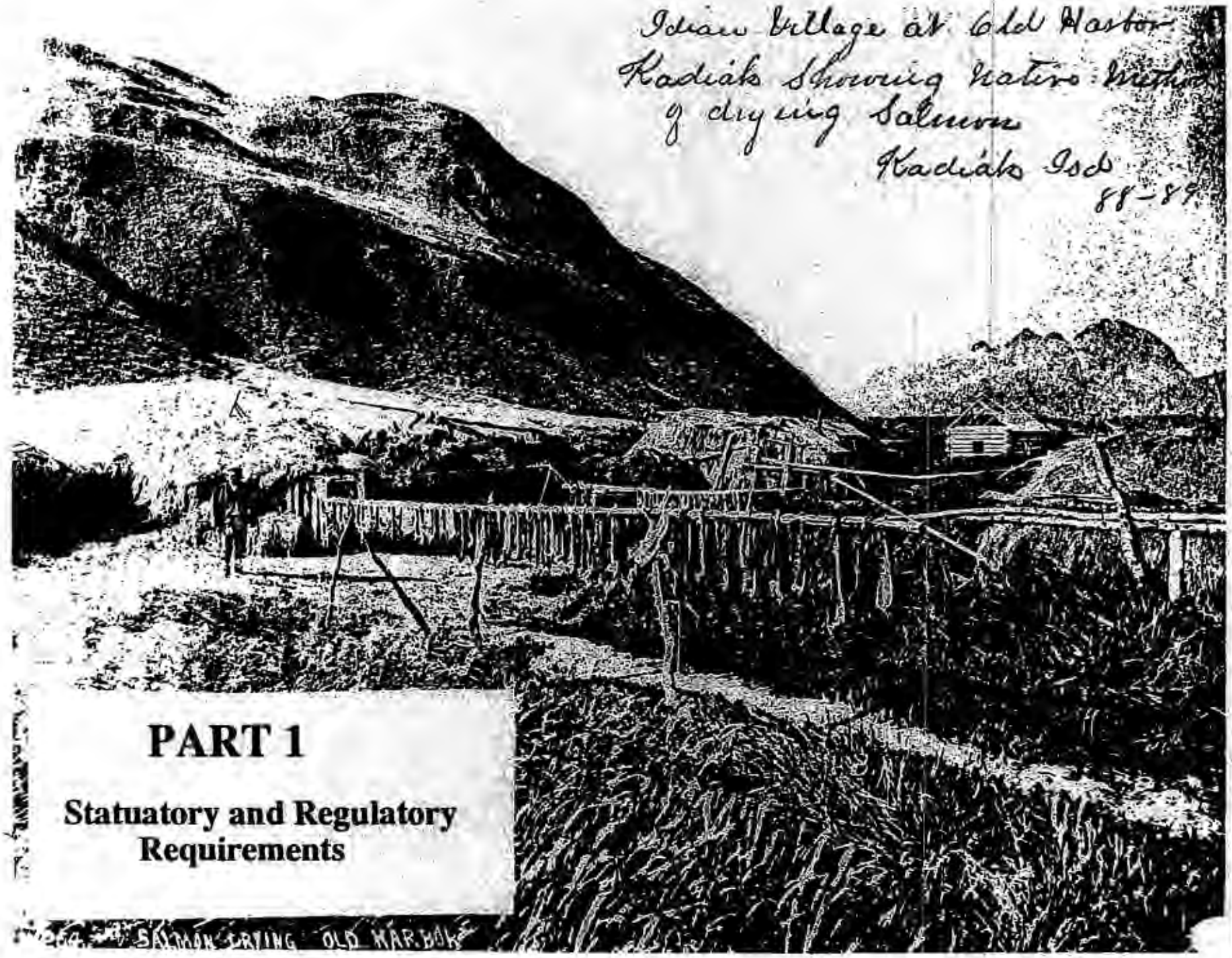
Finally, examination of the Board's freshly adopted Policy for the Management of Mixed Stock Salmon Fisheries against current information yields two major conclusions. First, the harvest of Cook Inlet sockeye by the Kodiak fleets depends primarily upon natural fluctuations of the Cook

Inlet return. Yet, the mixed stock policy and the Board's findings st... such natural fluctuations will not be used to define a mixed stock fis... as new or expanding. Further, the policy and findings spell out that it is not appropriate to designate a mixed stock fishery as new or expanding on the basis of a single year - yet this is precisely the proposition in KPFA's petition: To use Kodiak's harvest in 1992. Counter to KPFA's claims, Kodiak's mixed stock fishery is not expanding to intercept higher numbers of Cook Inlet sockeye, as shown in 1993, and therefore there is no reason under the mixed stock fish policy for the Board to take any action.

The Kodiak Salmon Work Group believe that the best information currently available, be it regarding the status of Cook Inlet sockeye stocks or the nature of Kodiak's bycatch of those migrating stocks, clearly indicates that low rates of bycatch are not new, that high rates of bycatch occur only during years of exceptional abundance, and that the Kodiak fleet's mobility is used to target changing local stock conditions rather than assault Cook Inlet returns on a consistent basis.

We recommend that the Board of Fisheries closely examine the current information provided by ADF&G, NRC and our reports. We also invite Board members to read and appreciate the large public concern expressed by a tremendous number of Kodiak residents in our companion submission of letters, petitions and affidavits.

On the whole, we believe that the Board should not take action to further limit Kodiak's management regime based upon left-over concerns from 1992. While in 1992 Kodiak's harvest of Cook Inlet sockeye may have been notable, the Cook Inlet harvest was near record levels and accompanied by a continued trend of Kenai over-escapement.



PART 1

Statuatory and Regulatory Requirements

Chapter 1
MIXED STOCK SALMON FISHERIES POLICY AND BYCATCH OF COOK INLET-BOUND SOCKEYE SALMON IN THE KODIAK MANAGEMENT AREA

The Board of Fisheries consideration of KPFA's petition, to control the bycatch of Cook Inlet-bound sockeye in Kodiak's salmon fisheries is the Board's first real test of the new Policy for the Management of Mixed Stock Salmon Fisheries (5 AAC 39.220) passed in March 1993. It is important to judge each of the policies' elements, and those of the associated findings (93-07-FB) against the best available information regarding Kodiak's salmon fishery, the associated take of Cook Inlet sockeye, and the status of Cook Inlet's sockeye stocks.

A sincere evaluation of current information, recent management actions and elements of the Mixed Stock Policy indicate that no further regulatory action is warranted to curb the harvest of Cook Inlet sockeye in the Kodiak management area. Particularly important are the natural fluctuations in the abundance of stocks harvested in a fishery not being the single factor that identifies a fishery as expanding or new. [5ACC39220(d)].

Mixed Stock Salmon Fisheries Policy

As illustrated in Chapter Part 2, Chapter 3 of this document, there is no pressing conservation emergency regarding the 1994 return of Kenai River and Cook Inlet sockeye. In fact, given updates to information and forecasts of the Kenai River run for 1994 by ADF&G, it appears that the return and harvest will be about average. Similarly, there is no indication that other stocks in Cook Inlet are in jeopardy. Therefore, conservation and sustained yield, the highest priorities under the Mixed Stock Policy (paragraph a) are not threatened. This leaves allocation as the major consideration left in the debate between Kodiak and Cook Inlet interests; under the Mixed Stock Policy, such considerations must abide by established allocation criteria.

In response to what appeared to be greater than average Kodi harvest of Cook Inlet sockeye in 1988, the Board of Fisheries subsequently passed the North Shelikof Strait Sockeye Salmon Management Plan. The purpose of this plan was to restrict what was considered new targeting upon Cook Inlet salmon by Kodiak fishermen. The plan was modified in 1993 to restore historic fishing opportunities while still protecting against targeting of Cook Inlet sockeye when these fish might by present in northern Kodiak waters in July.

In 1988, fishermen were noted to be fishing in what were then thought to be state waters toward the middle of Shelikof Strait. After 1988, ADF&G and the National Marine Fisheries Service clarified that only waters within three miles of either shore in Shelikof Strait were open to salmon fishing. This also had the effect of preventing further targeting upon Cook Inlet sockeye migrating through the area.

The North Shelikof Management Plan, plus refined definition of state waters, serve to satisfy the Board's preference in the Mixed Stock Fish Policy (outlined in paragraph c) that conservation burdens and harvest opportunities are best assigned in regulatory fishery management plans. While some further adjustments in the existing plan may be warranted to restore Kodiak's historic fishing patterns in the future, the plan adequately addresses most if not all reasonable concerns over alleged growth of Kodiak take of Cook Inlet sockeye in recent years.

In lieu of regulatory management plans, the Board intends that the burden of conservation be borne in rough proportion to respective levels of harvest (Mixed Stock Fish Policy,paragraph b). Most Kodiak salmon fishing is currently regulated by fishery management plans, but only the North Shelikof Plan specifically addresses Cook inlet sockeye. However, it is apparent from ADF&G's and Natural Resource Consultants' recent analysis of the harvest of Cook Inlet sockeye in Kodiak waters, that such bycatch is negligible when Cook Inlet returns are poor to above average. Under conditions when conservation of Cook Inlet's sockeye returns would be a concern, it is not likely that any significant Kodiak bycatch of those sockeye would occur. Therefore, in this case, it is not necessary to assign respective burdens of conservation. Kodiak's catch of Cook Inlet sockeye appears to be self-limiting in years of low or

average run strength; there is no additional burden to bear when harvest are insignificant.

The Board's policy (paragraph d) also aims to restrict new or expanding mixed stock fisheries, unless they are otherwise provided for. The Board's recent actions on the North Shelikof Management Plan both restrict the fishery there and displace the fleet to other districts around the Island. To the extent that such mandated movement of the fleet might now be considered to create new mixed stock fishing opportunities, the Board has reason for pause. However, ADF&G's information plus illustration of historic fishing patterns and management programs (Chapters 2-5) suggest that mixed stock fishing, even on Cook Inlet sockeye, in these other locations is not new.

Most important, however, is the Board's recognition that natural fluctuations in abundance of fish must not be the single factor which identifies a new or expanding mixed stock fishery. In the case of Kodiak's bycatch of Cook Inlet sockeye, it is apparent that the rate and level of that bycatch is almost totally related to natural fluctuations in the Cook Inlet returns.

Board Findings on the Mixed Stock Policy

The Board's findings, associated with passage of the Mixed Stock Policy regulations, not only reiterate specific points of the policy, but amplify and clarify the Board's intent outside of the constraint of regulatory language. Several of these findings apply to consideration of this Kodiak-Cook Inlet sockeye issue.

For example, the Board found that Alaska's salmon industry appropriately relies upon stable existing fisheries, most of which harvest mixed stocks. Certainly, Kodiak's established management program for the harvest and conservation of mixed stocks has been successful in sustaining and promoting Kodiak's century-old industry. Similar to the Board's specific discussion of Southeast Alaska's program to harvest many stocks with an eye towards quality, Kodiak's pattern of managing cape fisheries has promoted protection, rebuilding and high-quality harvests of a large number of stocks of salmon.

The Board's finding also specifies that established regulatory management plans are presumed to already assign proportional burdens of conservation. Given that the Board has established a management plan dealing with Kodiak interception of Cook Inlet salmon, it is arguable that any conservation burden has already been sufficiently assigned. Moreover, there is no indication that 111 years of fishing in Kodiak's waters ever poses any threat to Cook Inlet stocks.

Further, the Board's findings state that definition of new or expanding fisheries will not be based upon natural fluctuations of fish, but rather the specific behavior of fishermen. Of particular interest is the finding that "it is seldom practical to declare a fishery as 'new' or 'expanding' based on a single year's events." But, this is just what happened in creation of the North Shelikof Strait Sockeye Management Plan (based on the 1988 season) to restrict other Kodiak area fisheries.

It is plausible that events in 1988 may have warranted a "seldom" practicality; moreover, the Board was not then bound by the new Mixed Stock Policy. However, outside of North Shelikof Strait, it now is evident that Kodiak's bycatch rates of Cook Inlet salmon are almost totally based upon natural fluctuations in the abundance of the Cook Inlet return-and KPFA's concerns about high levels of bycatch and purported shifts in fishing effort are based upon only one year (1992).

Finally, the Board found that the Mixed Stock Salmon Policy is intended to embody the current practice of salmon management employed in Alaska, specifically existing regulatory management plans. Kodiak Island's salmon fisheries are already managed according to a well-orchestrated series of management plans, none of which need to be amended now to account for harvests of fish that fluctuate on the basis of natural abundance and pose no threat to conservation.

Summary

The Board of Fisheries took substantial action after the 1988 season to restrict Kodiak harvests of Cook Inlet-bound sockeye in Shelikof Strait. This action was based upon a single year shift in

fishermen's behavior. While such regulatory action might not now be sanctioned by the current Mixed Stock Salmon policy, it did serve to restrict a perceived increase in Kodiak harvest of Cook Inlet sockeye.

Recent information provided by ADF&G indicates that bycatch in remaining sections of the Kodiak management area are related to annually fluctuating abundance of Cook Inlet sockeye. Moreover, estimated rates of bycatch indicate that Kodiak fishermen harvest negligible numbers and proportions of poor to average Cook Inlet runs, therefore conservation is not of concern.

Because major questions of conservation and management are already successfully dealt with in the self-limiting nature of Kodiak's bycatch and existing series of management plans, the only remaining issue for debate is allocation; allocation of salmon resources under this policy will be consistent with allocation criteria set out in 5AAC39.205.

Comparing current information and circumstance, it is apparent that no further limit of Kodiak's bycatch of Cook Inlet sockeye salmon is warranted under the Policy for the Management of Mixed Stock Salmon Fisheries.

Chapter 2
ALLOCATION CRITERIA

Allocation Criteria

The Board of Fisheries may allocate fishery resources among commercial fisheries. The Board shall adopt criteria for the allocation of fishery resources and shall use the criteria appropriate to particular decisions.

Pursuant to AS 16.05.251(c) and AAC39.205, the criteria may include such factors as;

1. the history of each fishery;
2. the number of residents and non-residents who have participated in each fishery in the past and the number of residents and non-residents who can reasonably be expected to participate in the future;
3. the importance of each fishery for providing residents the opportunity to obtain fish for personal and family consumption;
4. the availability of alternative fishery resources;
5. the importance of each fishery to the economy of the state;
6. the importance of each fishery to the economy of the region and local area in which the fishery is located;
7. the importance of each fishery in providing recreational opportunities for residents and non-residents.

WHAT IS IT ALL ABOUT?

The proposals submitted by Cook Inlet commercial salmon groups to the Board request the Board to reduce the harvest time and area in the Kodiak salmon management area during the period in which Cook Inlet sockeye are present in the Kodiak salmon management area.

The *impetus* behind the proposals is one, an awareness by Cook Inlet fishermen of increased Cook Inlet sockeye catches by Kodiak salmon

fishermen in the years 1988 and 1992 and two, a fear that this increased catch is a new fishery which will trigger conservation concerns when there are low returns of Cook Inlet sockeye salmon stocks.

The *effect* of the Cook Inlet proposals, if adopted by the Board, will be to allocate a greater percentage of Cook Inlet sockeye to Cook Inlet commercial salmon fishermen, while also reducing Kodiak's historic share and restricting Kodiak's ability to harvest local stocks.

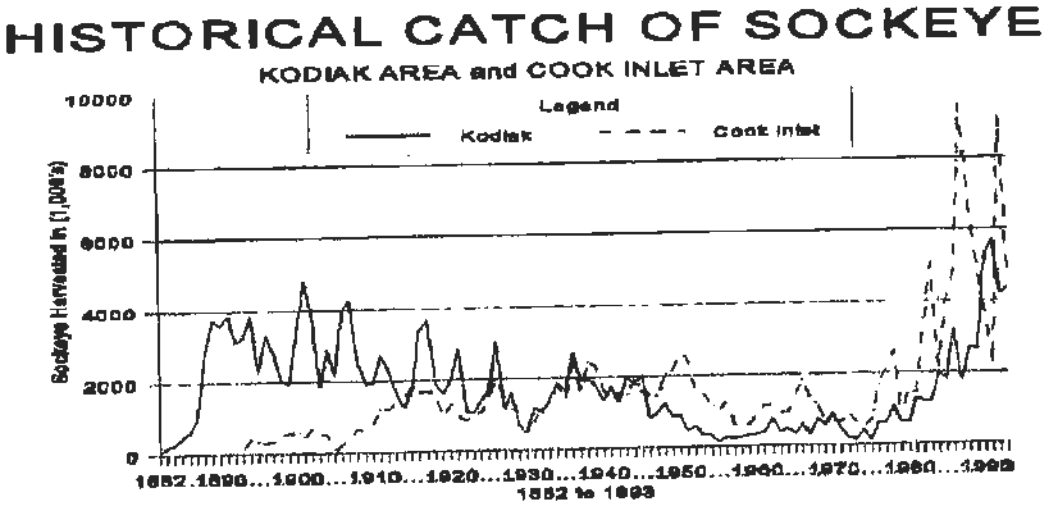
As approval of the Cook Inlet proposals will result in allocation of mixed stock fishery resources between commercial fishermen, the Board is required by law to consider those criteria appropriate to a mixed stock fishery allocation.

Kodiak fishermen believe that after careful review of the facts, the Board will reject the Cook Inlet proposals. The following allocation criteria are appropriate to the issue before the Board.

HISTORY OF EACH COMMERCIAL SOCKEYE FISHERY

Kodiak has commercially fished sockeye salmon since 1882 - or for 111 years.

Cook Inlet has commercially fished sockeye salmon since 1893 - or for 100 years.



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Fish swim, and Cook Inlet salmon are no different than other fi[illegible] that respect. As a result of Kodiak's geographical location, Cook Inlet sockeye salmon have been traveling through Kodiak waters for thousands of years on their way to and from their spawning grounds. For at least the last 111 years, Kodiak commercial salmon fishermen have fished stocks of Cook Inlet salmon as they pass through Kodiak's waters. In fact, they have been fishing stocks of Cook Inlet salmon at least 11 years longer than Cook Inlet commercial fishermen have fished salmon.

A detailed history of Kodiak's fishery is presented in Chapter 7. It is apparent from the history of the two fisheries that the "new or expanding" fishery identified by Cook Inlet fishermen is a short sighted snapshot of a rather large panorama. 1988 and 1992 are aberrations significantly above historical norms.

As Cook Inlet's proposals are singularly based upon fishing in years of abnormally high fluctuations of Cook Inlet sockeye, the Board's mixed stock fishery policy mandates the fisheries stay at the status quo if not returned to their status as it existed in 1988.

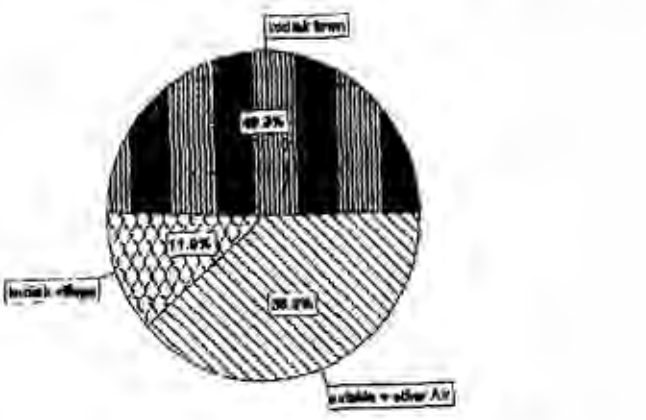
RESIDENT VS. NON-RESIDENT OF EACH FISHERY PRESENTLY AND IN THE FUTURE

There are 611 Kodiak salmon limited entry permits.

78% or 478 of these permits are owned by Alaska residents.

61% or 374 are owned by residents of Kodiak Island.

11.9% or 79 permits are owned by persons who live in the Kodiak villages of Old Harbor, Larsen Bay, Ouzinkie, Port Lions, Akhiok, and Karluk.



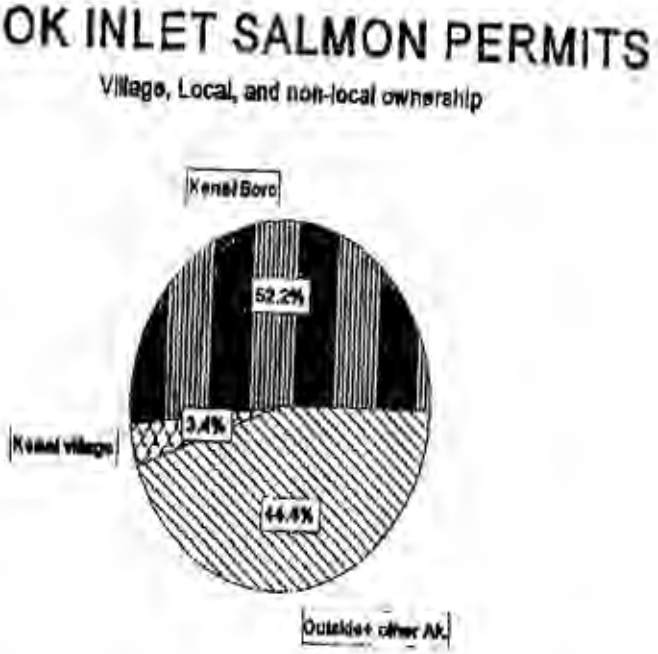
Since the institution of Limited Entry permits for salmon, the majority of Kodiak permits have been owned by Kodiak residents. It is likely that for the near future, if not far future, the majority of Kodiak salmon limited entry permits will continue to be owned by Kodiak and Alaskan residents.

There are 1,328 Upper Cook Inlet salmon limited entry permits.

78.7% or 1,139 of the Upper Cook Inlet salmon permits are owned by Alaskan residents.

55.6.% or 738 of the Upper Cook Inlet salmon permits are owned by residents of the Kenai Peninsula Borough.

3.9% or 45 of the Upper Cook Inlet salmon permits are owned by residents from the villages of Seldovia, English Bay, and Portlock.



Less than 4% of Cook Inlet salmon permits are owned by village residents. In contrast, almost 12% of Kodiak's permit holder reside in villages around Kodiak Island. Old Harbor is illustrative of these village's dependence on salmon fishing. There are 31 permits in Old Harbor and out of a population of approximately 300 people, over 120 local residents are employed on salmon vessels and set net sites. There is not a family in Old Harbor that does not have at least one person involved in salmon fishing.

Roughly the same percentage of Kodiak and Upper Cook Inlet permits are owned by Alaska residents. However, a significantly higher percentage of Kodiak's permit holders reside in the local area where they fish. The Board can continue to expect that a greater percentage of Kodiak permit holders will reside in the Kodiak Borough.

Residency data, particularly that of village residents and local l residents, supports the Board's weighing of this criteria in Kodiak's favor. The Board should reject Cook Inlet's proposals and ensure Kodiak's historical salmon fishing opportunities.

Importance of Each Fishery to Provide Fish for Personal and Family Consumption

Both Kodiak Island and Cook Inlet have at this time and in the past adequate supplies of salmon to provide for personal and family consumption.

Availability of Alternative Fishery Resources

Both Cook Inlet and Kodiak fishermen depend on salmon resources as well as other available resources. However, there is a portion of the Kodiak salmon fleet, mainly in the Alutiiq villages, which makes up 12% of the permit holders, who only fish salmon. To close down their salmon fishery, especially for three weeks, will decrease these persons income with no alternatives. The Board needs to be acutely aware of this lack of alternative fishery resource for this group of fishermen.

IMPORTANCE OF EACH FISHERY TO THE ECONOMY OF THE STATE

Kodiak and the State

Kodiak's sockeye salmon industry was the seminal commercial salmon fishery for the Territory of Alaska. The fishery began at Karluk in 1882. The importance of Karluk's commercial sockeye industry is reflected in the fact that when Anchorage named its streets, it gave the letter "K" street to Karluk and not Kodiak, Kenai or Kasilof.

Kodiak has always been a huge contributor to the fish economy of the Territory and the State of Alaska. Throughout the last two decades, since Limited Entry, Kodiak has been the number one or number two port in Alaska. In fact, the value of salmon caught in Kodiak has averaged

$30,000,000.00 annually since 1975. This means $900,000.00 annua the state treasury from just the raw fish tax.

Kodiak is a fishing community and lacks the economic diversification of area's connected by roads. As indicated in Dr. PJ Hill's report (see Appendix B), about 30% of the average monthly employment in Kodiak was for seafood processing and fishing generated 20% of Kodiak's person income.[1]

To allocate a percentage of the Kodiak sockeye harvest to Cook Inlet will devalue Kodiak's salmon industry. It will mean fewer jobs, and less revenue for the state. The overall result will be to cause economic damage to Kodiak and its 6 village communities.

Upper Cook Inlet and the State

The Upper Cook Inlet sockeye fishery started in 1893, 11 years after Kodiak. Throughout the years, Cook Inlet sockeye production has played an important part in the Territory and in the State. In 1990, Cook Inlet fishing contributed $25 million to the Kenai Peninsula economy.

In the last two decades, fishing has been less important to the Kenai Peninsula economy. Tourism and oil have surpassed fisheries. Today, only 5% of Kenai's $426 million annual economy is generated by fishing.

Analysis

Passage of the Upper Cook Inlet proposals will create fleet displacement during periods of closure in the Kodiak Management Area. The displaced fleet will be crowded into smaller areas causing increased competition between commercial salmon users. Increased state revenues will be expended to manage and control such a fishery. In addition, there will be an increased potential for local fish to be unharvested or over-harvested in the inner bays. This will lower the quality of Kodiak's salmon resource.

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[1] PJ Hill, Ph.D, A Comparative Analysis of the Economies of Kodiak and Cook Inlet from the Perspective of Commercial Fishing, March, 1994.

On the other hand, Cook Inlet will increase its harvest of sockeye salmon revenue. The difference is that 5% of that increased revenue will transfer to permit holders who live outside of the Cook Inlet sockeye region and the state. Although the percentage is small, this transfer of fishery resources to outside Alaska is contrary to the state's policy.

THE IMPORTANCE OF EACH FISHERY TO THE LOCAL ECONOMY

Kodiak

Salmon has consistently made up between 30% and 50% of Kodiak's economy, with sockeye as the premier salmon species. This means an average of $30,000,000.00 flows through Kodiak annually from ex-vessel payments. The salmon industry in Kodiak employs 4,200 to 5,000 workers each year.[2]

Cook Inlet

Salmon is less than 5% of the Kenai Peninsula Borough economy. This comes to around $20,000,000.00 on an annual basis. It is important to note that 44.4% of that ex-vessel value does not remain in the local economy, but leaves with the non-resident and non-local fishermen.

Importance of Each Fishery in Providing Recreational Opportunities for Resident's and Non-Residents

Currently, both Kodiak and Cook Inlet are enjoying sockeye runs substantially in excess of escapement goals. Ample recreational opportunities are currently provided for residents and non-residents in Cook Inlet, as well as Kodiak.

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[2] Ibid

Conclusion

Cook Inlet's proposal must be reviewed in light of the Mixed Stock Fishery Policy. That policy requires the Board to use the pertinent allocation criteria in making a decision. The analysis of each of the relevant criteria previously mentioned weighs heavily toward the Board rejecting the Cook Inlet proposal.

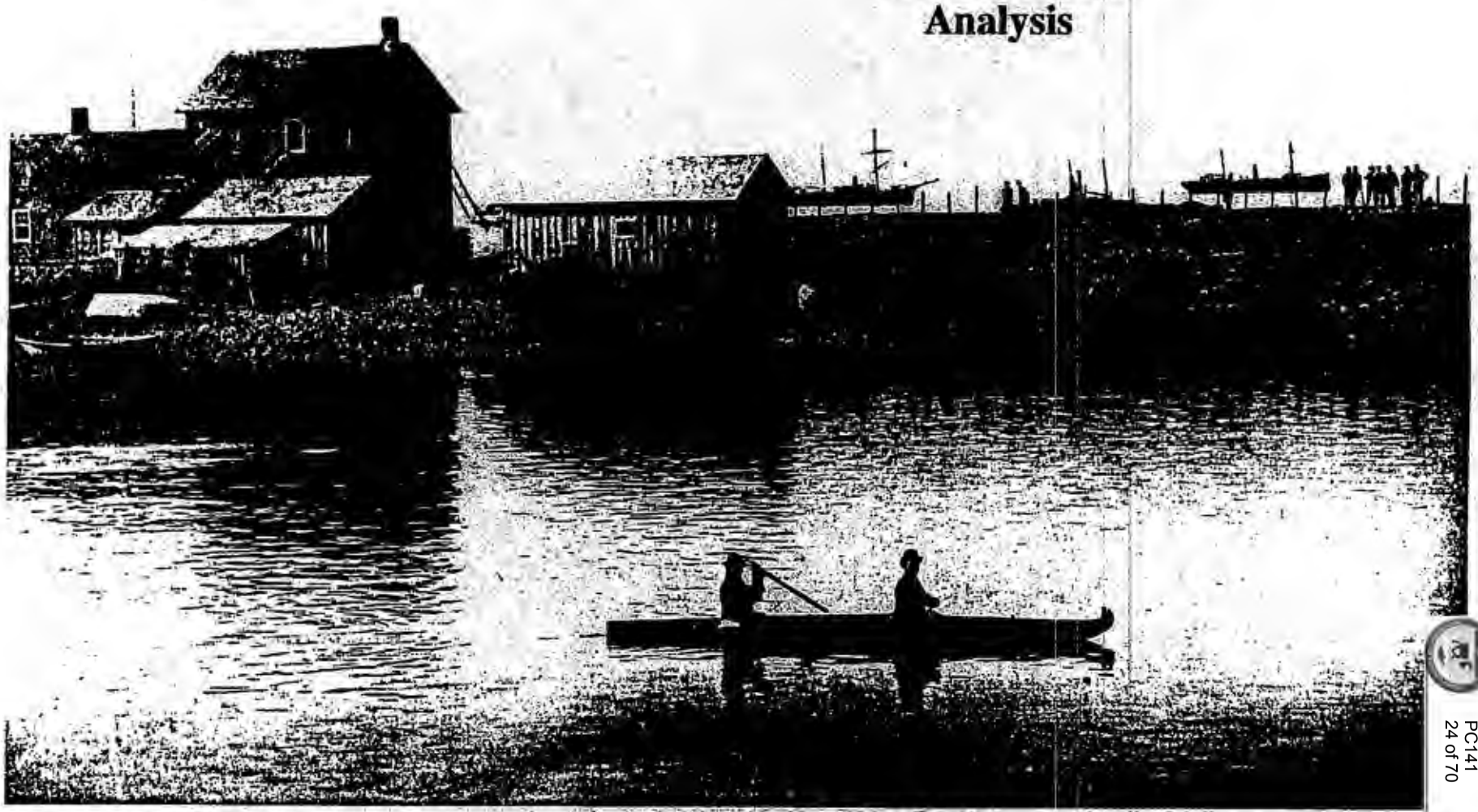
Cook Inlet fishermen claim that Kodiak fishermen have just recently learned how to "intercept" (their word) Cook Inlet sockeye and that this is a new and expanding fishery. They point to the years 1988 and 1992 as proof of this new fishery. A simple glance at the histories of each fishery reveals that those two years were far and above the normal natural harvest for Cook Inlet salmon. **The Board's Mixed Stock Fish Policy [5AAC39.230(d)] speaks directly to unexpectedly high return years. Natural fluctuations in the abundance of stocks harvested in a fishery will not be the single factor that identifies a fishery as expanding or new.**

Were it not for favorable environmental conditions which created an extremely abnormal abundance of Cook Inlet sockeye, Kodiak fishermen would have caught their traditional harvest of Cook Inlet sockeye, as Kodiak fishermen have done for the last 111 years. Careful consideration of the relevant allocation criteria and the caveat that natural fluctuations in the abundance of stocks harvested will not be the single factor that identifies a fishery as new and mandates that the Board reject Cook Inlet fishermen's proposals.

Bidarki in Karluk River

PART 2

Historical, Economic, and Biological Analysis



Chapter 3
NO CONSERVATION EMERGENCY EXISTS

Much has changed since the Alaska Board of Fisheries initially agreed to the Change of Agenda request by Kenai Peninsula Fishermen's Association (KPFA) in March of 1993. Paramount to this issue is the forecast revisal increasing the Kenai River commercial harvest from about 300,000 to 1,000,000.

1994 Original Kenai River Forecast
(ADF&G Memo of 3/11/92)[1]

Total Run	800,000 to 900,000
Escapement Goal	400,000 to 700,000
Harvest	200,000 to 400,000

1994 Revised Kenai River Forecast
(ADF&G Preliminary Forecast of 1994 Run)[2]

Total Run	1,500,000
Escapement Goal	500,000
Harvest	1,000,000

While some arguments could be made that a harvestable surplus of 300,000 sockeye hardly constitutes a conservation problem, certainly a surplus of 1,000,000 sockeye puts that concern to rest. In addition, the biologists suspect incorrect smolt data may have short-changed the run by 1.5 million allowing an actual harvest of 2.5 million in 1994 from Kenai River sockeye.[3] These projections, coupled with biologists' assessments that other Cook Inlet systems appear stable, clearly place the upcoming salmon season within normal historical guidelines. **NO CONSERVATION EMERGENCY EXISTS!**

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1 ADF&G Memo, November 3, 1992 from Stephen Fried, Regional Research Biologist to Ken Florey.

2 Upper Cook Inlet Forecast for 1994 by Ken Tarbox, Research Project Leader

3 Ibid

Recent Kenai River data show Kodiak's catch of Cook Inlet b sockeye indelibly linked with the size of Kenai River run. On those years when the run dips, Kodiak's catch drops proportionately. In fact, the average Kenai River run in 1991 produced a negligible catch of Kenai bound sockeye.[4] This data strongly supports the contention that weak and average Kenai River returns are not adversely affected by Kodiak's incidental take of Kenai River sockeye.

OTHER UCI SYSTEMS

While the focus of this discussion centers on the Kenai River, it is important to note that the other major UCI systems are also NOT in jeopardy or facing any conservation crisis.

1994 FORECAST

Crescent River	140,000
Fish Creek	100,000
Kasilof River	570,000
Kenai River	1,500,000
Packer Creek	220,000
Susitna River	770,000
Total UCI Run	**3,300,000**
Escapement	**1,300,000**
Harvest	**2,000,000**

4 Ivan Vining & Bruce Barrett, The Use of Average Weight to Estimate the Amount of Interception of Upper Cook Inlet Sockeye Salmon Within Selected Areas of the Kodiak Management Area, p. 9, 48.

Summary

If the 1994 Kenai return comes in at projected levels, Kodiak's interception level most likely will mimic 1991's which was negligible. Therefore, any new restrictions imposed on Kodiak seiners for the 1994 salmon harvest will probably not affect the Cook Inlet run.

However, new restrictions always affect the harvest of local stocks in that they redistribute the fish to different user groups. Kodiak, unlike Cook Inlet, has developed a fine-tuned management plan under which seiners, setnetters, beach seiners, and sports fishermen can live without allocative conflicts within the KMA.

Moving seiners off traditional cape hauls in July will tip the balance, resulting in conflicts which will also end up before the Board of Fish. The damage to Kodiak's fishery will be great, while the benefit to Cook Inlet will be minimal.

Both from a conservation stance and a fisheries management stance, the KPFA petition is hollow; it is not valid nor is it necessary.

Chapter 4
THE RELATIONSHIP OF KODIAK BYCATCH TO THE COOK INLET RETURN

During the past decade, returns of sockeye salmon into Upper Cook Inlet reached unusually high numbers.[1] These record returns were instrumental in bringing about the current debate on Upper Cook Inlet sockeye.

Prior to 1982, the highest Cook Inlet commercial sockeye catch was less than 2.7 million fish. From 1982 to 1993, the Cook Inlet sockeye catches have exceeded the prior record catch 10 out of 12 years. 1987 and 1992 Cook Inlet commercial catches were approximately three and a half times greater than 2.7 million. This large increase in Cook Inlet sockeye has made their presence more noticeable in Kodiak catches during this time period. UCI biologists were unsuccessful in their attempts to prevent over-escapement of the most onerous type. In fact, in 9 of the last 12 years, since 1982, the optimum escapement goal for the Kenai River has been exceeded; in-season escapement assessment is determined by sonar indexing which in itself has recently been identified by ADF&G as conservatively biased. **UCI in-season harvest strategies, as historically applied and as directed by existing management policies, suggest that when UCI run size exceeds 5 million and all sockeye systems are producing proportional to their potential, over-escapement is unavoidable.** Even though over-escapement in 1987 and 1989 were partially influenced by oil spills, the other aforementioned 7 years show that escapements would have been substantially exceeded regardless of the oil spills. Therefore, in lieu of this 12 year average of over-escapement, it would be prudent for the Board of Fisheries to review UCI management policies as it relates to this issue.

Awareness of bycatch in the KMA caused alarm among Cook Inlet fishermen. Based on solely on 1988 data, Cook Inlet fishermen convinced the Board of Fish to adopt the North Shelikof Strait Sockeye Management Plan in 1989. Then, in 1992, only three years later, another near record return of sockeye returned to UCI. Concerned once again, Cook Inlet

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[1] UCI Sockeye Harvest - 100 years

fishermen are asking for further restrictions of Kodiak fishermen. However, this time more than one year's worth of data is available by which to evaluate Kodiak's catch.

Over the years, pressure has been put on ADF&G to try and calculate the amount of non-local sockeye harvested in the KMA when UCI sockeye are assumed to be present. That analysis has been done within the limits of current information and shows the following:

1. UCI sockeye are only present at detectable levels in the KMA during the years that UCI returns are higher than average.

2. Since 1988, the amount of bycatch of UCI sockeye in the KMA correlates directly to run strength in UCI.[2]

In other words, when UCI sockeye returns are very strong, bycatch in the KMA is proportionately higher. This was the case in 1992 when 10.5 million sockeye returned to UCI. Bycatch in the KMA that year only reached a maximum of 9.49%. When the UCI sockeye return was 6.2 million in 1993, bycatch in the KMA fell to 3.15%. Furthermore, when the return was 3.5 million in 1991, there was no discernible bycatch of UCI sockeye in the KMA.

These findings are not surprising. It makes sense that more fish will be caught when more are available and that fewer fish will be caught when fewer are available. **In fact, as UCI sockeye approach average levels, the data shows that so few UCI sockeye are harvested in the KMA that their numbers cannot be calculated.** The same relationship was concluded in an independent study by Natural Resource Consultants (see Appendix A).

Recent high returns of UCI sockeye and subsequent over-escapement into the Kenai have also alarmed Cook Inlet fishermen. They feared "the decline in adult returns is expected to begin in 1993 and bottom out in 1995 when, according to ADF&G, the total return in expected to 'barely be great enough to meet escapement goals. This will likely mean that no

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2 Ivan Vining and Bruce Barrett, Use of an Average Weight to Estimate the Amount of Interception of Upper Cook Inlet Sockeye Salmon Within Selected Areas of the Kodiak Mangement Area, 1994

targeted commercial fishing on the Kenai River sockeye salmon stock[illegible] be allowed in Cook Inlet in 1995. Minimal fishing time is expected i[illegible] 1998.'"[3] **However, in 1993 the Kenai was once again over-escaped by 16% and Kodiak's bycatch of non-local stocks was estimated at only 3.15%; this during a year when Kodiak's fleet was allowed a record amount of fishing time to harvest the largest return of local stocks on record. The return to the Kenai River in 1994 is now predicted by ADF&G to be 1,489,000. Total return of UCI sockeye is forecasted to be 3.3 million.**

Clearly, cause for alarm by Cook Inlet fishermen was unnecessary in both issues. Rather, the data show that it is the Kodiak fishermen who should be alarmed. Only during high returns of UCI sockeye is there any detectable level of bycatch in the KMA. Yet Cook Inlet fishermen wish to further restrict Kodiak during years of average or below- average sockeye returns and during years of high abundance in the Kenai River which has been consistently over-escaped.

Certainly, large sockeye runs into UCI have created problems in UCI management along with increased bycatch in the KMA. However, it is also clear that as Cook Inlet returns decrease, the KMA has little impact on UCI sockeye. As we look ahead to smaller UCI sockeye returns, we can expect no perceptible impact by Kodiak fishermen.

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[3] Letter to Laird Jones

[4] Ivan Vining & Bruce Barrett, The Use of Average Weights to Estimate the Amount of Interception of Upper Cook Inlet Sockeye Salmon Within Selected Areas of the Kodiak Management Area. 1994

Chapter 5
ANALYSIS OF KODIAK HARVEST PATTERNS WITH AREA SPECIFIC DISCUSSIONS

With the abnormally abundant runs to Cook Inlet in '87, '88, and '92 large sockeye were apparent in the mid-July catches of many Kodiak management units, particularly in 1992 when the Cook Inlet run was spread out over an unusually long time period. This shouldn't be surprising as these were the three largest returns to Cook Inlet in the entire history of the fishery. Prior to 1982, no commercial Cook Inlet catch had ever exceeded 2.7 million sockeye.

It is hard to think of any fishing area on Kodiak Island in 1992 that didn't have an unusual number of reds show up at some time in July. Even in Chignik, unusual sockeye catches occur in early July on the outer capes. In response to the Kenai Peninsula Fishermens' Association (KPFA) petition that the Board of Fish accepted, ADF&G looked at changes in average weights and attempted to find an identifiable contribution of Cook Inlet bound sockeye in Kodiak's catch. Even with the unusual abundance of Cook Inlet bound fish in 1992, the overall average weight of the Kodiak sockeye catch was well within the historic range. ADF&G analyzed average weight data for the years 1983 to 1993 and found identifiable jumps in July average weights that might indicate the presence of Cook Inlet bound sockeye. The areas identified were the Inner and Outer Ayakulik, Halibut Bay section, the Central Section, the Sitkalidak Section, Cape Alitak Section, Ugak Bay Section and the Katmai/Alinchak Section. Identifiable non-local stocks were not found in any of these areas every year. Most any area around the Island could have non-local reds in July, but the only consistent conclusion is that high numbers of non-local reds are not found except when runs to Cook Inlet are extremely large.

The KPFA petition singled out three areas in the petition for total closure from the 5th through the 25th of July even though these areas have a very inconsistent catch record of Cook Inlet origin sockeye. If the Halibut Bay Section, the outer part of the Sitkalidak Section, and the Katmai/Alinchak Bay Section were all closed as requested in the KPFA petition, most years it would have no measurable impact on the abundance of sockeye reaching Cook Inlet. Yet these closures would displace the

Kodiak seine fleet to other areas creating unnecessary line fisheries crowding and resulting in enforcement problems. These closures would also hamper the Kodiak fleet's ability to capture local stocks

Halibut Bay Section

The KPFA petition's proposal to close the Halibut Bay Section the 5th through the 25th of July ignores the importance of this area for harvesting local Kodiak sockeye and pinks. In only one year, 1992, did the harvest of non-local sockeye exceed the harvest of local sockeye in this section.[1] The only other year with detectable non-local sockeye was 1988. The Halibut Bay section is important to the seine fleet for harvesting Ayakulik sockeye and, on even years, pinks. When the wind blows hard southwest, the entire fishing area in the Ayakulik Section is exposed to an onshore wind; under these conditions the Halibut Bay Section is the only nearby area with enough shelter to fish safely.

Effort statistics for the Halibut Bay Section are skewed by historic conservation closures of the past aimed at Karluk and Ayakulik stocks and also from a long series of strikes in July which occurred during the seventies through 1982. In 1992, Halibut Bay effort levels were boosted because the Ayakulik Section was closed for awhile during the 5th through the 25th time period. The Ayakulik fleet was displaced into the Halibut Bay Section for awhile until escapements jumped up at Ayakulik and then both sections were open again. Karluk had already exceeded its early run escapement goal.

The Larsen Bay Cannery fleet has a very long history of use of the Halibut Bay section. With the rebuilding of the major sockeye systems on the south end of the Island, the Halibut Bay section is even more important than it was in the past. Of the four major sockeye systems on Kodiak, the only one where the seine fleet regularly has access to the terminal harvest area for sockeye is the Ayakulik. The Ayakulik has a substantial return of sockeye all through July. On even years, substantial catches of Karluk and

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1 Ivan Vining and Bruce Barrett, The Use of Average Weights to Estimate the Amount of Interception of Upper Cook Inlet Sockeye Salmon Within Selected Areas of the Kodiak Mangement Area, 1994.

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Ayakulik pinks are also caught in the Halibut Bay Section. Closure of Halibut Bay Section in July would directly affect the economy of Larsen Bay the most.

Sitkalidak Section

Another area targeted for closure by KPFA is the outer two stat areas of the Sitkalidak Section. This area is right in the center of the area fished by Old Harbor residents in July. The village of Old Harbor now has 27 seine permits held by village residents. While the Old Harbor fleet often fishes as far away as Alitak and the Ayakulik Section, the Sitkalidak Section is heavily used during the time targeted for closure. Fish haven't always been as abundant in the Sitkalidak Section as they have been recently, but it was a major harvest area in 1969 and in the seventies. With the recent rebuilding of Kodiak sockeye systems, moderate harvest of Kodiak sockeye has occurred.[2] A large harvest of non-local sockeye occurred in the outer Sitkalidak areas 1992, but only 3 other years showed non-local catches out of 11 years analyzed.

Pink and chum harvests were depressed on the East side in the eighties, but have rebounded in the nineties although not as high as earlier years. East side streams have short watersheds which makes them more vulnerable to scouring in wet years and to drought in dry years.

Effort levels were generally higher in the seventies for the Sitkalidak Section taken as a whole than has occurred recently. The outside two stat areas show an increase in '91, '92, and '93, compared to the seventies. Part of this increase is only a function of where the tenders were laying when taking deliveries. In the past, tenders laid in front of the village of Old Harbor and Santa Flavia Bay. Both of these places are reliable anchorages and fairly accessible to all of the area. Fish tickets have only one space for a stat area and commonly the one where the tender was laying was used. More than one stat area might be fished, but it wouldn't seem important to list all adjacent stat areas. 1992 was quite calm in much of July and tenders could safely lay in Boulder Bay and just inside Cape Barnabas. Deliveries there would tend to list the outside stat areas.

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[2] Ibid

In 1992, the North Shelikof Straight Management Plan closed entire outside area along Southwest Afognak when the sockeye cap was reached. A large percentage of the displaced fleet headed east into Marmot Bay and down the East side to Sitkalidak. This caused an increase in the number of landings there although it probably didn't significantly increase the catch. Seine boats are efficient enough that increasing fleet size doesn't continue to increase catch when areas start to get crowded. With more boats, seiners either have to wait turns at the better spots or set closer together which just "corks" off others fishing behind them. There certainly has been enough effort in recent decades in the outside Sitkalidak Section to have caught significant quantities of fish similar to '91, '92 and '93 if the fish had been there.

The outside of the Sitkalidak Section has a sockeye producing stream emptying out on Ocean Beach. Good catches have occurred there in July. The East side has three other sockeye producers in Ugak Bay, only 20 nautical miles north of Cape Barnabas. The Saltery Cove system had an escapement in '93 of 77,186 sockeye. Most of Saltery's production comes in late June and in July. In strong years, Saltery would contribute significantly to East side catches. Saltery Cove sockeye are large for Kodiak and have a strong three ocean component which make them hard to distinguish from Kenai River sockeye. The Saltery weir wasn't manned in 1992.

Unique scale indicators of zero freshwater checks (Upper Station) and three fresh water checks (Karluk) indicate some substantial catches in the Sitkalidak Section in July of Karluk and Upper Station sockeye.[3] Although no unique scales marked these systems, it is reasonable to expect contributions from Ayakulik and Frazer also when those runs are strong. Average weights would indicate that most of the 1991 Sitkalidak sockeye catch was from Ayakulik, Frazer, Upper Station, and Karluk. If Cook Inlet catches were the dominant stock of sockeye present in July, the average weight of the Sitkalidak catch would have been much higher in 1991. By all indicators, sockeye caught in the Sitkalidak Section in 1991 were local stocks.

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3 Schwanton & Nelson, 1994

The Katmai/Alinchak Sections on the Alaska Peninsula have generally seen less effort and lower catches than the other two sections targeted by KPFA for closure. This area is only open two and a half days per week in early July. 1992 saw a record sockeye catch of a little over 100,000 fish although average weights indicate over one third were of Kodiak origin. Other years had catches of less than 30,000 sockeye. Only 1988 and 1992 show a majority of sockeye catches to be non-local.

The Katmai/Alinchak Sections have chums and pinks in significant volume on some years prior to July 25th. If this area was closed until July 25th, poor quality fish would be caught.

A distinctive component of the Kodiak fleet fishes this remote area which often has bad weather. If the area was closed in July, the displaced boats would have to fish somewhere else. The very short history of 8-12 million fish runs to Cook Inlet (3 years) seems to indicate that anywhere else that the displaced vessels would move to could also have Cook Inlet sockeye present if weather and migration patterns happen to be like 1992 and the run is again huge.

Conclusion

There are currently no large Cook Inlet runs being forecast. Production levels of 10 million sockeye in the Inlet will be rare. It seems unfair that Kodiak's historic cape fishery should be curtailed just because Cook Inlet has had a few bonanza years.

On the other hand, earlier warnings of disasterously low Cook Inlet/Kenai returns are being modified upward. There is no need to precipitously reduce Kodiak's fishing time and area when there is no apparent conservation problem.

From 1990 to 1993, Kodiak has had a sockeye return per spawners of about 3.6 to 1. Kodiak's catch is about 2.6 to 1 per spawner,

including Igvak. Currently, Cook Inlet expects a return per spawner about 5 to 1.[4] The disparity in returns might suggest that Kodiak sockeye are being intercepted at higher rates than Cook Inlet's.

ADF&G's budget is limited. The North Shelikof Straits Management Plan ties up ADF&G personnel and their boat to monitor catches to initiate closures when the cap is reached. These resources had been used to sample West side chum catches in July to monitor the strength of returns and determine the relative contribution of different age classes. This can no longer be done. Trying to manage Kodiak waters for Cook Inlet stocks won't make any significant difference in Cook Inlet most years, and won't produce any additional fish for the State of Alaska as a whole. Diverting existing funding in this direction does have the potential to reduce production in Kodiak by eliminating weirs and aerial surveys critical to maintaining escapements and fishing opportunities.

[4] Paul Reusch, March 2, 1994

KODIAK SOCKEYE RETURN PER SPAWNER

HISTORICAL INDEXED ESCAPEMENTS
(Approximately 90% hand tallied through weirs)

1984	1,467,780
1985	2,574,530
1986	2,001,279
1987	1,551,543
1988	1,661,532

9,256,664 divided by 5 years = 1,851,332 average sockeye escapement for 1984-1988

	CATCH	ESCAPMENT
1990	5,140,294	2,006,241
1991	5,379,681	2,515,659
1992	4,015,642	1,968,058
1993	4,077,945	1,705,440
	18,613,562	8,195,398
	divided by4 years =	divided by 4 years =
	4,653,390 average	2,048,850 average

6,702,240 average total return
(excluding 80% Igvak catch)

2.51 catch per spawner

3.62 return per spawner using 5 and 4 year blocks rather than age classes

NOTES:

-1989 excluded - disrupted fishery

-1989 just slightly below average for last 4 years, Igvak catch levels not included

-Catch per spawner of 2.63 including Igvak catches

Chapter 6
RATIONALE FOR THE CURRENT KODIAK MANAGEMENT PLAN

Kodiak Management Area's (KMA) current commercial fishing harvest strategy is being evaluated by the Alaska Board of Fisheries due to concerns that KMA's commercial fishery is expanding its historical bycatch rates on Upper Cook Inlet (UCI) bound sockeye. ADF&G's Special Regional Information Report (RIR) 4K94-7 thoroughly reviews KMA's in-season harvest strategies for July 6-25, which is the primary bycatch period. The data summaries in that report provide an accurate geographical history of fishery harvest and effort for a 24 year period (1970-1993). A history of KMA's July sockeye fishery prior to 1970 is presented in Part 2, Chapter 7 of this report. A review of the aforementioned reports is necessary for understanding the basis for KMA's current July harvest strategy.

A thorough review of KMA's entire commercial salmon fishery is provided in ADF&G report RIR 4K94-8. Specifics on fishery history occur on pages 2 through 8 of that report. Also, the nature of KMA's salmon resources, their production potential for both wild and supplemental production is included in pages 15-21 of that report. Under- standing the basis for KMA's current overall harvest strategy requires a study of this overview report.

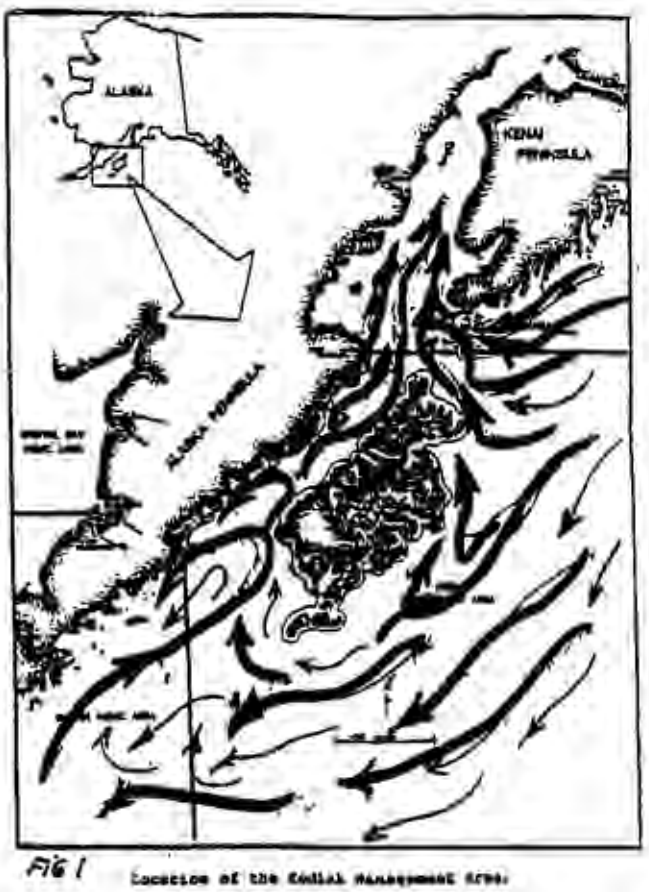

FIG 1 Location of the Coastal Management Areas.

KMA's fishable state waters and their relative location to the Chignik and Cook Inlet management areas are depicted in Figure 1, a generalized composite of coastal sockeye migration pattern derived from

Natural Resource Consultants report[1], various ADF&G tagging studies commercial fishing patterns. This juxtaposition is noteworthy when considering in-shore migration patterns of returning mature salmon from their pelagic feeding grounds, through near-shore migratory corridors, to their eventual spawning locations.

Natural Resource Consultants' report discusses these migratory routes and the fact that annual variations in these routes can occur.[2] NRC summarizes studies which suggest that the majority of the UCI-bound sockeye enter Cook Inlet through entrances north of the KMA. Of those remaining UCI-bound sockeye migrating through KMA's fishable waters, an historical increment has been a bycatch component of KMA's directed harvest on local stocks. The magnitude of that bycatch varies with UCI-bound sockeye run strength, KMA directed fishing opportunities, and the availability of these sockeye as influenced by migration route variation and daily weather/tide fluctuations. KMA's current harvest strategy was questioned by UCI fishermen when bycatch levels gained widespread notice during the record UCI sockeye production years of 1988 and 1992.

KMA's ADF&G management activities are primarily held accountable by Board of Fisheries review for compliance with statuatory and regulatory requirement. This review specifically addresses compliance with biological concerns and allocative criteria. KMA's management is further held accountable by federal, other state agency, and private landowners within the KMA.

Three National Wildlife Refuges, one National Park and two existing State Parks identify and monitor the stock status of salmon runs endemic to their lands. Additionally, KMA's harvest strategy must be sensitive to altered production from habitat modifications on private lands and from supplemental production projects by Kodiak's Regional Aquaculture Association (KRAA). Consequently, KMA's annual salmon harvest strategies have evolved in structure to withstand extraordinary critical review. By most accounts, these strategies are rated as yielding very thorough, relatively precise and highly defendable regulatory activities.

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1 Natural Resource Consultants Report, 1994, and ADF&G and University of Washington Tagging Studies

2 NRC Report, 1994, pp. 28-31.

ADF&G report RIR 4K94-8, pages 8-15, provides a clear and precise explanation of the premise for KMA's current harvest strategy. Figure 2, from that report, illustrates the run timing of KMA's wild stocks and specifically identifies both the annual management chronology by species and an example of actual harvest timing by species, that of the 1993 KMA salmon run.

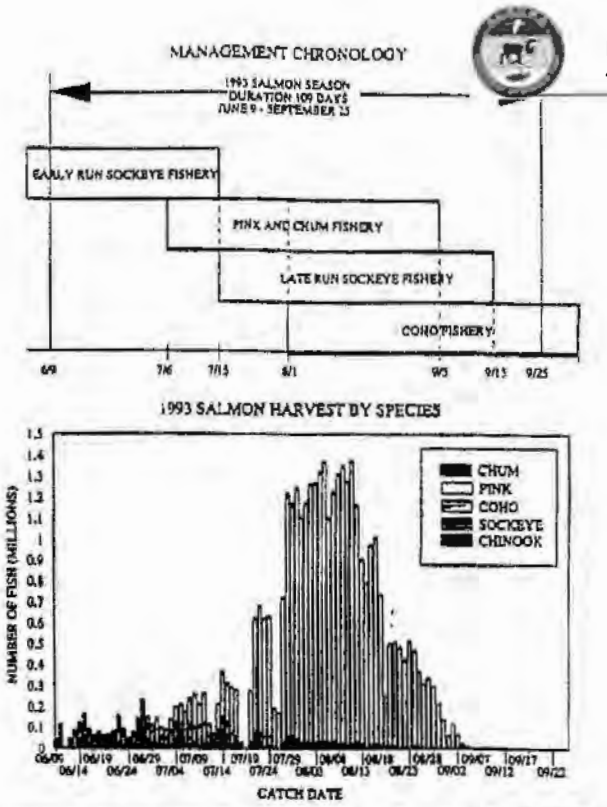

Figure 2. Fishery management and salmon run timing, general chronology of the harvest in the Kodiak Management Area, 1993.

Every regulatory action used to implement KMA's annual harvest strategy must first consider run timing of KMA stocks. All seven of KMA's management plans in Table 1, and forty or more annual in-season Emergency Order regulatory announcements, are based on the predictability of KMA stocks' run timing.

Table 1. Board of Fisheries approved fishery management plans for the Kodiak Management Area, 1993.

MANAGEMENT PLAN	YEAR INITIATED	MGMT. UNITS AFFECTED	DATES IN EFFECT
Cape Igvak Salmon Management Plan	1978	Cape Igvak Section Wide Bay Section	6/5 - 7/25
Alitak Bay District Salmon Management Plan	1987	Alitak Bay District	6/9 - 10/1
Westside Kodiak Management Plan	1990	N.W. Kodiak District S.W. Kodiak District S.W. Afognak Section	6/9 - 10/1
Crescent Lake Coho Salmon Management Plan	1990	Portion of the Central Section in Vicinity of Port Lions	8/1 - 9/15
North Shelikof Strait Sockeye Salmon Management Plan	1990	S.W. Afognak Section N.W. Afognak Section Shuyak Section Big River Section Halo Bay Section Inner and Outer Kukak Sect. Dakavak Section	7/6 - 7/25
Eastside Afognak Management Plan[a]	1993	Kitoi Bay Section Izhut Bay Section Duck Bay Section	6/9 - 10/1
Spiridon Bay Sockeye Salmon Management Plan	1993	Special Harvest Area in Spiridon Bay Section	6/9 - 10/1

[a] This management plan has basically been in use since 1981, but was titled the Kitoi Bay Hatchery management plan. In 1993, it was adopted into regulation by the Alaska Board of

KMA's historical harvest trends for all species combined are depicted in Figure 3.[3] Pre-statehood harvest trends by decade identify an initial exploration period in the 1880's, a relatively stable period with slight expansion from approximately 1890 through the 1920's, a peak harvest decade in the 1930's followed by a noticeable decline in the 1940's, and a bottoming out of production in the 1950's.

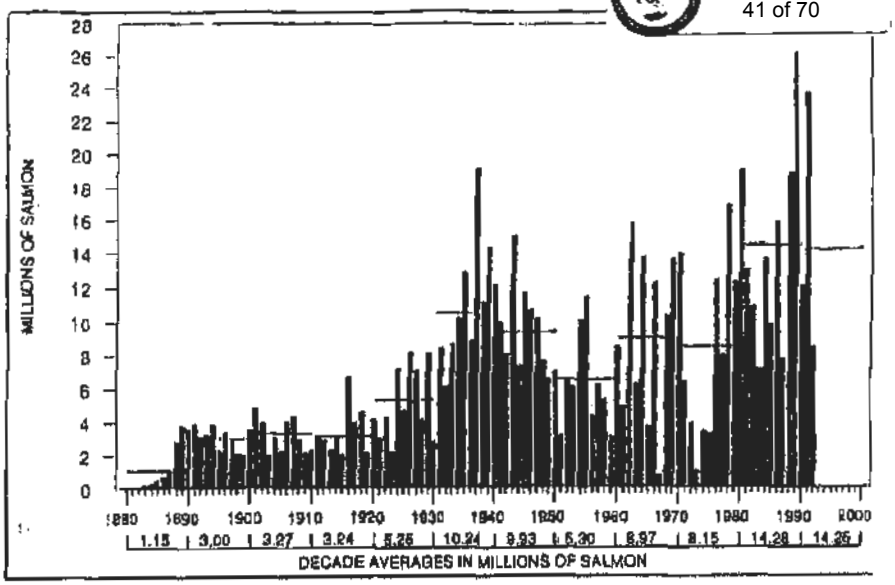

Figure 3 Commercial salmon harvest all species combined in the Kodiak Management Area, 1880-1992.

Post statehood harvest trends reveal rebounding production in the 1960's, a wide oscillation in production during the 1970's followed by record production for the decade of the 1980's and a relatively sustained production at a record average level for the first four years of the 1990's. In consideration of all the factors which contributed to the harvest history of KMA's fishery, it's apparent that KMA's salmon stocks have thrived under state regulation and that they appear stable in terms of having realized their production potential.

KMA's overall production potential is identified in Table 2.[4] The long term average harvest on KMA stocks, when escapement goals are achieved and environmental conditions are consistently average, is expected to be 16.5 million salmon. The fishery performance

Table 2. Potential vs. actual salmon production (wild stock) in the Kodiak Management Area, 1993.

SPECIES	PRODUCTION POTENTIAL			HARVEST		
	LONG TERM AVERAGE			POTENTIAL	ACTUAL	
	Targeted Escapement Goal[a]	Return Per Spawner[b]	Potential Total Return	Long Term Average	45 Year Average (1948-1992)[c]	10 Year Average (1982-1992)[c]
CHINOOK	15,000	2.5	37,500	22,500	4,000	15,000
SOCKEYE	2,100,000	2.5	5,250,000	3,150,000	1,184,000	3,220,000
COHO	150,000	2.5	375,000	225,000	100,000	255,000
PINK Odd Year	3,000,000	3.5	10,500,000	7,500,000	7,182,000	13,535,000
PINK Even Year	4,500,000	3.5	15,750,000	11,250,000	8,654,000	9,271,000
CHUM	1,020,000	2.8	2,856,000	1,836,000	785,000	828,000
TOTAL Odd Year	6,285,000	-	19,018,500	13,454,000	9,255,000	17,853,000
TOTAL Even Year	7,785,000	-	24,268,500	16,483,500	10,727,000	13,589,000

[a] The expected indexed escapement within the biological escapement goal range. KMA fisheries are normally managed to achieve this level of escapement.
[b] Return per spawner will vary each year. These values are averages around which natural survival and return will fluctuate somewhat (Barrett, Personal Communication, October 1993).
[c] 1989 harvest data not included in estimates.

3 ADF&G RIR 4K94-7.
4 ADF&G RIR 4K94-8, p.27.

of the 1980's and 1990's support that projection. This fact further supports the validity of KMA's current harvest strategy which has guided the rebuilding of KMA's depressed stocks since the early 1970's.

Industry's stock-specific knowledge of local run timing and important coastal migration characteristics, coupled with processors' strong demands for quality products, have always been responsible for KMA's fleet distribution. The resulting traditional harvest patterns by both the mobile seine and fixed set gillnet fleets were considerations in the evolutionary development of KMA's current harvest strategy. Figure 4[5] identifies KMA's industry distribution - i.e. gear areas and cannery locations plus all community locations - and it identifies all ADF&G stock monitoring sites such as fish weirs and KRAA's major salmon enhancement projects.

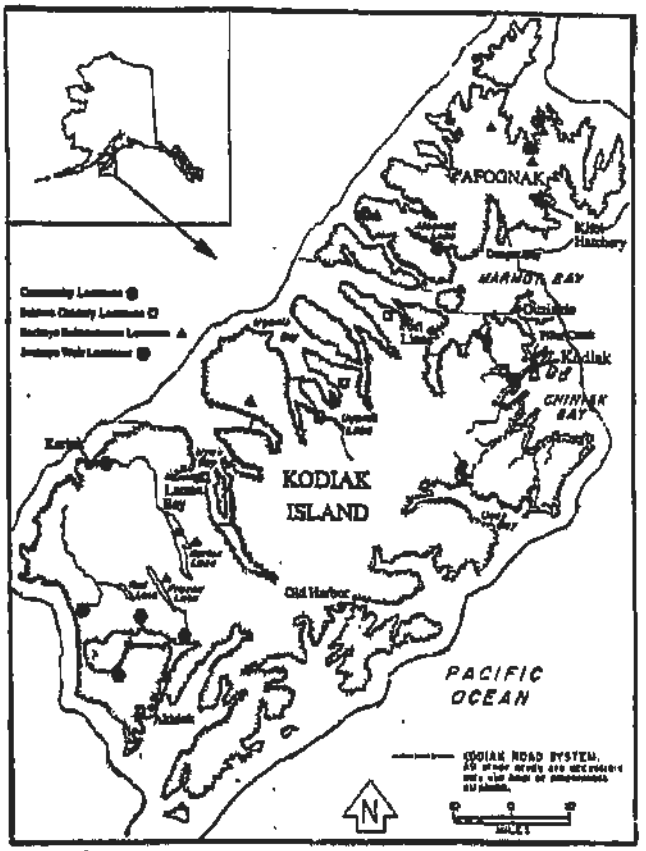

Figure 4 Map of Kodiak Island, showing communities, canneries, and sockeye salmon enhancement and weir locations, of the Kodiak Management Area, 1993.

Understanding the apparent success of post-statehood harvest strategies requires a review of the wide oscillations in production during the 1970's. In 1971, KMA's primary salmon production species, sockeye and pinks, were severely depressed. Strong regulatory measures were implemented to initiate a stock rebuilding plan. KMA's directed June early-run sockeye fishery was completely curtailed in what is now the Northwest Kodiak District. Also, the August late-run sockeye fishery was extremely minimized, because the primary harvest of these stocks was bycatch in KMA's directed July pink fishery. The pink fishery itself experienced record low production in 1973 following unexpected pink

5 ADF&G RIR 4K94-8, p.65.

run failures in 1971 and 1972. No other time period in KMA's history of commercial fishing has had an impact on developing stock rebuilding and stock stabilization strategies as did the decade of the 1970's. The record production levels of the late 1980's and early 1990 are the result of those strategies which remain active in KMA's current overall harvest strategy.

The development of the existing pink harvest strategy has been in many ways the most successful aspect of KMA's overall harvest strategy. Rebuilding of the depleted stocks of the early 1970's required a drastic attitude adjustment by industry to accept in-season Emergency Order openings of variable time and area fishing opportunities rather than the historical fixed openings for fishing opportunities with variable emergency order closures. As KMA's prolific stocks rebuilt unexpectedly fast, overly restrictive ADF&G experimental harvest strategies yielded poor quality pink harvest, unorderly fisheries, and sporadic but noticeable cases of unnecessary over-escapement situations. In response, a more aggressive pink harvest strategy, which initiated directed pink fisheries early in the run (July 6 openings), and which utilized KMA's very reliable pink forecast to pro-rate fishing time and area opportunities, was implemented in the late 1970's. This allowed industry to take full economic advantage of KMA's relatively large pink production through orderly fisheries on very high quality fish. It also restored the full utilization of KMA's fishable waters which had been denied KMA's fleet during the intense stock rebuilding years of the early 1970's.

In summary, KMA's current harvest strategy is the culmination of decades of developing an understanding of what regulatory actions are needed, are acceptable, and are capable of being efficiently implemented to obtain results. Evidence of this strategy's effectiveness are conveyed throughout ADF&G reports RIR 4K94-7 and 8. A knowledge of KMA's

production systems, identified in Table 3[6] lends credence to the data presented earlier in Table 2. The ability of ADF&G to accurately measure stock-specific escapement in the KMA is the foundation of this harvest strategy's success. Other state management areas lack KMA's precision for measuring sockeye escapement. That data, as shown in Figure 5[7], further justifies KMA's sockeye production potential identified in Table 2. The NRC report even suggests that ADF&G long-term production projections data may be conservative.

The KMA sockeye harvest of the late 1980's and early 1990's as shown in Figure 6[8] tend to support that thought, notwith-standing the contributions of UCI-bound sockeye on record or near-record returns to Cook Inlet.

Table 3 Estimated number of salmon production systems pe distribution, in the Kodiak Management Area, 1993.

Management District	Number of Streams[a]	Number of Streams with Each Species[b]				
		Chinook	Sockeye	Coho	Pink	Chum
Afognak	102	0	13	48	102	5
Northwest Kodiak	63	0	4	22	63	23
Southwest Kodiak	11	1	2	10	11	6
Alitak	30	1	5	15	30	14
Eastside Kodiak	116	1	8	32	116	47
Northeast Kodiak	26	0	1	20	26	9
Mainland	92	0	6	27	92	46
TOTAL	440	4	39	174	440	150

[a] The State of Alaska's Habitat Division identifies over 800 streams in the Kodiak Management Area which have documented use by anadromous fish (State of Alaska 1993). Many of these streams are very small and may only be used by pink salmon in years with very large returns. The streams identified in this table are depicted on the 1993 Kodiak Area salmon statistical map, and have documentable use each year.

[b] These estimates are based on current knowledge and, in fact, are expected to change as more system specific data is collected.

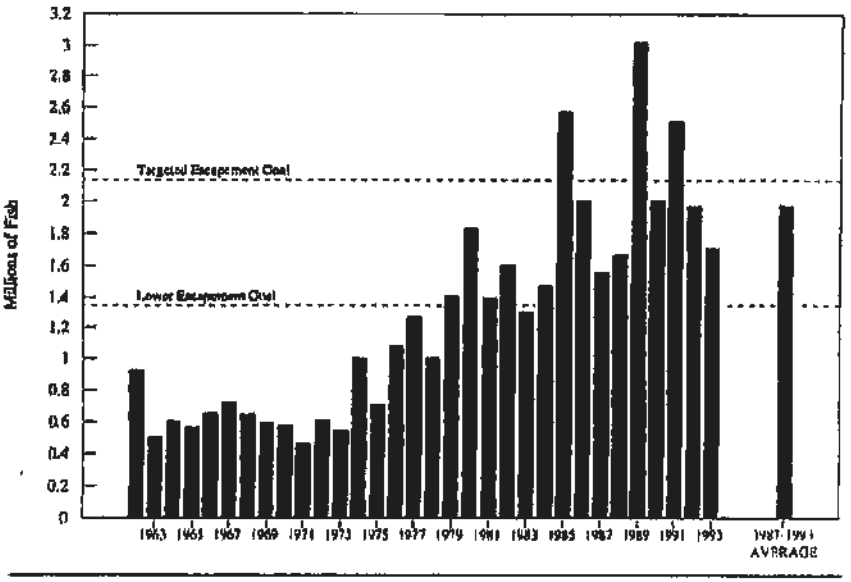

Figure 5. Sockeye salmon escapement in the Kodiak Management Area, 1962 - 1993.

6 ADF&G RIR 4K94-8
7 ADF&G RIR 4K94-8
8 ADF&G RIR 4K94-8

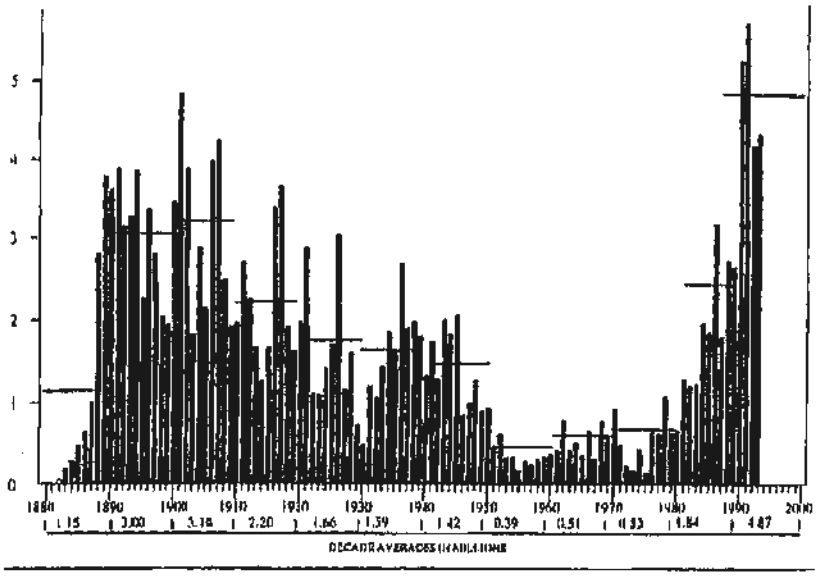

Figure 6 Sockeye salmon harvest, all gear combined, in the Kodiak Management Area, 1882 - 1993.

The UCI sockeye component in KMA's harvest total are only significant on years of exceptionally large returns to UCI. ADF&G RIR 4K94-5 and NRC's previously discussed reports both support that fact.

KMA's fishing industry and its communities have come to understand and support KMA's harvest strategy. It works!!! They've experienced experimental strategies that haven't. They have concluded that this is the most successful and rational strategy for the Kodiak Management Area. Figure 7 from ADF&G RIR 4K94-7 re-emphasizes this fact! Such a successful, well developed, yet complex management program should not be arbitrarily and unnecessarily re-adjusted to accommodate unfounded fears of Cook Inlet-bound sockeye bycatch levels.

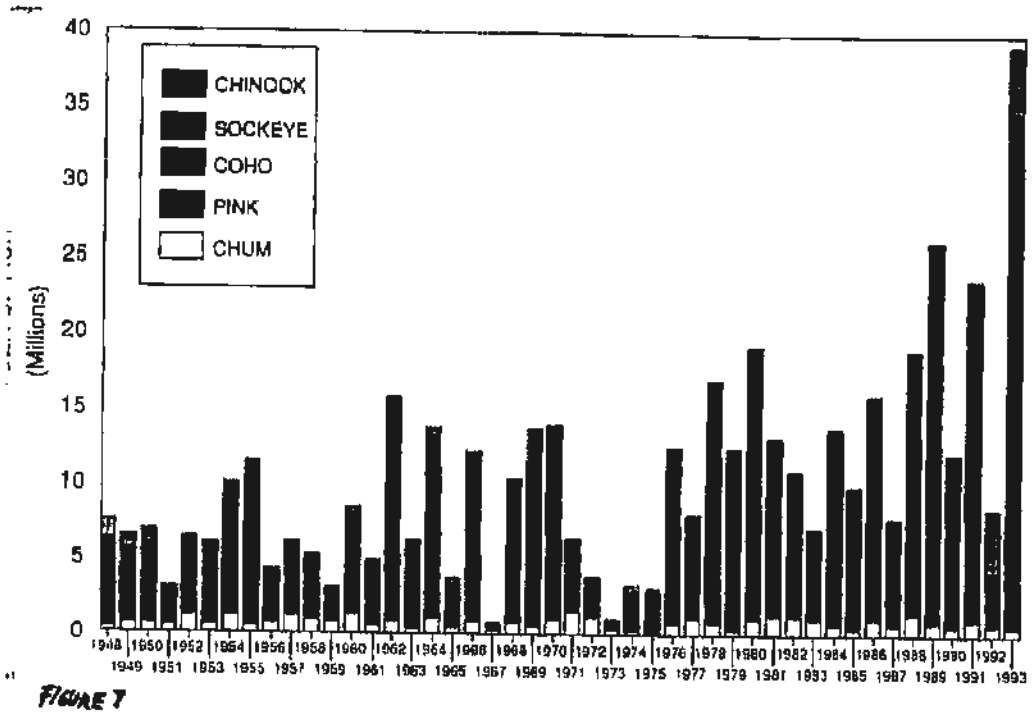

FIGURE 7

Chapter 7
HISTORIC HARVEST PATTERNS

Early Years

Shortly after Russian America was transferred to the United States in 1867, three companies started commercially fishing the Karluk River for sockeye which were salted and dryed. The first cannery was established on the Karluk Spit in 1882 with more canneries built along the spit and outside the Karluk District in 1888 and 1889. Eventually a cannery was established in Larsen Bay, two at the head of Afognak Bay, one in Alitak Bay and one in Moser Bay. By 1889, five canneries were located on the spit at Karluk and packed 806,219 cases of sockeye[1] between 1888 and 1890, with half of the fish originating in Karluk Lagoon. Before the turn of the century fishing was prohibited within the lagoon due to conservation concerns.

1900 - 1930: Expanding Fishery

By 1915 Kadiak Fisheries, based in Kodiak, had become Kodiak's major purchaser of fish. Also in 1915, the Afognak natives petitioned for the exclusive rights to fish the west side of Afognak Island. Spruce Island natives would only fish the east side of Afognak Island, currently identified as the Southwest Afognak section. Katmai Packing in Ouzinkie was buying fish in 1921 and in 1926 canneries were established in Shearwater Bay, located in the current Sitkalidak section and Uganik Bay now located in the Central Section. By 1930, numerous traps had been constructed off of outer bay capes along the Shelikof Strait side of Afognak and Raspberry Islands. Canned salmon shipped from Kodiak in 1927 was worth $48,404,279.[2]

The first three decades of Kodiak fishing was primarily identified in terms of case packs by district. In those days, the Karluk district included Uganik and Uyak Bays. The following graphs (Figures 1-5)[3] illustrate that

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1 Patricia Roppel, Salmon from Kodiak: An History of the Salmon Fishery of Kodiak Island, Alaska, 1986.

2 Ibid

3 JT Barnaby, U.S. Fish & Wildlife Service Fisheries Bulletin, 50.237-295, 1944.

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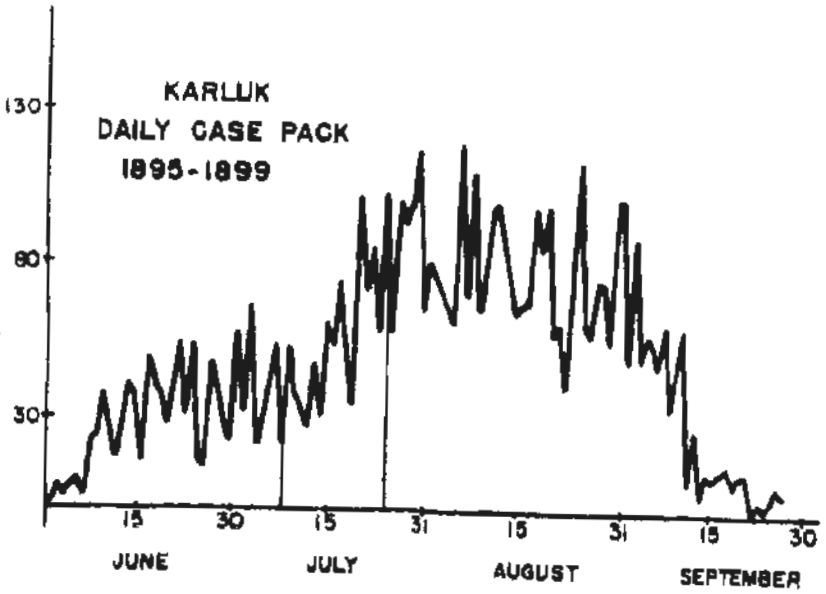


FIGURE 1

between 1895 and 19 approximately 20 to 25% of the total Karluk area, and probably the Kodiak area, run was captured and processed during July. (The shaded areas on the graphs show the bycatch period currently under consideration.)

FIGURE 2

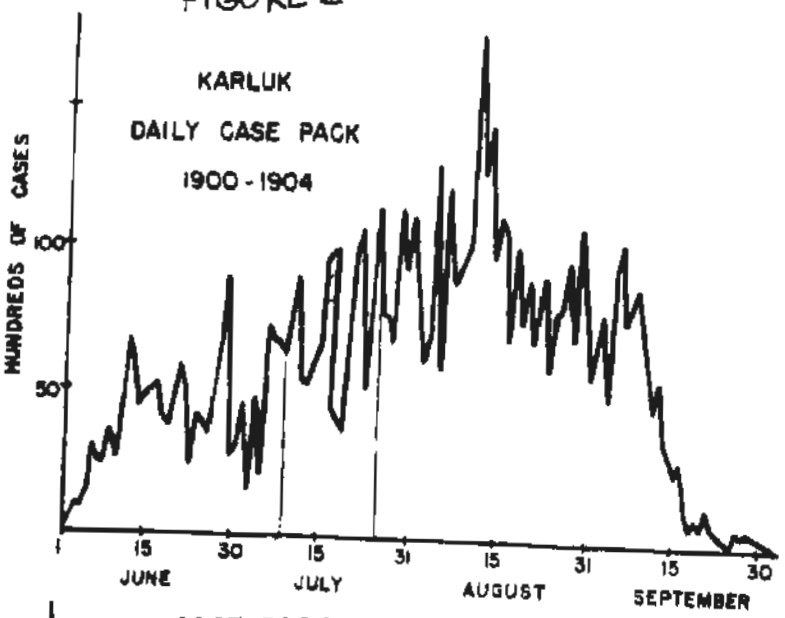


FIGURE 3

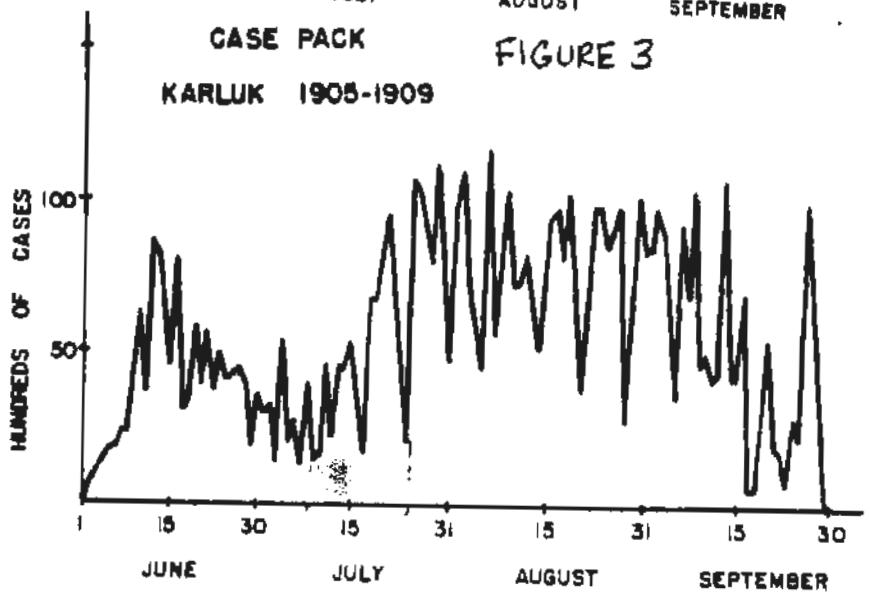
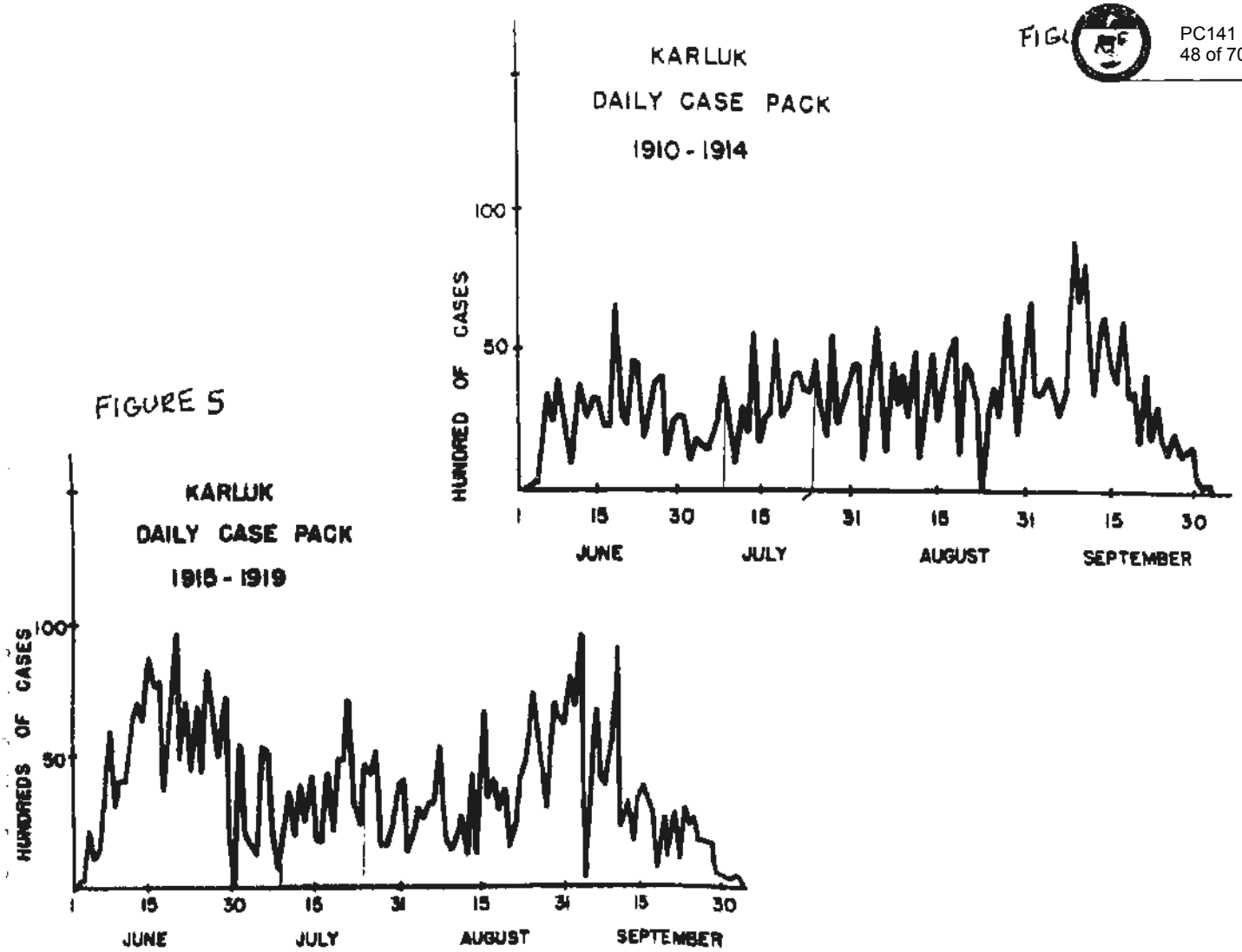


FIGURE 5



In the early part of the 20th century, Kodiak's fleet was expanding and capturing sockeye salmon in many locations along the Alaska Peninsula. Between 1909 and 1914, Kaflia Bay, currently in the Kukak section of the Mainland District, produced from 33,000 to 84,000 sockeye annually. In 1927, a trap was established at Kiukpalik Island, an outer cape in the Big River section of the Mainland District. The trap captured approximately 2,000 fish in its first season. Moreover, in 1919, a gillnet catch in excess of 6,000 reds was reported at Cape Douglas and Douglas Island.[4] **This early expansion of the Kodiak fishery reflects competitiveness and mobility; characteristics that remain present in the Kodiak fleet today.**

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4 Wallace Norenberg, A Review of the Salmon Runs and Red Salmon Spawning Grounds Other Than Karluk in the Kodiak Island Area, 1950.

The 30's: Moving to the Capes

During the next decade, the Kodiak fishery continued to expand. Sockeye were captured along the east side of Kodiak Island and on capes further away from Karluk. In 1929, a two line cannery was established at Three Saints Bay, in the current Sitkalidak section, and two small hand pack canneries went in at Village Islands and Blue Fox Bay. In 1935, a cannery was built in Halibut Bay and sometime in the early thirties, a fishermen's cooperative formed and constructed a cannery at Zachar Bay which is in the current Central section. Much of the fish processed in these plants were sockeye.

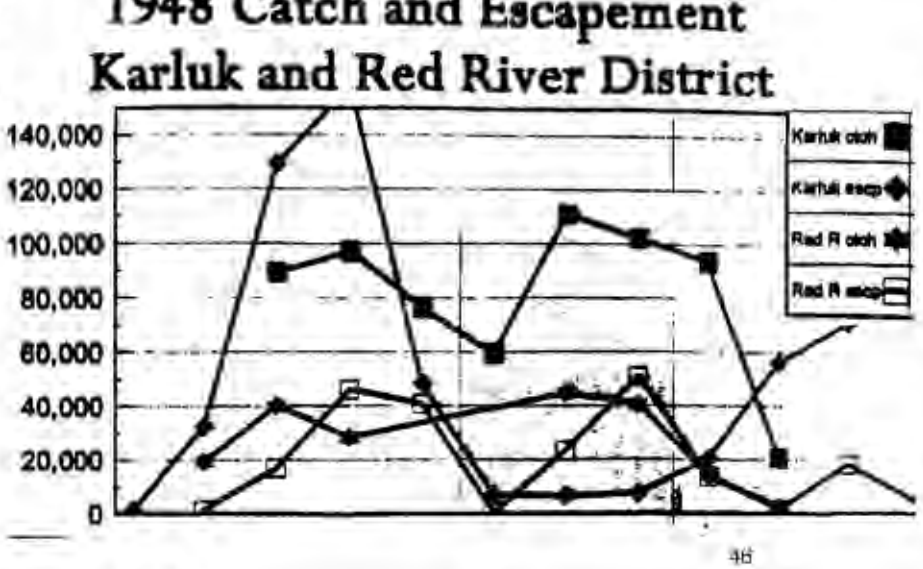
With the expanding fishery there were conservation concerns in the Kodiak District. During the 1930's, the fishermen's use of multiple 500 fathom beach seines along the Karluk coast and unlimited gillnets was curtailed. Set nets were reduced to 150 fathoms and beach seines were limited to 250 fathoms. In 1935, the purse seine catch exceeded, for the first time, 50% of the total Kodiak catch. (See the1930's map of canneries and trap sites at the end of this chapter.)

The 1940's

Kodiak enjoyed significant sockeye harvests throughout the 1940's with an average of 1.5 million fish harvested annually. It was not until 1978 that Kodiak's harvest of sockeye would again exceed 1 million fish. In 1948, there were 186 purse seiners, 67 gill net operations, 8 beach seiners and 23 traps operated in the Kodiak District.

FIGURE 7

1948 is an illustrative year for the Kodiak salmon fishery. (See Figure 7). The Kodiak sockeye catch was 1.26 million. Of that, 840,000 were captured in the Red River and Karluk Districts, including Halibut Bay. Interestingly, a substantial amount of the 1948 combined Karluk and Red River catch occurred

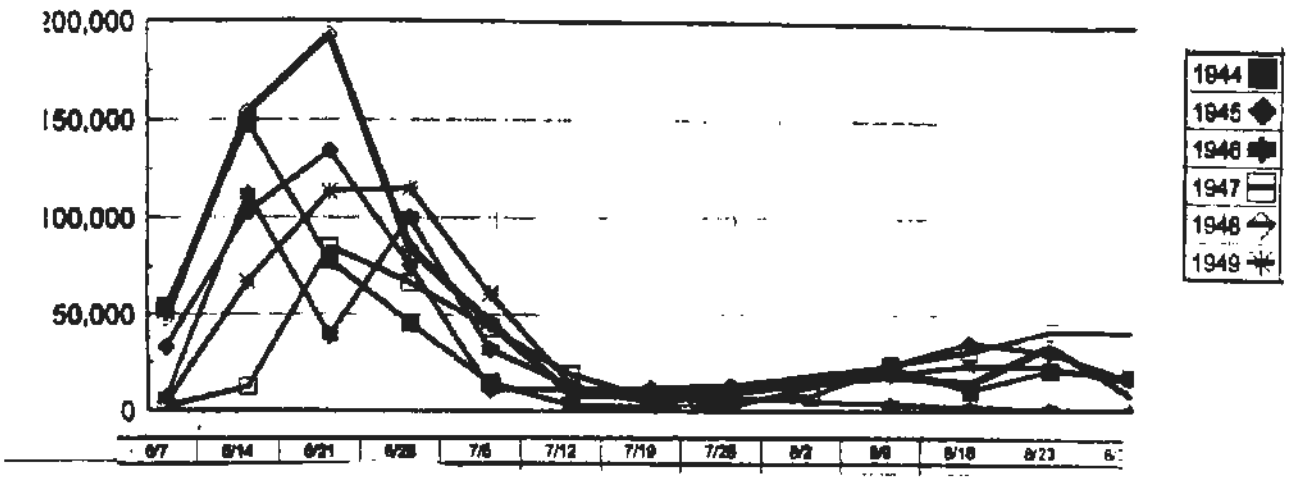


during the last three weeks in July. The 350,000 sockeye captured in these areas in the last three weeks amounted to over 41% of the total yearly catch. This catch rate compares favorably with recent catch rates during July 6-25th.[5] Moreover, the 5 year average during 1944 and 1949 shows that over 30% of the seasons sockeye in Karluk were caught during the last three weeks of July. (See Figure 9, on next page). If Kodiak's fleet was currently catching an increasingly larger percentage of Cook Inlet sockeye, you would expect the current July sockeye catch percentages to be substantially larger than they were 50 years ago. In fact, this is not the case.

Also, in 1948, there were substantial sockeye caught outside of Karluk and Red River. 566,000 sockeye or 44% of the total Kodiak catch were captured away from the traditional sockeye "hot spots" along Kodiak's east side and in the Mainland District. By 1948, Kodiak's fleet was primarily mobile and was capitalizing on sockeye fishing opportunities throughout the Kodiak Management Area as knowledge of local sockeye production became widespread.

A second historical index shows that there has always been a Cook Inlet component to Kodiak's sockeye catches. Kadiak Fisheries' 1940-50 cannery logs indicate that during the second week in July the daily catches in the Karluk traps decreased and the escapement into Karluk River remained low while the catches in traps off Afognak and Raspberry Island held steady or actually increased through the 25th of July. (See Figure 8)

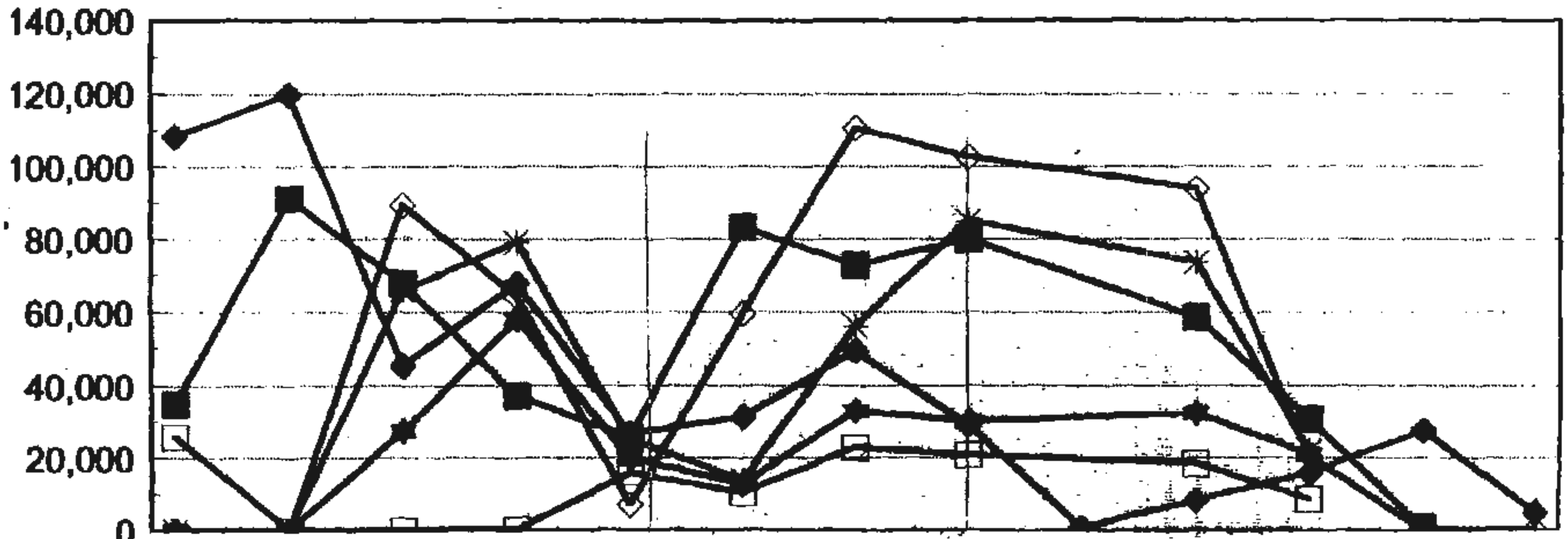
Karluk River Escapement per Week 1944-1949



5 Dave Prokopowich, ADF&G RIR 4K94-7.

Karluk District Catch per Week 1944-1949

FIGURE 9



	6/7	6/14	6/21	6/28	7/5	7/12	7/19	7/26	8/2	8/9	8/16	8/23	8/30
1944 ■	34,766	91,070	67,836	37,036	26,566	83,103	72,847	79,871		58,546	30,775	696	
1945 ◆	108,398	119,758	45,329	67,713	28,662	31,142	49,309	29,070	532	8,211	15,727	27,493	4,696
1946 ✱	0	0	27,394	58,112	19,627	12,077	32,849	30,023		32,215	20,960		
1947 □	25,806	0	0	0	15,614	10,224	22,780	20,610		18,396	8,564		
1948 ◇	0	0	89,289	64,199	8,969	59,420	110,714	102,646		93,726	20,498	0	0
1949 ✳	0	0	65,676	79,085	25,070	13,704	56,151	85,043		73,655	22,143		

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Extensive tagging studies were also accomplished during 1948 and further show an historical Cook Inlet component to the Kodiak catch. Between June 19th and August 13th, 1948, 7,277 sockeye were tagged. Fish were tagged on the west side of Kodiak Island. Overall, 37% of the tags were recovered and 1.89% were recovered in Cook Inlet. Although this represents about 2% of the Kodiak sockeye catch, it is for a period of 8 weeks from mid-June through mid-August. One would assume that the percentage would be somewhat higher if the tagging study had been condensed into the three later weeks in July. In 1949, another tagging study was conducted in June in which the rate of bycatch to Cook Inlet was much lower. (See Figure 10 below.)[6]

TABLE 2. RECOVERIES MADE OUTSIDE THE KODIAK ISLAND AREA, 1948-49

	District	Number of Recoveries	Per Cent of Tagged	Per Cent of Recoveries
1948	Cook Inlet	28	0.71	1.89
	Chignik	1	0.03	0.07
	Alaska Peninsula	2	0.05	0.13
	Total	31	0.79	2.09
1949	Cook Inlet	13	0.18	0.39
	Chignik	19	0.26	0.57
	Alaska Peninsula	3	0.04	0.09
	Bristol Bay	2	0.03	0.06
	Total	37	0.51	1.12
TOTAL		68	0.61	1.42

Most of the fish were traveling south and most tags were recovered along the west side of Kodiak Island.[7]

FIGURE 11

6 Don Bevan, Estimation of the Size of Migrating Salmon Populations in Coastal Waters, 1959.

7 Ibid

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The 1949 Annual Report specifically mentioned an unusual occurrence in the Sitkalidak area. The report observed that there has been a "reported abundance of sockeye passing northward through Sitkalidak Strait during June. It is not exactly known where these fish went, but presumably they spread to various streams along the east shore of Kodiak Island, though no large escapement was observed in any them."[8] We now know that these were probably Cook Inlet sockeye.

1957 Tagging Studies: Kenai Bycatch

Kodiak is not the only area that has a bycatch of non-local stocks. Cook Inlet has been shown to have a bycatch of Kodiak salmon. A small tagging study was done in Seldovia Bay in 1957. "During three day tagging, 168 reds were released, of which 55 or 32.7% were returned. The release dates were June 30, July 20 and July 21."[9] Kodiak recoveries of pink salmon amounted to 12.2% of the total number recovered, red recoveries were 7.5% and chum recoveries were 5%. This was in a year when Kodiak only had a catch of 234,000 sockeye!

In addition, Cook Inlet also catches salmon headed for the Alaska Peninsula and as far west as the Shumagin Islands. "Tagging at Chisik Island at the time showed substantial out-migration of red salmon. This was true during late June of 1957 when 25.7% of reds tagged were recovered along the Alaska Peninsula."[10] **It is safe to conclude that a mixing of sockeye stocks occurs in both the Kodiak and the Cook Inlet Management Areas.**

Historical Catch Figures

Statistical data from ADF&G catch figures show historical catch data for Kodiak and Cook Inlet. Recent catch data indicates that both Kodiak and Cook Inlet have healthy sockeye stocks. (Please see data sheets after the conclusion of this chapter.)

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8 U.S. Department of the Interior, Fish & Wildlife Annual Report 1949.

9 Richard Tyler & Wallace Norenberg, Salmon Tagging in Cook Inlet, 1957.

10 Ibid

Cook Inlet sockeye catches are clearly at all time highs. Prior 1983, Cook Inlet had a 30 year average annual catch rate of about 1.2 million sockeye. This dropped to an all time low of approximately 500,000 in 1974. Then, in 1983, Cook Inlet rebounded with a catch of about 5 million sockeye. The 1983 catch was an all time high almost doubling the 1950 all time record of 2.6 million sockeye. The new 1983 record was exceeded in 1987, 1988, and almost doubled in 1992.

Kodiak has also enjoyed a resurgence in its local sockeye stocks. Kodiak's 1907 catch record of 4.2 million sockeye stood until 1990 when Kodiak captured 5.2 million sockeye. In 1991, the Kodiak catch record increased to 5.7 million while the sockeye catch in 1992 and 1993 exceeded 4 million. The past five Kodiak seasons have substantially exceeded historical averages.

Figure 12[11] shows that the average weight of sockeye caught in the Kodiak area since 1969. (Average weights prior to 1969 are not available.) The historical average Kodiak sockeye weights indicate that there is a trend toward smaller fish. In fact, the 1993 average of 5.1 pounds per sockeye is the second lowest year on record.

Average weight and total harvest of sockeye salmon from the commercial fisheries of the Kodiak Management Area, 1969 - 1993.

FIGURE 12

YEAR	AVERAGE WEIGHT[a]	HARVEST[b]
1969	5.4	591,481
1970	6.0	917,045
1971	6.4	478,479
1972	5.9	222,800
1973	6.5	167,341
1974	6.3	418,761
1975	6.1	136,418
1976	6.3	641,484
1977	6.8	623,468
1978	6.4	1,071,782
1979	6.1	651,735
1980	5.4	651,394
1981	5.8	1,288,980
1982	6.0	1,204,793
1983	5.8	1,231,989
1984	5.7	1,950,439
1985	4.7	1,843,185
1986	5.8	3,188,369
1987	6.3	1,792,819
1988	5.7	2,698,637
1989	5.5	2,529,068
1990	5.2	5,248,339
1991	5.5	5,704,041
1992[c]	5.7	4,167,877
1993[c]	5.1	4,377,688

[a] Weight in pounds. Data from Kodiak Management Area Annual Reports.
[b] Harvest in number of fish.
[c] Preliminary data.

Kodiak average sockeye weights do not support Cook Inlet's contention that Kodiak is intercepting greater percentages of Cook Inlet fish. Cook Inlet fish are, for the most part, larger than Kodiak stocks. If Kodiak was catching a greater percentage of these fish, the average Kodiak sockeye weights should be going up. However, the opposite is true.

11 ADF&G RIR, 4K94-8

Conclusion

Even before 1930, the Kodiak fleet was expanding to fish throughout the Kodiak area and on the Alaska Peninsula in the Mainland Districts. The historical records confirm a mobile fleet concentrating wherever fish are found. By 1948, this fleet had standardized 200 fathom purse seines for cape fishing and was taking over 50% of the Kodiak sockeye catch - even while the traps were being fished. By 1950, almost half of the Kodiak sockeye harvest was no longer in the traditional sockeye areas of Red River and Karluk. Clearly, the Kodiak fleet had expanded to capitalize on sockeye fishing opportunities throughout the Kodiak Management Area.

Cook Inlet fish have always been a component of the Kodiak sockeye harvest. Tagging studies and trap records verify the Cook Inlet component. These tools are imprecise as to the exact Cook Inlet contribution. Nevertheless, the tagging studies and trap records suggest that the Cook Inlet component remained fairly constant throughout several decades. (See Figure 13)[12] In addition, the average weight of Kodiak sockeye has been declining. Consequently, it seems unlikely that Kodiak has increased its bycatch of Cook Inlet sockeye during this period in recent years.

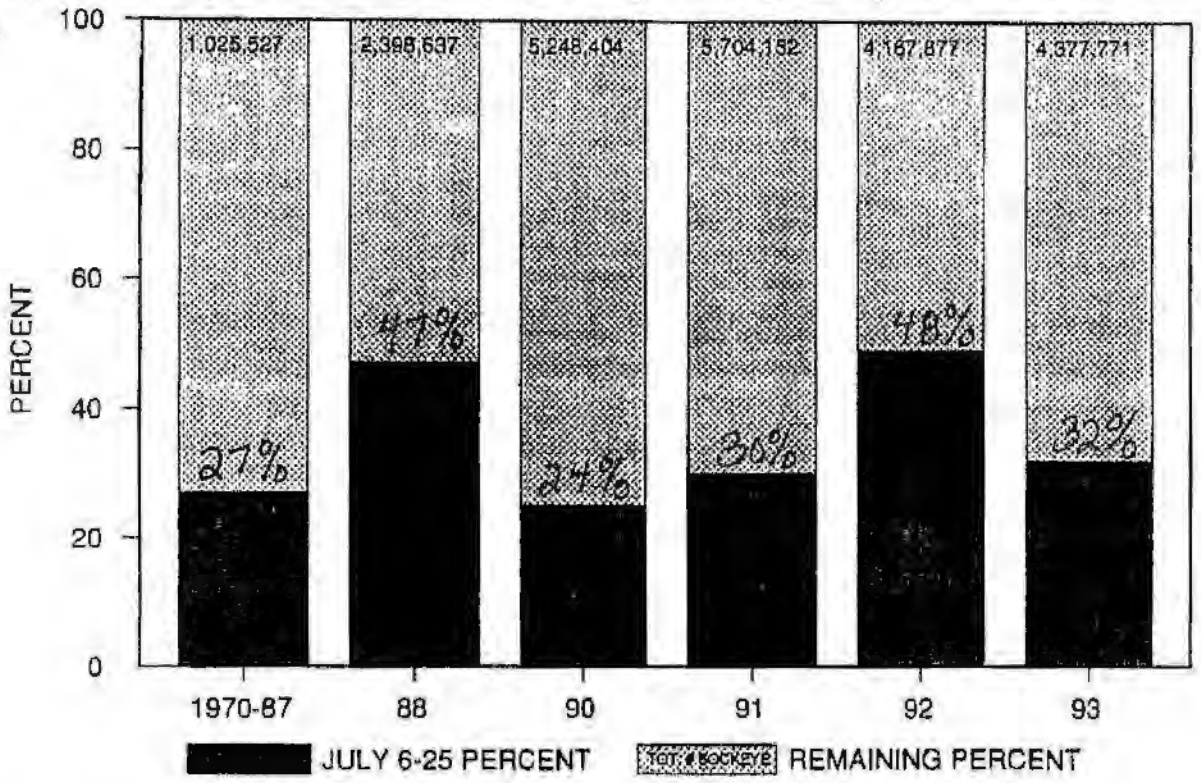

Figure 13. Percent of annual sockeye salmon harvest which occurs - July 6 through July 25, 1970-1993.

12 ADF&G RIR 4K94-7

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Historical tagging studies further show that Cook Inlet fishern enjoy the bycatch of non-local stocks. Both Kodiak sockeye and sockeye bound for Chignik and the Alaska Peninsula have been tagged in Cook Inlet.

Kodiak and Cook Inlet currently have healthy sockeye stocks which exceed historical averages. Kodiak's hundred plus years of Cook Inlet bycatch has not damaged their sockeye runs. This includes those years, prior to 1989, when Kodiak fishermen enjoyed their historical unlimited access to the North Shelikof and North Mainland sections as well as waters outside the three mile limit.


MAINLAND DISTRICT
HALLO BAY SECTION
NORTHWEST AFOGNAK SECTION
PENINSULA
OUTER KUKAK BAY SECTION
AFOGNAK ISLAND
SOUTHEAST AFOGNAK
KATMAI SECTION
NORTHWEST KODIAK DISTRICT
Cape Ugat
Broken Point
Cape Kuliak
CENTRAL SECTION
Afognak Bay
Otter Harstad—Cape Uyak
OUTER KARLUK SECTION
Karluk
Uyak
Uyak Bay
Larsen Bay
canneries
trap sites 1938,(Roppel)
KODIAK ISLAND
EASTSIDE KODIAK
Deadman Bay
SITKALIDAK SECTION
APA, Miller Island
APAF—Deadman Bay
Alitak Bay
DISTRICT
CAPE ALITAK SECTION
SEVEN RIVERS
canneries
trap sites 1938,(Roppel)

Table 1. Historical harvest of Cook Inlet salmon in numbers of fish and by species 1893-1982). 1/

Date	Chinook	Sockeye	Coho	Pink	Chum	Total
1893	30,000	170,000	34,000	0	0	234,000
1894	15,500	406,840	19,000	0	0	441,340
1895	25,199	324,277	0	0	0	349,476
1896	18,076	309,863	27,600	37,800	0	393,339
1897	14,083	354,800	28,000	0	0	396,883
1898	16,389	551,168	83,412	0	0	650,969
1899	17,102	558,529	54,890	0	0	630,521
1900	26,683	585,309	20,000	0	0	631,992
1901	34,319	482,406	8,967	5,591	0	931,283
1902	49,013	710,280	54,864	79,246	0	893,403
1903	66,023	564,189	58,968	0	0	689,180
1904	30,073	489,348	23,800	0	0	543,221
1905	17,668	95,547	0	0	0	113,215
1906	22,420	225,506	93,485	64,100	0	405,511
1907	62,944	460,620	177,276	6,420	0	707,260
1908	33,774	670,774	94,936	375,140	0	1,174,624
1909	59,624	582,562	88,350	3,740	0	734,276
1910	49,028	840,187	79,702	217,686	1,318	1,187,901
1911	55,845	1,249,154	87,909	70,665	749	1,464,322
1912	47,866	1,194,888	70,567	1,661,874	121,628	3,096,823
1913	63,652	1,369,196	81,484	10,926	10,813	1,536,071
1914	47,554	1,472,829	188,341	1,255,798	39,905	3,004,427
1915	83,793	1,860,684	122,028	19,308	27,833	2,113,646
1916	62,895	1,699,323	209,978	1,682,672	128,322	3,783,190
1917	65,499	1,659,907	60,776	54,286	78,468	1,918,936
1918	34,886	1,668,394	251,151	712,231	108,200	2,783,862
1919	23,801	943,694	172,855	43,447	54,333	1,238,130
1920	39,563	1,314,916	302,353	445,524	97,541	2,199,897
1921	13,946	983,625	20,519	4,717	42,409	1,065,216
1922	31,030	860,019	199,923	637,405	74,389	1,802,766
1923	29,911	1,099,485	142,926	39,146	23,481	1,344,929
1924	27,012	1,056,090	187,656	752,016	36,755	2,059,529
1925	51,033	1,510,861	198,148	11,828	15,064	1,786,932
1926	75,620	1,999,720	353,173	586,054	118,455	3,133,022
1927	87,404	1,459,068	387,746	251,866	59,380	2,245,464
1928	69,885	1,172,959	522,509	568,052	101,086	2,434,491
1929	67,694	1,049,851	184,858	376,863	134,601	1,813,867
1930	72,317	917,882	498,475	1,022,679	99,630	2,610,983
1931	51,402	805,526	328,294	472,221	62,628	1,720,071
1932	70,931	1,131,958	374,976	441,125	64,749	2,083,739
1933	59,281	1,336,135	187,972	118,187	57,245	1,758,820
1934	72,379	1,813,267	251,260	929,992	91,319	3,160,217
1935	75,075	1,355,787	170,438	410,540	161,424	2,193,264
1936	81,062	2,390,281	328,496	852,924	264,909	3,917,672
1937	85,982	1,581,183	215,700	487,692	148,869	2,519,426
1938	57,663	2,425,253	213,804	848,733	191,328	3,736,781
1939	52,726	2,334,904	163,010	319,312	231,645	3,101,597
1940	63,016	1,648,952	478,096	2,604,235	280,831	5,075,130

- continued -

Date	Chinook	Sockeye	Coho	Pink	Chum	Total
1941	104,422	1,293,234	359,224	715,211	272,345	2,744,836
1942	95,180	1,540,185	644,823	965,507	400,989	3,646,684
1943	111,381	1,468,279	279,852	1,457,161	301,899	3,618,572
1944	85,210	1,959,832	256,621	1,818,441	258,840	4,356,044
1945	69,202	1,556,711	329,828	1,367,980	305,901	3,629,594
1946	64,281	1,474,473	581,374	1,338,731	383,563	3,842,422
1947	106,804	1,473,973	443,879	681,731	279,227	2,985,614
1948	105,986	2,035,306	408,079	1,660,147	439,314	4,648,842
1949	111,281	2,153,213	279,701	443,003	238,646	3,215,844
1950	162,942	2,642,374	351,366	1,132,164	463,507	4,752,353
1951	187,511	2,481,170	271,384	408,454	290,478	3,638,997
1952	74,469	1,302,481	222,949	2,232,630	444,582	4,477,131
1953	80,429	1,488,972	224,280	546,116	533,661	2,883,458

Table . Upper Cook Inlet commercial salmon harvest by species, 1954-1993.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1954	63,780	1,207,046	321,525	2,189,207	510,068	4,291,626
1955	45,925	1,027,528	170,777	101,680	248,343	1,594,254
1956	64,977	1,258,789	198,189	1,595,376	782,051	3,899,381
1957	42,158	643,712	125,434	21,228	1,001,470	1,834,002
1958	22,727	477,392	239,765	1,648,548	471,697	2,860,129
1959	32,651	612,676	106,312	12,527	300,319	1,064,485
1960	27,512	923,314	311,461	1,411,605	659,997	3,333,889
1961	19,737	1,162,303	117,778	34,017	349,628	1,683,463
1962	20,210	1,147,573	350,324	2,711,689	970,582	5,200,378
1963	17,536	942,980	197,140	30,436	387,027	1,575,119
1964	4,531	970,055	452,654	3,231,961	1,079,084	5,738,285
1965	9,741	1,412,350	153,619	23,963	316,444	1,916,117
1966	8,544	1,852,114	289,837	2,005,745	532,756	4,688,996
1967	7,859	1,380,062	177,729	32,229	296,857	1,894,716
1968	4,836	1,104,904	469,850	2,278,197	1,119,114	4,976,601
1969	12,397	692,175	100,777	33,383	269,847	1,108,579
1970	8,336	732,605	275,399	814,895	776,229	2,607,464
1971	19,765	636,303	100,636	35,624	327,029	1,119,357
1972	16,086	879,824	80,933	628,574	630,103	2,235,520
1973	5,194	670,098	104,420	326,184	667,573	1,773,469
1974	6,598	497,185	200,125	483,730	396,840	1,584,476
1975	4,787	684,752	227,379	336,313	951,796	2,205,047
1976	10,865	1,664,150	208,695	1,256,728	469,802	3,610,240
1977	14,790	2,082,291	191,599	552,855	1,233,722	4,047,257
1978	17,299	2,621,421	219,193	1,688,442	571,779	5,118,134
1979	13,738	924,415	265,166	72,982	650,367	1,926,658
1980	13,798	1,573,597	271,418	1,786,430	390,675	4,035,918
1981	12,240	1,439,277	484,411	127,164	833,542	2,896,634
1982	20,870	3,259,864	793,937	790,648	1,433,866	6,299,185
1983	20,834	5,049,733	516,322	70,327	1,114,858	6,771,874
1984	10,082	2,106,714	449,993	617,452	680,726	3,864,947
1985	24,088	4,080,429	667,213	87,828	772,849	5,612,407
1986	39,240	4,787,982	756,830	1,299,360	1,134,173	8,017,585
1987	39,661	9,500,186	451,404	109,801	349,139	10,450,191
1988	29,060	6,834,342	560,022	469,972	708,573	8,601,969
1989	26,742	5,010,698	339,201	67,430	122,027	5,566,098
1990	16,105	3,604,064	500,634	603,630	351,197	5,075,630
1991	13,535	2,177,576	425,724	14,663	280,223	2,911,721
1992	17,171	9,108,340	468,911	695,859	274,303	10,564,584
1993	18,719	4,754,698	306,822	100,918	122,767	5,303,9
Average	20,605	2,286,138	316,264	760,015	613,485	

Table xx. Historical salmon catch (numbers of fish to nearest hundred) by species in the Kodiak Management Area, 1882-1993.[a]

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1881						0
1882		59,000				59,000
1883		189,000				189,000
1884		282,000				282,000
1885		469,000				469,000
1886		646,000				646,000
1887		1,005,000				1,005,000
1888		2,781,000				2,781,000
1889		3,755,000				3,755,000
1890		3,593,000				3,593,000
1891		3,846,000				3,846,000
1892		3,126,000				3,126,000
1893		3,245,000				3,245,000
1894		3,830,000				3,830,000
1895		2,247,000	8,000			2,255,000
1896		3,329,000				3,329,000
1897		2,786,000	2,000			2,787,000
1898		2,033,000	19,000			2,052,000
1899	1,000	1,935,000	32,000			1,968,000
1900	5,000	3,450,000	32,000			3,488,000
1901	4,000	4,826,000		2,000		4,832,000
1902	3,000	3,868,000	35,000			3,906,000
1903	1,000	1,826,000	120,000	10,000		1,957,000
1904	3,000	2,875,000	103,000	5,000		2,987,000
1905	2,000	2,142,000	87,000			2,232,000
1906	4,000	3,980,000	24,000			4,008,000
1907	4,000	4,232,000	38,000			4,275,000
1908	3,000	2,488,000	74,000	286,000		2,851,000
1909	4,000	1,915,000	52,000	154,000		2,124,000
1910	2,000	1,955,000	44,000	215,000		2,216,000
1911	1,000	2,686,000	23,000	230,000	6,000	2,945,000
1912	1,000	2,246,000	17,000	547,000	25,000	2,836,000
1913	1,000	1,663,000	28,000	590,000	4,000	2,286,000
1914	1,000	1,255,000	32,000	1,726,000	13,000	3,028,000
1915	1,000	1,664,000	62,000	252,000	20,000	1,990,000
1916	1,000	3,373,000	50,000	3,182,000	29,000	6,635,000
1917	1,000	3,646,000	30,000	225,000	16,000	3,919,000
1918	2,000	1,894,000	78,000	2,467,000	82,000	4,524,000
1919	2,000	1,619,000	104,000	283,000	60,000	2,068,000
1920	2,000	1,958,000	89,000	1,977,000	55,000	4,081,000
1921	1,000	2,858,000	46,000	68,000	25,000	2,997,000
1922	1,000	1,097,000	120,000	2,766,000	224,000	4,208,000
1923	2,000	1,090,000	78,000	929,000	39,000	2,137,000
1924	1,000	1,408,000	121,000	5,435,000	118,000	7,082,000
1925	2,000	1,693,000	93,000	2,674,000	212,000	4,674,000
1926	1,000	3,015,000	174,000	4,607,000	325,000	8,122,000
1927	4,000	1,155,000	152,000	5,297,000	418,000	7,026,000
1928	3,000	1,592,000	291,000	1,535,000	726,000	4,147,000
1929	3,000	712,000	144,000	6,108,000	1,058,000	8,026,000
1930	5,000	466,000	229,000	1,651,000	419,000	2,771,000
1931	2,000	1,183,000	170,000	6,840,000	184,000	8,378,000
1932	2,000	1,058,000	52,000	4,720,000	237,000	6,069,000
1933	1,000	1,428,000	91,000	6,574,000	537,000	8,632,000
1934	1,000	1,829,000	90,000	7,642,000	661,000	10,223,000
1935	1,000	1,614,000	77,000	10,781,000	382,000	12,854,000
1936	3,000	2,557,000	184,000	5,648,000	328,000	8,820,000
1937	1,000	1,881,000	165,000	16,787,000	346,000	19,181,000
1938	1,000	1,966,000	155,000	8,398,000	640,000	11,160,000

-Continued-

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1939	2,000	1,786,000	112,000	11,741,000	642,000	14,284,000
1940	1,000	1,318,000	148,000	9,998,000	673,000	12,139,000
1941	3,000	1,730,000	200,000	7,602,000	445,000	9,978,000
1942	1,000	1,282,000	107,000	6,093,000	565,000	8,047,000
1943	1,000	1,991,000	60,000	12,480,000	454,000	14,985,000
1944	1,000	1,818,000	52,000	4,955,000	507,000	7,332,000
1945	2,000	2,041,000	60,000	9,045,000	559,000	11,707,000
1946	0	839,000	56,000	9,546,000	298,000	10,740,000
1947	0	991,000	76,000	8,857,000	295,000	10,221,000
1948	1,000	1,260,000	32,000	5,968,000	331,000	7,594,000
1949	1,000	892,000	54,000	4,928,000	700,000	6,574,000
1950	2,000	921,000	41,000	5,305,000	685,000	6,953,000
1951	2,000	468,000	49,000	2,100,000	483,000	3,103,000
1952	1,000	604,000	52,000	4,577,000	1,243,000	6,476,000
1953	3,000	317,000	42,000	5,175,000	548,000	6,084,000
1954	1,000	325,000	66,000	8,439,000	1,251,000	10,083,000
1955	2,000	164,000	35,000	10,794,000	482,000	11,478,000
1956	1,000	271,000	53,000	3,319,000	705,000	4,349,000
1957	1,000	234,000	35,000	4,716,000	1,208,000	6,195,000
1958	2,000	288,000	21,000	4,039,000	931,000	5,280,000
1959	2,000	330,000	15,000	1,967,000	734,000	3,047,000
1960	1,000	363,000	54,000	6,738,000	1,300,000	8,456,000
1961	1,000	408,000	29,000	3,926,000	519,000	4,882,000
1962	1,000	785,000	55,000	14,114,000	795,000	15,749,000
1963	0	407,000	57,000	5,480,000	305,000	6,250,000
1964	1,000	498,000	36,000	12,044,000	1,134,000	13,714,000
1965	1,000	346,000	27,000	2,887,000	431,000	3,692,000
1966	1,000	632,000	68,000	10,756,000	763,000	12,218,000
1967	2,000	309,000	10,000	188,000	227,000	735,000
1968	2,000	760,000	57,000	8,768,000	750,000	10,338,000
1969	2,000	591,000	49,000	12,501,000	535,000	13,678,000
1970	1,000	917,000	66,000	12,037,000	919,000	13,940,000
1971	1,000	478,000	23,000	4,333,000	1,541,000	6,377,000
1972	1,000	223,000	17,000	2,486,000	1,164,000	3,890,000
1973	1,000	167,000	4,000	519,000	318,000	1,008,000
1974	1,000	419,000	14,000	2,646,000	249,000	3,328,000
1975	0	136,000	24,000	2,943,000	84,000	3,187,000
1976	1,000	641,000	24,000	11,078,000	740,000	12,484,000
1977	1,000	623,000	28,000	6,252,000	1,072,000	7,977,000
1978	3,000	1,072,000	49,000	15,004,000	814,000	16,942,000
1979	2,000	632,000	141,000	11,288,000	358,000	12,420,000
1980	1,000	651,000	139,000	17,291,000	1,076,000	19,157,000
1981	1,000	1,289,000	122,000	10,337,000	1,345,000	13,094,000
1982	1,000	1,205,000	144,000	8,076,000	1,266,000	10,892,000
1983	4,000	1,232,000	158,000	4,603,000	1,085,000	7,082,000
1984	5,000	1,950,000	230,000	10,844,000	649,000	13,678,000
1985	5,000	1,843,000	284,000	7,335,000	431,000	9,898,000
1986	4,000	3,188,000	169,000	11,808,000	1,135,000	16,304,000
1987	5,000	1,793,000	193,000	5,076,000	682,000	7,748,000
1988	22,000	2,699,000	303,000	14,409,000	1,426,000	18,860,000
1989	5,000	2,629,000	141,000	22,649,000	836,000	26,259,000
1990	19,000	5,248,000	294,000	5,984,000	578,000	12,122,000
1991	22,000	5,704,000	325,000	16,643,000	1,029,000	23,723,000
1992	24,000	4,168,000	280,000	3,311,000	680,000	8,462,000
1993	42,000	4,378,000	313,000	34,019,000	588,000	39,341,000

Chapter 8
SOCIO-ECONOMIC ASPECTS OF THE KODIAK COMMERCIAL FISHERY

Kodiak is a widley known as a fishing town. Indeed, it can be stated that the town of Kodiak would not exist were it not for the abundance of salmon and other species historically harvested from the waters of the Archipelago. The Kodiak fishing industry, as outline in Chapter 7, has evolved into an efficient, multi-tasked harvest and processing sector, operating year-round for numerous species. The City of Kodiak has the largest and most diversified fishing port in Alaska, and has numbered among the top three ports nationwide for both landings and value of landings over the past decade.

Salmon has historically been the mainstay of Kodiak's fishing fleet, stabilizing the economy amid fluctuations of other fish species. For many years salmon has ranked first in both volume and value for landings in Kodiak. During a typical salmon season, from June to September, up to 5,000 workers may be involved in the Kodiak salmon industry. This includes 1,000-2,000 fishers and crew, 200-300 tender operators and crew, and 2,200-2,700 processing personnel. In a community with a summer population of 12,000, this amounts to a significant percentage. "The Kodiak economy ... is completely dominated by fishing and its manufacturing counterpart...". [1]

The economy of the Kenai Peninsula Borough (KPB) presents a much different picture. It has a large tourism industry as well as a large basic industry in petroleum and gas. Both tourism and oil employ more people and generate more income than does fishing.

The following Table 1 represents the relative importance of the fishing industry to the Kodiak economy versus the Kenai Borough economy in terms of employment in the processing sector and per capita personal income from fishing. The raw fish tax and Borough Property taxes for the two regions are also compared.[2]

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1 PJ Hill, PhD, "A Comparative Analysis of the Economies of Kodiak and Upper Cook Inlet From the Perspective of Commercial Fishing 1994, University of Alaska, 1994.

2 Ibid

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Table 1

	Kodiak Island Borough	Kenai Peninsula Borough
Per capita personal income from fishing (1984-1989)	19.26%	6.31%
Avg. monthly employment; fish processing (1992)	30.67%	7.85%
Summer months	38-40%	15%
Raw Fish Tax (FY92)	4.14%	.045%
	$2.26 million	$846,000
Property tax (FY92) (fishing related)	30.42%	2.85%

Revenues from raw fish tax are much more important to Kodiak's economy. In fact, as a percentage of the Kodiak budget, the tax is approximately ten times as important to Kodiak as it is to Kenai. The property tax, typically the largest single source of income for local governments, becomes extremely important for the KIB, with fish related revenues generating nearly one third of the total tax base as opposed to the Kenai Borough's 2.85%.

Clearly, the KPB economy is much more economically diversified and has more employment opportunities than does Kodiak with it's one sector economy. A one sector economy has a much greater risk from economic shocks or downturns than a more diversified economy such as Kenai's, which is able to bounce back more readily in the event of decline or dislocation.[3]

In addition to the primary monetary value of fishing, there is the multiplier effect on the local economies that must be considered. This

[3] Ibid

includes everything from groceries to household and basic living exp purchased with money derived from fishing and processing.

In Kodiak, and particularly in the villages, this multiplier effect is significant, as the only opportunities for obtaining goods are local businesses. Because Kodiak is an island, more money is proportionately spent within the community.

In the KPB however, with it's larger economy and proximity to Anchorage, people have access to a larger selection and wider variety of goods, at more competitive prices, effectively diluting the "multiplier effect" in the local community. Thus strengthening the argument that the Kodiak economy will be much more vulnerable to an economic setback if these proposed allocative changes are passed.

Also notable is the difference in salmon permit ownership between the KIB and the KPB, as indicated in Table 2:

Table 2

Ownership of salmon permits	Kodiak Island Borough	Kenai Peninsula Borough
Total #	**611**	**1328**
village	11.95%	3.39%
region	61.21%	55.57%
other Alaska	17.02%	24.40%
Non-Resident	21.77%	20.03%

Of the UCI permits, only 55.57% are held by residents of the local area. For Kodiak, the percent is 61.21%. The conclusion derived from this comparison is that "a larger proportion of the income from salmon fishing stays in Kodiak as compared to Cook Inlet".[4] More dramatic is the portion of permits held by village residents on the Kodiak area versus UCI. Nearly 12% of Kodiak's permits are held by villagers, as compared to just over 3%

[4] Ibid

of the UCI permits. Proportionately four times as many native villag dwellers own permits in Kodiak as compared to Cook Inlet."[5]

The importance of the salmon fishery to the Alutiiq people of Kodiak cannot be overstated. Six villages are located on Kodiak Island, all of which are off the road system. Historically, the Alutiiq people have relied on salmon as a primary food source and additionally as a means of monetary support in more recent years. All of the villages rely on salmon as a subsistence food, and most have active salmon fishing fleets which are the only source of income for a significant portion of the residents.

Typically a Kodiak salmon operation will employ three crew persons per permit, not including the skipper, whereas a drift boat employs only one or two. Employment opportunities in villages are extremely limited outside of fishing, government jobs, and a small tourist industry. The impact of the proposed closures would clearly be most severely felt at the Kodiak village level.

In working with the Kodiak Alutiiq villages to oppose this proposal, it became clear how important the traditional salmon fishery is to each of the villages. The usually quiet residents responded vigorously with petitions, affidavits and letters voicing their concern over this proposal. These are included in the following support document.

Summary

The importance of the salmon fishery to the local and regional economy of Kodiak is far greater than in the Kenai Peninsula Borough. There is an especially high level of dependence on the salmon resource by residents of Kodiak's six Alutiiq villages, who would be severely affected by passage of this proposal. Kodiak is a one-sector economy, and is more vulnerable to the effects of an allocative shift than is the multi-sectored Kenai Borough.

5 Ibid

Chapter 9
EFFECT OF THE COOK INLET AND KODIAK ENHANCED SOCKEYE PRODUCTION ON KODIAK SALMON AREA MANAGEMENT PLAN

Kodiak and Cook Inlet have a relationship that is unique among all other salmon regions of Alaska. Kodiak and Cook Inlet, which are neighboring yet separate management areas, both have active aquaculture associations which are engaged in major enhancement projects for the supplemental production of sockeye salmon. This relationship centers around the fact that some Cook Inlet sockeye stocks migrate past the Kodiak Island management area and that a portion of these stocks are realized as a bycatch in the traditional Kodiak commercial salmon harvest. The result of this relationship has been an active disagreement as to the effect and traditional use of these two stocks.

The Cook Inlet enhancement program has four major hatcheries which produce sockeye for production in 14 different lake systems. Coupled with these hatcheries is a program of natural habitat enhancement.[1]

Enhancement projects for Cook Inlet have been producing a substantial contribution to the Cook Inlet fishery for the last 10 years, averaging returns of approximately 1,054,000 since 1986. These numbers are expected to increase to 1,644,400 as a sustained average by 1996.[2] During the last 3 years, releases including fry, smolt and fingerlings have averaged over 29 million. Using accepted survival rates, the planned average return of 1,644,000 Cook Inlet enchanced sockeye is considered conservative.

On the other hand, Kodiak Regional Aquaculture Association has been in the process of rebuilding its wild stocks through restrictive management to achieve escapement goals and lake fertilization to accelerate rehabilitation of the sockeye fishery since 1985. This has included both habitat evaluation and enhancement, and also the stocking of barren lakes for the development of new supplemental sockeye production. In 1994,

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1 Cook Inlet Aquaculture Assoication, Smolt Newsletter, October 1992.

2 Ibid

the contribution to the Kodiak sockeye fishery from supplemental production was approximately 40,000 fish. As new and ongoing programs come on-line, the number of sockeye produced through supplemental enhancement should grow to about 900,000 by 1999.[3]

The relationship between Cook Inlet and Kodiak aquaculture programs becomes even closer when Cook Inlet fishermen request restriction and modification of Kodiak's salmon management plans, based on a component of Cook Inlet stocks migrating through the Kodiak Salmon Management area.

In 1989 the Alaska State Board of Fisheries implemented the North Shelikof Management Plan which manages and restricts Kodiak fishermen by placing a cap of 15,000 fish on catches within the North Shelikof Management Area. A cap of 50,000 was placed on fishermen within the Southwest Afognak area. Neither of these caps take into consideration the continuing increased production of the two aquaculture associations, which over time could easily trigger either cap regardless of natural production. Similarly, the Kenai Peninsula Fishermens' Association proposed management changes do not take into consideration that there is potential for a volume of fish greater than Cook Inlet's long term average to transit through the Kodiak area as a result of Kodiak and Cook Inlet's two aquaculture programs alone. Planning for enhanced production has not been included in any discussion or implementation of new management restrictions. It is very possible and most probable that the established caps in the North Shelikof and Southwest Afognak will be greatly affected by enhanced production in 1995!

The remainder of the Kodiak Island Management Area is also vulnerable to dramatic effects from the unplanned increase of enhanced fish from Cook Inlet. While Kodiak's enhanced production has been accounted and planned for in ADF&G's management plan, Cook Inlet's enhanced production has increased unfettered by any assessment of its impacts on other fisheries.

To make it very simple, the more fish that Cook Inlet puts into Kodiak waters, the sooner the caps are reached and the sooner Kodiak fishermen are forced to quit fishing. Also, as Kodiak's supplemental

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3 Kodiak Regional Aquaculture Association unpublished reports

production matures, the sooner the caps will be reached. It is wrong unreasonable to force Kodiak fishermen to quit fishing as a penalty for catching their own fish. The Board should not allow this type of management to expand to the rest of the KMA.

When regulatory review of an area's mixed stock harvest rate is required due to increased catch levels resulting from enhanced production, serious questions arise regarding the role that this type of production plays in allocation issues. When traditional fishing patterns can become endangered as a result of a change in harvest that is due to enhancement, either local or non-local, it is time to seriously question the validity of such production and to consider what regulatory systems are needed to assume ADF&G and public review of potential inter-area conflicts.

If this is what the future holds for traditional fishing patterns and if the Board of Fish is going to be required to review and possibly justify implementing new allocative management plans because of enhanced production, a thorough review of the process allowing for enhancement must be initiated. KMA fishermen have always desired the perpetuation of a stable and predictable common property commercial fishery which targets KMA wild stocks and its discretely occurring enhanced stocks. This allows for traditional fishing patterns whereby individual permit holder's annual economic expectations can be seasonally assured. Enhanced fish from one area should not dictate fishing patterns in another area. If that occurs, enhancement projects interject economic instability into an adjacent area's traditional fishing pattern rather than the increased stability desired.

APPENDIX A

"Harvest Rates of Upper Cook Inlet-Bound Sockeye Salmon in the Kodiak Area's Commercial Salmon Fishery"

Prepared By:

Natural Resource Consultants

HARVEST RATES OF UPPER COOK INLET-BOUND SOCKEYE SALMON IN THE KODIAK MANAGEMENT AREA'S COMMERCIAL SALMON FISHERY

PREPARED FOR:

THE KODIAK ISLAND BOROUGH
SALMON WORKING GROUP

March 10, 1994

PREPARED BY:
NATURAL RESOURCES CONSULTANTS, INC.
SEATTLE, WASHINGTON

Reviewers: DL

October 1, 2017

To the Chairman and Board of Fisheries members

RE: UCIDA ACR #11

The UCIDA ACR fails to address any of the stated BoF criteria to accept it.

The genetic study was not designed to address any management plan, local or in other areas. The true "cost" of misapplied research would be staggering, economically and biologically--if this study *was the sole driver for* changing the Kodiak Area Salmon Management Plan. The study only addresses sockeye in the harvest, never mentioning the harvest magnitude of other salmon species during the mid strata of the study.

The study, as presented, is grossly out of context as to the reality of the salmon harvest in the time period that UCIDA is basing ACR 11 on. In 2015, 17 million salmon (KMA) were caught in the time period of the study that UCIDA is basing ACR 11 on. I will give you a number that is big picture to help you understand the glaring omission of information left out of the ACR & study. Kodiak's salmon harvest in 2015 was 124,00,000 lbs all species. The economic multiplier effect on the economy from harvesters, processors throughout the community of that scale is significant, yet overlooked and never mentioned in the study or ACR. What would be the biological consequences on deviating from the current well-managed Kodiak fishery?

There is a rule that states, if you change one thing it changes everything, the rule of "unintended consequences". I would urge the BoF to get thoroughly educated to the magnitude & complexity of Kodiak Island's salmon management & economy. Volume salmon & ground fish processing are Kodiak's economic life blood. The only town in the state with a year round processing population with all that entails from shipping to the school district.

Please ask the Kodiak ADFG staff to explain with visuals & put the fishery & study into the proper perspective. It would be a heavy lift to attempt a change in Kodiak's salmon management for all involved without damage being done to the stock, quality, & an economy that is built around access to our local stocks.

Sincerely

Chris R Berns
Box 23
Kodiak, Alaska 99615 (53 year resident of Kodiak)

BERNS

RC11

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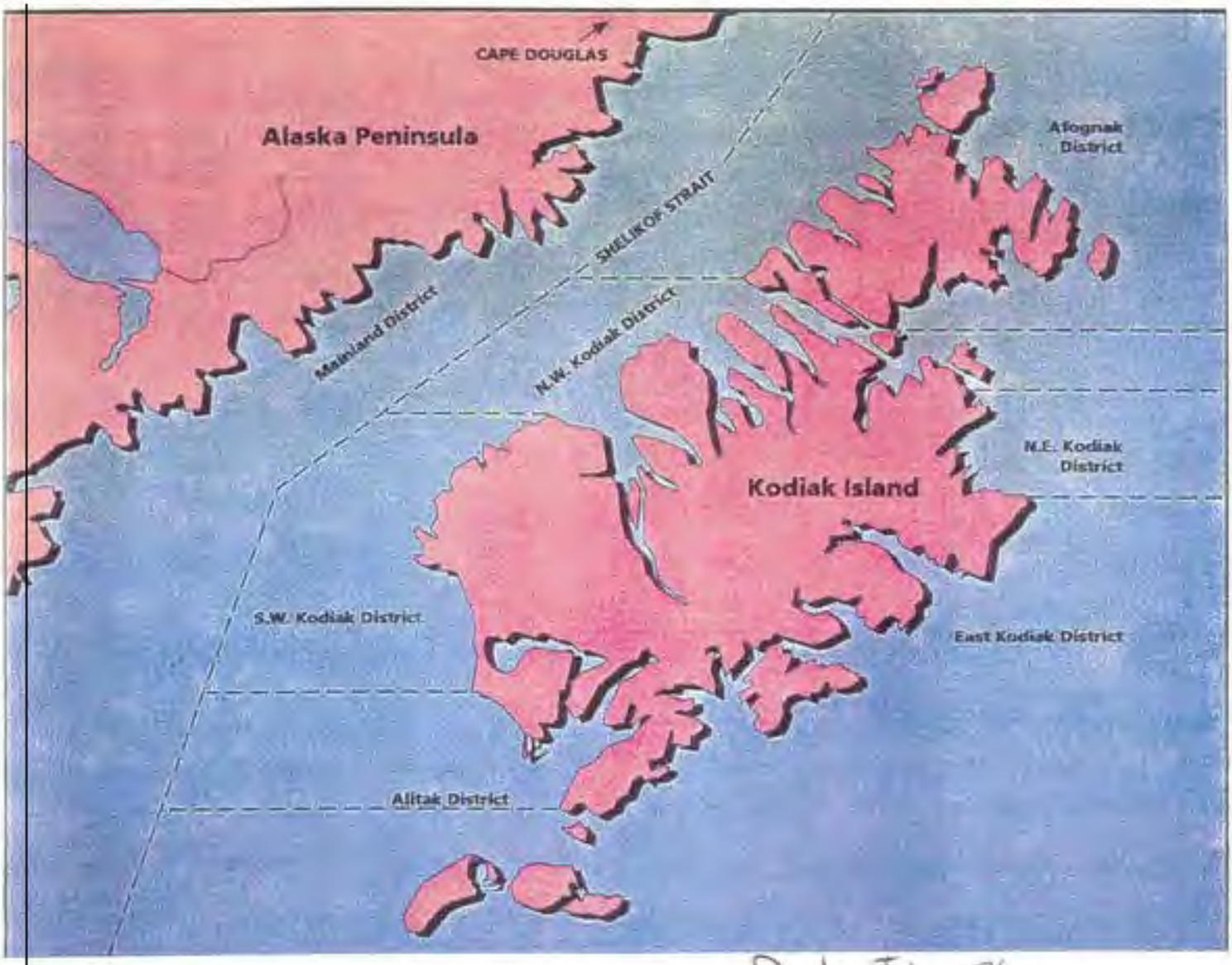
BOARD OF FISHERIES

Kodiak Management Area



Did This Before-

Kodiak Island Borough Salmon Work Group
Report #5

for the
State of Alaska, Board of Fisheries
Kodiak/Cook Inlet Inter-Area Work Group
February 21, 1995
Anchorage, Alaska

Foreward and Acknowledgments

The Kodiak Salmon Work Group is pleased to submit Report #5, a compilation of four of our previous reports to the Board of Fisheries, all relating to the incidental catch of Cook Inlet sockeye in the Kodiak Management Area, and Proposal #528.

We'd like to express our appreciation to the Alaska Department of Fish and Game, especially Dave Prokopowich, Joanne Shaker, Kevin Brennan, Bruce Barrett, Patti Nelson, Charlie Swanton, for their timely reports and assistance in data summaries.

KSWG also thanks the Kodiak Island Borough Assembly, and Mayor Jerome Selby who have been instrumental in providing support for the group.

And, thanks to the dedicated members of the Kodiak Salmon Work Group who've assisted in the writing, editing, and compilation of this report, and in the work of the past year include: Duncan Fields, Nick Troxell, Oliver Holm, Bruce Schactler, Virginia Adams, Kelly Schactler and Larry Malloy.

Lacey Berns,
Kodiak Salmon Work Group, Coordinator

KODIAK -- HISTORY

- **In the first 30 years of the Kodiak fishery, 1982-1911, sockeye catches exceeded 2 million fish 20 times.** The high catch occurred in 1901 with 4.8 million sockeye harvested. Current catches are well within this historic range.

- **From 1912 to 1948 the annual Kodiak sockeye harvest exceeded 1 million fish in 33 out of 37 seasons.** The high catch during the period was 1917 with 3.6 million sockeye. As late as 1945 over 2 million fish were captured. This too correlates well with current catches.

- **1949 through 1977 catch records show a significant decrease in Kodiak's sockeye runs.** Federal management, over fishing and environmental conditions all contributed to the depressed Kodiak sockeye stocks.

- **Catch data from 1978 through 1986 shows that Kodiak sockeye were rebuilding.** The 1976 Kodiak catch was .6 million and the 1986 harvest exceeded 3.1 million. The 1980-1985 seasons all had catches in excess of 1 million sockeye. Since, Kodiak sockeye are predominately 5 year fish, the 1980 through 1986 catches reflect strong prior Kodiak escapements -- not Cook Inlet fish.

- **Kodiak sockeye catches from 1987 through 1994 are predominately local stocks.** These are the years Cook Inlet claims Kodiak "learned" to catch their fish. The latest intercept year, 1994, attributed 130,000 Cook Inlet sockeye to Kodiak's catch. This is a mere 4% of the total Kodiak sockeye catch and does not reflect learned (new and expanding") fishing patterns. (On the highest intercept year, 1992, approximately 1.4 million Cook Inlet sockeye are attributed to the Kodiak catch. This still only represented 34% of the total Kodiak harvest.)

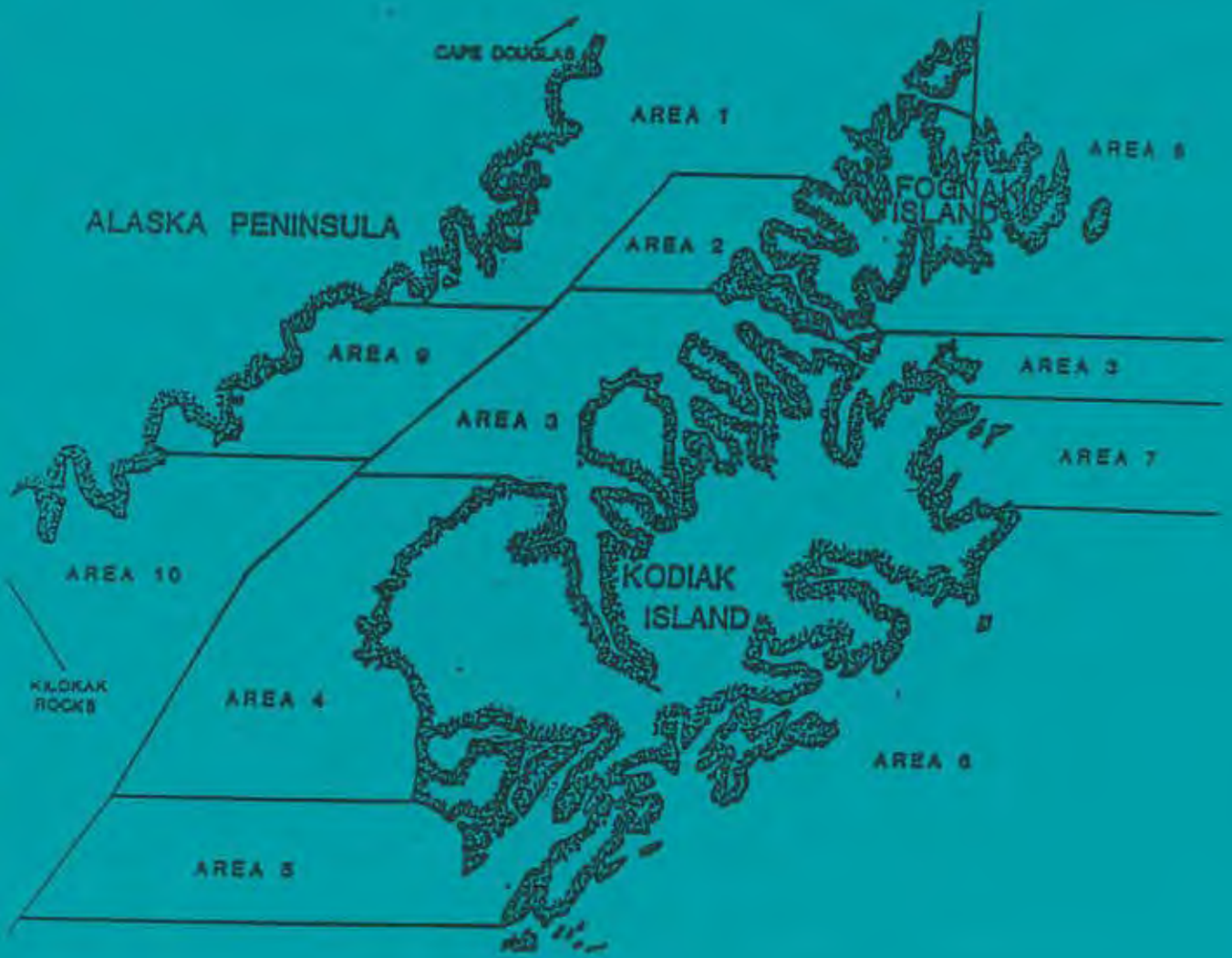
- **Kodiak's all time record harvests in 1990 and 1991 were comprised of 96% local stocks.** In these years, based on Barrett\Vining, the Cook Inlet incidental catch was around 300,00 sockeye. These fish represent only 4% of the total Kodiak catch.

- **Kodiak's incidental catch of Cook Inlet sockeye is declining as Cook Inlet sockeye harvests return to average numbers.** Kodiak's incidental catch of Cook Inlet fish exceed 5% of the Cook inlet harvest only when Cook Inlet runs exceeded 3.5 million fish. Moreover, in 1994 with a 5.1 million Cook Inlet catch, the Kodiak bycatch was only 2.5%.

- **Kodiak's incidental catch of Cook Inlet sockeye is also a function of the abundance of local sockeye.** Cook Inlet harvests in 1990 and 1994 are comparable. The incidental Kodiak catch in 1990 was @ 5.8% but in 1994 the incidental catch in Kodiak was only 2.5%. The amount of local sockeye available for harvest in 1990 and 1994 in Kodiak also declined by about half.

KODIAK COMMERCIAL SALMON FISHERIES
MAJOR HARVEST AREAS

REA 1 - North Shelikof Sections
REA 2 - SW Afognak Section
EA 3 - NW Kodiak District
REA 4 - SW Kodiak District
EA 5 - Alitak Bay District
AREA 6 - Eastside Kodiak District
AREA 7 - NE Kodiak District
AREA 8 - Remaining Afognak Sections
AREA 9 - Katmai & Alinchak Sections
AREA 10- Igvak & Wide Bay Sections



Appendix A.1. Map of 10 major harvest areas.

Historical Sockeye Salmon Commercial Harvest
Kodiak, 1882-1994

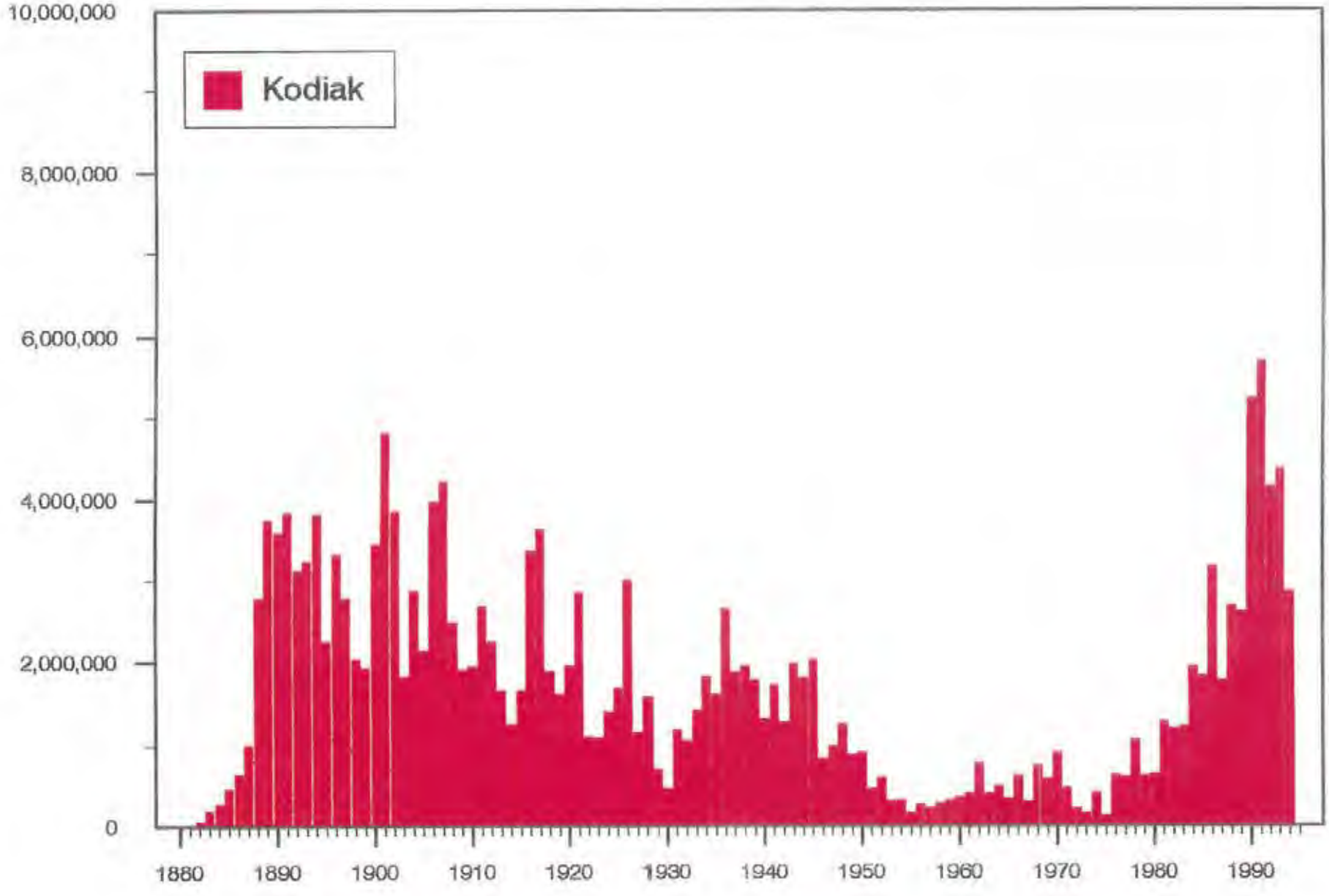


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Exhibit 4

Historical Sockeye Salmon Commercial Harvest
Kodiak vs. Cook Inlet, 1882-1994

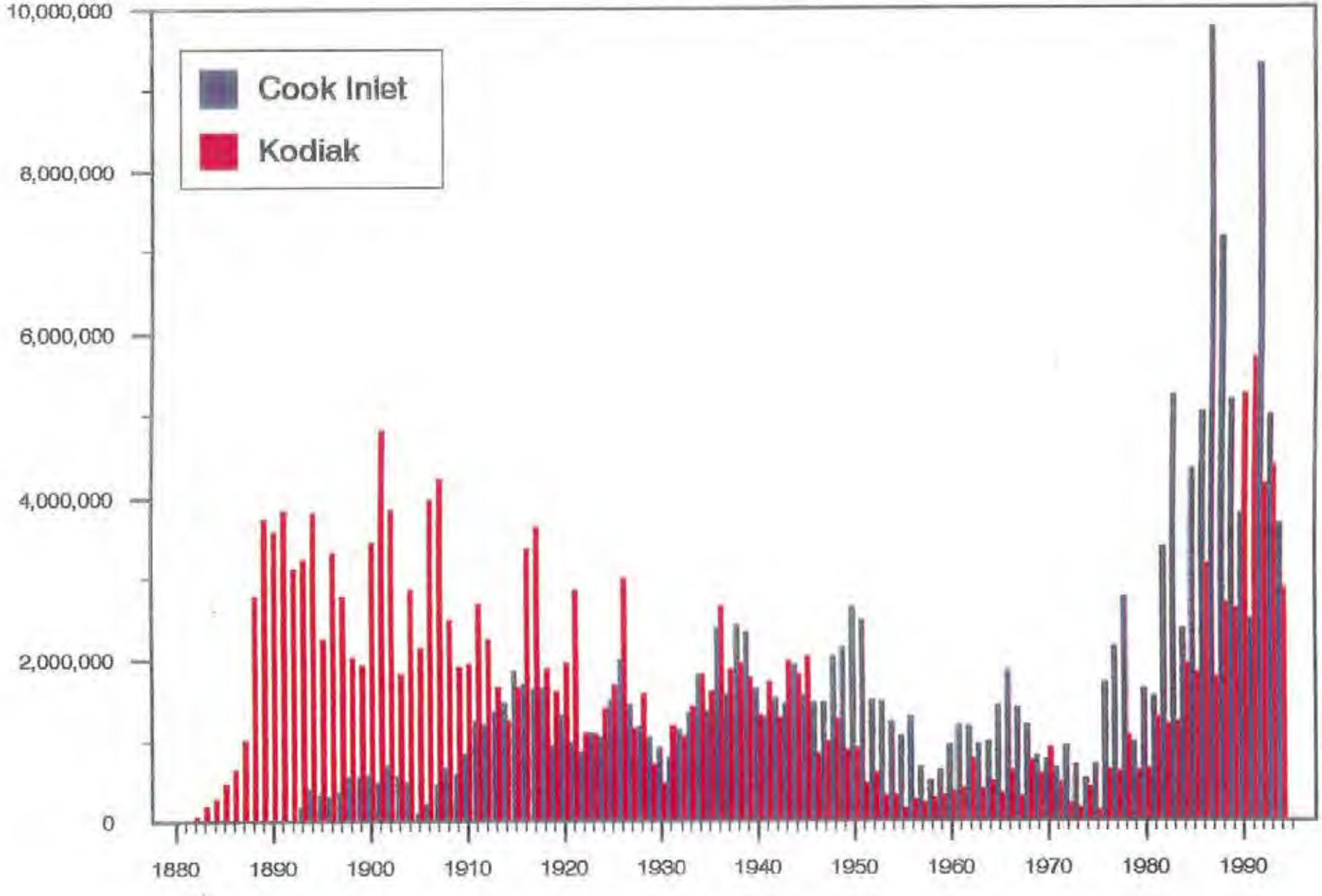

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Table xx. Historical salmon catch (numbers of fish to nearest thousand) by species in the Kodiak Management Area, 1882-1994

Year[a]	Chinook	Sockeye	Coho	Pink	Chum	Total
1881						0
1882		59,000				59,000
1883		189,000				189,000
1884		282,000				282,000
1885		469,000				469,000
1886		646,000				646,000
1887		1,005,000				1,005,000
1888		2,781,000				2,781,000
1889		3,755,000				3,755,000
1890		3,593,000				3,593,000
1891		3,846,000				3,846,000
1892		3,126,000				3,126,000
1893		3,245,000				3,245,000
1894		3,830,000				3,830,000
1895		2,247,000	8,000			2,255,000
1896		3,329,000				3,329,000
1897		2,786,000	2,000			2,787,000
1898		2,033,000	19,000			2,052,000
1899	1,000	1,935,000	32,000			1,968,000
1900	5,000	3,450,000	32,000			3,488,000
1901	4,000	4,826,000		2,000		4,832,000
1902	3,000	3,868,000	35,000			3,906,000
1903	1,000	1,826,000	120,000	10,000		1,957,000
1904	3,000	2,875,000	103,000	5,000		2,987,000
1905	2,000	2,142,000	87,000			2,232,000
1906	4,000	3,980,000	24,000			4,008,000
1907	4,000	4,232,000	38,000			4,275,000
1908	3,000	2,488,000	74,000	286,000		2,851,000
1909	4,000	1,915,000	52,000	154,000		2,124,000
1910	2,000	1,955,000	44,000	215,000		2,216,000
1911	1,000	2,686,000	22,000	230,000	6,000	2,945,000
1912	1,000	2,246,000	17,000	547,000	25,000	2,836,000
1913	1,000	1,663,000	28,000	590,000	4,000	2,286,000
1914	1,000	1,255,000	32,000	1,726,000	13,000	3,028,000
1915	1,000	1,664,000	52,000	252,000	20,000	1,990,000
1916	1,000	3,373,000	50,000	3,182,000	29,000	6,635,000
1917	1,000	3,646,000	30,000	225,000	16,000	3,919,000
1918	2,000	1,894,000	78,000	2,467,000	82,000	4,524,000
1919	2,000	1,619,000	104,000	283,000	60,000	2,068,000
1920	2,000	1,958,000	89,000	1,977,000	55,000	4,081,000
1921	1,000	2,858,000	46,000	68,000	25,000	2,997,000
1922	1,000	1,097,000	120,000	2,766,000	224,000	4,208,000
1923	2,000	1,090,000	78,000	929,000	39,000	2,137,000
1924	1,000	1,408,000	121,000	5,435,000	118,000	7,082,000
1925	2,000	1,693,000	93,000	2,674,000	212,000	4,674,000
1926	1,000	3,015,000	174,000	4,607,000	325,000	8,122,000
1927	4,000	1,155,000	152,000	5,297,000	418,000	7,026,000
1928	3,000	1,592,000	291,000	1,535,000	726,000	4,147,000
1929	3,000	712,000	144,000	6,108,000	1,058,000	8,026,000
1930	5,000	466,000	229,000	1,651,000	419,000	2,771,000
1931	2,000	1,183,000	170,000	6,840,000	184,000	8,378,000
1932	2,000	1,058,000	52,000	4,720,000	237,000	6,069,000
1933	1,000	1,428,000	91,000	6,574,000	537,000	8,632,000
1934	1,000	1,829,000	90,000	7,642,000	661,000	10,223,000
1935	1,000	1,614,000	77,000	10,781,000	382,000	12,854,000
1936	3,000	2,657,000	184,000	5,648,000	328,000	8,820,000
1937	1,000	1,881,000	165,000	16,787,000	346,000	19,181,000
1938	1,000	1,966,000	155,000	8,398,000	640,000	11,160,000

-Continued-

Table xx. (page 2 of 3)

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1939	2,000	1,786,000	112,000	11,741,000	642,000	14,284,000
1940	1,000	1,318,000	148,000	9,998,000	673,000	12,139,000
1941	3,000	1,730,000	200,000	7,602,000	445,000	9,978,000
1942	1,000	1,282,000	107,000	6,093,000	565,000	8,047,000
1943	1,000	1,991,000	60,000	12,480,000	454,000	14,985,000
1944	1,000	1,818,000	52,000	4,955,000	507,000	7,332,000
1945	2,000	2,041,000	60,000	9,045,000	559,000	11,707,000
1946	0	839,000	56,000	9,546,000	298,000	10,740,000
1947	0	993,000	76,000	8,857,000	295,000	10,221,000
1948	1,000	1,260,000	32,000	5,968,000	331,000	7,594,000
1949	1,000	892,000	54,000	4,928,000	700,000	6,574,000
1950	2,000	921,000	41,000	5,305,000	685,000	6,953,000
1951	2,000	468,000	49,000	2,100,000	483,000	3,103,000
1952	1,000	604,000	52,000	4,577,000	1,243,000	6,476,000
1953	3,000	317,000	42,000	5,175,000	548,000	6,084,000
1954	1,000	325,000	66,000	8,439,000	1,251,000	10,083,000
1955	2,000	164,000	35,000	10,794,000	482,000	11,478,000
1956	1,000	271,000	53,000	3,319,000	705,000	4,349,000
1957	1,000	234,000	35,000	4,716,000	1,208,000	6,195,000
1958	2,000	288,000	21,000	4,039,000	931,000	5,280,000
1959	2,000	330,000	15,000	1,967,000	734,000	3,047,000
1960	1,000	363,000	54,000	6,738,000	1,300,000	8,456,000
1961	1,000	408,000	29,000	3,926,000	519,000	4,882,000
1962	1,000	785,000	55,000	14,114,000	795,000	15,749,000
1963	0	407,000	57,000	5,480,000	305,000	6,250,000
1964	1,000	498,000	36,000	12,044,000	1,134,000	13,714,000
1965	1,000	346,000	27,000	2,887,000	431,000	3,692,000
1966	1,000	632,000	68,000	10,756,000	763,000	12,218,000
1967	2,000	309,000	10,000	188,000	227,000	735,000
1968	2,000	760,000	57,000	8,768,000	750,000	10,338,000
1969	2,000	591,000	49,000	12,501,000	535,000	13,678,000
1970	1,000	917,000	66,000	12,037,000	919,000	13,940,000
1971	1,000	478,000	23,000	4,333,000	1,541,000	6,377,000
1972	1,000	223,000	17,000	2,486,000	1,164,000	3,890,000
1973	1,000	167,000	4,000	519,000	318,000	1,008,000
1974	1,000	419,000	14,000	2,646,000	249,000	3,328,000
1975	0	136,000	24,000	2,943,000	84,000	3,187,000
1976	1,000	641,000	24,000	11,078,000	740,000	12,484,000
1977	1,000	623,000	28,000	6,252,000	1,072,000	7,977,000
1978	3,000	1,072,000	49,000	15,004,000	814,000	16,942,000
1979	2,000	632,000	141,000	11,288,000	358,000	12,420,000
1980	1,000	651,000	139,000	17,291,000	1,076,000	19,157,000
1981	1,000	1,289,000	122,000	10,337,000	1,345,000	13,094,000
1982	1,000	1,205,000	344,000	8,076,000	1,266,000	10,892,000
1983	4,000	1,232,000	158,000	4,603,000	1,085,000	7,082,000
1984	5,000	1,950,000	230,000	10,844,000	649,000	13,678,000
1985	5,000	1,843,000	284,000	7,335,000	431,000	9,898,000
1986	4,000	3,188,000	169,000	11,808,000	1,135,000	16,304,000
1987	5,000	1,793,000	193,000	5,076,000	682,000	7,748,000
1988	22,000	2,699,000	303,000	14,409,000	1,426,000	18,860,000
1989	5,000	2,629,000	141,000	22,649,000	836,000	26,259,000
1990	19,000	5,248,000	294,000	5,984,000	578,000	12,122,000
1991	22,000	5,704,000	325,000	16,643,000	1,029,000	23,723,000
1992	24,000	4,168,000	280,000	3,311,000	680,000	8,462,000
1993	42,000	4,378,000	313,000	34,019,000	588,000	39,341,000
1994	23,000	2,877,000	296,000	8,163,000	739,000	12,098,000

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Sockeye Salmon Escapement
Kodiak Management Area, 1962-1994

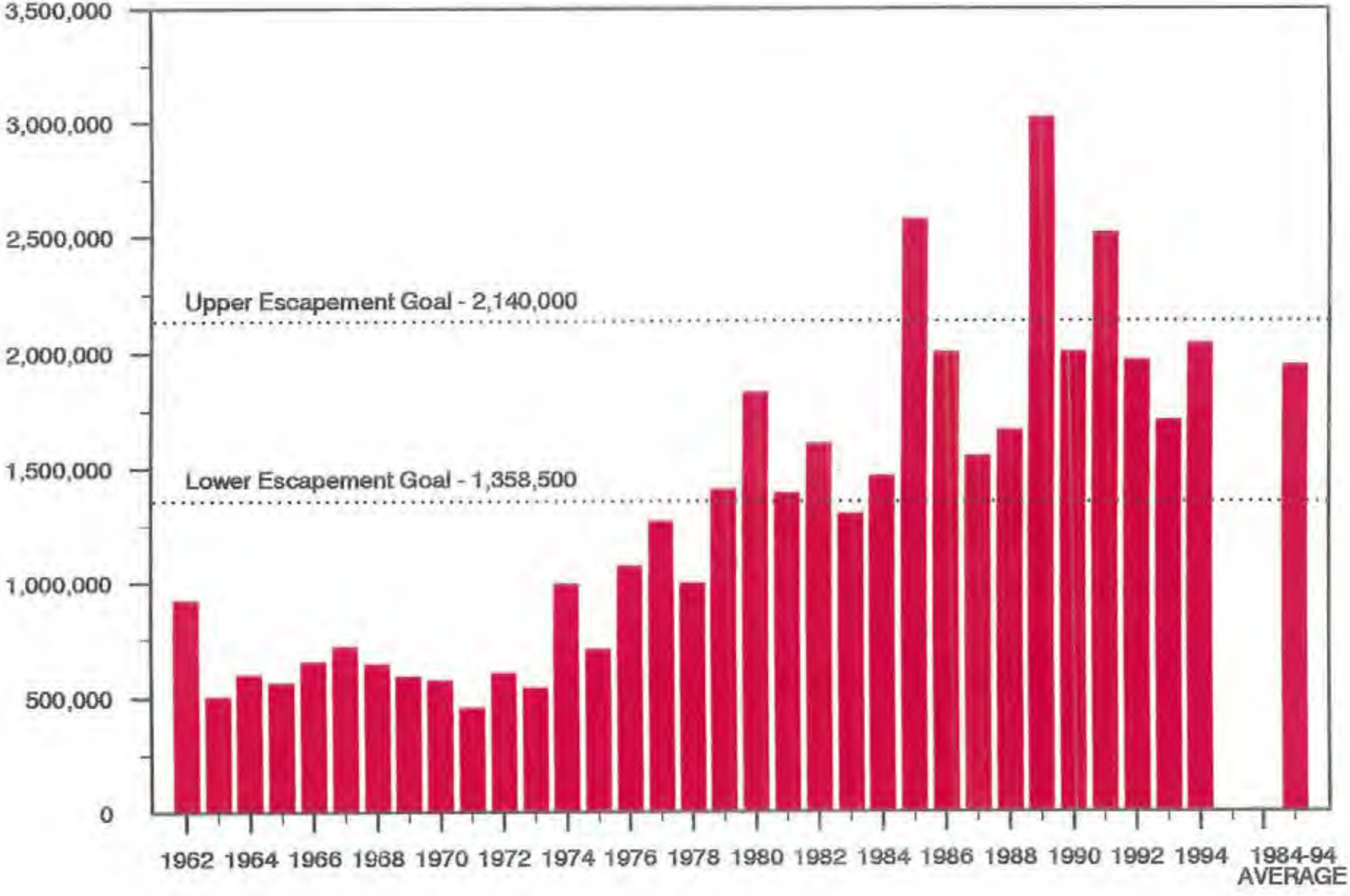

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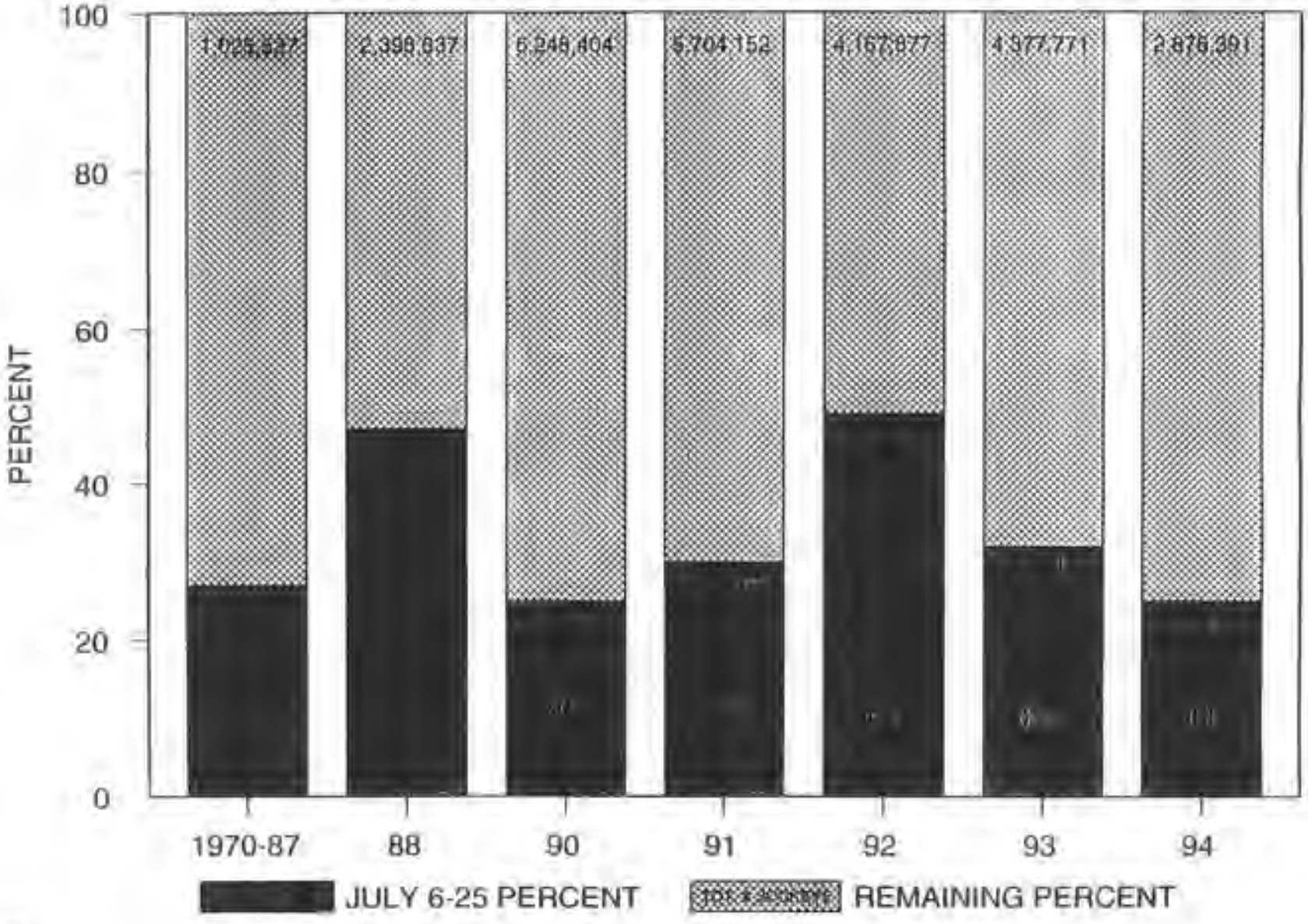
Exhibit 2

KODIAK MANAGEMENT AREA
PERCENTAGE OF THE ANNUAL SOCKEYE SALMON HARVEST WHICH OCCURED DURING THE TIME PERIOD JULY 6-JULY 25



Please refer to Exhibits 8-10, 11-15, & KSWG charts in this chapter.

An Analysis of Kodiak's Historical Salmon Fishery in the '60's: Effort On the Capes

Throughout sessions with the "Kodiak/Cook Inlet Inter-Area Work Group," there has been lengthy discussion about Kodiak's historical salmon fishery. The Kenai contingent seems to believe that a "time-frame" consisting of the years 1978-87 provides a reasonable "window" or can be used as a basis for making comparisons to the harvest activity of the late 80's and early '90's. The Kodiak Salmon Work Group asserts that when making historical reference, one must have a complete understanding of the112 year history of the island salmon fishery, and must look beyond the 1970-1994 data provided by ADF&G to form an opinion. A brief analysis of the data included in A.D.F.G. Kodiak Area Management Reports dating 1960-1969, reveals several points clearly pertinent to the current debate over the bycatch of Cook Inlet salmon in Kodiak waters:

1) The Kodiak salmon fishery has existed on the "capes" for decades. As a mobile fleet, it shifts and migrates in relation to stock abundance, weather patterns, and/or processing capability. The evidence supports this fact.

2) Throughout the '60's, the Kodiak ADF&G staff refer to the fleet's mobility, using explicit language to delineate geographic effort during these shifts, as: **"CAPE or BAY fisheries."**

3) Because the Kodiak salmon fleet has utilized the "capes" to harvest mixed or migrating stocks over the decades, there is no **evidence that shows "new or expanding fisheries"** occurring. The concentration of the fleet is directly linked to the harvest of mixed or migratory stocks, during which in the 60's, runs fluctuated in strength, and fishermen reacted by targetting different species of salmon in different areas.

4) Two areas named as "hot spots" in this debate: Halibut Bay, and the Sitkalidak Section, show consistent harvest activities during this decade, and in particular, during the July 6-25 time period.

Effort in Halibut Bay and the Sitkalidak Section

Particularly noteworthy, are the numbers of landings which occurred primarily during even years of the '60's. In 1962 in the Red River District, which encompassed Halibut Bay, Sturgeon Bay, and Outer Ayakulik until 1968, there were 795 landings for 93,657 sockeye, during the time period July 6-25.[1]

The Sitkalidak Section has long supported the Old Harbor Alutiq village salmon fleet, and provided harvest opportunity for several species of salmon migrating both north and south in close proximity to the village. The data clearly shows historical effort between July 6-25 circumnavigating Sitkalidak Island, with landings reaching 626 in 1969. The village currently holds 27 salmon permits. The salmon fishery is critical to Old Harbor's economy.[2]

A Glimpse into the '60's:
The Transitional Years prior to the Collapse of
Kodiak's Salmon Fishery

The 1960's can be characterized as a decade during which there were fairly healthy salmon harvests and escapements around Kodiak Island, but the runs had wild annual fluctuations. For example, in 1962 the total harvest was a whopping 15,750,139 salmon, whereas in 1967, it was described as "the poorest run on record", reaching only 735,354 total salmon.[3,4]

In general, the decade encompassed a transition from federal management and composed the years prior to the collapse of the salmon fishery/rebuilding decade of the '70's, and the advent of the new limited entry program. A consistent level of participation occurred during these years, with the numbers of permits issued ranging from 438 in 1963 to 540 in 1968. Interestingly, the average number of permits fished from 1975 to 1983 is 515—the same level of participation.

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[1] 1962 Kodiak Area Management Report/Univ. of Wash. Fisheries Research Institute Data

[2] Univ. of Wash./Fisheries Research Institute Data

[3,4] Kodiak Area Management Reports/'62 and '67

Effort and behavior in the '60's followed the traditional and historical routine for salmon fishermen in Kodiak--fleet effort shifted according to external changes in the environment: stock abundance, weather patterns, and processing capability. For example, on July 16th, 1962, intense fishing restrictions were placed on fishermen, limiting their catch to1200 fish per man until August 3rd. This occurred again in1964. In 1965, fishermen were on strike from June until July 26th. [5]

One can characterize the mobility of the Kodiak fleet in terms of catch effort when analyzing the 1960-69 Annual Management Reports. Very clearly, the reports catagorize fleet effort as "cape" or "bay" fishing areas during this decade.

The 1962 Kodiak Area Management Report

For example, the K.A.M.R. (Kodiak Area Management Report) states that in 1962, Red River was indeed, a "cape fishery:"

"Exceptional production came from the cape fisheries of Marmot Bay, Red River, and the bay fisheries in Alitak, Seven Rivers, Klaugnak, Barling Bay and Ugak Bay. West side production was good with the capes producing well and the bay fisheries of Terror Bay and East Arm productive...the fishery began with sizeable catches in the cape fisheries on the south end of Kodiak Island...capes near Karluk....Cape fisheries remained heavy throughout July...did not drop until latter part of the season..." And,

"Catches of the Marmot Bay cape fishery, west side cape fishery and the cape and bay fishery on the east side contributed considerably (chum harvest)..."

The 1966 Kodiak Area Management Report

"The normally productive cape fishing areas (for pinks) about Red River, Karluk, and Marmot Bay failed to develop strongly. The pinks showed heavily from Paramanoff to Cape Ugat...good weather and abundance of pinks concentrated fleet in these areas...The

[5] Kodiak Area Management Reports/1962-65

Sturgeon River - part of the Red River District) closure was relaxed after July 16 in order to allow harvest of heavy return of pinks.

The 1968 Kodiak Area Management Report

"The intensity of the harvest in any one geographic catch area is subject to large amounts of migratory stocks, which were harvested enroute to other areas. An example of this would be the high catches of pink salmon that occurred in the Kiliuda Bay area (Section 258-20) during the '68 season, which appeared to be predominantly migratory stocks bound for other portions of the island.....and....

In 1968, **"48.3% of the total pink catch occurred in the Eastside and Uyak-Uganik Bay Area...It should be kept in mind that the higher catches in these districts reflect historic cape fisheries on stocks bound for other portions of the island."**

Conclusion

Contrary to Cook Inlet's assertion that Kodiak's salmon fleet has moved from terminal fishing areas onto the capes during the '80's and '90's to harvest migrating sockeye, the data shows otherwise. The Area Management Reports prove that Kodiak fishermen have long utilized capes as well as bays, to harvest all species of salmon. Effort in the Red River District and Sitkalidak Section during the July 6-25 time-frame show consistent patterns of harvesting local and migrating stocks during periods of peak opportunity. Restrictions which might limit our ability to harvest local and enhanced stocks, based on 1970 levels, are clearly unfounded.

Chapter 6
RATIONALE FOR THE CURRENT KODIAK MANAGEMENT PLAN

Kodiak Management Area's (KMA) current commercial fishing harvest strategy is being evaluated by the Alaska Board of Fisheries due to concerns that KMA's commercial fishery is expanding its historical bycatch rates on Upper Cook Inlet (UCI) bound sockeye. ADF&G's Special Regional Information Report (RIR) 4K94-7 thoroughly reviews KMA's in-season harvest strategies for July 6-25, which is the primary bycatch period. The data summaries in that report provide an accurate geographical history of fishery harvest and effort for a 24 year period (1970-1993). A history of KMA's July sockeye fishery prior to 1970 is presented in Part 2, Chapter 7 of this report. A review of the aforementioned reports is necessary for understanding the basis for KMA's current July harvest strategy.

A thorough review of KMA's entire commercial salmon fishery is provided in ADF&G report RIR 4K94-8. Specifics on fishery history occur on pages 2 through 8 of that report. Also, the nature of KMA's salmon resources, their production potential for both wild and supplemental production is included in pages 15-21 of that report. Under- standing the basis for KMA's current overall harvest strategy requires a study of this overview report.

KMA's fishable state waters and their relative location to the Chignik and Cook Inlet management areas are depicted in Figure 1, a generalized composite of coastal sockeye migration pattern derived from

Natural Resource Consultants report[1], various ADF&G tagging studies, and commercial fishing patterns. This juxtaposition is noteworthy when considering in-shore migration patterns of returning mature salmon from their pelagic feeding grounds, through near-shore migratory corridors, to their eventual spawning locations.

Natural Resource Consultants' report discusses these migratory routes and the fact that annual variations in these routes can occur.[2] NRC summarizes studies which suggest that the majority of the UCI-bound sockeye enter Cook Inlet through entrances north of the KMA. Of those remaining UCI-bound sockeye migrating through KMA's fishable waters, an historical increment has been a bycatch component of KMA's directed harvest on local stocks. The magnitude of that bycatch varies with UCI-bound sockeye run strength, KMA directed fishing opportunities, and the availability of these sockeye as influenced by migration route variation and daily weather/tide fluctuations. KMA's current harvest strategy was questioned by UCI fishermen when bycatch levels gained widespread notice during the record UCI sockeye production years of 1988 and 1992.

KMA's ADF&G management activities are primarily held accountable by Board of Fisheries review for compliance with statuatory and regulatory requirement. This review specifically addresses compliance with biological concerns and allocative criteria. KMA's management is further held accountable by federal, other state agency, and private landowners within the KMA.

Three National Wildlife Refuges, one National Park and two existing State Parks identify and monitor the stock status of salmon runs endemic to their lands. Additionally, KMA's harvest strategy must be sensitive to altered production from habitat modifications on private lands and from supplemental production projects by Kodiak's Regional Aquaculture Association (KRAA). Consequently, KMA's annual salmon harvest strategies have evolved in structure to withstand extraordinary critical review. By most accounts, these strategies are rated as yielding very thorough, relatively precise and highly defendable regulatory activities.

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1 Natural Resource Consultants Report, 1994, and ADF&G and University of Washington Tagging Studies

2 NRC Report, 1994, pp. 28-31.

ADF&G report RIR 4K94-8, pages 8-15, provides a clear and precise explanation of the premise for KMA's current harvest strategy. Figure 2, from that report, illustrates the run timing of KMA's wild stocks and specifically identifies both the annual management chronology by species and an example of actual harvest timing by species, that of the 1993 KMA salmon run.

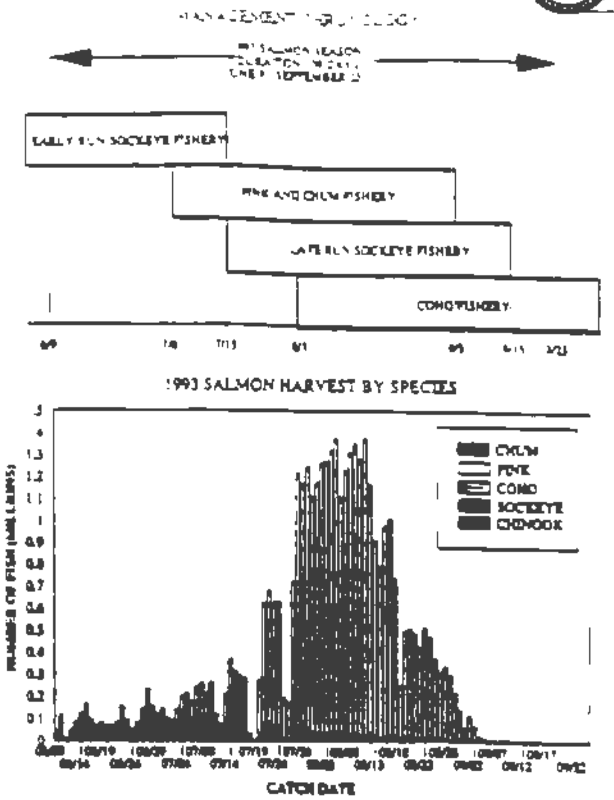

Figure 2. Fishery management and salmon run timing; general chronology of the harvest in the Kodiak Management Area, 1993.

Every regulatory action used to implement KMA's annual harvest strategy must first consider run timing of KMA stocks. All seven of KMA's management plans in Table 1, and forty or more annual in-season Emergency Order regulatory announcements, are based on the predictability of KMA stocks' run timing.

Table 1. Board of Fisheries approved fishery management plans for the Kodiak Management Area, 1993.

MANAGEMENT PLAN	YEAR INITIATED	MGMT. UNITS AFFECTED	DATES IN EFFECT
Cape Igvak Salmon Management Plan	1978	Cape Igvak Section Wide Bay Section	6/5 - 7/25
Alitak Bay District Salmon Management Plan	1987	Alitak Bay District	6/9 - 10/1
Westside Kodiak Management Plan	1990	N.W. Kodiak District S.W. Kodiak District S.W. Afognak Section	6/9 - 10/1
Crescent Lake Coho Salmon Management Plan	1990	Portion of the Central Section in Vicinity of Port Lions	8/1 - 9/15
North Shelikof Strait Sockeye Salmon Management Plan	1990	S.W. Afognak Section N.W. Afognak Section Shuyak Section Big River Section Hallo Bay Section Inner and Outer Kukak Sec. Dakavak Section	7/6 - 7/25
Eastside Afognak Management Plan[a]	1993	Kitoi Bay Section Izhut Bay Section Duck Bay Section	6/9 - 10/1
Spiridon Bay Sockeye Salmon Management Plan	1993	Special Harvest Area in Spiridon Bay Section	6/9 - 10/1

[a] This management plan has basically been in use since 1981, but was titled the Kitoi Bay Hatchery management plan. In 1993, it was adopted into regulation by the Alaska Board of

KMA's historical harvest trends for all species combined are depicted in Figure 3.[3] Pre-statehood harvest trends by decade identify an initial exploration period in the 1880's, a relatively stable period with slight expansion from approximately 1890 through the 1920's, a peak harvest decade in the 1930's followed by a noticeable decline in the 1940's, and a bottoming out of production in the 1950's.

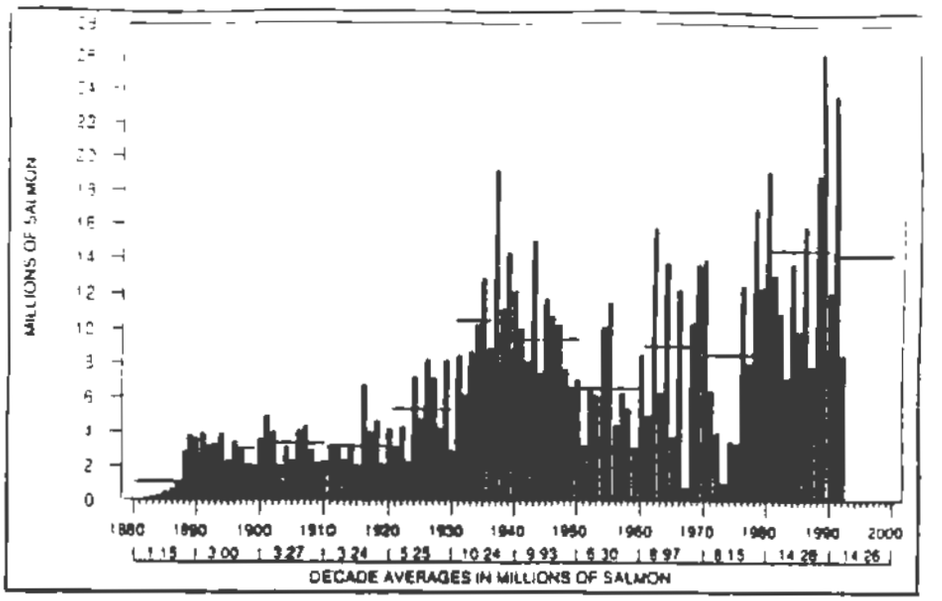

Figure 3 Commercial salmon harvest all species combined in the Kodiak Management Area, 1880-1992.

Post statehood harvest trends reveal rebounding production in the 1960's, a wide oscillation in production during the 1970's followed by record production for the decade of the 1980's and a relatively sustained production at a record average level for the first four years of the 1990's. In consideration of all the factors which contributed to the harvest history of KMA's fishery, it's apparent that KMA's salmon stocks have thrived under state regulation and that they appear stable in terms of having realized their production potential.

KMA's overall production potential is identified in Table 2.[4] The long term average harvest on KMA stocks, when escapement goals are achieved and environmental conditions are consistently average, is expected to be 16.5 million salmon. The fishery performance

Table 2. Potential vs. actual salmon production (wild stock) in the Kodiak Management Area, 1993.

SPECIES	PRODUCTION POTENTIAL			HARVEST		
	LONG TERM AVERAGE			POTENTIAL	ACTUAL	
	Targeted Escapement Goal[a]	Return Per Spawner[b]	Potential Total Return	Long Term Average	45 Year Average (1948-1993)[c]	10 Year Average (1982-1993)[c]
CHINOOK	15,000	2.5	37,500	22,500	4,000	15,000
SOCKEYE	2,100,000	2.5	5,250,000	3,150,000	1,184,000	3,220,000
COHO	150,000	2.5	375,000	225,000	100,000	255,000
PINK Odd Year	3,000,000	3.5	10,500,000	7,500,000	7,182,000	13,535,000
PINK Even Year	4,500,000	3.5	15,750,000	11,250,000	8,654,000	9,271,000
CHUM	1,020,000	2.8	2,856,000	1,836,000	785,000	128,000
TOTAL Odd Year	6,285,000	-	19,018,500	13,454,000	9,255,000	17,853,000
TOTAL Even Year	7,785,000	-	24,268,500	16,483,500	10,727,000	13,389,000

[a] The expected indexed escapement within the biological escapement goal range. KMA fisheries are normally managed to achieve this level of escapement.

[b] Returns per spawner will vary each year. These values are averages around which natural survival and return will fluctuate somewhat (Barrett, Personal Communication, October 1993).

[c] 1989 harvest data not included in estimates.

[3] ADF&G RIR 4K94-7.

[4] ADF&G RIR 4K94-8, p.27.

of the 1980's and 1990's support that projection. This fact further supports the validity of KMA's current harvest strategy which has guided the rebuilding of KMA's depressed stocks since the early 1970's.

Industry's stock-specific knowledge of local run timing and important coastal migration characteristics, coupled with processors' strong demands for quality products, have always been responsible for KMA's fleet distribution. The resulting traditional harvest patterns by both the mobile seine and fixed set gillnet fleets were considerations in the evolutionary development of KMA's current harvest strategy. Figure 45 identifies KMA's industry distribution - i.e. gear areas and cannery locations plus all community locations - and it identifies all ADF&G stock monitoring sites such as fish weirs and KRAA's major salmon enhancement projects.

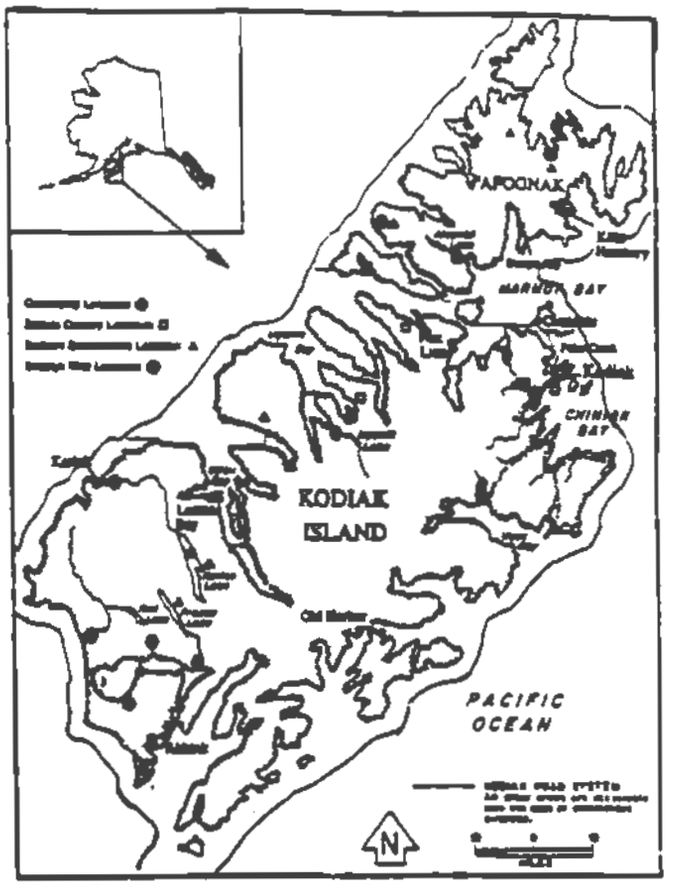

Figure 45 Map of Kodiak Island, showing [illegible] and sockeye salmon [illegible] and weir locations, of the Kodiak Management Area, 1993.

Understanding the apparent success of post-statehood harvest strategies requires a review of the wide oscillations in production during the 1970's. In 1971, KMA's primary salmon production species, sockeye and pinks, were severely depressed. Strong regulatory measures were implemented to initiate a stock rebuilding plan. KMA's directed June early-run sockeye fishery was completely curtailed in what is now the Northwest Kodiak District. Also, the August late-run sockeye fishery was extremely minimized, because the primary harvest of these stocks was bycatch in KMA's directed July pink fishery. The pink fishery itself experienced record low production in 1973 following unexpected pink

5 ADF&G RIR 4K94-8, p.65.

run failures in 1971 and 1972. No other time period in KMA's history of commercial fishing has had an impact on developing stock rebuilding and stock stabilization strategies as did the decade of the 1970's. The record production levels of the late 1980's and early 1990 are the result of those strategies which remain active in KMA's current overall harvest strategy.

The development of the existing pink harvest strategy has been in many ways the most successful aspect of KMA's overall harvest strategy. Rebuilding of the depleted stocks of the early 1970's required a drastic attitude adjustment by industry to accept in-season Emergency Order openings of variable time and area fishing opportunities rather than the historical fixed openings for fishing opportunities with variable emergency order closures. As KMA's prolific stocks rebuilt unexpectedly fast, overly restrictive ADF&G experimental harvest strategies yielded poor quality pink harvest, unorderly fisheries, and sporadic but noticeable cases of unnecessary over-escapement situations. In response, a more aggressive pink harvest strategy, which initiated directed pink fisheries early in the run (July 6 openings), and which utilized KMA's very reliable pink forecast to pro-rate fishing time and area opportunities, was implemented in the late 1970's. This allowed industry to take full economic advantage of KMA's relatively large pink production through orderly fisheries on very high quality fish. It also restored the full utilization of KMA's fishable waters which had been denied KMA's fleet during the intense stock rebuilding years of the early 1970's.

In summary, KMA's current harvest strategy is the culmination of decades of developing and understanding of what regulatory actions are needed, are acceptable, and are capable of being efficiently implemented to obtain results. Evidence of this strategy's effectiveness are conveyed throughout ADF&G reports RIR 4K94-7 and 8. A knowledge of KMA's

production systems, identified in Table 3[6] lends credence to the data presented earlier in Table 2. The ability of ADF&G to accurately measure stock-specific escapement in the KMA is the foundation of this harvest strategy's success. Other state management areas lack KMA's precision for measuring sockeye escapement. That data, as shown in Figure 5[7], further justifies KMA's sockeye production potential identified in Table 2. The NRC report even suggests that ADF&G long-term production projections data may be conservative.

The KMA sockeye harvest of the late 1980's and early 1990's as shown in Figure 6[8] tend to support that thought, notwith-standing the contributions of UCI-bound sockeye on record or near-record returns to Cook Inlet.

Table 3 Estimated number of salmon production systems per major distribution in the Kodiak Management Area, 1993

Management District	Number of Streams[a]	Number of Streams with Each Species[b]				
		Chinook	Sockeye	Coho	Pink	Chum
Afognak	102	0	13	48	102	5
Northwest Kodiak	63	3	6	22	63	23
Southwest Kodiak	11	2	2	10	11	6
Alitak	30	1	5	15	30	14
Eastside Kodiak	116	1	8	32	116	61
Northeast Kodiak	26	0	1	20	26	9
Mainland	92	0	6	27	92	46
TOTAL	440	6	39	174	440	150

[a] The State of Alaska's Habitat Division identifies over 800 streams in the Kodiak Management Area which have documented use by anadromous fish (State of Alaska 1993). Many of these streams are very small and may only be used by pink salmon in years with very large returns. The streams identified in this table are depicted on the 1993 Kodiak Area salmon statistical map, and have documentable use each year.

[b] These estimates are based on current knowledge and, in fact, are expected to change as more system specific data is collected.

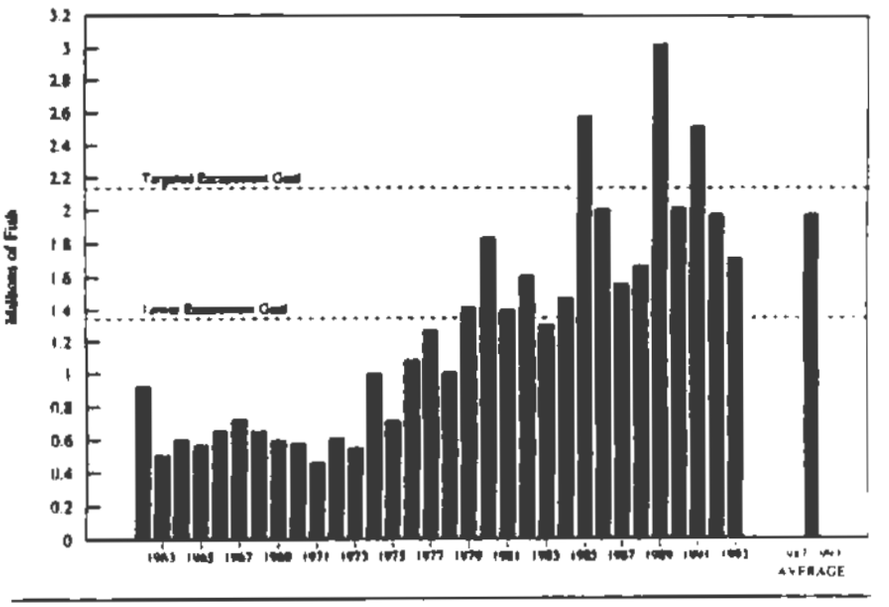

Figure 5 Sockeye salmon escapement in the Kodiak Management Area, 1962 - 1993

6 ADF&G RIR 4K94-8
7 ADF&G RIR 4K94-8
8 ADF&G RIR 4K94-8

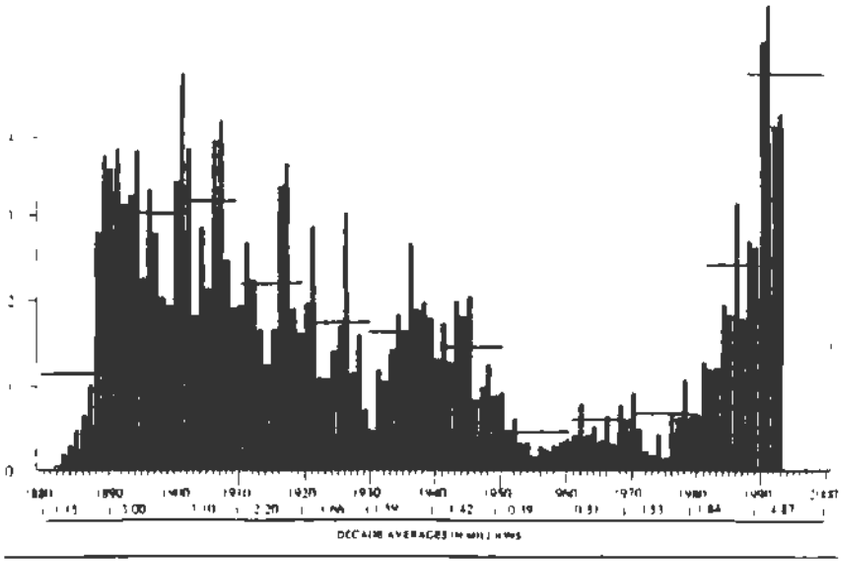

Figure 6 Sockeye salmon harvest, all gear combined, in the Kodiak Management Area, 1882 - 1993

The UCI sockeye component in KMA's harvest total are only significant on years of exceptionally large returns to UCI. ADF&G RIR 4K94-5 and NRC's previously discussed reports both support that fact.

KMA's fishing industry and its communities have come to understand and support KMA's harvest strategy. It works!!! They've experienced experimental strategies that haven't. They have concluded that this is the most successful and rational strategy for the Kodiak Management Area. Figure 7 from ADF&G RIR 4K94-7 re-emphasizes this fact! Such a successful, well developed, yet complex management program should not be arbitrarily and unnecessarily re-adjusted to accommodate unfounded fears of Cook Inlet-bound sockeye bycatch levels.

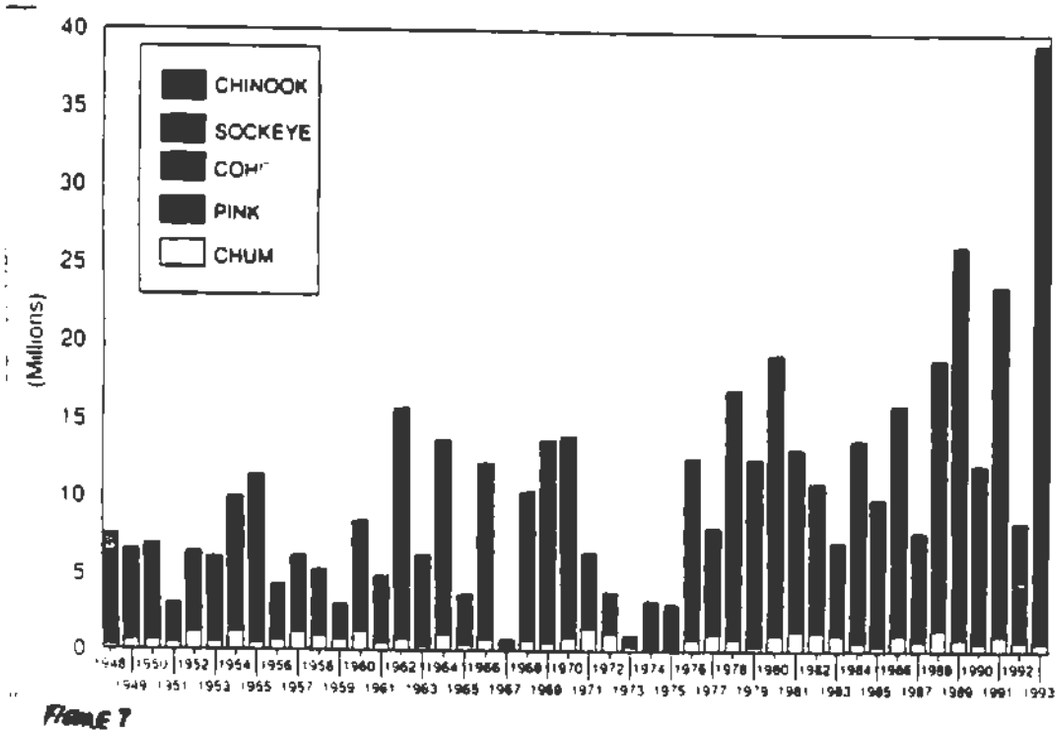

FIGURE 7

Chapter 7
HISTORIC HARVEST PATTERNS

Early Years

Shortly after Russian America was transferred to the United States in 1867, three companies started commercially fishing the Karluk River for sockeye which were salted and dryed. The first cannery was established on the Karluk Spit in 1882 with more canneries built along the spit and outside the Karluk District in 1888 and 1889. Eventually a cannery was established in Larsen Bay, two at the head of Afognak Bay, one in Alitak Bay and one in Moser Bay. By 1889, five canneries were located on the spit at Karluk and packed 806,219 cases of sockeye[1] between 1888 and 1890, with half of the fish originating in Karluk Lagoon. Before the turn of the century fishing was prohibited within the lagoon due to conservation concerns.

1900 - 1930: Expanding Fishery

By 1915 Kadiak Fisheries, based in Kodiak, had become Kodiak's major purchaser of fish. Also in 1915, the Afognak natives petitioned for the exclusive rights to fish the west side of Afognak Island. Spruce Island natives would only fish the east side of Afognak Island, currently identified as the Southwest Afognak section. Katmai Packing in Ouzinkie was buying fish in 1921 and in 1926 canneries were established in Shearwater Bay, located in the current Sitkalidak section and Uganik Bay now located in the Central Section. By 1930, numerous traps had been constructed off of outer bay capes along the Shelikof Strait side of Afognak and Raspberry Islands. Canned salmon shipped from Kodiak in 1927 was worth $48,404,279.[2]

The first three decades of Kodiak fishing was primarily identified in terms of case packs by district. In those days, the Karluk district included Uganik and Uyak Bays. The following graphs (Figures 1-5)[3] illustrate that

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1 Patricia Roppel, Salmon from Kodiak: An History of the Salmon Fishery of Kodiak Island, Alaska. 1986.

2 Ibid

3 JT Barnaby, U.S. Fish & Wildlife Service Fisheries Bulletin. 50.237-295. 1944.

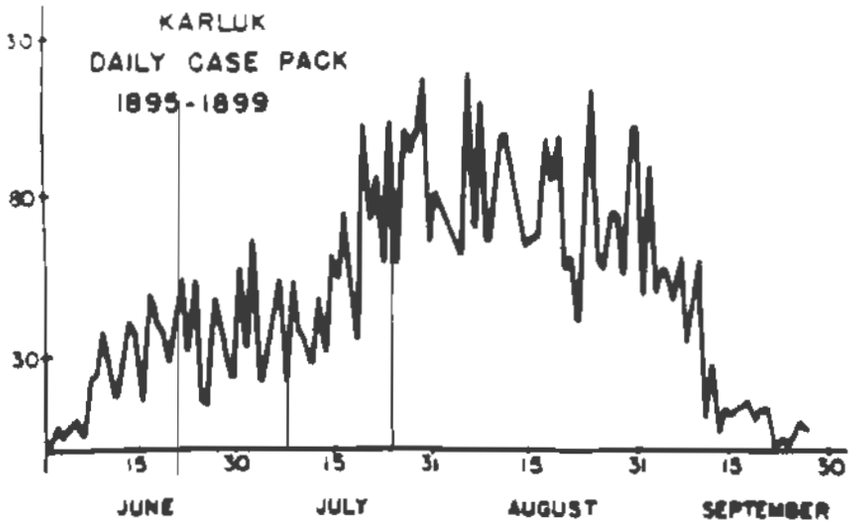


FIGURE 1

between 1895 and 1920, approximately 20 to 25% of the total Karluk area, and probably the Kodiak area, run was captured and processed during July. (The shaded areas on the graphs show the bycatch period currently under consideration.)

FIGURE 2

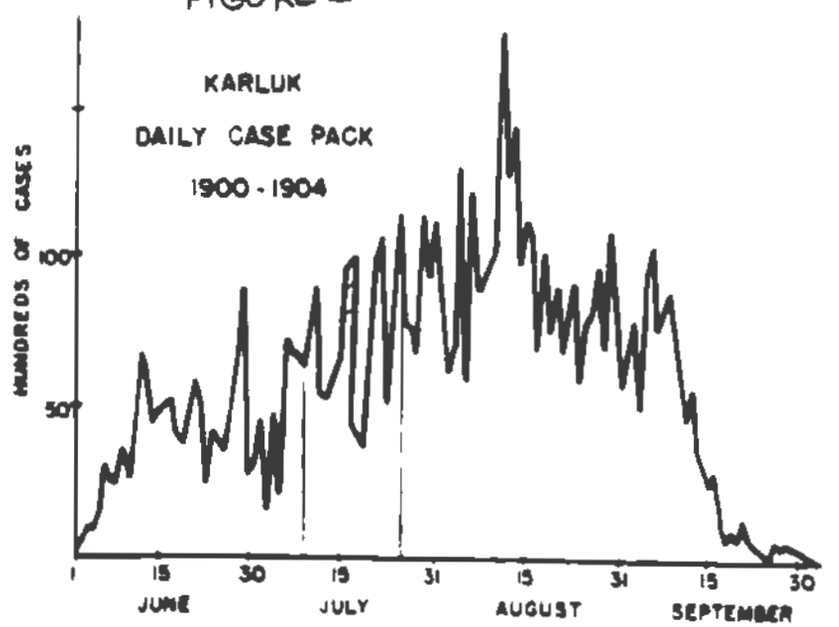


FIGURE 3

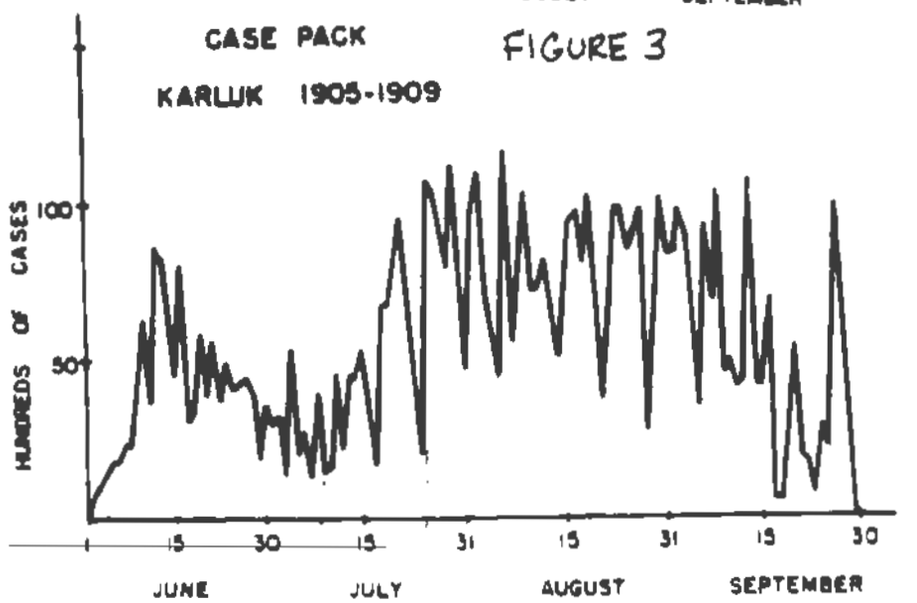
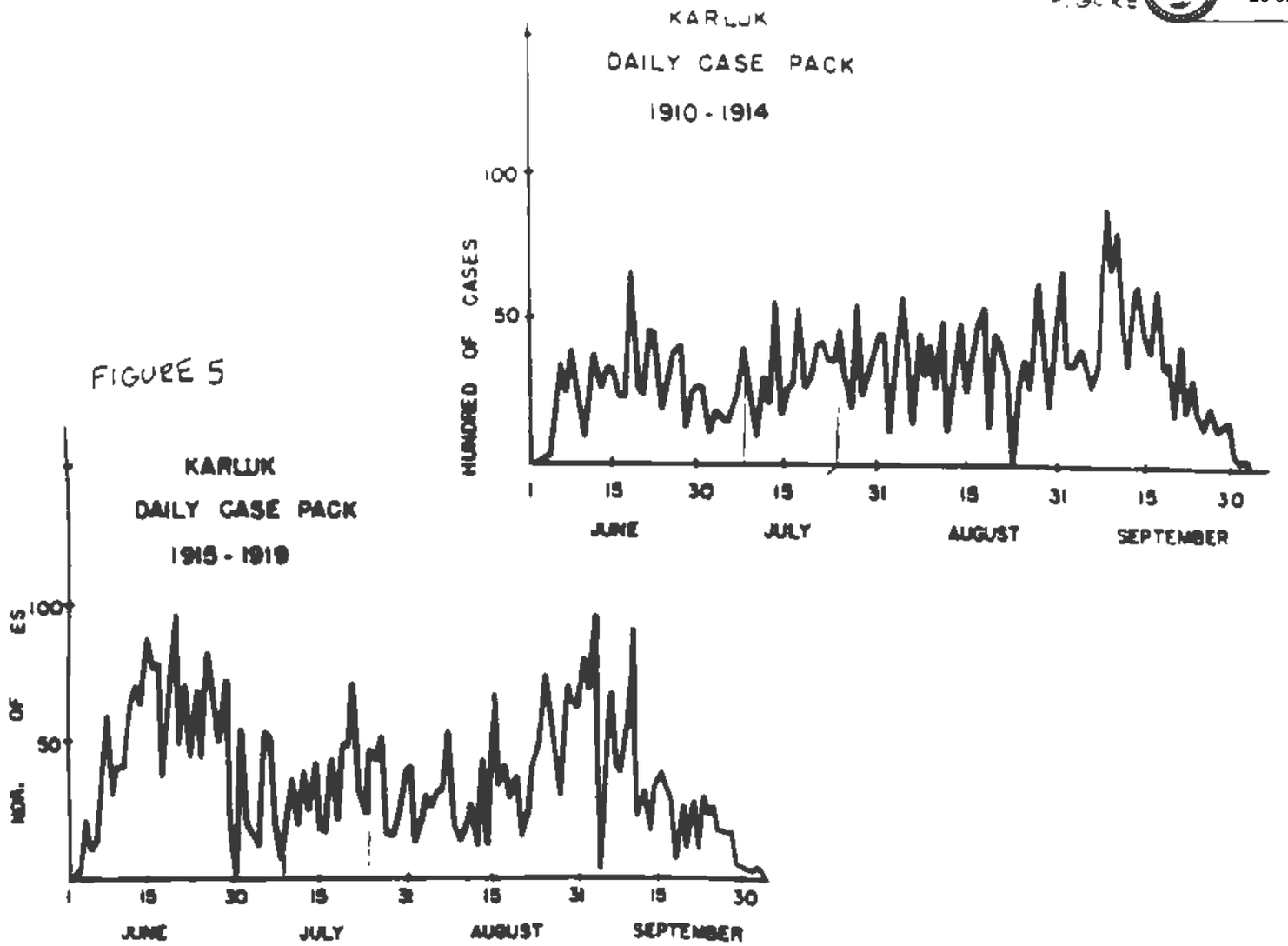


FIGURE 5



In the early part of the 20th century, Kodiak's fleet was expanding and capturing sockeye salmon in many locations along the Alaska Peninsula. Between 1909 and 1914, Kaflia Bay, currently in the Kukak section of the Mainland District, produced from 33,000 to 84,000 sockeye annually. In 1927, a trap was established at Kiukpalik Island, an outer cape in the Big River section of the Mainland District. The trap captured approximately 2,000 fish in its first season. Moreover, in 1919, a gillnet catch in excess of 6,000 reds was reported at Cape Douglas and Douglas Island.[4] **This early expansion of the Kodiak fishery reflects competitiveness and mobillty; characteristics that remain present in the Kodiak fleet today.**

[4] Wallace Norenberg, A Review of the Salmon Runs and Red Salmon Spawning Grounds Other Than Karluk in the Kodiak Island Area, 1950.

During the next decade, the Kodiak fishery continued to expand. Sockeye were captured along the east side of Kodiak Island and on capes further away from Karluk. In 1929, a two line cannery was established at Three Saints Bay, in the current Sitkalidak section, and two small hand pack canneries went in at Village Islands and Blue Fox Bay. In 1935, a cannery was built in Halibut Bay and sometime in the early thirties, a fishermen's cooperative formed and constructed a cannery at Zachar Bay which is in the current Central section. Much of the fish processed in these plants were sockeye.

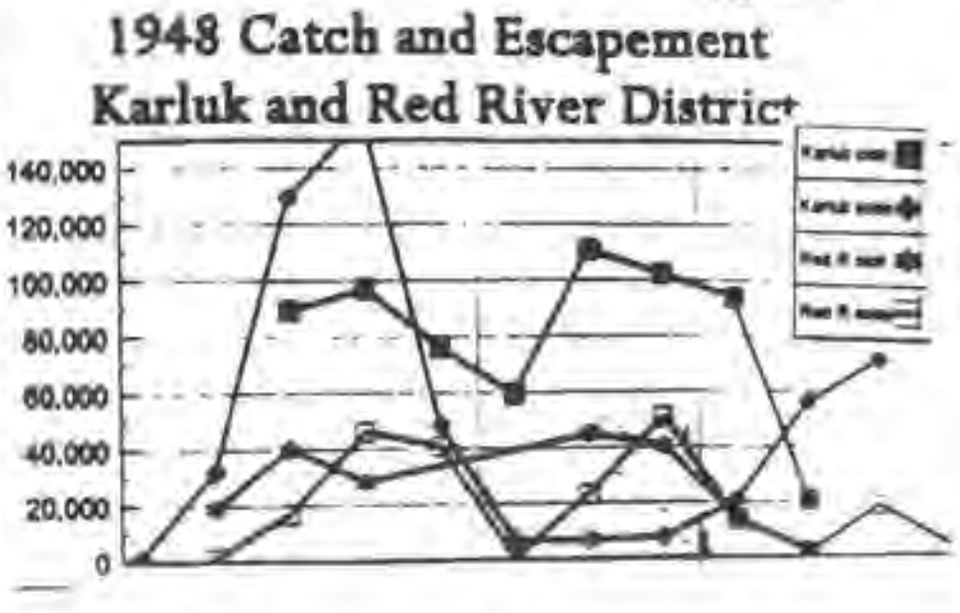
With the expanding fishery there were conservation concerns in the Kodiak District. During the 1930's, the fishermen's use of multiple 500 fathom beach seines along the Karluk coast and unlimited gillnets was curtailed. Set nets were reduced to 150 fathoms and beach seines were limited to 250 fathoms. In 1935, the purse seine catch exceeded, for the first time, 50% of the total Kodiak catch. (See the1930's map of canneries and trap sites at the end of this chapter.)

The 1940's

Kodiak enjoyed significant sockeye harvests throughout the 1940's with an average of 1.5 million fish harvested annually. It was not until 1978 that Kodiak's harvest of sockeye would again exceed 1 million fish. In 1948, there were 186 purse seiners, 67 gill net operations, 8 beach seiners and 23 traps operated in the Kodiak District.

FIGURE 7

1948 is an illustrative year for the Kodiak salmon fishery. (See Figure 7). The Kodiak sockeye catch was 1.26 million. Of that, 840,000 were captured in the Red River and Karluk Districts, including Halibut Bay. Interestingly, a substantial amount of the 1948 combined Karluk and Red River catch occurred

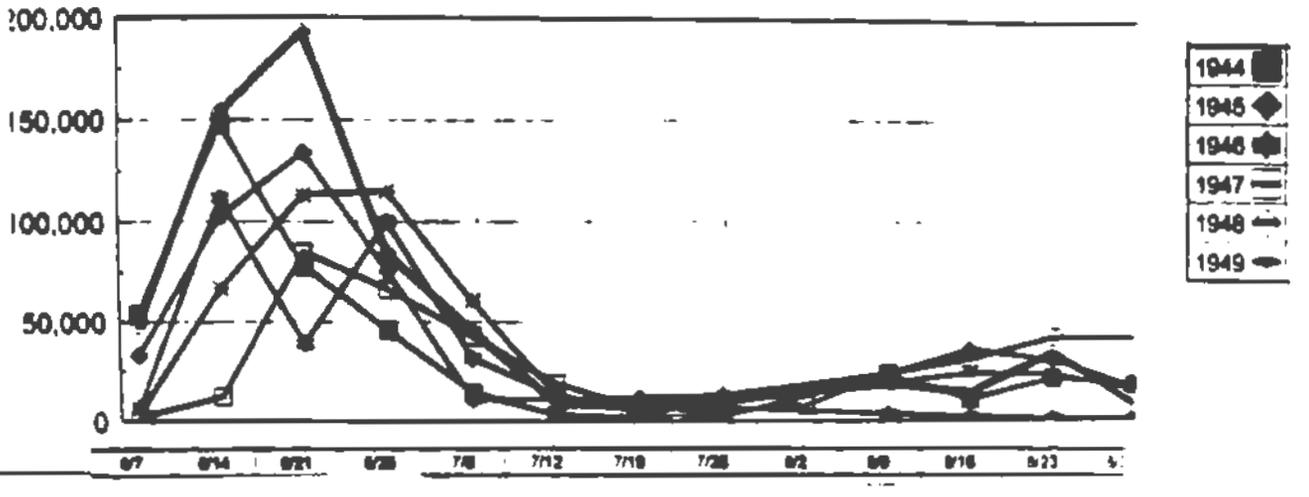


during the last three weeks in July. The 350,000 sockeye captured in these areas in the last three weeks amounted to over 41% of the total yearly catch. This catch rate compares favorably with recent catch rates during July 6-25th.[5] Moreover, the 5 year average during 1944 and 1949 shows that over 30% of the seasons sockeye in Karluk were caught during the last three weeks of July. (See Figure 9, on next page). If Kodiak's fleet was currently catching an increasingly larger percentage of Cook Inlet sockeye, you would expect the current July sockeye catch percentages to be substantially larger than they were 50 years ago. In fact, this is not the case.

Also, in 1948, there were substantial sockeye caught outside of Karluk and Red River. 566,000 sockeye or 44% of the total Kodiak catch were captured away from the traditional sockeye "hot spots" along Kodiak's east side and in the Mainland District. By 1948, Kodiak's fleet was primarily mobile and was capitalizing on sockeye fishing opportunities throughout the Kodiak Management Area as knowledge of local sockeye production became widespread.

A second historical index shows that there has always been a Cook Inlet component to Kodiak's sockeye catches. Kadiak Fisheries' 1940-50 cannery logs indicate that during the second week in July the daily catches in the Karluk traps decreased and the escapement into Karluk River remained low while the catches in traps off Afognak and Raspberry Island held steady or actually increased through the 25th of July. (See Figure 8)

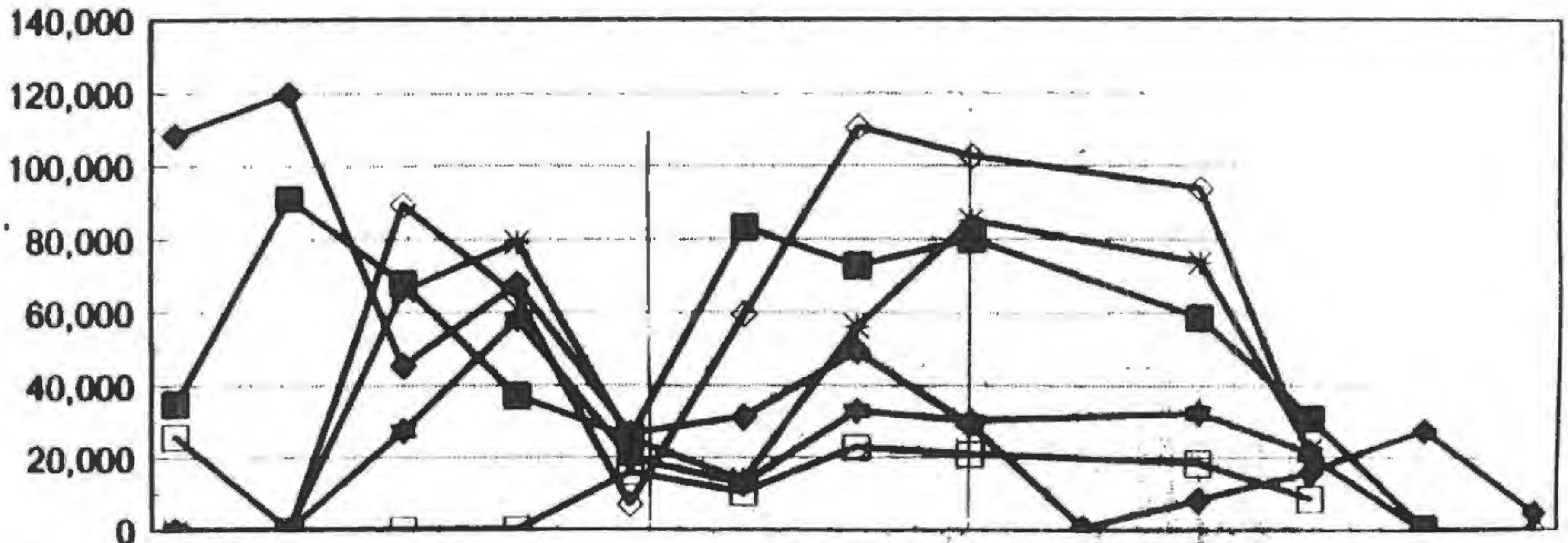
Karluk River Escapement per Week 1944-1949



5 Dave Prokopowich, ADF&G RIR 4K94-7.

Karluk District Catch per Week 1944-1949

(94)



	6/7	6/14	6/21	6/28	7/5	7/12	7/19	7/26	8/2	8/9	8/16	8/23	8/30
1944 ■	34,7[illegible]	91,070	67,836	37,[illegible]	[illegible]	83,105	72,847	79,871		[illegible]	30,778	[illegible]	
1945 ◆	108,398	119,758	45,320	67,713	20,682	31,142	49,308	28,070	532	8,211	16,727	27,493	4,699
1946	0	0	27,394	60,112	10,027	12,677	32,[illegible]	30,023		32,218	20,[illegible]		
1947	26,006	0	0	0	16,014	10,224	22,7[illegible]	20,810		18,390	8,654		
1948	0	0	90,289	64,1[illegible]	8,000	59,420	110,714	102,048		93,729	20,4[illegible]	0	0
1949	0	0	65,676	79,085	25,070	13,704	58,161	85,043		73,656	22,143		

1948 · 1949 Kodiak Tagging Studies

Extensive tagging studies were also accomplished during 1948 and further show an historical Cook Inlet component to the Kodiak catch. Between June 19th and August 13th, 1948, 7,277 sockeye were tagged. Fish were tagged on the west side of Kodiak Island. Overall, 37% of the tags were recovered and 1.89% were recovered in Cook Inlet. Although this represents about 2% of the Kodiak sockeye catch, it is for a period of 8 weeks from mid-June through mid-August. One would assume that the percentage would be somewhat higher if the tagging study had been condensed into the three later weeks in July. In 1949, another tagging study was conducted in June in which the rate of bycatch to Cook Inlet was much lower. (See Figure 10 below.)[6]

TABLE 2. RECOVERIES MADE OUTSIDE THE KODIAK ISLAND AREA, 1948-49

	District	Number of Recoveries	Per Cent of Tagged	Per Cent of Recoveries
1948	Cook Inlet	28	0.71	1.89
	Chignik	1	0.03	0.07
	Alaska Peninsula	2	0.05	0.13
	Total	31	0.79	2.09
1949	Cook Inlet	13	0.18	0.39
	Chignik	19	0.26	0.57
	Alaska Peninsula	3	0.04	0.09
	Bristol Bay	2	0.03	0.06
	Total	37	0.51	1.12
TOTAL		68	0.81	1.42

Most of the fish were traveling south and most tags were recovered along the west side of Kodiak Island.[7]

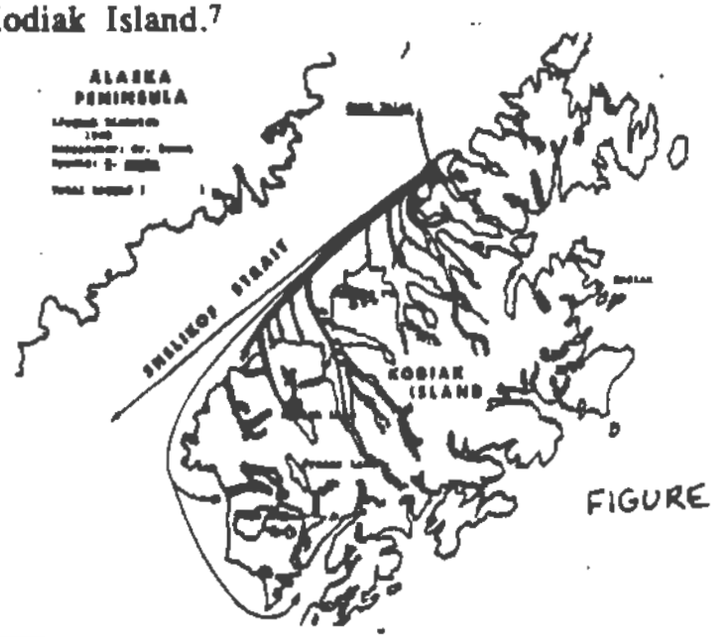


FIGURE 11

6 Don Bevan, Estimation of the Size of Migrating Salmon Populations in Coastal Waters, 1959.

7 Ibid

The 1949 Annual Report specifically mentioned an unusual occurrence in the Sitkalidak area. The report observed that there had been a "reported abundance of sockeye passing northward through Sitkalidak Strait during June. It is not exactly known where these fish went, but presumably they spread to various streams along the east shore of Kodiak Island, though no large escapement was observed in any them."[8] We now know that these were probably Cook Inlet sockeye.

1957 Tagging Studies: Kenai Bycatch

Kodiak is not the only area that has a bycatch of non-local stocks. Cook Inlet has been shown to have a bycatch of Kodiak salmon. A small tagging study was done in Seldovia Bay in 1957. "During three day tagging, 168 reds were released, of which 55 or 32.7% were returned. The release dates were June 30, July 20 and July 21."[9] Kodiak recoveries of pink salmon amounted to 12.2% of the total number recovered, red recoveries were 7.5% and chum recoveries were 5%. This was in a year when Kodiak only had a catch of 234,000 sockeye!

In addition, Cook Inlet also catches salmon headed for the Alaska Peninsula and as far west as the Shumagin Islands. "Tagging at Chisik Island at the time showed substantial out-migration of red salmon. This was true during late June of 1957 when 25.7% of reds tagged were recovered along the Alaska Peninsula."[10] **It is safe to conclude that a mixing of sockeye stocks occurs in both the Kodiak and the Cook Inlet Management Areas.**

Historical Catch Figures

Statistical data from ADF&G catch figures show historical catch data for Kodiak and Cook Inlet. Recent catch data indicates that both Kodiak and Cook Inlet have healthy sockeye stocks. (Please see data sheets after the conclusion of this chapter.)

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8 U.S. Department of the Interior, Fish & Wildlife Annual Report 1949.

9 Richard Tyler & Wallace Norenberg, Salmon Tagging in Cook Inlet, 1957.

10 Ibid

Cook Inlet sockeye catches are clearly at all time highs. Prior to 1983, Cook Inlet had a 30 year average annual catch rate of about 1.2 million sockeye. This dropped to an all time low of approximately 500,000 in 1974. Then, in 1983, Cook Inlet rebounded with a catch of about 5 million sockeye. The 1983 catch was an all time high almost doubling the 1950 all time record of 2.6 million sockeye. The new 1983 record was exceeded in 1987, 1988, and almost doubled in 1992.

Kodiak has also enjoyed a resurgence in its local sockeye stocks. Kodiak's 1907 catch record of 4.2 million sockeye stood until 1990 when Kodiak captured 5.2 million sockeye. In 1991, the Kodiak catch record increased to 5.7 million while the sockeye catch in 1992 and 1993 exceeded 4 million. The past five Kodiak seasons have substantially exceeded historical averages.

Figure 12[11] shows that the average weight of sockeye caught in the Kodiak area since 1969. (Average weights prior to 1969 are not available.) The historical average Kodiak sockeye weights indicate that there is a trend toward smaller fish. In fact, the 1993 average of 5.1 pounds per sockeye is the second lowest year on record.

Average weight and total harvest of sockeye salmon from the commercial fisheries of the Kodiak Management Area, [illegible] 1993

FIGURE 12

YEAR	AVERAGE WEIGHT[a]	HARVEST[b]
1969	5.4	[illegible]
1970	6.0	[illegible]
1971	6.4	[illegible]
1972	5.9	222,800
1973	6.5	167,341
1974	6.3	418,761
1975	6.1	136,418
1976	6.3	641,484
1977	6.8	623,468
1978	6.4	1,071,782
1979	6.1	631,735
1980	5.4	651,594
1981	5.8	1,288,980
1982	6.0	1,204,793
1983	5.8	1,231,989
1984	5.7	1,950,439
1985	4.7	1,843,185
1986	5.8	3,188,269
1987	6.3	1,792,819
1988	5.7	2,698,637
1989	5.5	2,529,068
1990	5.2	5,248,339
1991	5.5	5,704,041
1992[c]	5.7	4,167,877
1993[c]	5.1	4,377,688

[a] Weight in pounds. Data from Kodiak Management Area Annual Reports
[b] Harvest in number of fish.
[c] Preliminary data.

Kodiak average sockeye weights do not support Cook Inlet's contention that Kodiak is intercepting greater percentages of Cook Inlet fish. Cook Inlet fish are, for the most part, larger than Kodiak stocks. If Kodiak was catching a greater percentage of these fish, the average Kodiak sockeye weights should be going up. However, the opposite is true.

11 ADF&G RIR, 4K94-8

Conclusion

Even before 1930, the Kodiak fleet was expanding to fish throughout the Kodiak area and on the Alaska Peninsula in the Mainland Districts. The historical records confirm a mobile fleet concentrating wherever fish are found. By 1948, this fleet had standardized 200 fathom purse seines for cape fishing and was taking over 50% of the Kodiak sockeye catch - even while the traps were being fished. By 1950, almost half of the Kodiak sockeye harvest was no longer in the traditional sockeye areas of Red River and Karluk. Clearly, the Kodiak fleet had expanded to capitalize on sockeye fishing opportunities throughout the Kodiak Management Area.

Cook Inlet fish have always been a component of the Kodiak sockeye harvest. Tagging studies and trap records verify the Cook Inlet component. These tools are imprecise as to the exact Cook Inlet contribution. Nevertheless, the tagging studies and trap records suggest that the Cook Inlet component remained fairly constant throughout several decades. (See Figure 13)[12] In addition, the average weight of Kodiak sockeye has been declining. Consequently, it seems unlikely that Kodiak has increased its bycatch of Cook Inlet sockeye during this period in recent years.

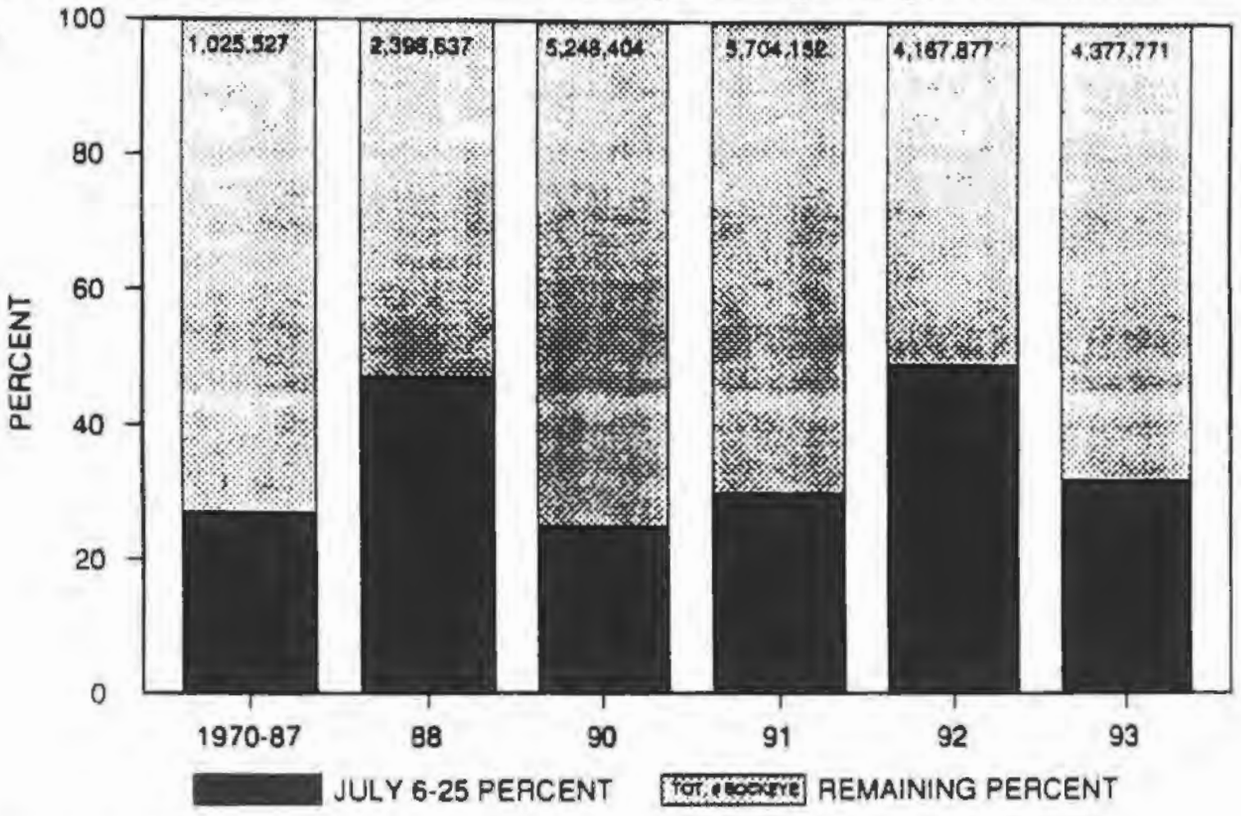
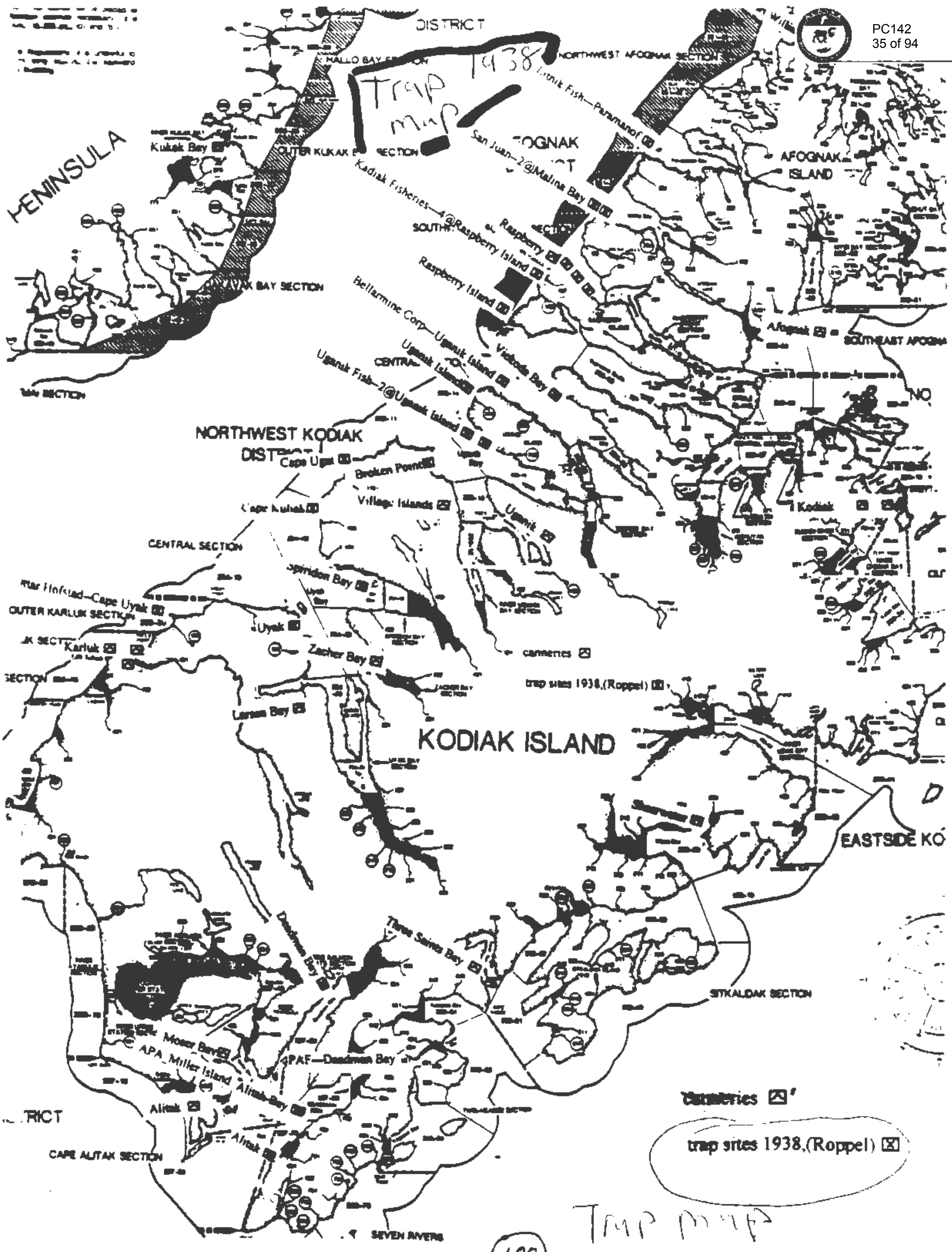


Figure 13. Percent of annual sockeye salmon harvest which occurs - July 6 through July 25, 1970-1993.

12 ADF&G RIR 4K94-7

Historical tagging studies further show that Cook Inlet fishermen enjoy the bycatch of non-local stocks. Both Kodiak sockeye and sockeye bound for Chignik and the Alaska Peninsula have been tagged in Cook Inlet.

Kodiak and Cook Inlet currently have healthy sockeye stocks which exceed historical averages. Kodiak's hundred plus years of Cook Inlet bycatch has not damaged their sockeye runs. This includes those years, prior to 1989, when Kodiak fishermen enjoyed their historical unlimited access to the North Shelikof and North Mainland sections as well as waters outside the three mile limit.


1938
Trap map
DISTRICT
NORTHWEST AFOGNAK SECTION
HALLO BAY SECTION
OUTER KUKAK BAY SECTION
Kukak Bay
PENINSULA
Paramanof
San Juan—2@Malina Bay
AFOGNAK ISLAND
Kadiak Fisheries—4@Raspberry Island
Raspberry
Raspberry Island
Afognak
SOUTHEAST AFOGNAK
Bellarmine Corp—Uganik Island
Viekoda Bay
Uganik Island
Uganik Fish—2@Uganik Island
NORTHWEST KODIAK DISTRICT
Cape Ugat
Broken Point
Village Islands
Cape Kuliak
CENTRAL SECTION
Uganik
Kodiak
Spiridon Bay
Uyak
OUTER KARLUK SECTION
Karluk
Zacher Bay
canneries
trap sites 1938,(Roppel)
Larsen Bay
KODIAK ISLAND
EASTSIDE KO
Three Saints Bay
SITKALIDAK SECTION
Moser Bay
APA_Miller Island
Alitak Bay
PAF—Deadman Bay
Alitak
CAPE ALITAK SECTION
SEVEN RIVERS
canneries
trap sites 1938,(Roppel)
TRAP MAP

HALIBUT BAY

- **Halibut Bay is one of the oldest fisheries on Kodiak Island.** Halibut Bay was fished extensively as early as 1900 and continued to be fished heavily through the 1960's to supply canneries at Karluk and Larsen Bay..

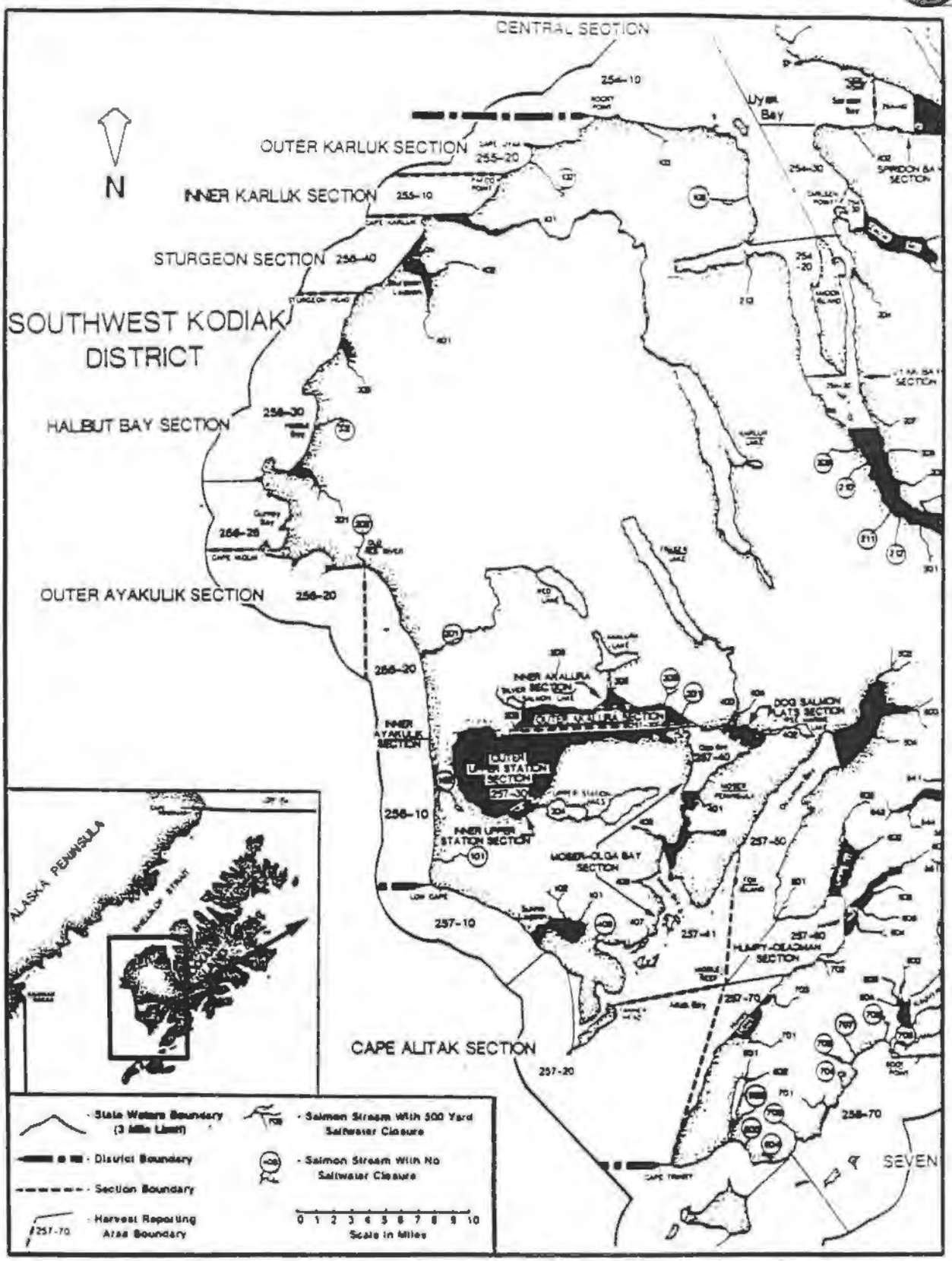
- **Halibut Bay is exclusively a "cape fishery."** Although there is a slight indentation in Kodiak's coast line and a lagoon behind the gravel bar, there actually isn't a "Bay" in the Halibut Bay section. This is a fishery on capes projecting out into the Shelikof Straits with names like "Tombstone rocks".

- **Halibut Bay is an essential Kodiak sockeye fishery**. Until 1970 Halibut Bay was managed as part of the Red River District. (Catch data limited to Halibut bay during this time period is not available.) Nevertheless, catch data from the Red River District shows that as late as 1968 over 286,000 sockeye, or 48% of the Kodiak catch, were captured in the area. From 1946 through 1969 sockeye catches in Halibut Bay exceeded 100,000 fish 6 times and often accounted for more than 25% of Kodiak's total catch.

- **Extensive fishing closures in Halibut Bay over the past 25 years have been implemented to rebuild local sockeye stocks, these closures substantially altered the "historical" Halibut Bay fishing pattern..** The Ayakulik river on the south and the Karluk river north of Halibut Bay experienced depressed sockeye runs from 1970 until 1990. The area was closed completely for 7 seasons and limited fishing of less than 150 hours occurred during 8 additional years.

- **The Halibut Bay fishery, even during the July 6 to July 25 time period, is primarily a local stock fishery**. The Barret/Vining report indicates that since 1983, non local sockeye catches in the Halibut Bay area have exceeded the catch of local sockeye twice. In one of those years, 1988, while 52% of the sockeye harvested were non-local stocks only 42% of the total catch was non-local. Illustrating the local fishery is a harvest of 300,000 pinks in 1991.

- **1992 is a single year anomaly in Halibut Bay.** Increased fishing time for local stocks was necessary because of strong Karluk and Ayakulik runs -- this seldom occurs in the same year. In addition, Cook Inlet enjoyed its second largest run in history. A larger percentage of the 1992 Cook Inlet run swam south around Kodiak Island and were available for harvest in Halibut Bay. This did not occur again in 1993 and 1994. ndeed, based on the past, it is improbable it will occur in the next 100 years of the Cook Inlet fishery.



Appendix A.4. Southwest Kodiak and Alitak Bay Districts of the Kodiak Management Area, 1993.

HALIBUT BAY--A HISTORICAL PERSPECTIVE

Halibut Bay Section has a long history as an important seine harvest area for both sockeye and pinks in July. This section is recognized in the management plan adopted by the Board ofFisheries as a harvest area for sockeye in July. The sockeye stocks for which this section is managed for are bound for the Ayakulik River and Karluk River which are located on either side of the section. Alitak-bound sockeye are a lesser component of the catch. Ayakulik sockeye predominate.

A sockeye cap is hardly appropriate for an area where Kodiak island sockeye are expected to be caught. It would make as much sense as closing part of the central Cook Inlet area when a certain number of sockeye were caught. Only in1992 did Cook Inlet sockeye out-number Kodiak sockeye, although the Kodiak component of the catch was still large. In 1988, another record Cook Inlet year, a portion of the catch in the Halibut Bay section was of Cook Inlet origin, but the majority were of Kodiak origin. Seiners have fished this section for generations and wonder why they should be restricted now, just because Cook Inlet is having record returns and occasionally some of them swim into this area.

Prior to 1968, the Halibut Bay section was part of the Ayakulik section. During the sixties there were high landings and good catches primarily on even years in this area (*See following graphs) because island sockeye stocks were severely depressed, but even year pink production was good. Considering the depressed state of Kodiak sockeye, catches were relatively good. In the seventies, pink stocks collapsed due to harsh winters and the Department started restricting fishing to rebuild sockeye stocks. For these reasons, as well as a series of strikes, landings and catches were low until after the mid-eighties.

With the successful rebuilding of Kodiak sockeye stocks, the Halibut Bay section is often one of the best sockeye harvesting areas for seiners as well as a good one for pinks. With the 1989 oil spill over-escapement damage, this area probably won't be open much for the next two years.

Access to this area is necessary for seiners to maintain their allocation balance with setnetters. From 1970-1979, setnetters grossed

37% of the average seine gross. From 1980-1988, average setnet gross increased to 50% of the seine gross. From 1988-1993, average setnet gross increased 52% of the seine gross (from Kodiak Mgt. Area1993/94 Commercial Salmon Fishery Information Pkt.).

Kodiak seiners gave up most of their opportunity to fish at the mouth of the Karluk River in the new management regime that rebuilt the runs and then was adopted by the Board of Fisheries in 1993, as the Westside Management Plan. In 1959, Moser and Olga Bay were closed to seining to rebuild severely depressed sockeye runs. In part of the area setnetting was still allowed.

By the early eighties, the natural runs there had rebuilt to record levels and an entirely new run was started. Seiners were not allowed back into Moser and Olga Bay to benefit from these events. As a result, setnetters average about 60% of the Alitak Bay sockeye catch. Seiners catch most of their 40% on Cape Alitak. There were many bitter battles between setnetters and seiners before the Advisory Committee on this conflict. To maintain equity in the sockeye catches, seiners need to be able to fish on all their traditional capes. Halibut Bay section provides some opportunity to harvest Alitak sockeye, although Ayakulik sockeye predominate.

Cook Inlet groups had plenty of time to put in proposals to restrict fishing in the Halibut Bay section after the record catches of 1990 and 1991. They didn't do it. It is reasonable to conclude that this issue is before the Board now only because of the massive and abnormal Cook Inlet run of 1992. The mixed stock fisheries regulation clearly states that the Board shouldn't take action based on changes of abundance or of only one year's duration.

HALIBUT BAY SECTION, JULY 6-25.

YEAR	LANDINGS	CHINOOK	SOCKEYE	COHO	PINK	CHUM
70	33	1	3,185	256	45,206	704
71	0	0	0	0	0	0
72	73	11	5,812	25	35,053	1,065
73	5	0	240	0	197	37
74	6	0	1,166	0	12,514	23
75	6	1	698	0	1,132	4
76	62	6	8,815	12	144,169	847
77	0	0	0	0	0	0
78	50	34	4,564	26	18,752	452
79	0	0	0	0	0	0
80	60	1	6,098	67	140,806	524
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	72	27	21,889	363	117,697	1,091
85	2	0	820	6	128	2
86	261	92	77,894	2,482	117,205	7,565
87	81	12	10,487	118	16,611	1,394
88	378	355	187,230	265	34,962	9,627
89	0	0	0	0	0	0
90	25	9	7,740	223	12,494	251
91	453	508	182,063	2,726	292,170	7,481
92	606	279	349,691	490	70,406	23,538
93	1	0	11	0	525	6
94	32	26	14,692	110	17,077	310

AYAKULIK, HALIBUT BAY, & STURGEON SECTIONS
JULY 6-25, 1970-94

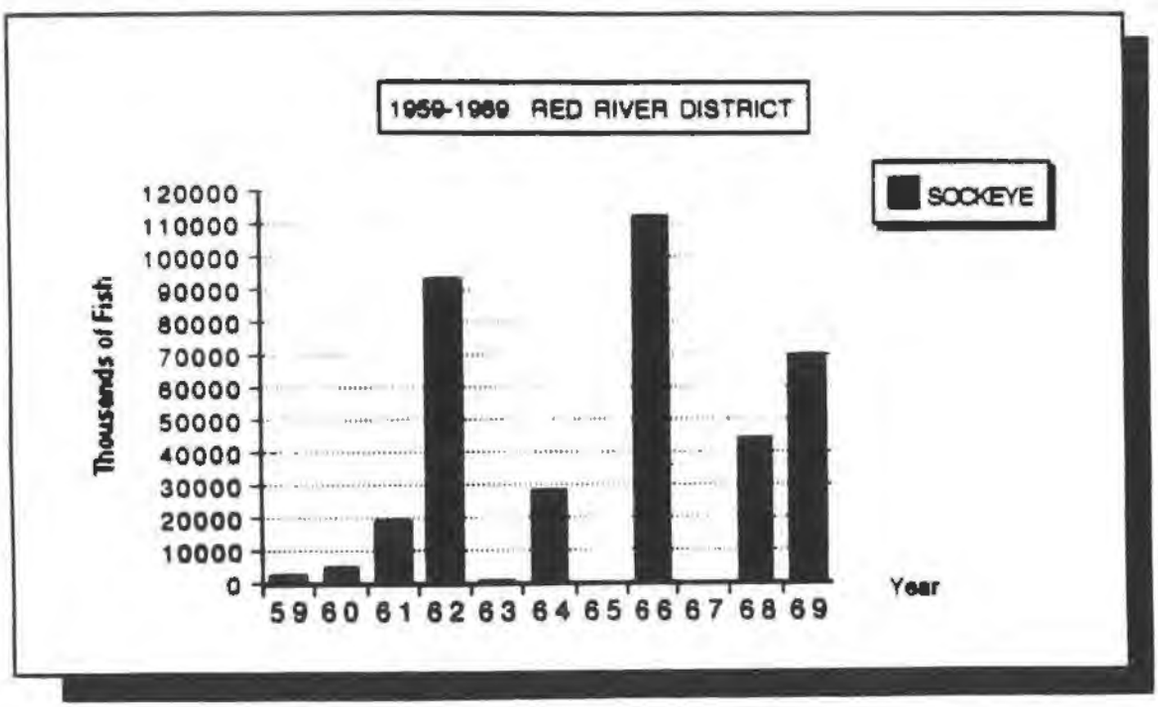
YEAR	LANDINGS	CHINOOK	SOCKEYE	COHO	PINK	CHUM
70	250	15	23,618	303	384,480	2,188
71	0	0	0	0	0	0
72	207	37	23,198	37	103,031	2,481
73	53	6	5,946	2	2,666	278
74	24	0	5,024	6	36,296	204
75	6	1	698	0	1,132	4
76	346	23	75,408	68	512,826	2,298
77	24	2	39,663	0	304	1
78	332	615	46,565	57	116,703	2,083
79	0	0	0	0	0	0
80	142	1	75,439	98	307,705	2,806
81	0	0	0	0	0	0
82	1	0	67	0	4,940	0
83	0	0	0	0	0	0
84	618	196	228,416	4,348	577,761	6,651
85	267	37	70,999	408	12,419	3,951
86	494	159	160,920	3,187	200,195	19,307
87	92	36	13,212	139	20,973	2,626
88	387	362	192,121	265	36,116	10,019
89	0	0	0	0	0	0
90	1,188	887	533,586	1,414	74,739	11,712
91	1,314	1,392	493,918	4,588	604,424	19,985
92	901	429	555,255	905	99,510	34,398
93	9	5	9,779	0	6,393	386
94	57	33	34,246	243	24,846	627

(101)

STAT AREA
Red River Dist 256-10 - 256-40
Halibut Bay · Sturgeon · Outer Ayakulik

1959 - 1969 July 6-25

YEAR	LANDINGS	KINGS	REDS	COHO	PINK	CHUM
1959	18	9	2643	16	2893	276
1960	112	6	5055	196	90864	3220
1961	48	4	19028	10	6741	390
1962	795	96	93657	450	1952882	9064
1963	8	0	510	8	1527	9
1964	491	74	28065	328	1131398	4281
1965	0	0	0	0	0	0
1966	193	25	112436	2656	264639	1502
1967	0	0	0	0	0	0
1968	186	26	43789	506	364603	4511
1969	1	0	69780	0	13	0



Source: Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

HISTORIC SOCKEYE CATCHES

1978 - 1994 JULY 6-25

Used to calculate a trigger for zone closures using compromise time period

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1978	2853	4564	2419
1979	19437	CLOSED	1
1980	STRIKE	STRIKE	STRIKE
1981	STRIKE	CLOSED	STRIKE
1982	STRIKE	STRIKE	STRIKE
1983	3618	CLOSED	0
1984	1851	21889	55
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
1988	49165	187230	27936
1989	CLOSED	CLOSED	CLOSED
1990	54871	CLOSED	23276
1991	174666	182063	1570
1992	429642	349691	98051
1993	114681	CLOSED	18291
1994	36117	14692	37943
TOTAL SOCKEYE	**912014**	**848510**	**227475**
TOTAL YEARS	13	8	13
AVERAGE	**70155**	**106064**	**17498**

(109)

Source Kodiak Area Management Reports
by Kodiak Salmon Work Group

SOCKEYE CATCHES

1978 - 1987 JULY 6-25

Corrected averages - strikes and closed years

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1978	2853	4564	2419
1979	19437	CLOSED	1
1980	STRIKE	STRIKE	STRIKE
1981	STRIKE	CLOSED & STRIKE	STRIKE
1982	STRIKE	STRIKE	STRIKE
1983	3618	CLOSED	0
1984	1851	21889	55
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
TOTAL SOCKEYE CATCH	**52872**	**114834**	**20408**
TOTAL YEARS	7	4	7
AVERAGE	**7553**	**28708**	**2915**
RUN INCREASES	**7553 X 3.2= 24170**	**28708 X 3.2 = 91867**	**29408 X 3.2 = 9329**

Catch information numbers are from most recent ADF & G tables
Dec 1994 Kodiak Salmon Work Group

HISTORIC SOCKEYE CATCHES

1985 - 1994 July 6-25

Used to calculate as a proposed trigger for zone closures

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
1988	49165	187230	27936
1989	CLOSED	CLOSED	CLOSED
1990	54871	CLOSED	23276
1991	174666	182063	1570
1992	429642	349691	98051
1993	114681	CLOSED	18291
1994	36117	14692	37943
TOTAL SOCKEYE	**884255**	**822057**	**226000**
TOTAL YEARS	9	6	9
AVERAGE	**98250**	**137009**	**25000**

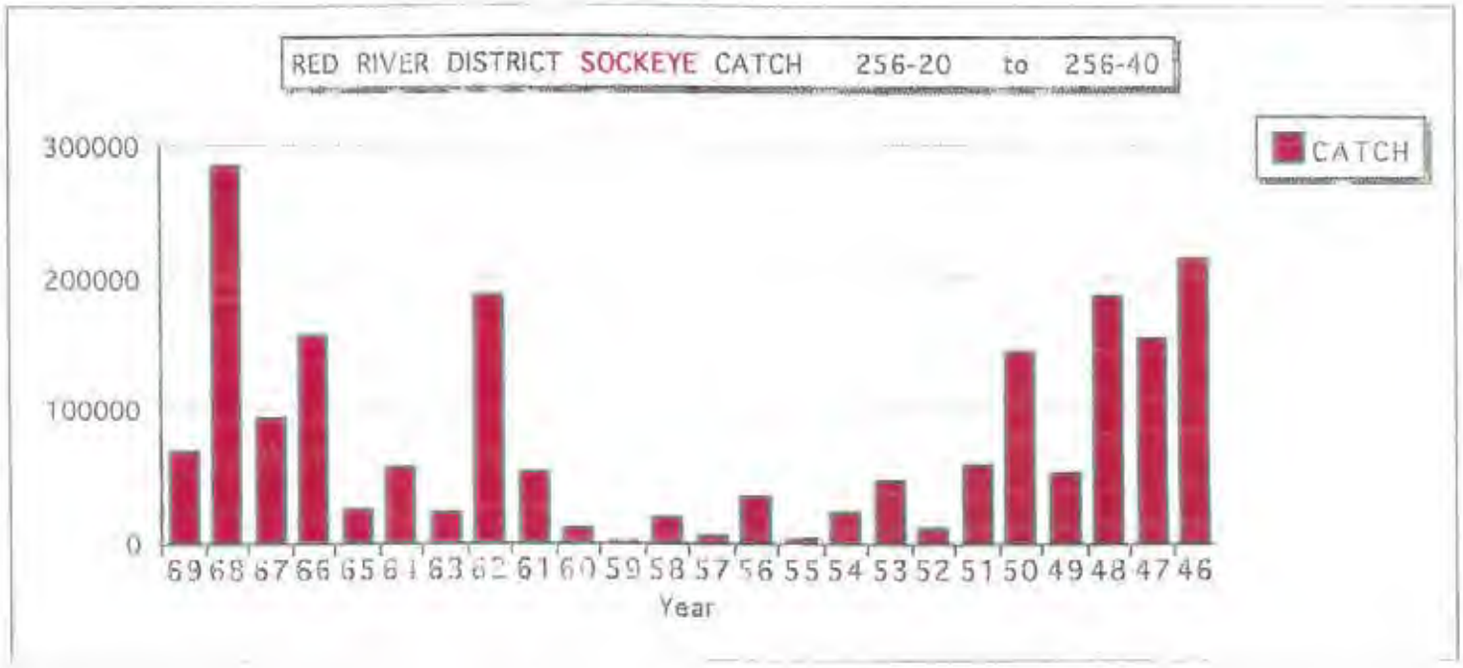
Source Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

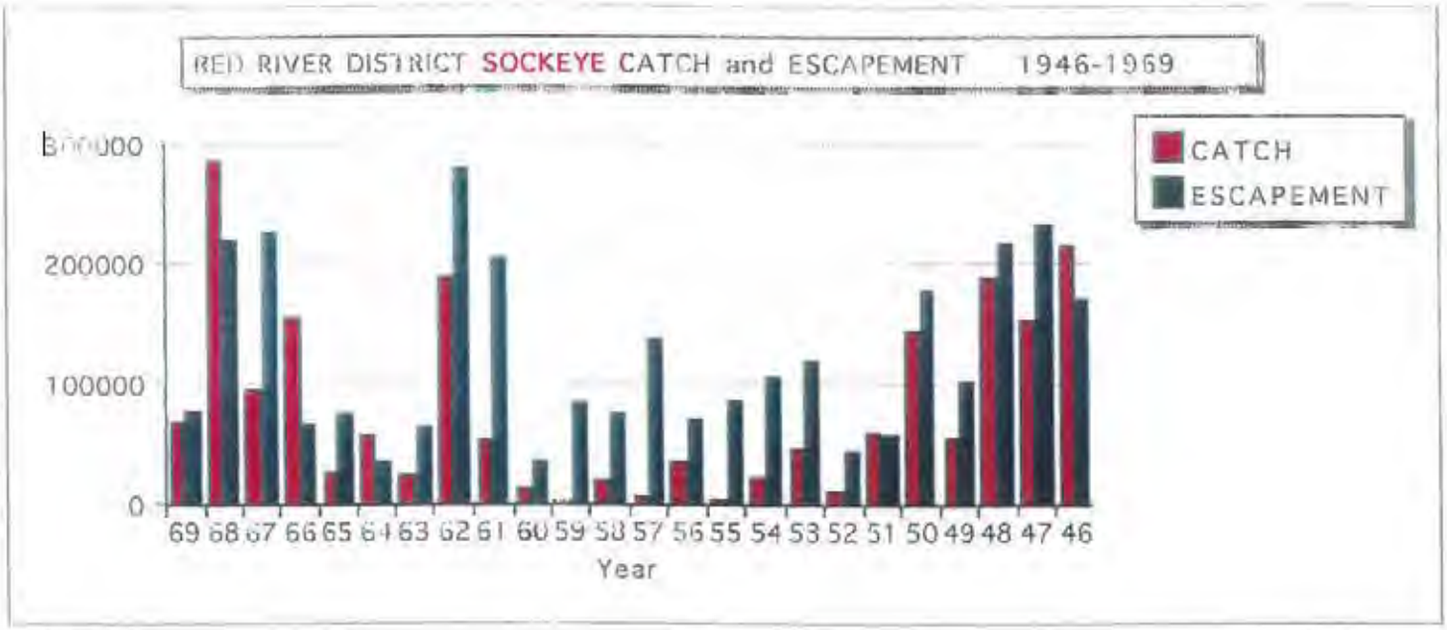
TOTAL RUN

RED RIVER DISTRICT SOCKEYE CATCH

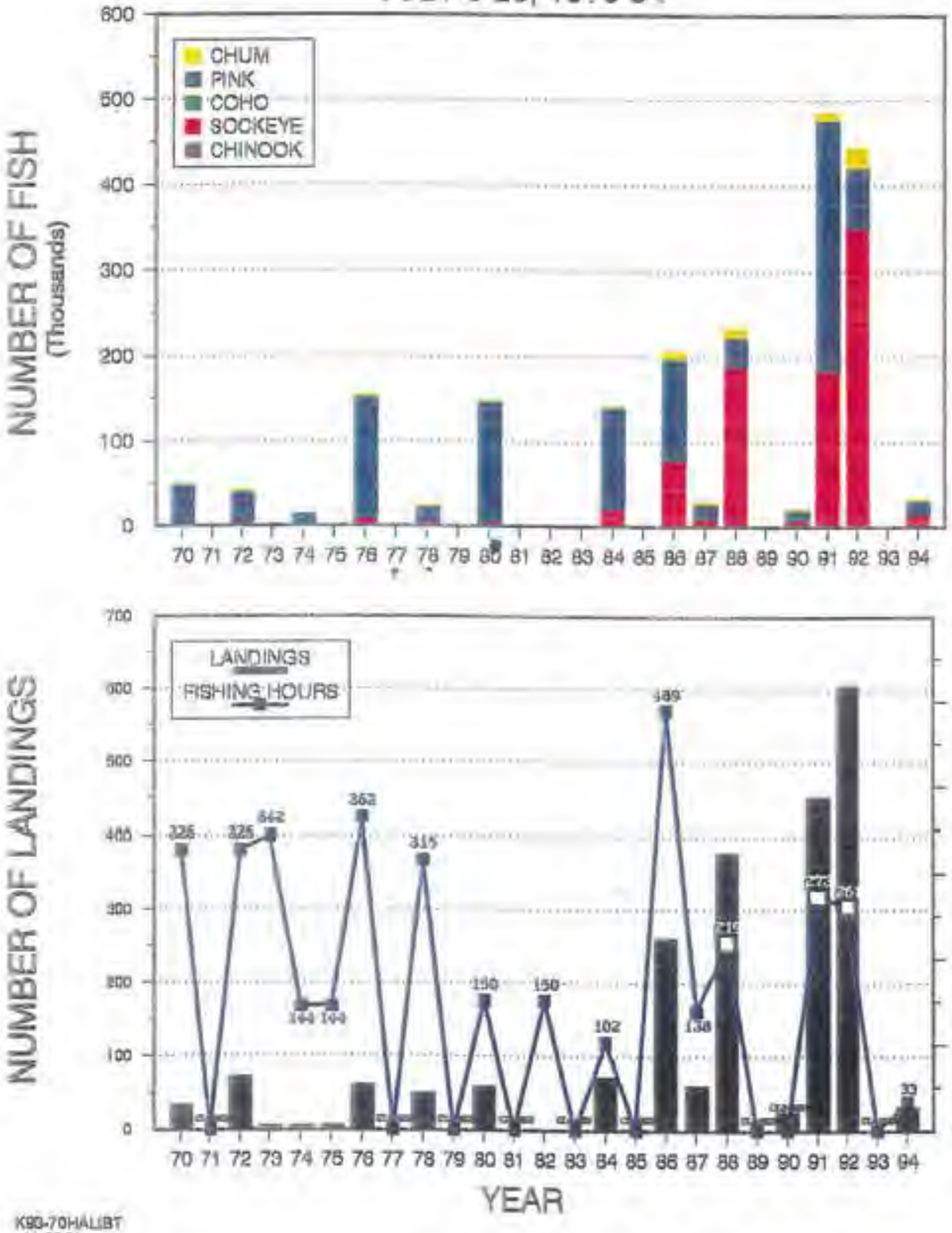
1946-1969

Stat. Areas
256-20 Outer Ayakulik
256-30 Halibut Bay
256-40 Sturgeon



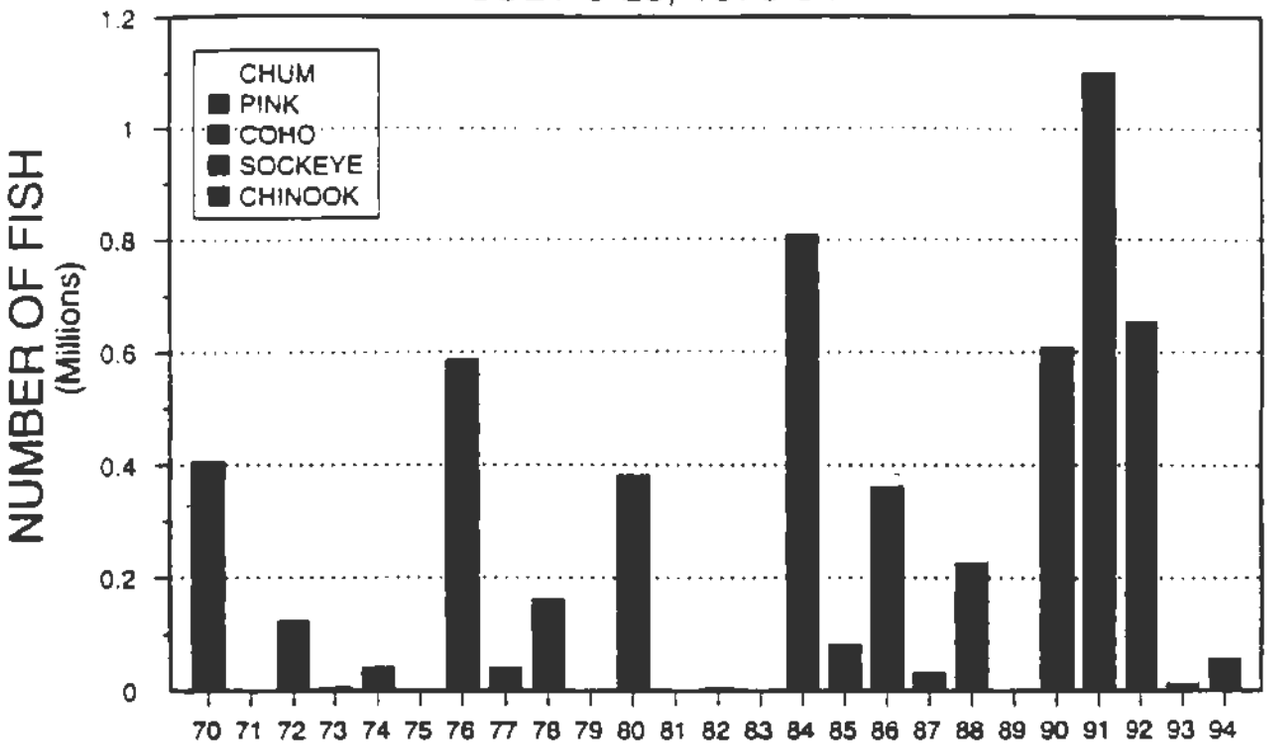


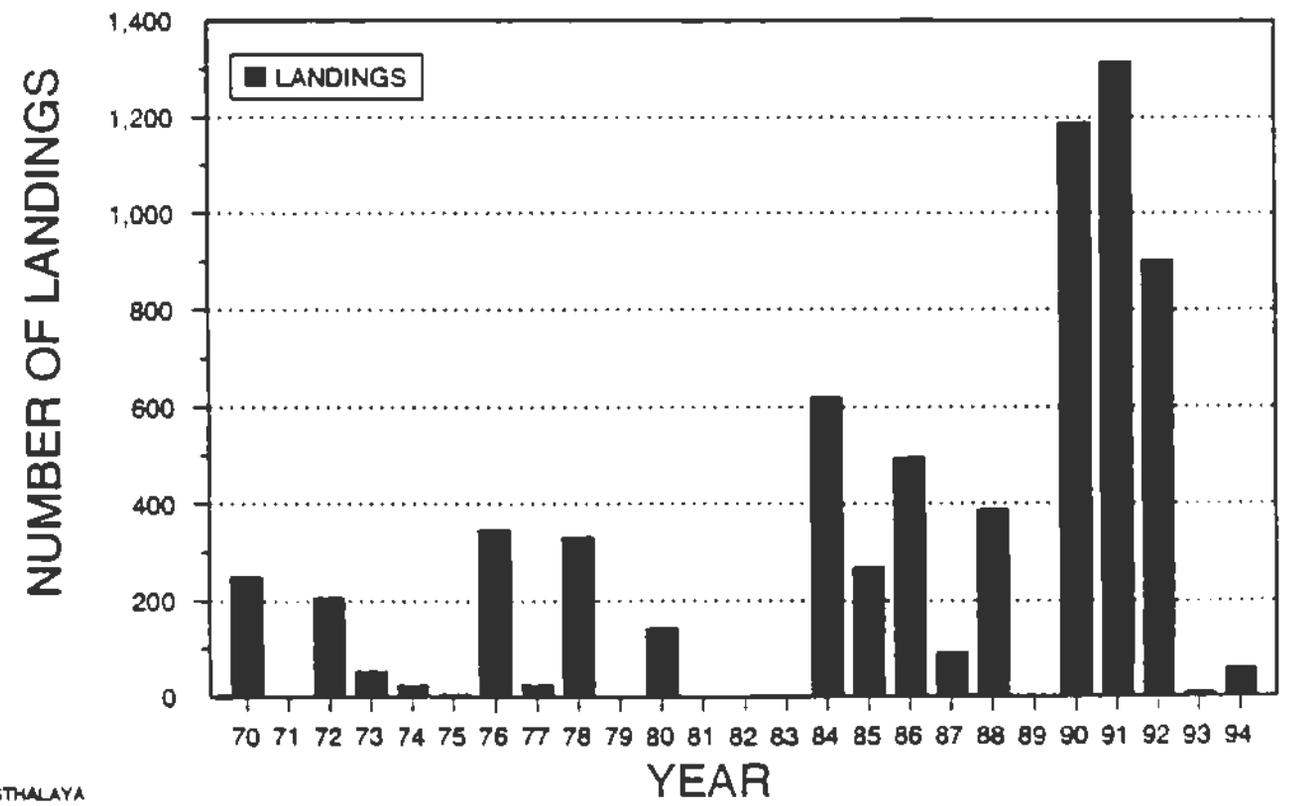
KODIAK MANAGEMENT AREA
HALIBUT BAY SECTION
JULY 6-25, 1970-94



K93-70HALIBT
11-30-94

KODIAK MANAGEMENT AREA
AYAKULIK, HALIBUT BAY, & STURGEON SECTIONS
JULY 6-25, 1970-94





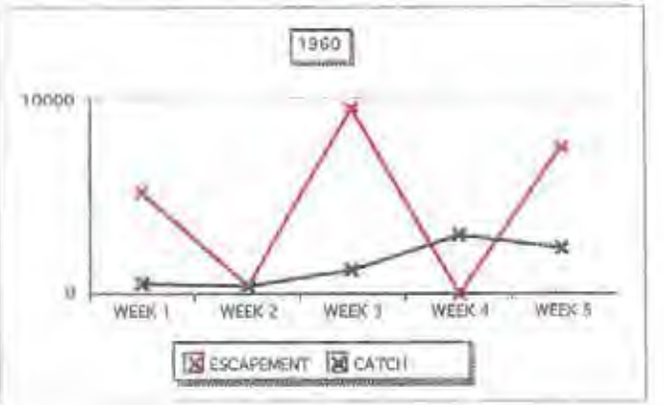
JL-STHALAYA
1/27/95

RED RIVER CATCH - ESCAPEMENT SOCKEYE
By week June 30 - Aug. 2

Stat Area Halibut Bay 256-30
Sturgeon 256-40
Outer Ayakulik 256-20

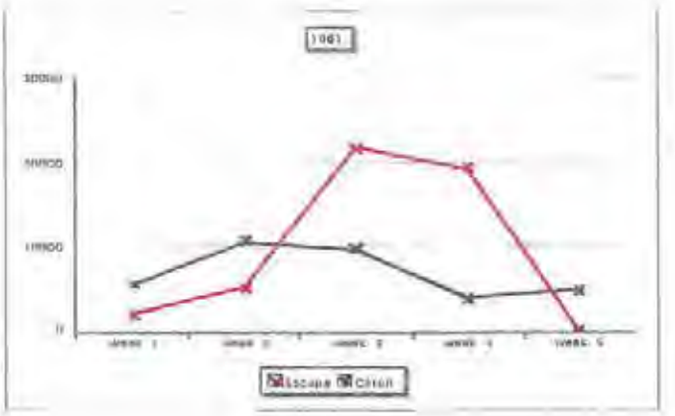
1960

WEEK	ESCAPEMENT	CATCH
June 26-July 2	5167	528
July 3 - 9	400	341
July 10 -16	9539	1194
July 17- 23	43	2942
July 24-30	7472	2313



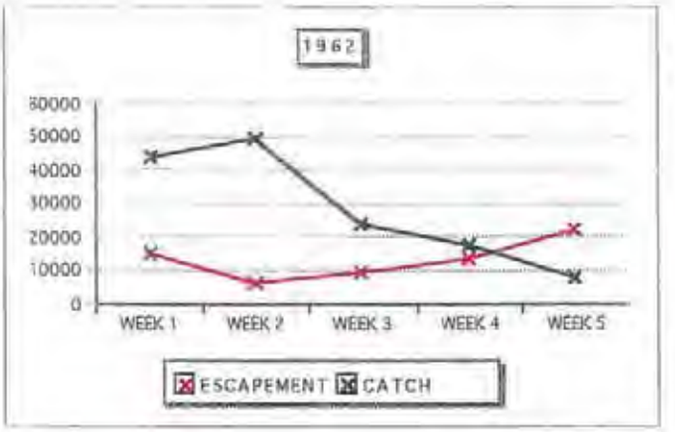
1961

DATE	ESCAPEMENT	CATCH
July 1-7	2043	5603
July 8-14	5127	10737
July 15-21	21725	9717
July 22-28	19413	3916
July 29-Aug 4	319	4807



1962

WEEK	ESCAPEMENT	CATCH
July 1-7	14823	44672
July 8-14	6637	50025
July 15-21	9326	23893
July 22-28	13422	17792
July 29-Aug 4	22847	7554



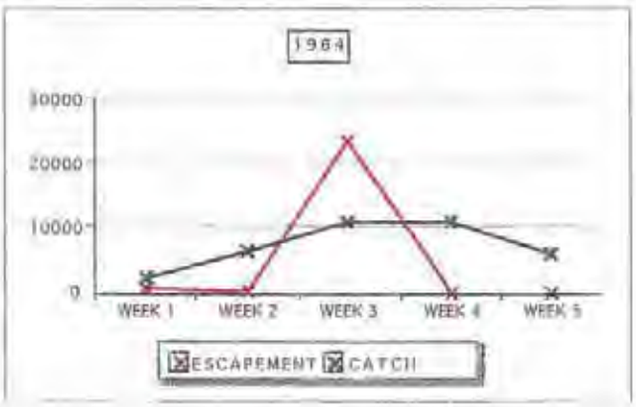
Source Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

RED RIVER CATCH - ESCAPEMENT SOCKEYE

By week June 30 - Aug. 2
Stat Area Halibut Bay 256-30 Sturgeon 256-40
Outer Ayakulik 256-20

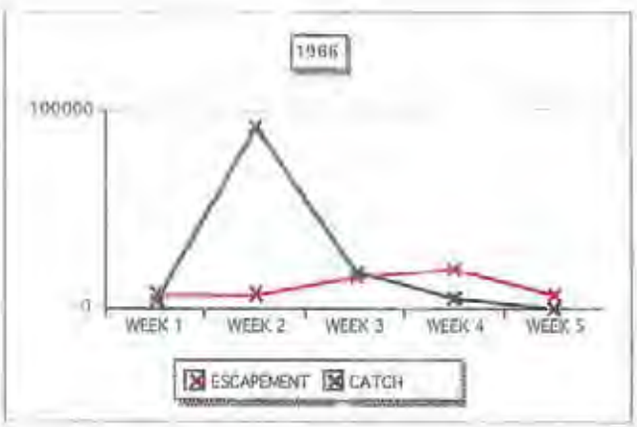
1964

YEAR	ESCAPEMENT	CATCH
June 29-July5	456	2461
July 6-12	144	6516
July 13-19	23470	11183
July 20-26	76	10947
July 27-2	6	6065



1966

WEEK	ESCAPEMENT	CATCH
July 3-9	7258	4514
July 10-16	7633	90597
July 17-23	15187	18749
July 24-30	20187	5012
July 31-Aug 6	6233	176



1968

YEAR	ESCAPEMENT	CATCH
June 30-July 6	63761	11
July 7-13	7210	0
July 14-20	19571	30803
July 21-27	11533	17120
July 28-Aug 3	4432	25045

1963 Low # Sockeyes Island-wide
1965 Strike: Early June-July 26
1967 Closed
1969 Closed

Source Kodiak Area Management Reports
by Kodiak Salmon Work Group

Appendix D.6. Estimated average weight of local (Kodiak) and UCI sockeye salmon and corresponding seine harvest stock composition estimates, July 6-25, based on average weight difference, for the Sturgeon and Halibut Bay Sections (statistical areas 25625-25640), 1983-1994, except 1989.

Year	Estimated Average Weight (pounds)			Estimated Non-local Catch Proportion(%)	Estimated Stock Composition (Number of Fish)			Catch Total
	UCI	Local	Difference		Non-local	Local	Unassessed	
1983	6.48	NA[a]	NA[a]	NA[a]	0	0	0	0
1984	5.95	5.66	0.29	Unassessed	0	0	21,889	21,889
1985	5.66	4.53	1.13	52%	427	393	0	820
1986	5.77	6.15	-0.38	Unassessed	0	0	77,894	77,894
1987	6.74	5.87	0.86	11%	1,157	9,330	0	10,487
1988	6.64	4.93	1.71	52%	98,093	89,137	0	187,230
1990	6.44	5.34	1.10	-5%	0	7,740	0	7,740
1991	5.65	5.03	0.61	44%	80,297	101,766	0	182,063
1992	6.60	4.93	1.67	77%	267,689	82,002	0	349,691
1993	5.89	4.89	1.00	404%	11	0	0	11
1994	5.69	5.01	0.68	-12%	0	14,692	0	14,692

[a] No sockeye harvested for that year.

(122)

SITKALIDAK

The Outer Sitkalidak fishery predates commercial fishery records. Many of the people in the villages Old Harbor, Akhiok, and Kaguyak remember the old traditions of fishing on the outside of Sitkalidak Island for mid-summer sockeye.

- **The Outer Sitkalidak area has always been a cape fishery with limited near shore harvest opportunities.** Most of the area is rocky exposed cliffs with reefs off shore. The one small indentation, Ocean Bay, is completely exposed to the North Pacific--- uninterrupted to S.E. Alaska.

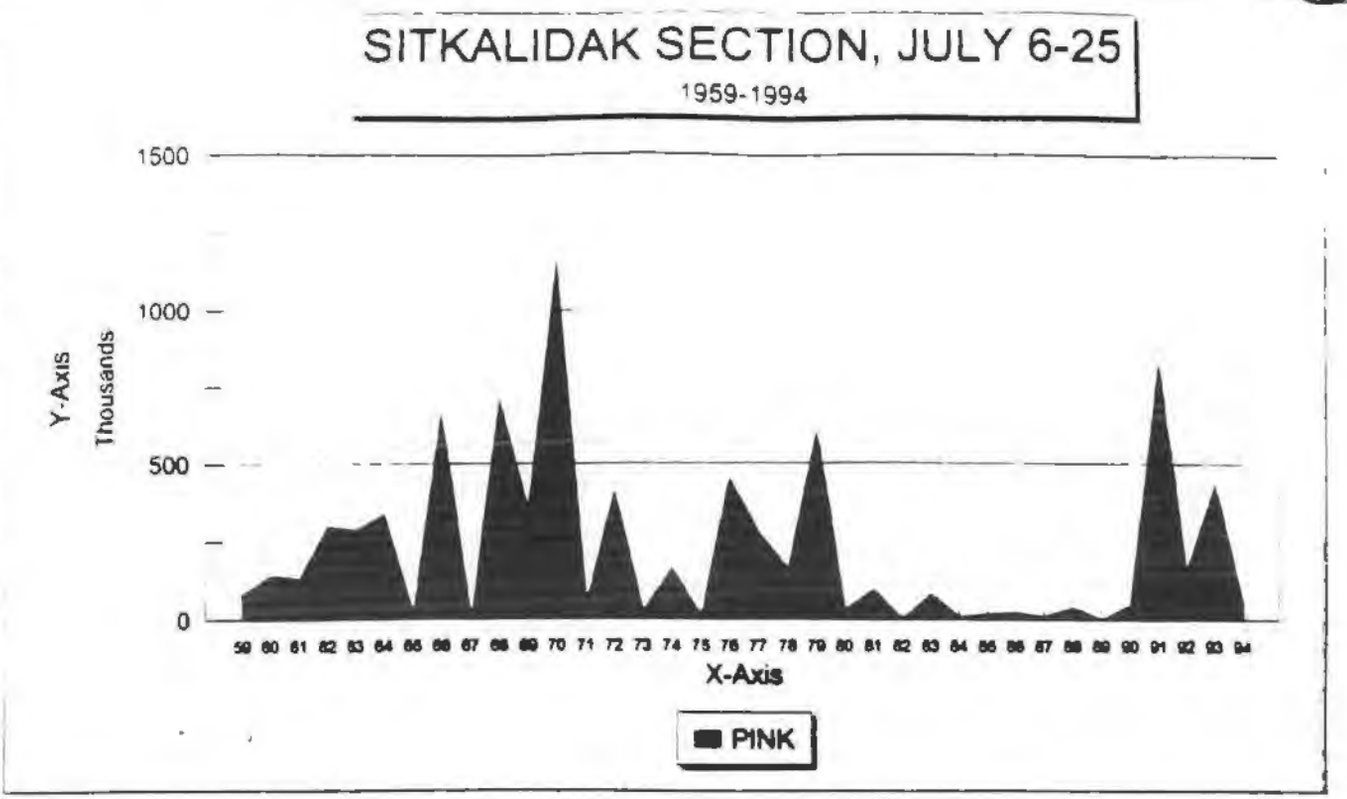
- **Catch date for the Sitkalidak area from 1959 through 1979 establishes it as one of Kodiak's most important fisheries.** In 15 of the 20 years catches of local pinks, chums, coho and kings exceeded 100,000 fish during the July 6th to 25th time period. In 1970, 1.2 million "non-sockeye" were caught in the area.

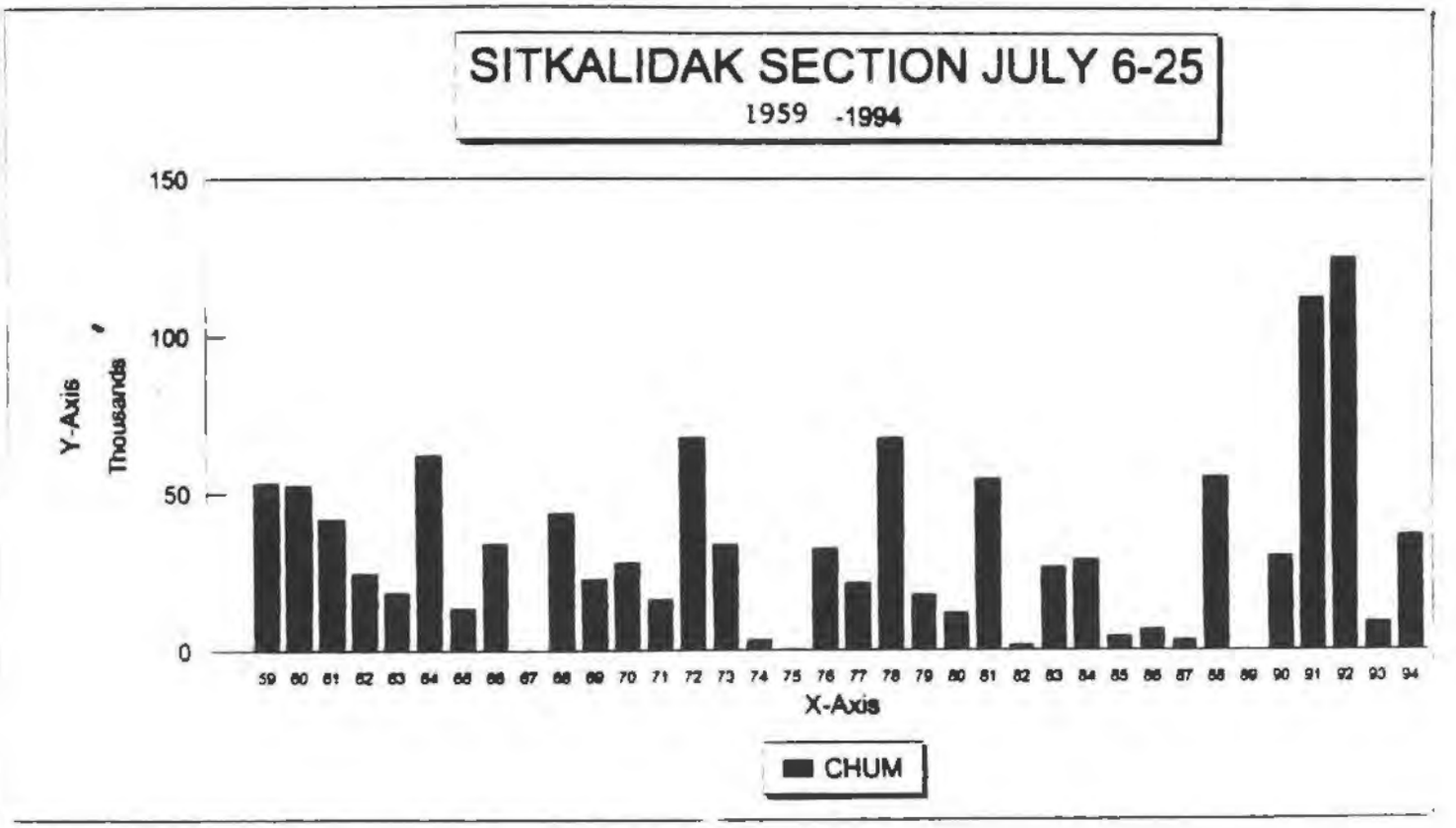
- **The Outer Sitkalidak fishery is particularly important to the village of Old Harbor.** The village is less than 10 miles from this area and the village fleet, currently about 20 permit holders, constantly fishes their "backyard". Old Harbor's economy is fishing. Forcing the local fleet out of the Outer Sitkalidak area will result in the lost use of fishing knowledge regarding tides and currents that made the Old Harbor fleet competitive in the area. Learning to be competitive in other areas is not easy. Old Harbor will suffer a disportionate economic loss.

The Outer Sitkalidak fishery is primarily a local stocks fishery. From 1970 through 1994 pink salmon catches, (not counting chums, coho and kings), have exceed sockeye catches in all but one year, 1992. In 1991 -- a year Cook Inlet contends Kodiak was targeting Cook Inlet sockeye -- over 1 million local fish were captured in the area during the July 6th to July 25th time period!

- **Outer Sitkalidak is not an expanding fishery, effort in the area reflects abundance of local stocks.** Even in years of relatively low salmon abundance, in 1983 for example, 55 vessels made 254 landings. This was not exceeded until the 1,000,000+ local stock catch in 1991 when 109 vessels made 409 landings. In 1993, with a local stock catch in excess of 500,000 fish, 106 vessels made 439 landings. In 1994, with limited local stocks, 66 vessels made 181 landings. Fishing time in the area has remained almost constant since 1986.

- **1992 is a single year anomaly in Outer Sitkalidak.** The harvest of over 300,000 local pinks, chums, coho and kings, as well as 85,000 local sockeye, justified the normal fishing openings in the area. Cook Inlet enjoyed the second largest salmon return in the history of their fishery. Consequently, a larger percentage of this run turned south along Kodiak Island and became available to Kodiak fishermen. In addition, the North Shelikof plan closed vast fishing areas in the Shelikof Strait and much of the fleet in that area moved to the Outer Sitkalidak section. These factors did not occur in 1993 and 1994.


SITKALIDAK SECTION, JULY 6-25
1959-1994
1500
1000
500
0
Y-Axis
Thousands
59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94
X-Axis
PINK


SITKALIDAK SECTION JULY 6-25
1959 -1994
150
100
50
0
Y-Axis
Thousands
59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94
X-Axis
CHUM

A	A	B	C	D	E	F
1		SITKALIDAK SECTION JULY 6-25				
2		1970-1994				
3	YEAR	PINK		YEAR	CHUM	
4	59	79,882		59	53,190	
5	60	139,012		60	52,513	
6	61	128,926		61	41,549	
7	62	297,682		62	24,328	
8	63	285,472		63	18,317	
9	64	337,076		64	61,999	
10	65	21,690		65	13,407	
11	66	659,330		66	33,859	
12	67	0		67	0	
13	68	708,497		68	43,633	
14	69	348,865		69	22,497	
15	70	1,156,913		70	27,720	
16	71	54,480		71	16,231	
17	72	410,028		72	67,475	
18	73	27,312		73	33,483	
19	74	160,692		74	3,208	
20	75	9,318		75	164	
21	76	448,283		76	32,140	
22	77	274,990		77	21,193	
23	78	158,882		78	67,243	
24	79	601,604		79	17,522	
25	80	32,594		80	11,865	
26	81	94,353		81	54,178	
27	82	449		82	1,525	
28	83	80,420		83	26,175	
29	84	7,970		84	28,640	
30	85	18,604		85	4,338	
31	86	20,969		86	6,571	
32	87	9,775		87	3,212	
33	88	37,811		88	55,139	
34	89	0		89	0	
35	90	45,860		90	30,015	
36	91	830,884		91	112,466	
37	92	151,741		92	125,274	
38	93	432,587		93	8,806	
39	94	53,465		94	36,774	

SITKALIDAK SECTION, JULY 6-25.

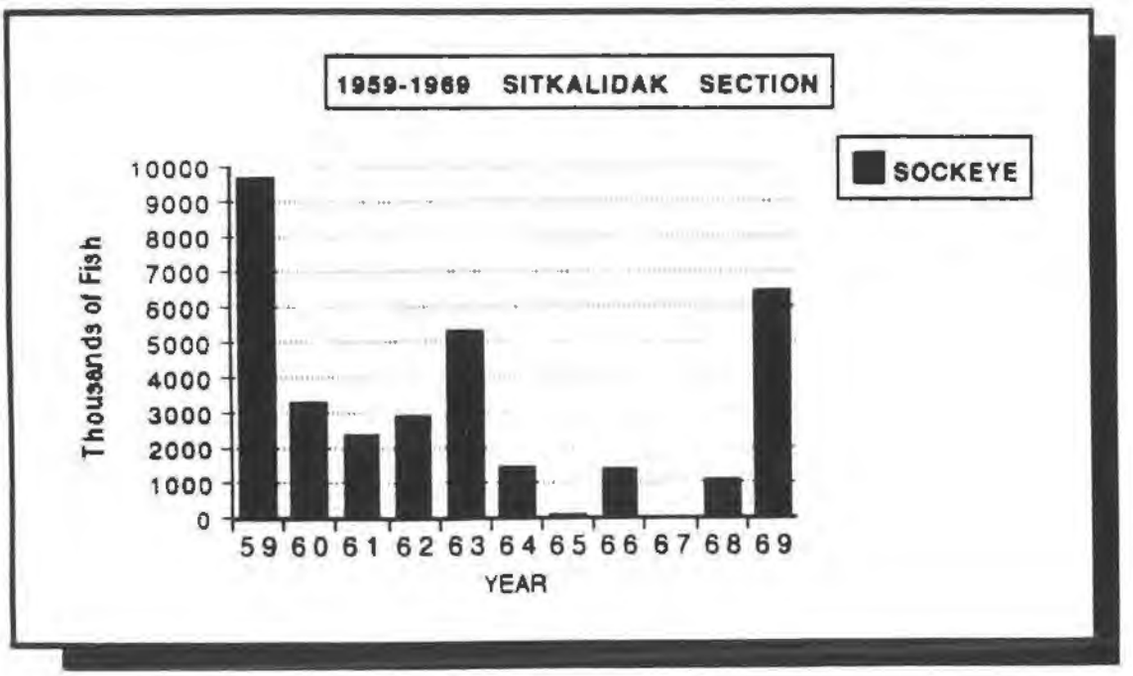
YEAR	LANDINGS	CHINOOK	SOCKEYE	COHO	PINK	CHUM
70	641	31	6,883	404	1,156,913	27,720
71	473	209	11,527	140	54,480	16,231
72	730	99	3,742	660	410,028	67,475
73	326	253	1,415	199	27,312	33,483
74	157	65	1,450	36	160,892	3,208
75	32	1	420	1	9,318	164
76	427	59	6,520	625	448,283	32,140
77	215	8	1,241	74	274,990	21,931
78	398	93	2,853	50	158,882	67,243
79	601	181	19,437	2,689	601,604	17,522
80	44	5	771	10	32,594	11,865
81	195	20	3,460	639	94,353	54,178
82	3	2	718	105	449	1,525
83	254	56	3,618	528	80,420	26,175
84	82	15	1,851	39	7,970	28,641
85	82	43	7,711	256	18,604	4,338
86	65	24	11,643	269	20,969	6,571
87	52	83	5,759	286	9,775	3,212
88	188	196	49,165	5,816	37,811	55,139
89	0	0	0	0	0	0
90	231	1,048	54,871	13,980	45,860	30,015
91	486	2,535	174,666	30,406	830,884	112,466
92	526	812	429,642	27,456	151,741	125,274
93	439	4,149	114,681	29,631	432,587	8,806
94	181	363	36,117	11,656	53,465	36,774

(128)

STAT AREA
258-10 - 258-50
Sitkalidak Section

1959 - 1969 July 6-25

YEAR	LANDINGS	KINGS	REDS	COHO	PINK	CHUM
1959	570	102	**9697**	684	79882	53190
1960	364	49	**3298**	1344	139012	52513
1961	349	45	**2392**	762	128926	41549
1962	298	17	**2897**	1017	297682	24328
1963	425	28	**5285**	1671	285472	18317
1964	311	142	**1490**	2240	337076	61999
1965	35	8	**85**	420	21690	13407
1966	361	16	**1369**	903	659330	33859
1967	0	0	**0**	0	0	0
1968	344	67	**1080**	887	708497	43633
1969	626	103	**6472**	1090	348865	22497



Source: Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

HISTORIC SOCKEYE CATCHES

1978 - 1994 JULY 6-25

Used to calculate a trigger for zone closures using compromise time period

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1978	2853	4564	2419
1979	19437	CLOSED	1
1980	STRIKE	STRIKE	STRIKE
1981	STRIKE	CLOSED	STRIKE
1982	STRIKE	STRIKE	STRIKE
1983	3618	CLOSED	0
1984	1851	21889	55
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
1988	49165	187230	27936
1989	CLOSED	CLOSED	CLOSED
1990	54871	CLOSED	23276
1991	174666	182063	1570
1992	429642	349691	98051
1993	114681	CLOSED	18291
1994	36117	14692	37943
TOTAL SOCKEYE	912014	848510	227475
TOTAL YEARS	13	8	13
AVERAGE	70155	106064	17498

(130)

Source Kodiak Area Management Reports
by Kodiak Salmon Work Group

SOCKEYE CATCHES

1978 - 1987 JULY 6-25

Corrected averages - strikes and closed years

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1978	2853	4564	2419
1979	19437	CLOSED	1
1980	STRIKE	STRIKE	STRIKE
1981	STRIKE	CLOSED & STRIKE	STRIKE
1982	STRIKE	STRIKE	STRIKE
1983	3618	CLOSED	0
1984	1851	21889	55
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
TOTAL SOCKEYE CATCH	52872	114834	20408
TOTAL YEARS	7	4	7
AVERAGE	7553	28708	2915
RUN INCREASES	7553 X 3.2= 24170	28708 X 3.2 = 91867	29408 X 3.2 = 9329

(131)

Catch information numbers are from most recent ADF & G tables
Dec. 1994 Kodiak Salmon Work Group

HISTORIC SOCKEYE CATCHES

1985 - 1994 July 6-25

Used to calculate as a proposed trigger for zone closures

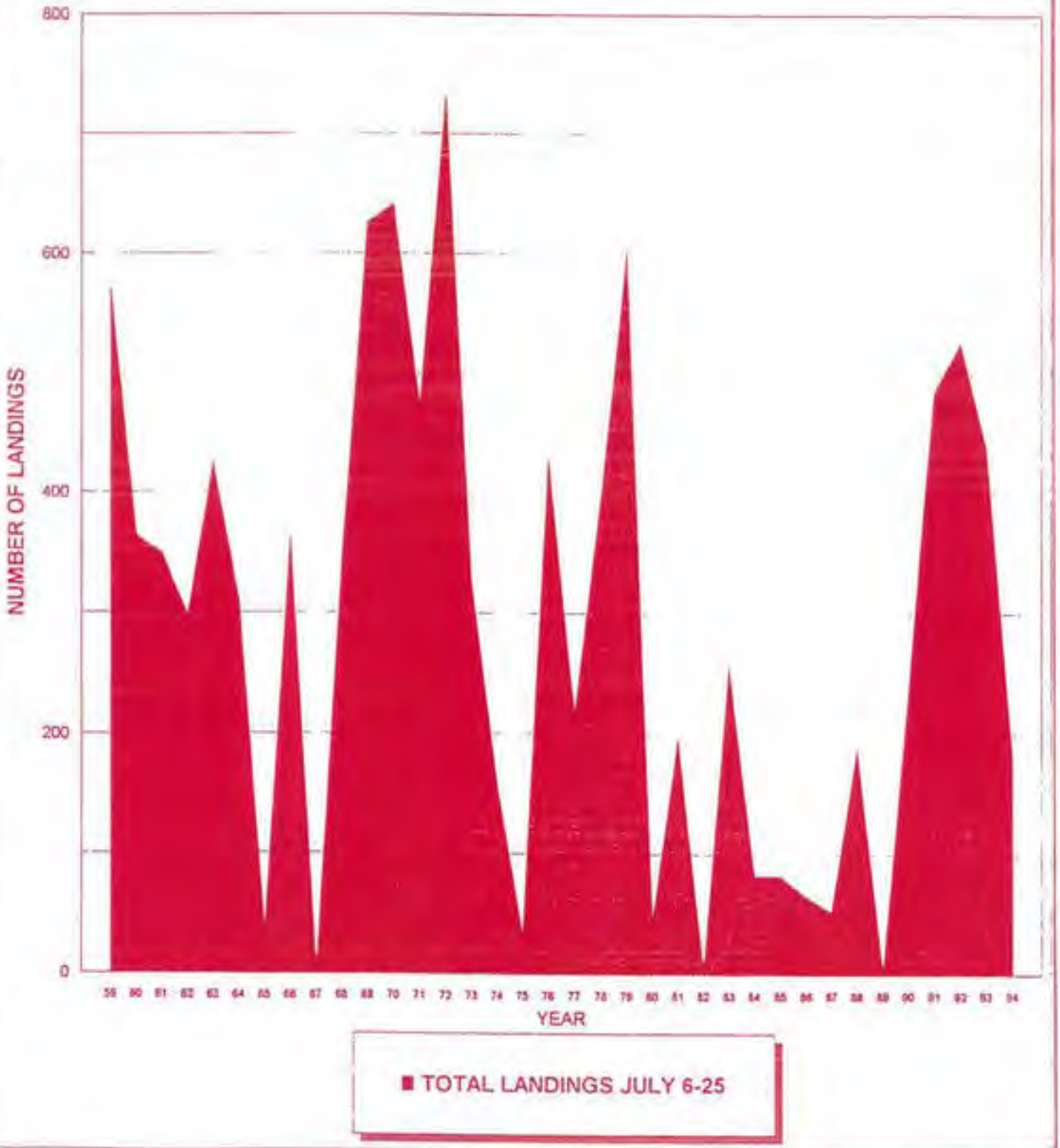
YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
1988	49165	187230	27936
1989	CLOSED	CLOSED	CLOSED
1990	54871	CLOSED	23276
1991	174666	182063	1570
1992	429642	349691	98051
1993	114681	CLOSED	18291
1994	36117	14692	37943
TOTAL SOCKEYE	**884255**	**822057**	**226000**
TOTAL YEARS	9	6	9
AVERAGE	**98250**	**137009**	**25000**

(182)

Source Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

Sitkalidak Section 1959-1994

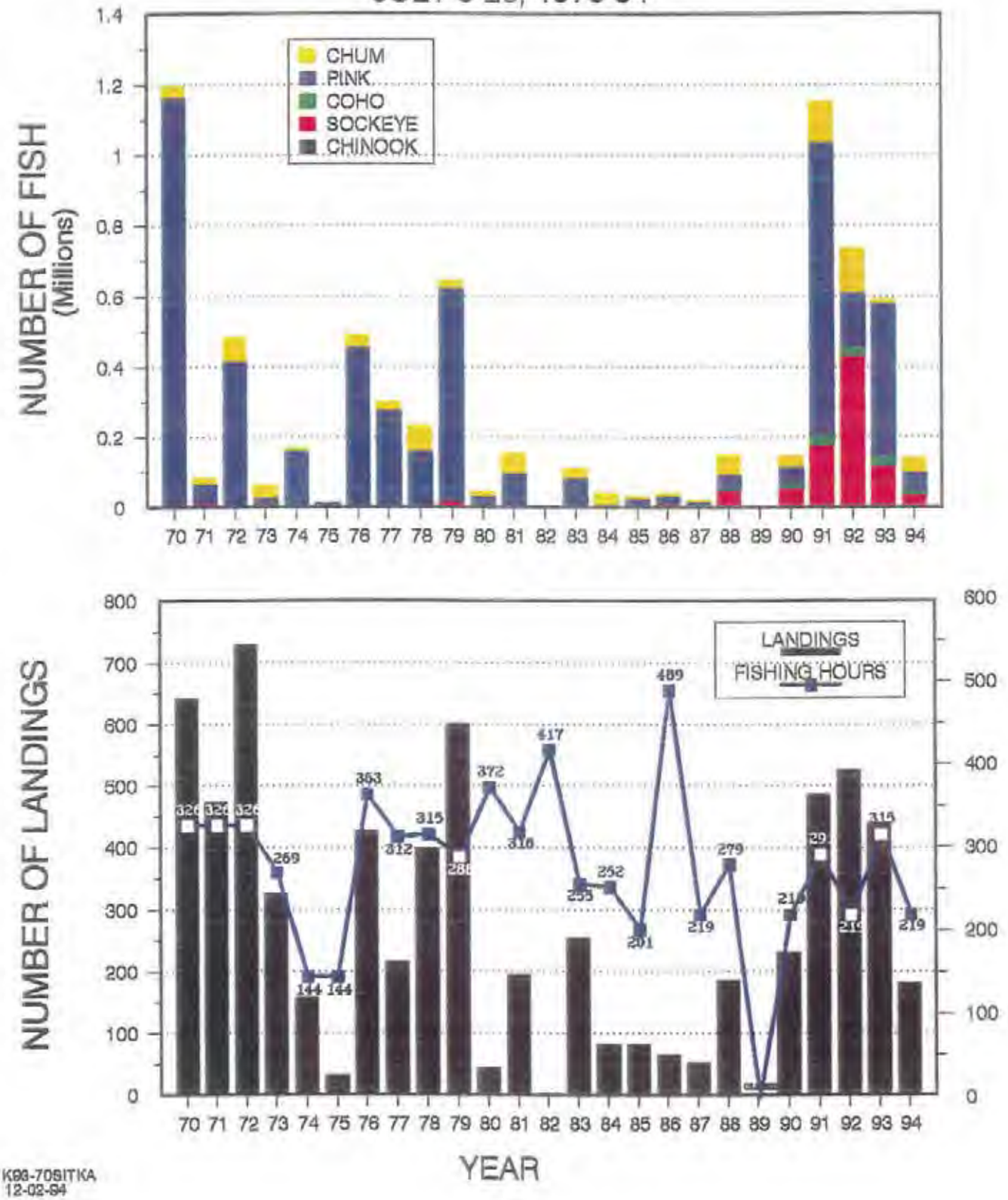
Landings July 6-25



Source by ADF&G 12-02-94 and K.A.Management Reports U. of W.

Kodiak Salmon Work Group

KODIAK MANAGEMENT AREA
SITKALIDAK SECTION
JULY 6-25, 1970-94



K93-70SITKA
12-02-94

KATMAI\ALINCHAK

- **The Katmai\Alinchak fishery developed over 30 years ago during the late 1950's.** The area was fished prior to this, for example between 1909 and 1914 between 33,000 and 84,000 sockeye were annually captured in Katlia Bay, but really didn't have a focused effort until Kodiak's sockeye stocks begin to decline.

- **The Katmai\Alinchak fishery is a remote cape fishery.** Most of the fishery is at the northern end of the management section at Cape Ilktugitak or at the southern end at Cape Kekurnoi. There are some indentations in the coast line at Katmai Bay and Alinchak Bay, however, all of this area is shallow with extensive mud flats, shoals and reefs. It will not accommodate a purse seine.

- **Katmai\Alinchak is a local stock fishery.** In 1962 almost 300,00 local pinks and chums were harvested and in 1964 over 200,000 local "non-sockeye" were captured. Both of these years had over 90 landings. Pink and chum harvests in the area are sporadic because of the short shallow streams which scower easily. Note: fishing time in the area has remained almost constant since 1983.

- **A small portion of the Kodiak fleet is "resident" on the mainland.** During the 1960's and 1970's, these fishermen stayed over in the mainland districts and learned how and where to fish. Although they can fish elsewhere within the Kodiak Management Area, they have made mainland their "niche" for earning a living. Additional closures on the mainland will eliminate their fishery.

- **Catch data during the 1970's and 1980's does not accurately reflect the actual effort in the area.** In many of these years Kodiak processors didn't provide tenders to the mainland. Fishermen either delivered their fish to tenders anchored in more protected areas or ran their fish across to Kodiak Island. In either case, the fish were reported as being caught where they were delivered.

- **The North Shelikof Management Plan has had a substantial impact on the Katmai\Alinchak area.** Some of the "mainland fleet" is annually displaced by the North Shelikof Management plan and moves south to fish in this area. This does not represent a "new" or an "expanding" fishery. It simply reflects the regulatory movement of the Kodiak fleet.

- **1992 is a single year anomaly in Katmai\Alinchak.** The harvest of over 25,000 local pinks, chums, coho and kings justified the normal 171 fishing time. Cook Inlet enjoyed the second largest salmon return in the history of the fishery. Consequently, a larger portion of the fish were available in the Kodiak Management Area.

- **Preliminary scale analysis indicates that most of the sockeye captured in the Katmai\Alinchak area are <u>not</u> Cook Inlet fish.**

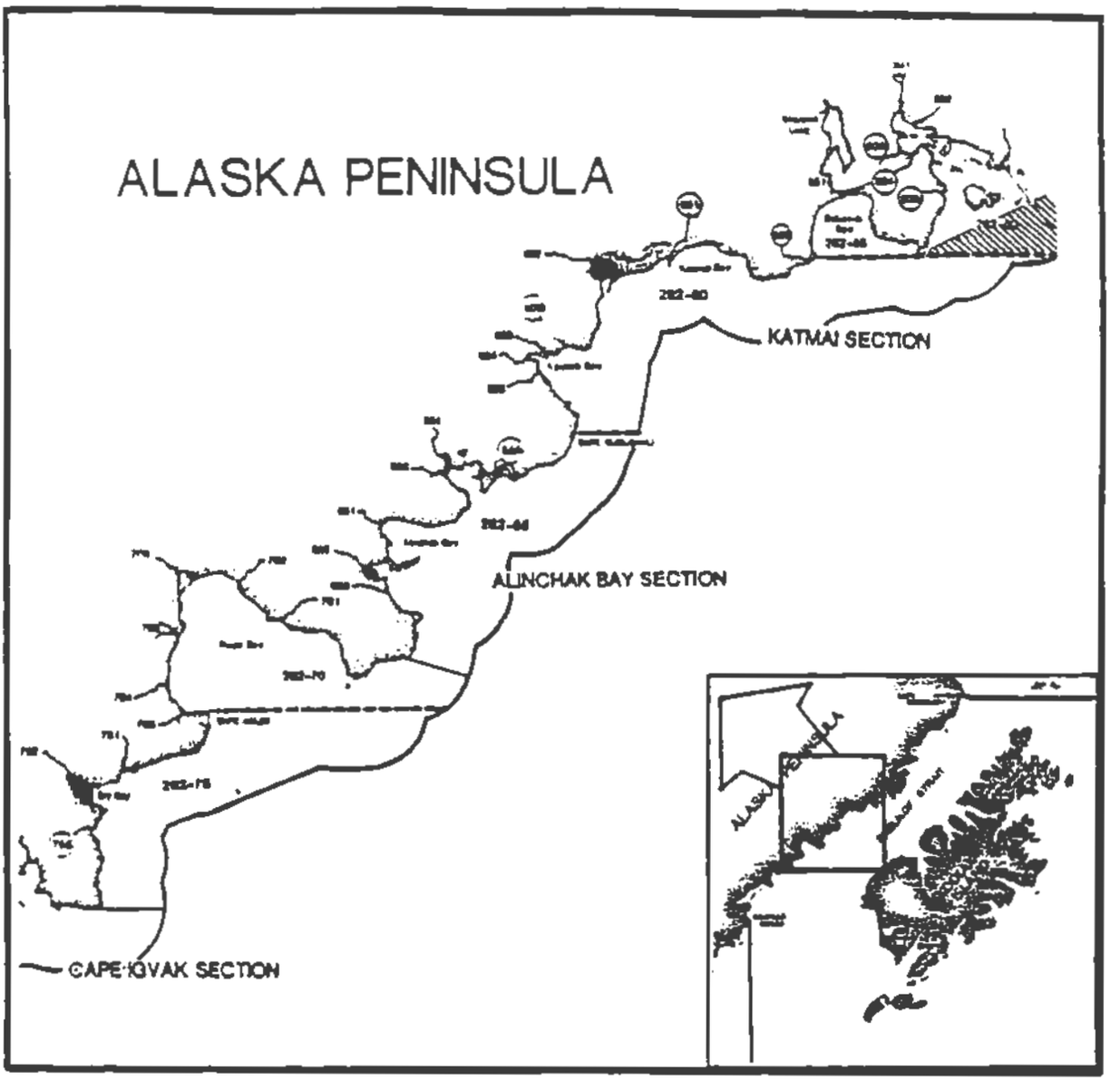


Figure 17. Map of Alinchak and Katmai Bay Sections.

KATMAI & ALINCHAK SECTIONS, JULY 6-25.

YEAR	LANDINGS	CHINOOK	SOCKEYE	COHO	PINK	CHUM
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	2	0	0	0	2,429	212
73	3	1	265	0	427	158
74	1	0	301	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	17	1	2,419	0	102	61
79	2	0	1	0	3,671	148
80	0	0	0	0	0	0
81	9	0	354	0	1,900	7,937
82	1	0	806	0	0	0
83	0	0	0	0	0	0
84	18	1	55	0	18,239	24,218
85	4	1	16	4	451	2,311
86	3	18	2,093	40	329	638
87	69	745	15,824	2,423	7,689	4,486
88	53	385	27,936	118	5,417	12,667
89	0	0	0	0	0	0
90	34	106	23,276	3,266	14,071	7,076
91	13	76	1,570	22	1,369	102
92	65	440	98,051	1,678	13,775	8,792
93	36	278	18,291	563	7,945	1,289
94	81	394	37,943	1,182	16,288	10,915

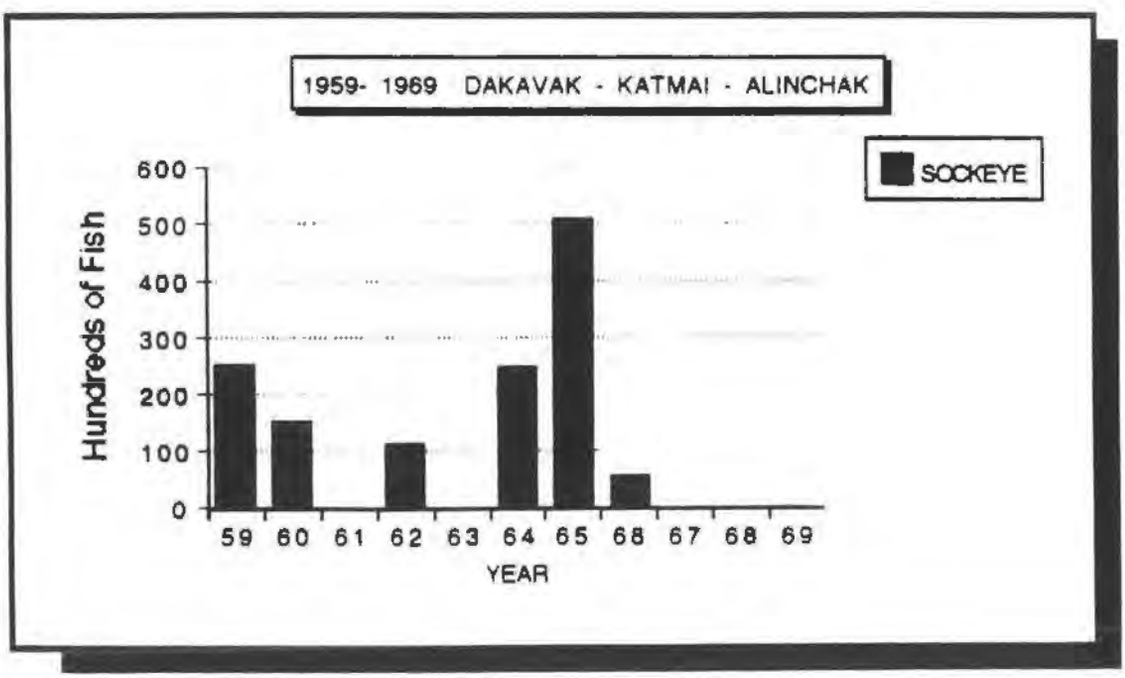
STAT AREA

Dakavak · Katmai Bay · Alinchak

262-5 262-6

1959 - 1969 July 6-25

YEAR	LANDINGS	KINGS	REDS	COHO	PINK	CHUM
1959	14	4	254	7	2027	706
1960	5	2	153	0	3004	400
1961	2	0	0	0	2315	12
1962	92	3	115	5	281923	8815
1963	0	0	0	0	0	0
1964	100	6	246	29	196685	10130
1965	1	0	511	0	1541	0
1966	45	1	57	0	29491	1484
1967	0	0	0	0	0	0
1968	1	0	0	0	133	108
1969	0	0	0	0	0	0



Source: Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

HISTORIC SOCKEYE CATCHES

1978 - 1994 JULY 6-25

Used to calculate a trigger for zone closures using compromise time period

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1978	2853	4564	2419
1979	19437	CLOSED	1
1980	STRIKE	STRIKE	STRIKE
1981	STRIKE	CLOSED	STRIKE
1982	STRIKE	STRIKE	STRIKE
1983	3618	CLOSED	0
1984	1851	21889	55
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
1988	49165	187230	27936
1989	CLOSED	CLOSED	CLOSED
1990	54871	CLOSED	23276
1991	174666	182063	1570
1992	429642	349691	98051
1993	114681	CLOSED	18291
1994	36117	14692	37943
TOTAL SOCKEYE	**912014**	**848510**	**227475**
TOTAL YEARS	13	8	13
AVERAGE	**70155**	**106064**	**17498**

(96)

Source: Kodiak Area Management Reports
by Kodiak Salmon Work Group

SOCKEYE CATCHES

1978 - 1987 JULY 6-25

Corrected averages - strikes and closed years

YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1978	2853	4564	2419
1979	19437	CLOSED	1
1980	STRIKE	STRIKE	STRIKE
1981	STRIKE	CLOSED & STRIKE	STRIKE
1982	STRIKE	STRIKE	STRIKE
1983	3618	CLOSED	0
1984	1851	21889	55
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
TOTAL SOCKEYE CATCH	52872	114834	20408
TOTAL YEARS	7	4	7
AVERAGE	7553	28708	2915
RUN INCREASES	7553 X 3.2= 24170	28708 X 3.2 = 91867	29408 X 3.2 = 9329

(47)

Catch information numbers are from most recent ADF & G tables
Dec. 1994 Kodiak Salmon Work Group

HISTORIC SOCKEYE CATCHES

1985 - 1994 July 6-25

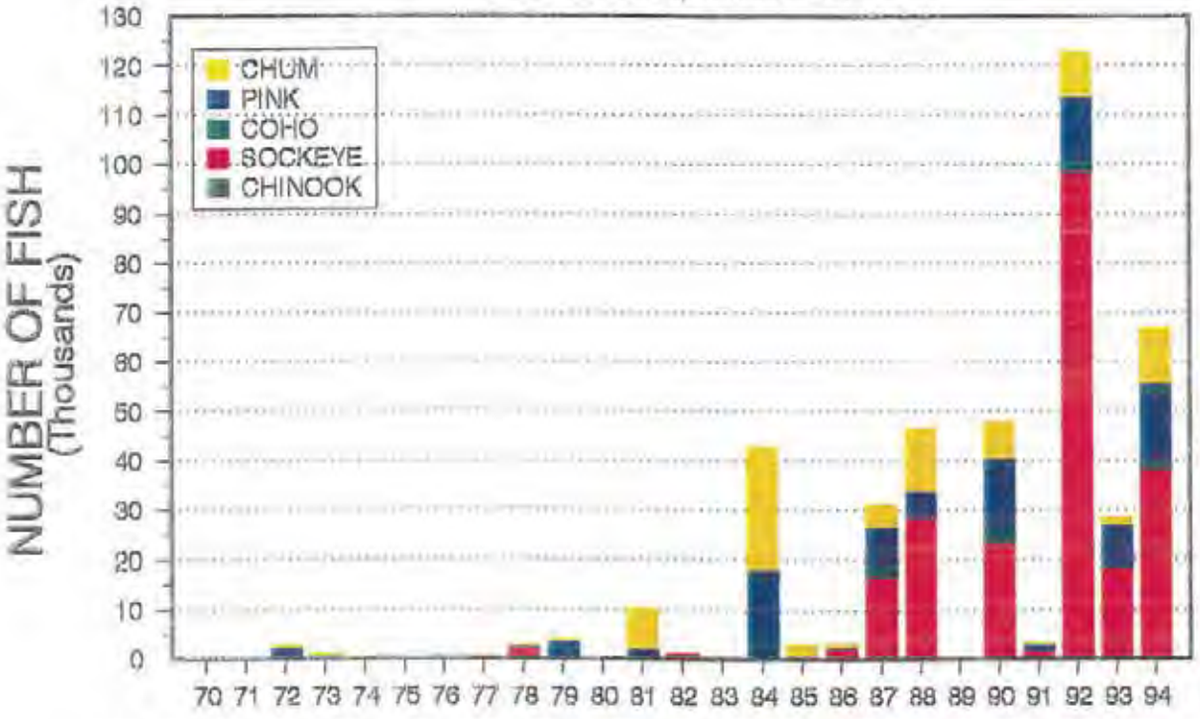
Used to calculate as a proposed trigger for zone closures

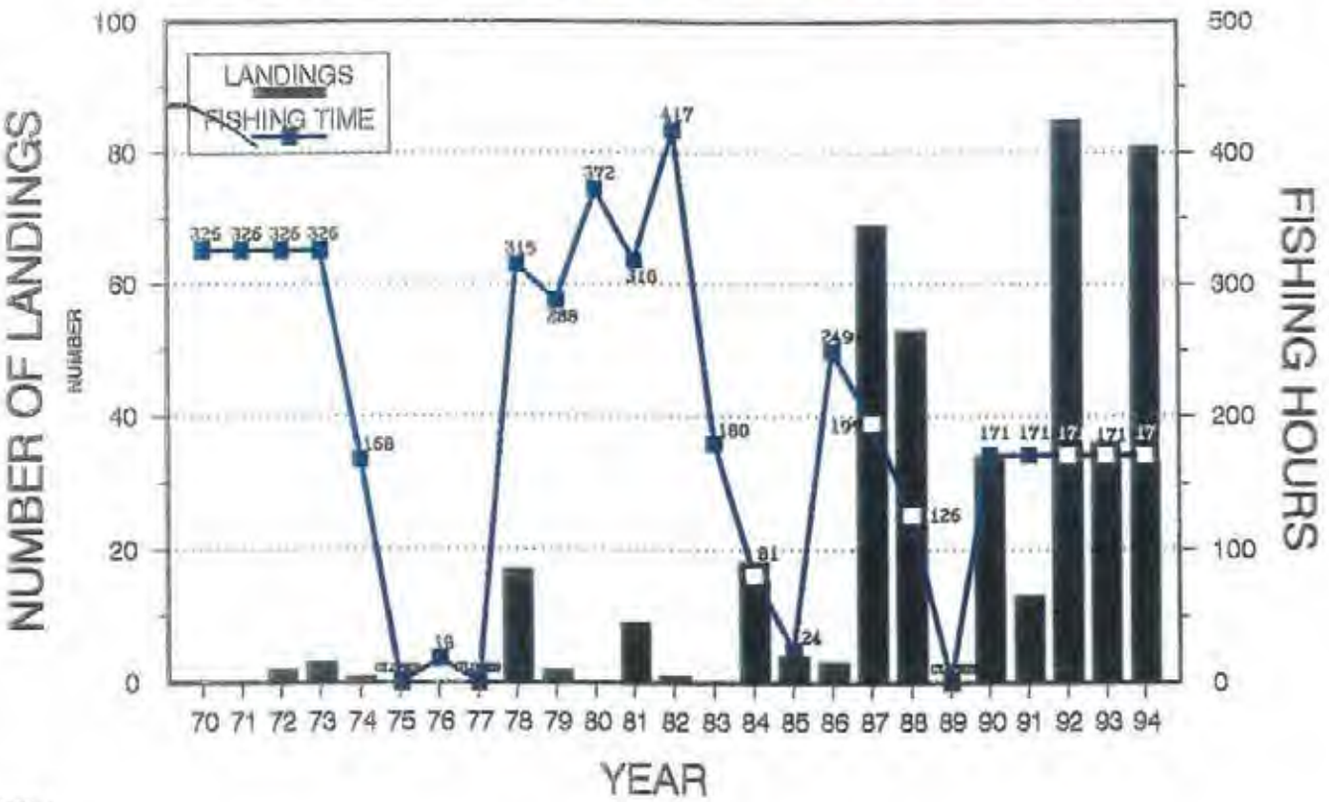
YEAR	SITKALIDAK SECTION	HALIBUT BAY SECTION	KATMAI-ALINCHAK SECTIONS
1985	7711	CLOSED	16
1986	11643	77894	2093
1987	5759	10487	15824
1988	49165	187230	27936
1989	CLOSED	CLOSED	CLOSED
1990	54871	CLOSED	23276
1991	174666	182063	1570
1992	429642	349691	98051
1993	114681	CLOSED	18291
1994	36117	14692	37943
TOTAL SOCKEYE	**884256**	**822057**	**225000**
TOTAL YEARS	9	6	9
AVERAGE	**98250**	**137009**	**25000**

(18)

Source Kodiak Area Management Reports
by Kodiak Salmon Work Group 1994

KODIAK MANAGEMENT AREA
KATMAI & ALINCHAK SECTIONS
JULY 6-25, 1970-94





J4-KATALI
11-29-94

Table 7. The Sitkalidak and Katmai/Alinchak Section's sockeye salmon commercial catch apportioned to stock or stock g of origin, by week, 1994.

Area	Date	Catch Numbers	Commercial Catch Assigned by Stock: Upper Station No.	%	Karluk No.	%	Cook Inlet No.	%	Chignik No.	%	Frazer No.	%	Afognak No.	%	Unassigned[c] No.	%
Sitkalidak	7/5-11	17,209	605	4.8	305	2.4	1,627	12.9	4,702	37.2	1,473	11.7	3,914	31.0	4,583	26.6
	7/12-18	15,963	420	3.4	223	1.8	4,807	38.9	4,115	33.2	1,505	12.2	1,295	10.5	3,598	22.5
	7/19-25	2,913	47	2.4	126	6.5	945	49.0	634	32.9	110	5.7	67	3.5	984	33.8
Katmai/Alinchak	7/5-11	26,550	279	1.4	668	3.2	1,792	8.7	8,564	41.6	2,127	10.3	7,146	34.8	5,974	22.5

[a] Commercial catch assignment based on age-1.2, -2.2, and -2.3 fish in proportion to the age-1.3 component of the catch which was completed using estimates derived from SPA.

[b] Each stocks contribution percent was calculated after subtracting the unassigned catch component from the total weekly catch.

[c] Unassigned represents both local and non-local stock contributions.

(150)

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Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
Total	0	0	0	0	0	0	0	0	0	0	0	0

Year 1984
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/15	2	3	0	0	0	0	0	0	1163	4360	5402	87340
7/17	1	1	1	25	15	85	0	0	148	469	648	4784
7/21	2	2	0	0	0	0	0	0	1090	3860	4480	38620
7/22	1	1	0	0	20	109	0	0	588	2236	675	6081
7/24	1	6	0	0	20	108	0	0	8944	33519	7401	59873
7/25	2	5	0	0	0	0	0	0	6307	23103	5432	45684
Total	5	18	1	25	55	305	0	0	18239	67547	24218	282382

Year 1985
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/24	3	4	1	34	16	65	4	40	451	1751	2311	21517
Total	3	4	1	34	16	65	4	40	451	1751	2311	21517

Year 1986
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/09	3	3	18	53	2093	13311	40	244	329	1106	638	4697
Total	3	3	18	53	2093	13311	40	244	329	1106	638	4697

Year 1987
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/08	12	13	49	323	2615	16081	3	19	735	2501	963	6594
7/09	24	43	620	2234	7749	49364	236	1217	1990	6441	1530	11017
7/20	4	4	14	124	560	3671	383	2486	956	3330	363	2719
7/21	6	6	57	513	2234	14673	1206	7765	3558	9259	736	4982
7/22	5	5	5	84	2650	18133	595	3809	1410	4605	894	6428
Total	26	69	745	3278	15824	102112	2423	15296	7589	26164	4486	31740

Year 1988
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/06	5	5	16	107	2126	13625	3	61	191	589	519	4651

7/08	7	7			539	94		0	1		14	69
7/09	7	7	xx	x70	x854	449xx	xx	78	8xx	2xx9	2104	10252
7/11	6	6	14	200	7615	56411	33	328	1206	4397	2423	
7/12	9	9	114	865	3156	21492	11	88	567	2031	981	
7/13	4	4	2	39	3294	23288	15	155	430	1505	840	
7/14	2	2	0	0	868	6440	0	0	77	331	286	
7/15	1	1	0	0	261	1700	0	56	50	190	110	
7/16	1	1	40	603	793	6371	14	111	123	469	154	1460
7/18	2	2	2	26	99	717	3	24	120	487	1206	14065
7/19	1	2	0	0	707	4649	5	45	122	472	117	924
7/20	1	1	2	55	4	22	0	0	200	858	1026	10778
7/25	1	1	0	0	33	179	0	0	1287	5097	151	1510
Total	30	53	385	3330	27936	193154	118	885	5617	20692	12667	124347

Year 1989
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
Total	0	0	0	0	0	0	0	0	0	0	0	0

Year 1990
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/15	2	2	0	0	4011	16849	90	639	117	355	526	4723
7/20	11	11	6	41	1962	13774	178	2719	2678	8046	2730	25045
7/21	9	9	69	564	8034	50780	959	5833	3665	11063	1240	9099
7/22	6	6	22	228	6761	42607	1233	8612	4961	10964	1600	12273
7/23	5	5	9	88	2203	13401	556	3618	2050	5807	905	7624
7/24	1	1	0	0	305	1612	50	392	600	1651	73	527
Total	36	34	106	913	23276	138035	3266	21713	14071	37888	7076	59261

Year 1991
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/06	5	5	6	48	695	3583	9	41	518	1123	22	191
7/07	4	4	25	325	695	3677	8	55	680	1573	67	470
7/08	4	4	45	377	180	904	5	33	171	353	13	106
Total	8	13	76	750	1570	8164	22	129	1369	3049	102	767

Year 1992
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/06	8	8	71	866	2240	13681	7	57	679	2746	387	3606
7/07	18	20	194	2704	17567	112672	75	524	3140	13486	2721	21891
7/08	9	12	17	208	7967	50257	57	377	2119	7340	1157	9629
7/15	4	6	4	18	11938	70845	67	423	1442	5798	377	2879
7/20	6	6	11	40	6967	44726	147	1281	615	2367	248	1885
7/21	12	12	20	344	16268	106427	319	2407	2310	8479	1277	9866
7/22	10	11	27	373	16048	102450	254	1870	1460	5707	1183	8523
7/23	9	9	96	883	18114	111065	640	3980	1608	6327	1448	10814
7/24	1	1	0	0	162	1000	110	726	606	2061	96	429

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
Cal	46	85	4[illegible]	[illegible]	[illegible]051	5131[illegible]	[illegible]	[illegible]645	117[illegible]	[illegible]	[illegible]792	685[illegible]

Year 1993
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/06	5	5	18	145	2074	11642	36	230	287	879	118	669
7/07	10	12	96	1068	3678	20283	56	338	691	2225	216	1362
7/08	3	3	40	491	358	1984	13	78	85	317	41	284
7/09	1	1	80	747	995	5802	33	197	370	990	77	488
7/10	2	2	3	50	1260	6951	0	0	200	585	76	356
7/13	1	1	2	17	965	5948	0	0	260	846	92	593
7/15	3	4	22	212	7287	41848	123	685	1187	3922	194	1038
7/21	6	6	16	123	1547	9101	275	1687	1465	4777	170	960
7/22	2	2	1	3	127	715	27	156	3400	10544	283	1937
Total	37	36	278	2876	18291	104269	563	3363	7945	25085	1289	7578

Year 1994
Conditions used: monthday between 706 and 725 and gear in (1, 2) and StatArea between 26260 and 26270

Catch MM/DD	Permits	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
7/06	8	8	38	392	4418	21247	15	121	1201	3587	916	6711
7/07	17	17	176	2233	9145	51084	74	483	3830	12637	3566	23009
7/08	11	16	90	1248	8055	44335	60	448	2853	9512	2211	17514
7/09	5	5	17	243	4520	23458	39	239	1555	4860	930	6828
7/10	1	1	1	15	412	2060	0	0	120	300	61	505
7/13	11	11	39	545	3618	21973	247	1540	1618	5552	1280	9474
7/14	10	10	14	200	4194	23855	442	3401	2766	8923	973	7929
7/15	3	3	6	67	1773	9301	126	873	1234	4498	318	2502
7/19	9	9	13	195	1686	9121	178	1319	1021	3195	638	4928
7/21	1	1	0	0	126	754	11	90	0	0	0	0
Total	47	81	394	5138	37943	208190	1182	8514	16288	53084	10915	79621

(153)

Appendix D.19. Estimated average weight of local (Kodiak) and UCI sockeye salmon and corresponding seine harvest stock composition estimates, July 6-25, based on average weight difference, for the Katmai and Alinchak Bay Sections (statistical areas 26260-26270), 1983-1994, except 1989.

	Estimated Average Weight (pounds)			Estimated Non-local Catch	Estimated Stock Composition (Number of Fish)			
Year	UCI	Local	Difference	Proportion (%)	Non-local	Local	Unassessed	Catch Total
1983	6.48	6.25	0.23	NA[a]	0	0	0	0
1984	5.95	6.04	-0.09	Unassessed	0	0	55	55
1985	5.66	4.83	0.83	-92%	0	16	0	16
1986	5.77	4.53	1.25	147%	2,093	0	0	2,093
1987	6.74	6.32	0.42	Unassessed	0	0	15,824	15,824
1988	6.64	5.52	1.12	124%	27,936	0	0	27,936
1990	6.44	5.37	1.07	52%	12,216	11,060	0	23,276
1991	5.65	5.61	0.03	Unassessed	0	0	1,570	1,570
1992	6.60	5.51	1.10	68%	66,979	31,072	0	98,051
1993	5.89	5.49	0.39	Unassessed	0	0	18,291	18,291
1994	5.69	5.00	0.69	70%	26,732	11,211	0	37,943

[a] No sockeye harvest during July 6-25 for that year.

ISSUES STATEMENT

(Kodiak Salmon Working Group)

The largest single variable that has occurred in the past 10 years regarding the bycatch of Cook Inlet sockeye in the Kodiak area is the size of the Cook Inlet salmon returns.

Sockeye catches in Kodiak, even in 1988 and 1992, have remained within the 100 year historical range of Kodiak sockeye catches. Cook Inlet runs, however, have exceeded any historical precedent.

In any given year only a portion of the total Cook Inlet run is actually available to Kodiak fishermen. Most of the run enters Cook Inlet from the Gulf of Alaska through the Kennedy and Stevenson entrances north of Kodiak Island.

Cook Inlet sockeye are not available to Kodiak in the same percentages every year. 1994, for example, showed a very small percentage of the Cook Inlet run available to Kodiak fishermen while Cook Inlet fishermen enjoyed the 10th largest run in history. For a similar size Cook Inlet run in 1990, the Kodiak bycatch rate was approximately 5.5%. The 1994 bycatch rate was approximately 1.8%.

When Cook Inlet sockeye are available to Kodiak fishermen they are generally only available for a period of 7 days or less in any one district or section of the Kodiak Management Area.

The July 6th to July 25th time period covers virtually all of the instances when unusual catches of large Cook Inlet fish have occurred anywhere in the Kodiak Management area. Nevertheless, in all of Kodiak's 7 districts and 52 management sections, catches of Cook Inlet fish have never occurred throughout the entire 21 day time period and are generally confined to 7 day period in the first 10 days or the last 10 days of the regulatory time frame.

Impact on Kodiak's harvest of local stocks and reallocation of the Kodiak fishery should be balanced with the utility of any regulatory proposal. Any regulation should be tailor fit to reduce what is considered "new and expanding" not to reduce the local, historical, fishery that existed before the expansion took place.

The North Shelikof Management Plan has had a significant impact on the Kodiak Management Area. Closures imposed by the North Shelikof management plan have shifted the Kodiak fishing fleet. This is not "new or expanding" effort, it is an existing historical effort fishing in different locations.

THE LIMITED AVAILABILITY OF COOK INLET-BOUND SOCKEYE TO KODIAK'S COMMERCIAL SALMON FISHERY

Salmon actively migrate counter-clockwise with the Alaskan gyre. (Natural Resources Consultants, 3/94).[1]

Salmon use ocean currents and compass orientation to navigate back to coastal areas.

Tagging studies indicate that the majority of sockeye returning to Upper Cook Inlet migrate through Kennedy and Stevenson entrances.

Only a portion of the remaining UCI-bound sockeye migrating around Kodiak Island and up Shelikof Strait are exposed to Kodiak's fishable waters inside three miles.

Further, only a portion of the UCI sockeye in fishable waters are potentially exposed to Kodiak's salmon net fishery, depending on time and area openings.

The dynamic nature of salmon migration patterns can have a noticeable effect on fishing patterns.

The UCI sockeye component of Kodiak's sockeye harvest is highly related to the strength of Upper Cook Inlet sockeye runs.

Kodiak's harvest rate on UCI sockeye has oscillated with UCI run strength. High harvest levels occur only when UCI sockeye runs are exceptionally large.

Kodiak's harvest rates on UCI sockeye have varied from 1% to 12% and averaged 5.6% for the years 1983-1994.

The recent three year trend in rates has decreased from approximately 12% in the near-record 1992 season to 8.5% in 1993 and then to a below-average rate of 1.8% in 1994. Both 1993 and 1994 were above average UCI sockeye production years.

Interestingly, the rate also decreased between two comparative production years of Cook Inlet, 1990 and 1994, from 5.5% to 1.8%. The total Cook Inlet run size for both years was 5.2 million sockeye.

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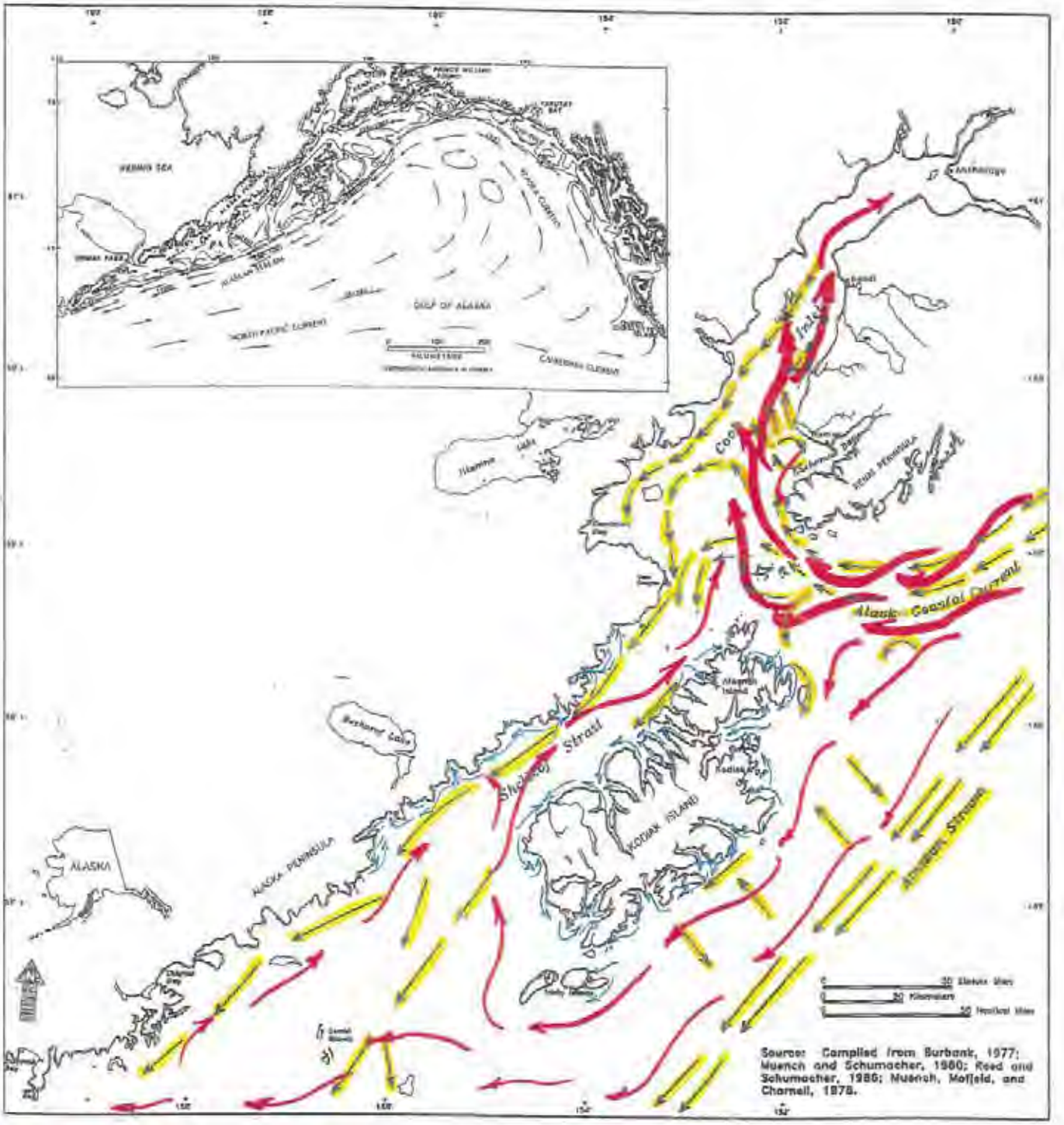
[1] Sources: "Harvest Rates of Cook Inlet-bound Sockeye Salmon in the Kodiak Area's Commercial Salmon Fishery," prepared for the Board of Fisheries, by Natural Resources Consultants, 3/94
ADF&G, RIR 4K94-6; ADF&G Annual Mgt. Reports; ADF&G Tagging Studies

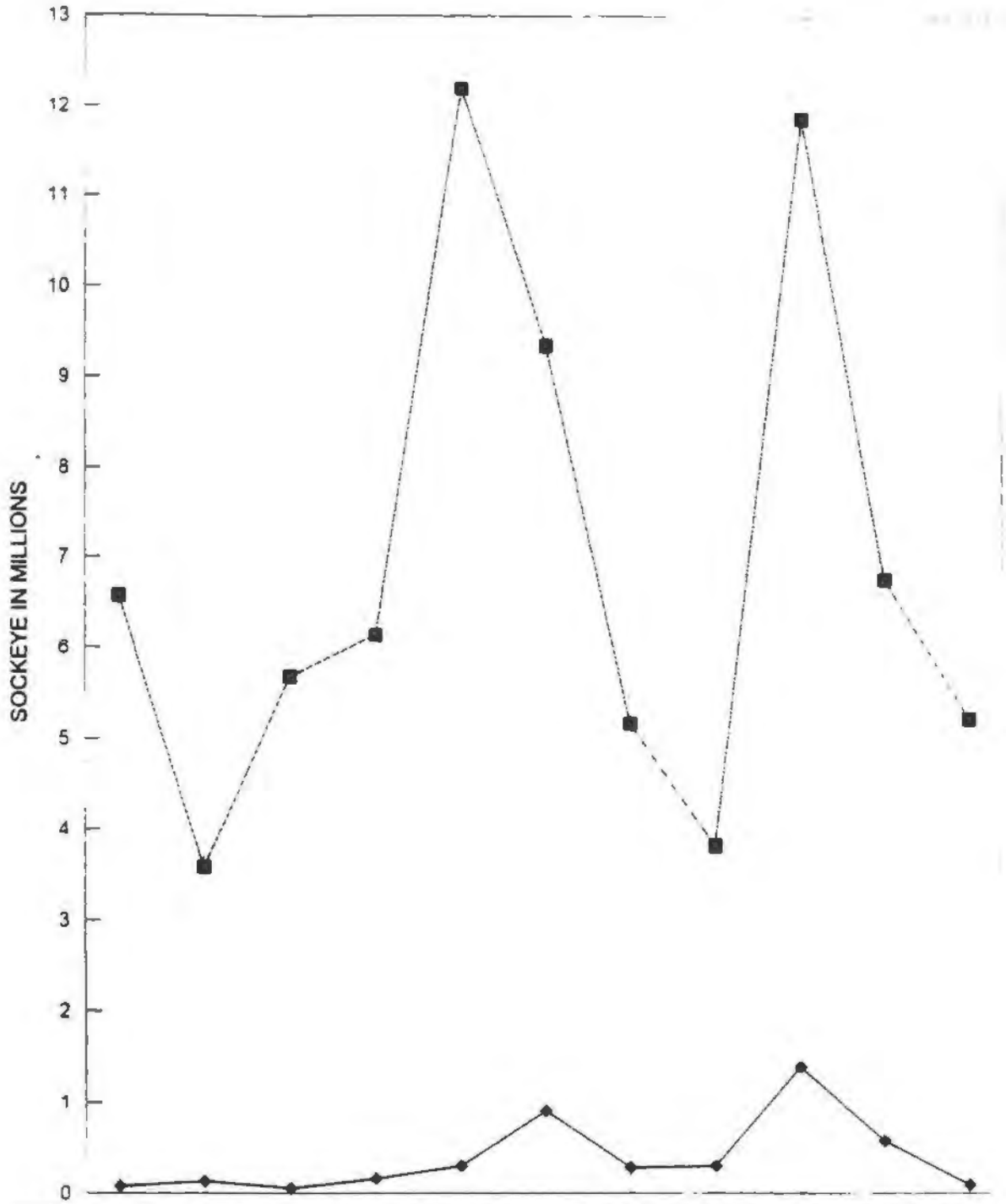


Schematic of mean spring-summer surface circulation in Lower Cook Inlet/Shelikof Strait region (see source reference insert)

An overlay of inferred near-shore migration patterms of Cook Inlet-bound sockeye (Natural Resources Consultants Report, 3/94)

General inshore migration patterns of local Kodiak-bound sockeye (Kodiak Area Management Reports; Historical ADF&G Tagging Studies)

TRENDS IN KODIAK MANAGEMENT AREA BYCATCH LEVELS OF UPPER COOK INLET SOCKEYE IN RELATION TO UPPER COOK INLET RUN SIZE



YEAR	1983	1984	1985	1986	1987	1988	1990	1991	1992	1993	1994
■ U.C.I. RUN	6.571	3.584	5.669	6.134	12.193	9.338	5.174	3.826	11.869	6.771	5.233
◆BYCATCH	0.08	0.138	0.057	0.167	0.303	0.91	0.286	0.3	1.397	0.578	0.095

Data source: ADF&G Barret/Vinning 1/14/94

Kodiak Salmon Work Group

(Please refer to Exhibits 5, 6, 7, and the ADF&G Table 1 Estimated Stock Composit
July 6-25 Barrett), included are Graphs 1 and 2.

A Review of the Barrett/Vining Memo Dated 11/14/94

1) A.D.F.&G. Memo by Barrett and Vining provided to Kodiak/Cook Inlet Salmon Work Group.

   A.) Memo contains table providing estimate of UCI-bound sockeye harvested as bycatch in KMA during 7/6-25 period for years 1983-94.

   B.) Data set in memo was originally defined in Barrett, ADF&G R.I.R. 4K94-5 as a ten year data set for 3/94 Board of Fisheries review.

      1.) 1994 Data added for 3/95 Board of Fisheries review

2) Summary table in memo identifies presence of UCI-bound sockeye in KMA harvest for each year of data set.

   A.) Historical harvest data base for both KMA and UCI, as graphically depicted in other tables of this report, shows proportional sockeye harvests between KMA and UCI from 1883 to 1994, a 112 year period.

   B.) UCI-bound sockeye have most likely always been an annual component of KMA's total sockeye harvest and that contribution can best be identified and expressed as bycatch rate instead of bycatch level.

3) A peak bycatch period of 7/6-25 has been identified, reviewed, and accepted by ADF&G utilizing the 1983-1994 data set.

   A.) The Board of Fisheries approved North Shelikof Straits Sockeye Management Plan applies explicitly to the 7/6-25 time period.

B.) Almost all ADF&G data presentations for Board of Fisheries review since 1989 have data summarized to reflect the 7/6-25 time-period.

4). Bycatch rates of UCI-bound sockeye in KMA's fishery have varied from 1% to 12% for the years 1983-1994.

A.) The average bycatch rate has been 5.6% for that 11 year period.

5). Bycatch rate variability, in general, reflects UCI sockeye availability to KMA fisheries, and that availability seems to oscillate primarily with UCI sockeye run size.

A.) Since 1982, UCI sockeye production appears to have increased by at least 3.5 times historical levels.

1.) The UCI total run has averaged 6.9 million sockeye from 1983-1994, as compared to an estimated average of 2.0 million sockeye run from 1972-1982.

B.) During the four year period, 1983-1986 when UCI sockeye run size averaged a very healthy 5.5 million sockeye, the KMA bycatch rate averaged 2.2 % and ranged from 1.0 % to 3.8 %.

C.) During the two year period, 1987-1988 when UCI sockeye run size averaged a record 8.2 million sockeye, KMA's average bycatch rate increased to 6.1 % while ranging from a noteworthy low 2.5 % during the record 1987 UCI sockeye run to a conversely noteworthy high bycatch rate of 9.8 % during a near-record UCI run in 1988.

D.) The 1989 season date has limited utility because of the Exxon Valdez Oil Spill and subsequent disrupted harvest patterns in both KMA and UCI.

E.) During the two year period, 1990-91, when UCI sockeye run size averaged 4.5 million sockeye, the KMA bycatch rate averaged 6.7 %, ranging from 5.5 % to 7.8 % respectively.

1.) KMA fishing opportunities were average during the peak bycatch period, especially in 1991 as odd-year cycle pink production became the dominant cycle.

F.) The 1992 season identifies both a near-record UCI sockeye run of 11.9 million and a record KMA bycatch rate of 11. 8%.

1.) The increased availability of UCI sockeye in 1992, a year of comparative magnitude to the record 1987 run yielded a record bycatch rate.

G.) During the last two years,1993 and 1994, when UCI sockeye run size averaged an historically very healthy 6.0 million sockeye, the KMA bycatch rate averaged 5.2 %, but ranged through a significantly decreasing bycatch trend from 8.5 % in 1993 to 1.8 % in 1994.

1.) KMA fishing opportunities in 1993 were at all time record levels during the peak bycatch period in order to begin prosecution of the harvest of a 30 million-plus record pink salmon run.

2.) Most noteworthy was the extremely low 1994 bycatch rate on UCI's above-average sockeye run when KMA fishing opportunities during the peak bycatch period were equal to those experienced in 1990 and1992, even cycle years.

Table 4. UCI sockeye salmon run number, the estimated number of UCI sockeye salmon harvested within the KMA (excluding Cape Igvak) July 6-25 fisheries, and estimates of the percent of the UCI run harvested within the KMA during July 6-25 period, for 1983-1994 (except 1989).

	UCI						
		Estimated Kodiak July 6-25 (Number of Fish)			Estimated Kodiak July 6-25 (Percent of UCI Run)		
Year	Terminal Run	Point	Relative Minimum	Relative Maximum	Point	Relative Minimum	Relative Maximum
1983	6,490,514	82,740	68,063	132,381	1.3%	1.0%	2.0%
1984	3,445,940	75,054	1,600	84,623	2.1%	0.0%	2.4%
1985	5,612,154	51,634	31,055	61,444	0.9%	0.6%	1.1%
1986	5,967,514	76,401	19,145	91,006	1.3%	0.3%	1.5%
1987	11,890,444	267,806	246,798	295,144	2.2%	2.0%	2.4%
1988	8,428,431	927,002	866,614	966,445	9.9%	9.3%	10.3%
1990	4,888,057	303,322	119,976	403,826	5.8%	2.4%	7.6%
1991	3,526,609	252,177	74,989	352,921	6.7%	2.1%	9.1%
1992	10,472,085	1,448,165	1,389,119	1,497,744	12.1%	11.7%	12.5%
1993	6,193,275	625,624	423,320	692,937	9.2%	6.7%	10.1%
1994	5,136,077	130,225	66,993	219,276	2.5%	1.3%	4.1%

(191)

KODIAK WEIR COUNTS SHOW DRAMATIC INCREASE IN KODIAK CHINOOK STOCKS

(591)

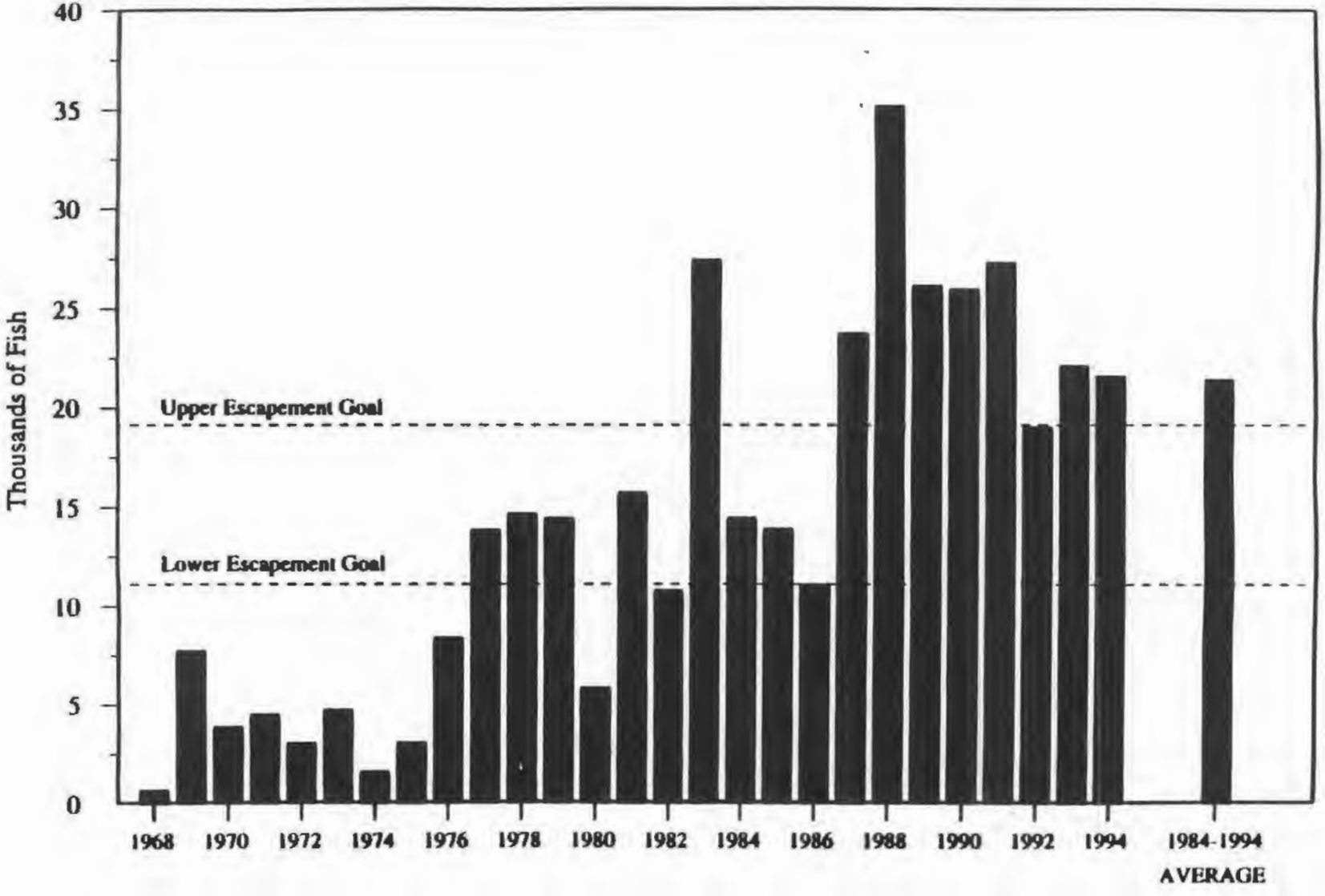
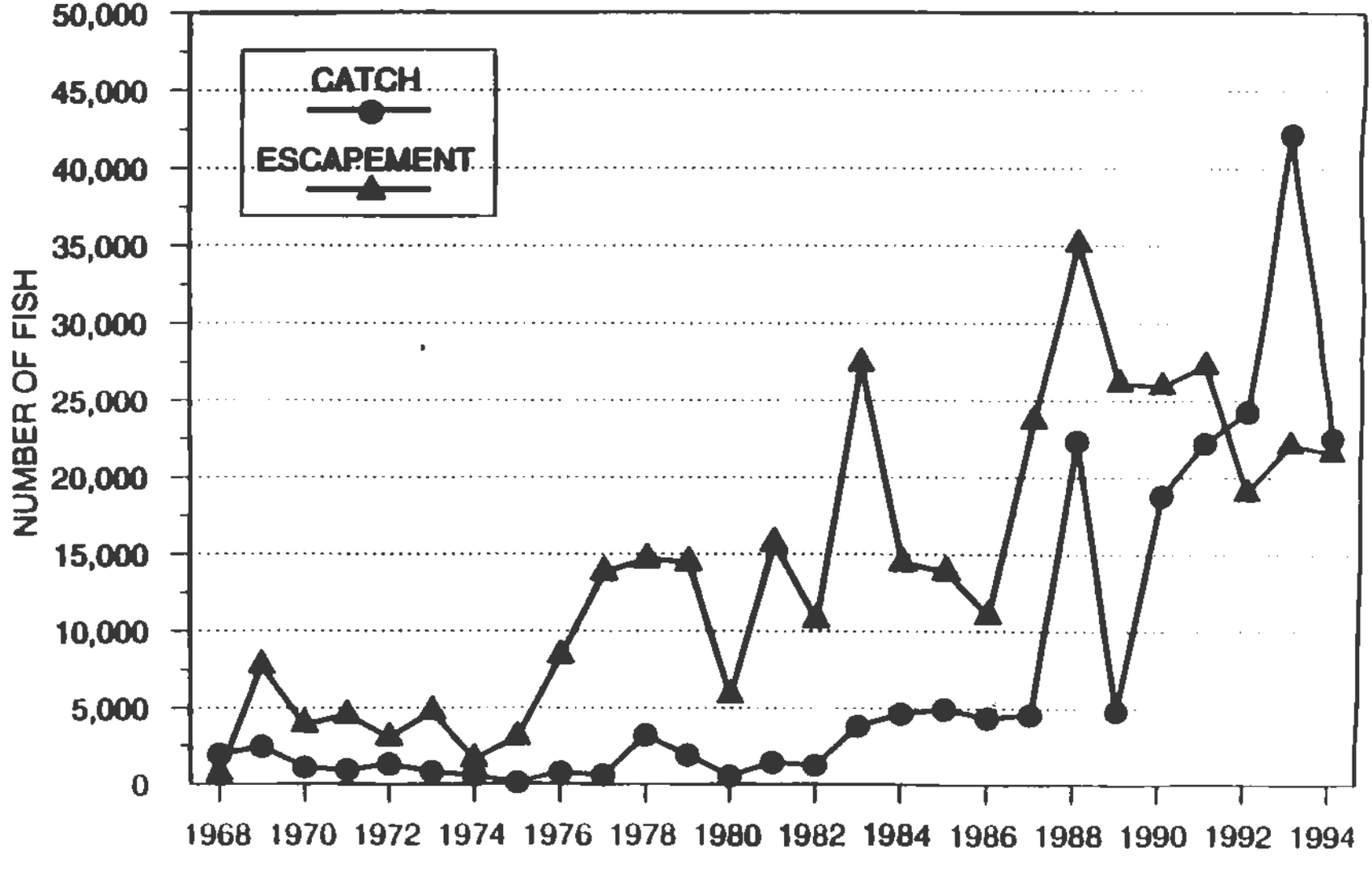


Figure 10. Chinook salmon escapement in the Kodiak Management Area, 1968-1994.

RECORD CATCHES FOLLOWED FIVE YEARS AFTER RECORD ESCAPEMENTS



(166)

ISSUES STATEMENT

(Kodiak Salmon Working Group)

The largest single variable that has occurred in the past 10 years regarding the bycatch of Cook Inlet sockeye in the Kodiak area is the size of the Cook Inlet salmon returns.

Sockeye catches in Kodiak, even in 1988 and 1992, have remained within the 100 year historical range of Kodiak sockeye catches. Cook Inlet runs, however, have exceeded any historical precedent.

In any given year only a portion of the total Cook Inlet run is actually available to Kodiak fishermen. Most of the run enters Cook Inlet from the Gulf of Alaska through the Kennedy and Stevenson entrances north of Kodiak Island.

Cook Inlet sockeye are not available to Kodiak in the same percentages every year. 1994, for example, showed a very small percentage of the Cook Inlet run available to Kodiak fishermen while Cook Inlet fishermen enjoyed the 10th largest run in history. For a similar size Cook Inlet run in 1990, the Kodiak bycatch rate was approximately 5.5%. The 1994 bycatch rate was approximately 1.8%.

When Cook Inlet sockeye are available to Kodiak fishermen they are generally only available for a period of 7 days or less in any one district or section of the Kodiak Management Area.

The July 6th to July 25th time period covers virtually all of the instances when unusual catches of large Cook Inlet fish have occurred anywhere in the Kodiak Management area. Nevertheless, in all of Kodiak's 7 districts and 52 management sections, catches of Cook Inlet fish have never occurred throughout the entire 21 day time period and are generally confined to 7 day period in the first 10 days or the last 10 days of the regulatory time frame.

Impact on Kodiak's harvest of local stocks and reallocation of the Kodiak fishery should be balanced with the utility of any regulatory proposal. Any regulation should be tailor fit to reduce what is considered "new and expanding" not to reduce the local, historical, fishery that existed before the expansion took place.

The North Shelikof Management Plan has had a significant impact on the Kodiak Management Area. Closures imposed by the North Shelikof management plan have shifted the Kodiak fishing fleet. This is not "new or expanding" effort, it is an existing historical effort fishing in different locations.

TERMINAL HARVEST FISHERIES

WHY KODIAK MANAGEMENT TRIES SO HARD TO AVOID THEM

Kodiak management is strongly influenced by geography. Salmon production is spread all around the perimeter of the island and the length of the Alaska Peninsula coast with over 350 streams. Many productive streams empty out on the outside coast. Two of the most productive pink and sockeye rivers on the island flow into Shelikof Strait, the Karluk and Ayakulik. These facts dictate that a high percentage of the Kodiak harvest will occur on the capes, as has been the case since the nineteenth century beginning of the commercial fishery here.

Escapements to some of the larger streams are monitored by weir counts but most systems have to be monitored by aerial survey and performance of the fishery. Management in July is focused primarily on pinks, but sockeye and chums are also involved. Historically, about 25% of the total sockeye harvest occurs between the 6th to the 25th of July. Karluk, Ayakulik, Halibut Bay, and the Cape Alitak-Moser-Olga Bay areas are managed exclusively for sockeye until mid-July.

For the areas primarily managed for pinks, initial openings are based on forecasted run strength. Kodiak has one of the best pink forecasts in the state. It is based on pre-emergent fry sampling, along with winter temperatures and weather conditions. There is a wide range of run timing for Kodiak pink stocks. As the fishery progresses, managers can assess the accuracy of the prediction and adjust fishing time to fit the overall abundance of the return.

The escapement needs of individual streams are partially assured by the size of the closed waters at the terminus. Closed water areas have evolved over many years of staff experience. Since all streams and all areas don't produce equally, concurrent openings of districts are preferred to spread harvesting capacity. The seine fleet naturally tends to move to the most productive areas. This protects weaker systems. Later in July, when a higher percentage of the return has arrived, adjustments in fishing time are made to further target the seine fleet on stronger stocks and

away from weaker stocks. If necessary, special "mop-up" sections clos
some river mouths can be used, but their use has allocative consequen

If fishing time weren't allowed early in July, some early stocks would get by the setnetters. Seine gear may be able to harvest some of the fish build-up, but quality would diminish. For example, in 1977 the pink fishery was delayed by a strike. The early return to Uyak was strong and went mostly unharvested until fish built up in the head of the bay. Many of the fish were harvested when the strike was settled, but the quality was very poor and some product was rejected by processors.

In 1989, the fishery on the capes that normally occurs near Kitoi Bay was cancelled due to the presence of Exxon Valdez crude oil. Six and one half million pinks were successfully harvested in Kitoi Bay behind oil booms but about one million were wasted because the quality had deteriorated too much by the time the last of the run had arrived in the terminal area. Not long afterward Prince William Sound experienced a similar disaster when their early mixed stock harvest was precluded by a weak wild stock return.

Strong Kodiak pink production has exceeded processing capacity many times in the past. Boats were put on limit and fish went unharvested while their quality declined. To make best use of processing capacity, fishing has to occur throughout the Kodiak Management Area on the front end of the run while most of the available fish are on the capes.

Fisheries which occur in nearshore closed areas tend to be disorderly and dangerous. In 1985 or 1986 a build up opening at Ayakulik was videotaped for national TV to illustrate serious problems with safety at sea. Three boats ended up stuck in the surf on the exposed Red River beach. The scenes from this opening were partly responsible for the implementation of fishing boat safety regulations by Congress.

Build-ups often occur very rapidly when the outside fishery is closed. Management precision is lost as weather is often unflyable and it is hard to predict the behavior of fish. In 1987, the outside areas on the westside were closed for several days because of a generally weak pink return and a weak late run Karluk sockeye showing. It turned out that the late pink return to Uganik was moderately strong. By the time managers spotted the build up and announced an opening, most of the return was in

the head of the bay. Even though the markers were specially adjusted the opening, the fish backed out further than anticipated and an over-harvest occurred. Over and over, in the history of Kodiak's salmon fishery, nearshore management has created effort, escapement, and quality problems.

The first fish back to the streams are primarily males. Because of this, it is a management goal to distribute fishing effort over the entire return so escapement includes both males and females. It has proven best to spread harvests out both in time and place to achieve escapement goals and provide orderly harvest of high quality fish in the Kodiak Management Area.

REALLOCATION
Restructuring of the Kodiak Fishery

All of Kodiak's seven management districts and fifty two management sections are inter-related. Closures in any district or section impacts fishing effort in the remaining fishery. Moreover, local stocks destined for one or more district or section are frequently intercepted on the capes of another district or section. Perhaps the best illustration of this historical truth is the Outer Sitkalidak section of the East Side District. The Outer Sitkalidak/Cape Barnabus fishery is an integral part of the Alitak Bay sockeye fishery. The primary purse seine harvest area for Alitak Bay bound sockeye is along Sitkalidak Island.

The February, 1994, Barret-Nelson estimated run timing report provides the statistical verification of this known connection. During the period July 6-25 approximately 5% of the Akalura run, 13% of the Fraiser Lake run, 1% of the early Upper Station run and 16% of the late Upper Station run are available in the Kodiak fishery. Based on potential average run strength, these percentages account for in excess of 150,000 local sockeye available annually. Actual returns to these systems, during the past few years, have provided in excess of 200,000 sockeye available during this time period. A substantial portion of these sockeye, as well as sockeye bound for Ayakulik, Karluk, and the 40 plus Kodiak sockeye systems, are traveling along Sitkalidak Island between July 6th and July 25th.

The Alitak sockeye are different from the other local sockeye available for capture in the Sitkalidak section. Once the Alitak sockeye pass by Sitkalidak Island, there are only three hook haul spots, Hawk pt., Cape Hepburn, and Fox Island, where Kodiak seiners even have a chance at these fish. All of these hooking points are less productive than the numerous hook haul spots around Sitkalidak Island. The net result of the limited Alitak Bay sockeye seining opportunities outside the Sitkalidak Section is an annual reallocation of a substantial portion of 200,000 sockeye from purse seiners to setnetters. In a year like 1994, this would amount to almost 12 % of the total sockeye captured by Kodiak purse seiners.

Reallocation between Kodiak gear types of this many sockeye, representing in 1994 in excess of $1,000,000, will cause continued conflict and a morass of proposals trying to reallocate Kodiak sockeye fishing opportunities between setnetters and seiners. In the Alitak Bay District alone, between 1959 and the late 1980's there was a continuous, bitter, heated battle for access to Alitak fish. Changing the fishery in the Sitkalidak area will again embroil the Board in this inter-area gear conflict— which may last another 25 years.

Reallocation within Kodiak resulting from regulations imposed to protect Cook Inlet fish is a serious and important issue for the Board to consider. Before the Board acts to limit the Kodiak fishery, all of the costs, and potential casualties, should be counted.

"IF IT AIN'T BROKE.....DON'T FIX IT:" Changing Management Plans in three areas can create havoc throughout an already complex Management System

The October meeting of the Kodiak-Cook Inlet Inter-Area Work Group ended with the understanding that there would be discussion of management options in other Kodiak management units not identified in the North Shelikof Plan or K.P.F.A's proposal to the Board of Fisheries. The Kodiak Salmon Work Group feels strongly that Board action to alter management in these areas can't be justified on a biological basis, under the "Mixed Stock Fishery" regulation, or under the Board of Fisheries' Allocation Criteria.

In general, these island fishing districts have a very long history of use and most of the salmon stocks caught are of Kodiak origin. Limited Entry has kept overall effort levels capped for over 20 years. Recent years have seen substantially fewer than the maximum permits fished. In 1978 there were 372 purse seine, 29 beach seine, and 160 setnet permits fished. In 1994, 286 purse seine, 5 beach seine, and 169 setnet permits were fished. Gear length has been frozen for over 30 years and gear maximum depth was reduced in 1989.

THE ALITAK BAY DISTRICT MANAGEMENT PLAN

This plan was adopted by the Board of fisheries in 1987 and covers set gill net and seine fishing that started in the 1880's. Cape Alitak and Alitak beach are the primary harvest areas for seiners to catch Olga Bay red salmon. Setnetters fish in an exclusive setnet area in the Alitak District. Any new regulatory action would upset the hard fought management and allocation scheme now in place.

THE WESTSIDE KODIAK MANAGEMENT PLAN

This plan was adopted by the Board of Fisheries in 1990. The Management Plan formalized a management regime that had existed for decades with some recent changes to accomodate management of rebuilt

red salmon stocks. The Northwest Kodiak District, Southwest Kodiak District, Southwest Afognak Section covered by the plan are among the historically most used and significant fishing districts in the Kodiak Management Area. These fishing areas were exploited commercially beginning in the 1880's. The annual management reports from the 1960's repeatedly reference the performance of the Westside cape fisheries in July. The Central Section of the N.W. Kodiak District is utilized by both set gill nets and beach and purse seines and is designated the primary harvest area for Karluk sockeye. The SW Kodiak and SW Afognak areas are seine only. Any alteration to the overall management plan would change allocation to the different gear types.

The SW Kodiak District including the Halibut Bay Section has been an important harvest area for sockeye in July. The Halibut Bay Section was open in conjunction with the Ayakulik Section in the 1960's and before. (Refer to Kodiak Area Management Reports 1960-69). Very substantial percentages of the total Kodiak sockeye catch occur in the SW Kodiak District. In only one year, 1992, for a few days, were catches here dominated by Cook Inlet sockeye. Restrictions in the Halibut Bay Section would interfere with the ability of Kodiak seiners to catch their historic share of Kodiak sockeye. Alitak-bound sockeye foregone by seiners at Halibut Bay, would predominantly be caught by set gillnetters in Alitak and Moser-Olga Bay.

THE EASTSIDE AFOGNAK MANAGEMENT PLAN

This plan, adopted in 1993, covers areas where Kitoi Bay hatchery production is the primary contributor. Sockeye have not been abundant in these sections even though this area has been intensively fished since 1980. Sockeye are currently being raised and released at Kitoi Bay hatchery.

OTHER ISLAND AREAS

The Perenosa and Tonki Bay areas have been fished for a long time. Tonki Bay is one of the earliest places where Kitoi pinks can be intercepted. Sockeye have not been caught here in large numbers in July. Stocked sockeye will start returning in 1995.

The Northeast Kodiak District has a long history of landings in [illegible] and in only one year, 1992, were significant numbers of sockeye ca[illegible]

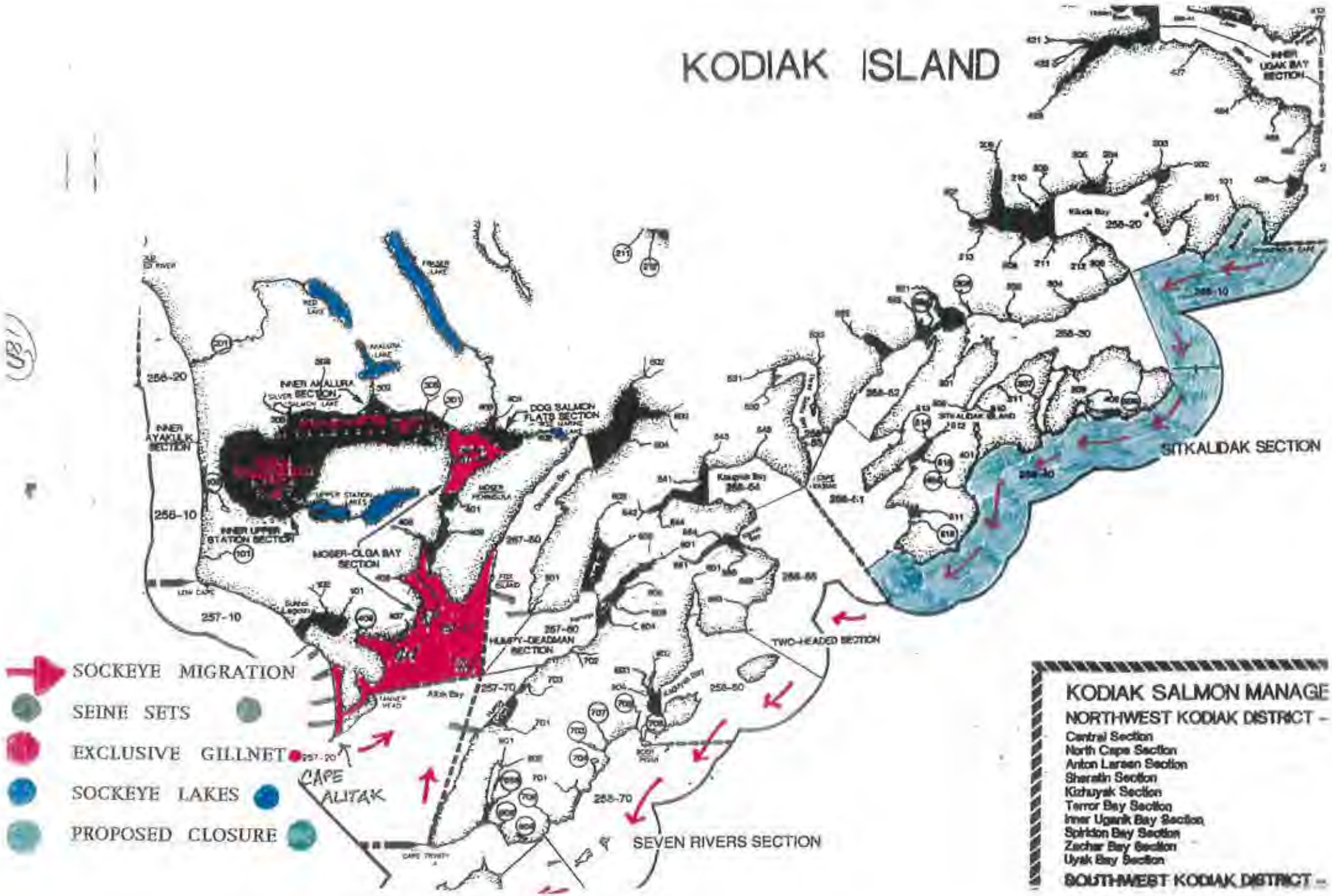
While the Eastside is not covered by a Board-approved management plan, it is being managed in the same manner as it has been for decades. Shearwater Cannery started in 1926 and was destroyed by the 1964 tsunami. Area Management Reports in the 1960's cite the strength of the July cape catches. Very large catches of pink salmon have occurred here in the July 6-25 time period. Eastside pink salmon catches for July 6-25 totalled 1, 866,875 in 1970 and 1,322,468 in 1979. (ADF&G Catch Tables)

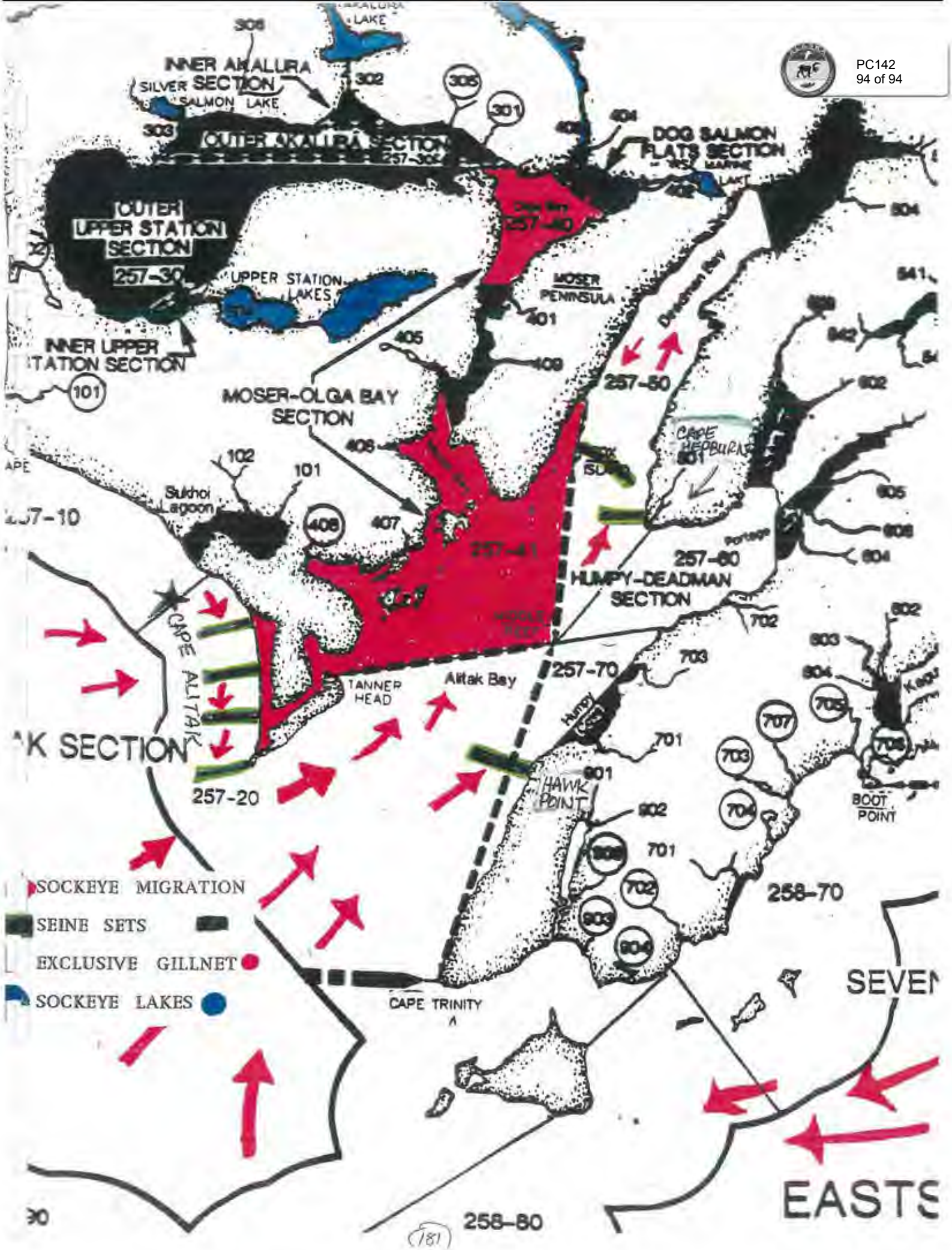
There was a period in the '80's when catches and effort were relatively low due to poor in-stream survival of eggs and fry. Effort in the '90's has not been more than what occurred in the 60's and early '70's. Effort on the Eastside in the July time-period in the years 1970, 1972, and 1979, exceeded 1000 landings. Landings in the '90's have been less than 750 per year, during the same time-frame. (Refer to ADF&G Report-Salmon Harvest Summary/12/8/94). Landings were also high in the '60's during July 6-25. (Refer to K.S.W.G. Exhibits 8,9, &10).

Rebuilding of Kodiak southend sockeye stocks and Saltery Lake sockeye have increased the number of sockeye caught on the eastside in July. Most of the Saltery Lake sockeye are caught between the 5th and 25th of July. Ayakulik, Frazer, Karluk and Later Upper Station sockeye are available for harvest in July on the eastside.

The Alutiq village of Old Harbor, which currently holds 27 salmon permits, would have a much-reduced opportunity to harvest sockeye from Kodiak's major systems if they they couldn't fish the Eastside capes in July. Most of the enhanced Frazer Lake sockeye run that is available on the Eastside in July wouldn't be available to seiners in Alitak. The Old Harbor fleet has a long history of fishing south of the Sitkalidak Section as well as in the Sitkalidak Section.

KODIAK ISLAND




INNER AKALURA
SILVER SALMON LAKE
SECTION
OUTER AKALURA SECTION
257-30
OUTER UPPER STATION SECTION
UPPER STATION LAKES
INNER UPPER STATION SECTION
MOSER-OLGA BAY SECTION
257-40
257-41
257-50
MOSER PENNSYLVANIA
DOG SALMON FLATS SECTION
CAPE HEPBURN
HUMPY-DEADMAN SECTION
257-60
257-70
CAPE ALITAK
TANNER HEAD
Alitak Bay
HAWK POINT
BOOT POINT
CAPE TRINITY
257-20
258-70
258-80
SOCKEYE MIGRATION
SEINE SETS
EXCLUSIVE GILLNET
SOCKEYE LAKES

PRI
DATE

Dear Board of Fish

As a local businesswoman, I am very aware of the influence a salmon season has on the local economy and in particular upon my business.

The ballet studio and dance/fitness attire clothing store is quite profitable during good salmon seasons when fishing families can afford to send their children to dance classes.

Taking away vital fishing days would adversely affect my business and the other businesses in Kodiak because salmon catches affect everyone. We are an island dependent on fishing.

Thank you

Debra Nielsen
Ovations Dance and Fitness
4050 Parkside Dr
Kodiak AK 99615
539-8996 (907)

Chairman John Jensen

Alaska Board of Fisheries

Board Support Section

PO Box 115526

Juneau, AK 99811-5526

RE: UCIDA ACR, Kodiak Management Area

Sept 27, 2017

Dear Chairman Jensen & Board of Fishery Members,

My name is Gabriel Edwards, I am 28 years old, and have spent my entire adult working life as a commercial salmon set net fisherman on the West side of Kodiak Island.

I am writing to express my concern over the proposed changes to Kodiak Island's salmon management plan. If enacted, the restriction on fishing time would mean a substantial adverse economic effect on me and many other fishermen. Fish from Cook Inlet have comprised a (usually small) portion of our overall catch but that has been the case for decades, so what necessitates these changes? Migratory patterns of salmon fluctuate regularly, and the proposal in question effectively prevents fishermen from harvesting fish bound for other Kodiak systems. The positive gains affected by this drastic proposal are speculative but the destructive aspects are a certainty. In summary, I am not convinced that the proposed changes are necessary from a scientific and/or conservationist standpoint but I am very much convinced that they will be harmful from an economic standpoint. It is in every Kodiak fisherman's interest to oppose this measure.

Sincerely,

Gabriel Edwards

Gabriel Edwards

Box 8905

Kodiak, AK 99615

James Skonberg
P.O. Box
Ouzinkie, AK 99644

September 22, 2017

Chairman John Jensen
Alaska Board of Fisheries
Boards Support Section
P.O. Box 115526
Juneau, AK 99811-5526

RE: UCIDA Agenda Change Request and
Genetic Stock Composition of Sockeye Salmon in
the Kodiak Management Area

Dear Chairman Jenson and Board Members,

I am a lifelong fisherman from Ouzinkie Alaska and an active leader in the Community. I also have been a board member on the Ouzinkie Native Corporation since it started in the 1970s. I've seen seasons when Cook Inlet fish were present on the east side of Kodiak Island, seasons when they were present on the west side of Kodiak island and many seasons when we didn't seem to catch any at all. As I understand it, the genetic study just confirms what we already knew. I don't know why you would consider an agenda change request to address something that has occurred for as long as Kodiak fishermen have been fishing.

I was involved the last time Cook Inlet fishermen tried to close down Kodiak. I understood that the Kodiak fleet, at that time, was fishing outside of 3 miles and sometimes changed fishing locations to move to the North Shelikof area in hopes that Cook Inlet fish would be there. The N. Shelikof plan was developed but the Board went too far with their closures. I worked with some fishermen to persuade the Board that we needed to re-adjust the plan for fishing local stocks in the S.W. Afognak district. With that change, I think the N. Shelikof plan is working now. I don't believe the Kodiak fleet is now targeting Cook Inlet fish. We're fishing for local stocks and Cook Inlet fish occur randomly and occasionally.

For those of us that fish in Kodiak --- and I've been fishing here for more than 50 years--- the UCIDA agenda change request is extreme and does not merit any consideration. It would really hurt and change Kodiak's salmon fishery. I know that it would take away 20-25% of my income. Most of the fish I would miss catching would end up in local streams, not Cook Inlet.

In summary, please reject the UCIDA agenda change request and wait until January 2020, your regular board cycle meeting, to have discussion on the Cook Inlet issue.

Very Truly Yours,

James Skonberg

Chairman John Jensen

Alaska Board of Fisheries

Board Support Section

PO Box 115526

Juneau, AK 99811-5526

RE: UCIDA ACR, Kodiak Management Area, Sockeye

Sept. 27, 2017

Dear Mr. Jensen & BoF Members,

My name is Jonathan Edwards, I reside on Kodiak Island, and myself and my family have been set netting on the west side of Kodiak for 36 years. I oppose the UCIDA agenda change request. There is no new information regarding the Kodiak Area's catch of Cook Inlet bound sockeye. This issue was resolved by the BOF in 1996 by the Alaska BOF after exhaustive testimony and data analysis.

The premise that we are going to throw out our Kodiak Area Salmon Management Plan from June 23 to July 31 for the benefit of Cook Inlet fisherman is absurd. That time period is a substantial part of our season. We catch early Kodiak Karluk sockeye, Kodiak chums, Kodiak pinks, and it is prime time for us catching Kodiak Spiridon sockeye. And yes, we do get some Cook Inlet bound fish, sometimes. As these fish are still a long way from their river, their travel path and timing is very unpredictable. They can show up in the inner bays, Eastside, Westside, South end, North end, and their timing can be as late as mid August. Trying to manage our fishery for these fish is a fools errand, and will only greatly harm my family's set net operation, as well as others. Any scheme to keep outside areas closed and harvest in the inner bays would have a negative effect on fish quality, but more importantly, it would be a massive reallocation of fish from the set netters to the seiners, as the set netters are not allowed in the inner bays.

In closing, this is a very complex issue. The solution created at the Alaska BOF in January of 1996 was a compromise solution that has been working. There's no need to dredge this contentious issue back up.

Thank you for your time.

Jonathan Edwards

Box 8905

Kodiak, AK 99615

September 27, 2017

Chairman John Jensen

Alaska Board of Fisheries

Board Support Section

PO Box 115526

Juneau, AK 99811-5526

RE: UCIDA ACR, Kodiak Management Area

Dear Chairman Jensen & Board of Fishery Members,

My name is Virginia Adams. My family and I have owned and operated our set net site with 3 permits for 37 years on Uganik Island on the West Side of Kodiak.

DOUBLE JEOPARDY

I worked tirelessly for several years preparing for the Alaska Board of Fishery meeting in 1995-1996 where the "interception" of Cook Inlet bound sockeye in the Kodiak Management Area was discussed, analyzed and decided upon. I was and am now AGAIN a member of the Kodiak Salmon Work Group (KSWG). The recent genetic study and scale analysis shows nothing new that we have not dealt with before. These are new tools being used to tell the same story. Cook Inlet bound sockeye have been traveling around Kodiak since there have ever been salmon and Cook Inlet bound sockeye have been caught in Kodiak waters ever since there were fish traps in the early 1900's.

June 23-July 31 is the heart of the Kodiak mixed stock harvest time. Millions of dollars' worth of Kodiak sockeye, pink and chum salmon are harvested and processed during this time period by seiners and set netters. Any closures during this time period for a perceived interception of Cook Inlet sockeye would severely impact Kodiak's economy, from fishermen to processor to businesses. Closures would also create a huge reallocation amongst Kodiak gear types as seiners would inevitably harvest salmon in the heads of bays after set net fishermen lost their harvest opportunities. The set net fishery is not allowed in inner bay areas. Much attention was spent developing the KMA harvest strategy to harvest bright fish in outside bay and Cape areas. Kodiak seiners harvesting inner bay salmon (dark) is going back in time and terrible for the Alaskan salmon market.

This is such an enormous issue. Kodiak's management areas and harvest strategies are the most complex in the State of Alaska. Any decision by the Alaska Board of Fisheries to minimize Kodiak's mixed stock harvest opportunities in order to allow a small amount of Cook Inlet bound sockeye to travel towards Cook Inlet would be precedent setting. Should Kodiak attempt to alter Area M's harvest strategies as Kodiak salmon travel by??

This ACR should be soundly rejected and the present BoF should take the time to review the extent that this issue has been dealt with in the past. We were directed by former AK BoF to form "study groups" which we did before the 1995-1996 Board meetings. Formation of the North Shelikof Straight Sockeye Management Plan came out of many hours of discussion and compromise relating to this Cook Inlet intercept issue. The new tool of genetic sampling, which in this case was not even directed at identifying Cook Inlet stocks, is simply a tool that was not used in the past. The answer remains the same, yes Kodiak catches some Cook Inlet bound sockeye, but has never caught Cook Inlet bound sockeye on a level that would alter Cook Inlets management plans or jeopardize escapement levels.

In closing I would like to think that the present Board would honor the tremendous amount of time, energy and work that has already been expended on this issue.

Sincerely,

Virginia C. Adams
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