

Kodiak Island Borough Kodiak Fisheries Work Group

Thursday, February 16, 2017, 9:00 a.m.
Borough Assembly Chambers

CITY CHAIRING

The Fisheries Work Group is an informal meeting of representatives of the City of Kodiak and Kodiak Island Borough to discuss issues with its Fisheries Analyst. Although additional items not listed on the agenda are sometimes discussed, no formal action is taken. Items that require formal action are placed on a regular City Council and/or Borough Assembly meeting agenda. Public comments at committee meetings are NOT considered part of the official record. Public comments intended for the "official record" should be made at a regular City Council or Borough Assembly meeting. **A quorum of the Assembly and/or the City Council may be present at this meeting.**


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1. ROLL CALL
2. PUBLIC COMMENTS (Limited to Three Minutes per Speaker)
3. AGENDA ITEMS

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- a. Fisheries Analyst Report
 - [KFWG February 16 analysts report](#)
 - [Report 4. KIB Salmon Work Group to Kodiak-CI Inter-area Work Group Feb. 1995](#)
 - [Harvest Rates of UCI-Bound Sockeye Salmon in the KMA's Commercial Salmon Fishery \(NRC 1994\)](#)
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- b. Cook Inlet Genetic Study Salmon Management
 -  [2017-02-08 Analyst KFWG BOF report](#)
 - [2017-02-06 Platt Draft Reso to BOF Salmon Management](#)
 - [2. UCIDA request to the BOF](#)
 - [3. KPFA letter to BOF](#)
 - [2017-02-13 ADN Article Update Fisheries Management](#)

4. PUBLIC COMMENTS (Limited to Three Minutes per Speaker)
5. WORK GROUP CLOSING COMMENTS
6. SET NEXT MEETING DATE AND TIME

Per Resolution No. FY2013-32, the KFWG shall hold at least one meeting monthly.

7. ADJOURNMENT
8. INFORMATIONAL MATERIALS
9. FUTURE DISCUSSION ITEMS
 - a. Small Boat Fleet Update
 - b. Magnuson Stevens Act
 - c. Federal Disaster Relief Update

February 15, 2017

From: Fisheries analyst

To: Kodiak Fisheries Work Group

Re: Board of Fisheries (BOF) action on Kodiak salmon management

This report is limited to a preliminary summary and analysis of the current situation regarding potential BOF action on Kodiak salmon management, out of the normal cycle for Kodiak regulatory proposals.

Background:

At the BOF meeting in Kodiak last month, the ADF&G staff presented the results of genetic analysis of salmon caught in the Kodiak region. There was a high percentage of salmon found to have originated in other regions, including Cook Inlet. That genetics report is part of the material provided to you for this meeting. Kodiak salmon fishermen immediately feared that the Cook Inlet stakeholders would attempt to initiate BOF action to change salmon management in the Kodiak region to minimize catch of salmon bound for Cook Inlet.

Indeed, the BOF has received requests from Cook Inlet harvesting organizations asking for the Board to schedule consideration of Kodiak salmon management changes in light of the genetic origin information. Darren Platt provided a letter (sender unknown) at your last meeting with information on this matter, and I provided you at the last meeting with two documents submitted to the BOF. One request was authored by the United Cook Inlet Drift Association, and one was from the Kenai Peninsula Fishermen's Association.

The potential for reduction in time and area of Kodiak salmon fisheries has broad economic implications for Kodiak and other Kodiak Island communities. The seine fleet as well as the setnet sector could be constrained or otherwise negatively affected if the fisheries in the Kodiak Management Area were reduced either geographically or temporally in response to proposals from Cook Inlet (CI) designed to avoid intercepting fish that are perceived to be bound for CI. Reduction in Kodiak landings would have obvious effects on the major salmon contributions to the economy, quantified in the recent McDowell report on the links between the fishing industry and the community's economic well-being.

Such attempts were most recently made in the mid-1990's. At that time, the fishermen and others formed a Kodiak Salmon Work Group, and with the help of funding from the Kodiak Island Borough, mounted a comprehensive defense of Kodiak area fisheries. Some of the documents (from 1994 and 1995) produced during that years-long and successful effort are attached here for your review.

According to February 15 information from Glenn Haight, Executive Director of the Board of Fisheries, BOF Chair John Jensen has told the staff that ADF&G will again

present the genetics report to the BOF in the “Reports” section of their Cook Inlet meeting scheduled to run from February 23 through March 8 in Anchorage. The reports are likely to take all of the first day, and perhaps part of the second day.

Following the reports, public testimony will take place on the second, third and potentially the fourth day. Public testimony will of course be focused on the more than 180 CI proposals on the agenda, but testimony can also be given on the genetics report and its implications – from any perspective. The Commercial Fisheries Division headquarters staff will be at the meeting, but no management staff from the Kodiak region is expected to be present.

Following consideration of the Cook Inlet proposals, Chair Jensen intends the BOF to take up the genetics report and its implications during the “Miscellaneous Business” section of the meeting. This will be the last day of the meeting, March 8. Haight reports that the discussion could result in the Board establishing a working group to further investigate this issue.

That working group would be chaired by a BOF member and would include representation from the Kodiak area, and would concern itself – over a period of as long as a year – with analyzing the situation from all perspectives. This could and should include reviews of Cook Inlet and Kodiak area management plans; historic information on pre-season estimates and actual catches in both areas; biological, geographic and oceanographic information on salmon migration and returns; and perhaps a peer review of the genetics study or studies. I believe that stakeholders at your meeting tomorrow will suggest detailed information needs.

Potential action:

The Kodiak seiners are in the process of establishing a formal association, and determining their strategy and approach to this issue. The City of Kodiak and the Kodiak Island Borough have multiple reasons to help the area salmon harvesters succeed in whatever they plan to do to meet the coming challenge from Cook Inlet. This support could come in the form of letters, advocacy for the chosen approach, and offering the help of the Fisheries Analyst.

The first step is determining a solid approach to the upcoming BOF meeting.

In terms of in-person participation, the first two days of reports and public testimony will be important. Some public testimony from Kodiak interests right up front will help prevent testimony from Cook Inlet being all that the BOF hears. In addition, personal individual contacts with BOF members will be very helpful. It might also be helpful to request of the Commercial Fisheries Division that Kodiak management staff be present at the beginning and end of the meeting, to answer any questions that might be posed regarding Kodiak salmon management.

On the last day of the meeting it will be crucial to have Kodiak participation. Kodiak stakeholders should be ready and willing to volunteer to be members of the working group if one is formed. The discussion of the BOF at this juncture will be essential to understanding the direction and the tenor of the process as it moves forward.

Once the BOF direction is clear, much work will need to be done going forward to prepare for and participate in working group meetings (if a group is formed), prepare documents and testimony, and maintain positive working relationships with ADF&G and the Board.

Kodiak Island Borough Salmon Work Group
710 Mill Bay Road
Kodiak, Alaska 99615

Report #4

Presented to the
Kodiak/Cook Inlet Inter-Area Work Group

February 9, 1995

Presented to Board of Fisheries Members/Facillitators
Larry Edfelt and Larry Engel

ISSUES STATEMENT

AGENDA ITEM #3.a.

(Kodiak Salmon Working Group)

1 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.

2 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.

3 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.

4 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%.

5 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.

6 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.

7 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.

8 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.

KODIAK SALMON WORK GROUP

A MODEST PROPOSAL

The Kodiak Salmon Work Group recommends that the Board of Fish take up discussion of proposal 528 at their regularly scheduled Board meeting on Kodiak finfish in the fall of 1995.

Justification:

1. **Proposal 528 was accepted for review by the Board of Fish, out of sequence, because of a possible biological emergency or conservation concern with the Kenai River.** The Department has recently confirmed that there is not currently a conservation concern with Kenai River stocks.
2. **Continued treatment of a proposal out of sequence, without the underlying justification, is contrary to Board policy of treating area specific proposals on a three year basis.** Cook Inlet had ample opportunity, prior to April 1992, to submit proposals regarding the 1990 and 1991 Kodiak fishing seasons. They chose not to do so. This proposal is in response to the 1992 season and, like all other local issues related to the 1992 season, should be taken up during the 1995/96 Board cycle.
3. **A March meeting on this issue will result in unnecessary and repetitive use of the Board's time and resources.** The proposed March 12, 1995 Board of Fish meeting will conclude about three weeks before the deadline for proposals on Kodiak finfish issues. Whatever is decided this March, one of the parties involved will be dissatisfied and will submit proposals before the April 10, 1995 deadline. Consequently, the Board will have to address the very same issue at the regularly scheduled Kodiak finfish meeting next fall.
4. **Additional time allows the current work group to continue wrestling with the issue.** The Board's decision at the March, 1994, Board meeting was to create a work group to review data on this issue and to try to reach consensus -- on at least some of the factual information. This was an important step toward the Board's preference for fishing groups resolving their own problems. The work group has made progress regarding factual consensus and with continued meetings should be able to narrow the issues for the Board's review.
5. **An additional data point, 1995, will be helpful to the Board.** An important aspect of this issue is whether or not a "new or expanded" fishing trend has or is developing in Kodiak. Catches in Kodiak in 1992, by all accounts, were the catalyst for the current proposal. There are only two data points since 1992. A third data point will improve the probability of an accurate thesis.
6. **Neither side of the debate is disadvantaged by waiting.** Both sides of the debate share equally in the risks. If the Kodiak fishery captures a significant percentage of Cook Inlet fish during 1995, (Cook Inlet's thesis), they should be able to firmly establish the "trend" they assert. On the other hand, if Kodiak's bycatch of Cook Inlet fish is relatively minor, as it was in 1994, then Kodiak will be able to firmly support the thesis of a historical fishery with some yearly variations.

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.

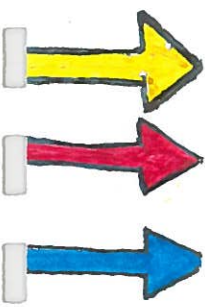
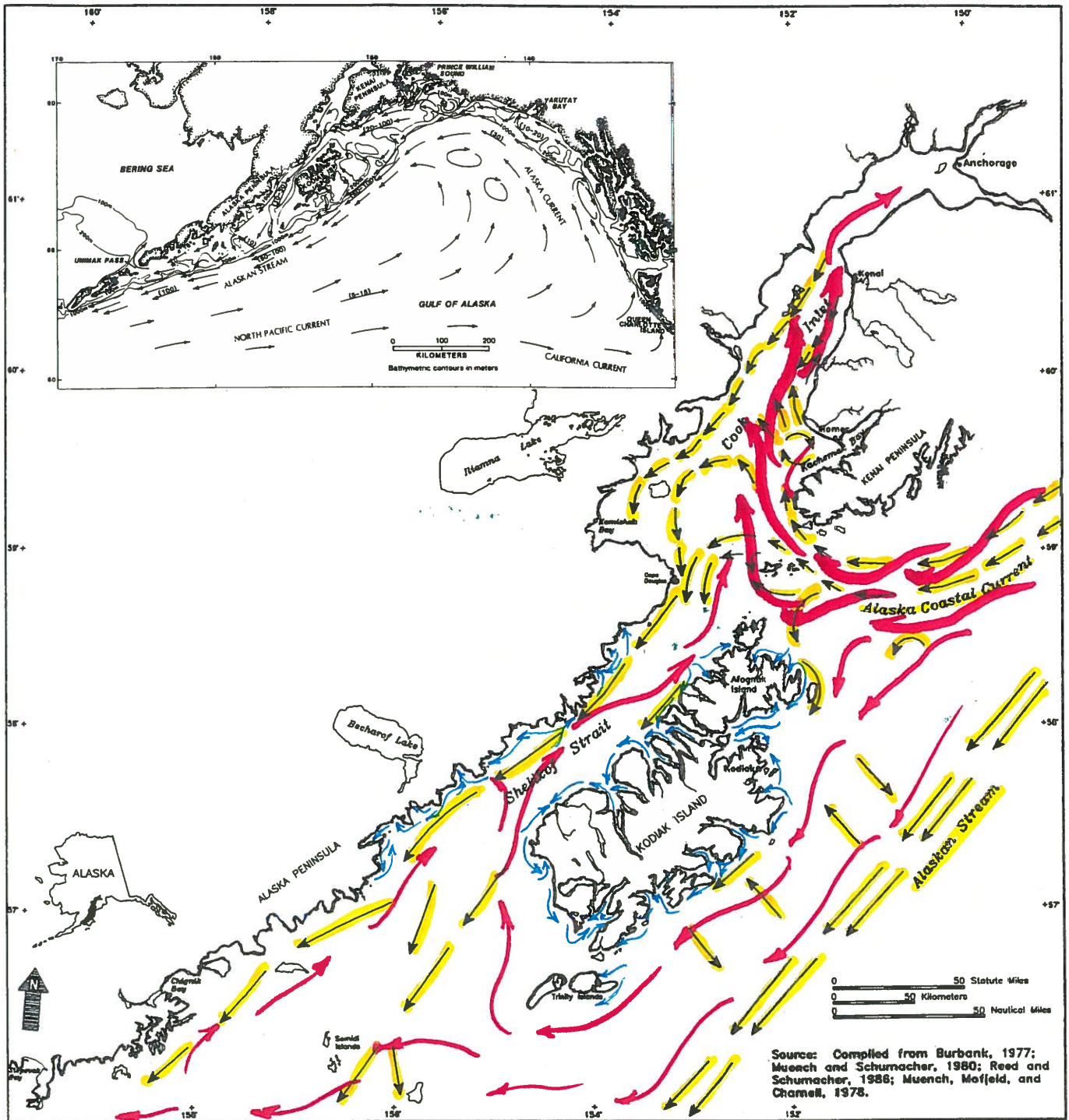
Kodiak's harvest rate on UCI sockeye has oscillated with UCI run strength. High harvest levels occur only when UCI sockeye runs are exceptionally large.

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.

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



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

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

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

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 closer to some river mouths can be used, but their use has allocative consequences.

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 for 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.

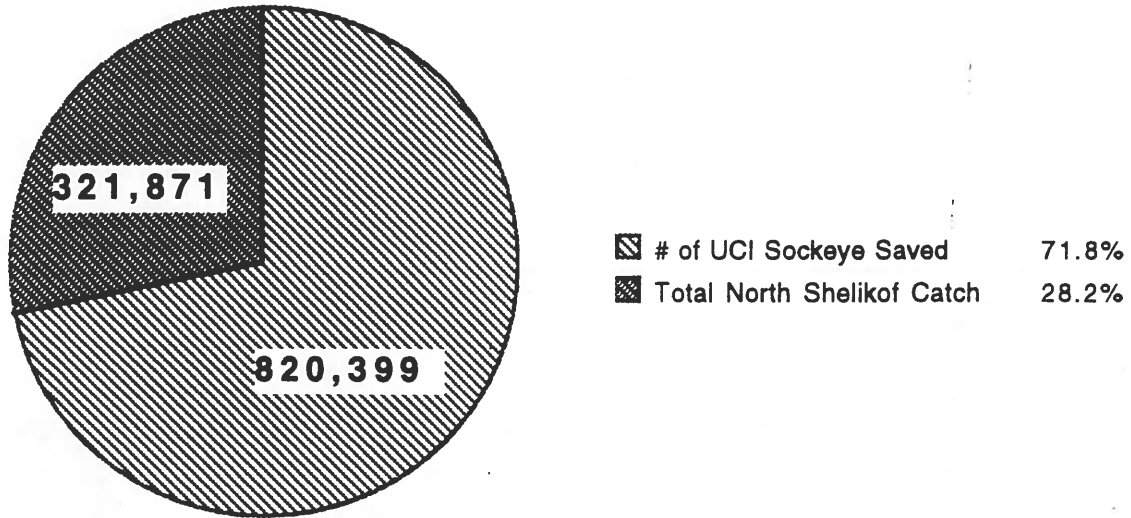
SOCKEYE REDUCTION EVALUATION NORTH SHELIKOF MANAGEMENT PLAN

The North Shelikof management plan was adopted by the Board of Fish in 1990 to limit the harvest of Sockeye Salmon in the Northern Mainland District and the North Afognak Section and the Southwest Afognak Section of the Afognak District between July 6th and July 25th. The plan has limited fishing in these areas for the past 5 seasons.

During the January 1993 Board of Fish meeting the North Shelikof Management Plan was modified with fishing area in the Southwest Afognak section expanded slightly. The current North Shelikof Management Plan restricts fishing effort to inside the capes after 15,000 sockeye are captured during the "cap" period of July 6th to July 25 in all of the area except Southwest Afognak --- this eliminates fishing in an area of approximately 324 square miles and puts Kodiak fishermen inside the capes along approximately 108 nautical miles of coast line. In the Southwest Afognak section, fishing is restricted to a 1/2 mile zone after 50,000 sockeye are captured during the cap period --- this closes an area of approximately 50 square miles and restricts fishing along almost 20 nautical miles of coast line.

The Board's basis for adopting the North Afognak Management Plan was their determination that a new and expanding fishery had occurred in the North Shelikof area during the 1988 fishing season when approximately 392,000 sockeye were captured. The Board assumed that, without regulation, the North Shelikof catch would continue at the 1988 rate or perhaps even increase. However, the North Shelikof Management Plan was imposed and the catch rate of Cook Inlet sockeye in the North Shelikof decreased dramatically. The attached graphs show that, assuming the catch rate in 1988, over the past 5 salmon seasons 820,000 sockeye have been saved from capture in the North Shelikof. The value of these fish to Cook Inlet fishermen exceeds five million (\$5,000,000) dollars.

**1990-1994
The North Shelikof Strait
Management Plan - Fish Saved**



**UCI-BOUND SOCKEYE SAVED BY THE NORTH SHELIKOF MANAGEMENT PLAN
July 6-25**

Years	North Shelikof Catch	Sockeye Saved by NSSSMP	Total Fish Available for Harvest
1990	57,700	65,354	123,054
1991	18,807	110,007	128,814
1992	128,109	472,730	600,839
1993	78,415	170,166	248,581
1994	38,840	2,142	40,982
Total	321871	820,399	1,142,270

REALLOCATION

Restructuring of the Kodiak Fishery

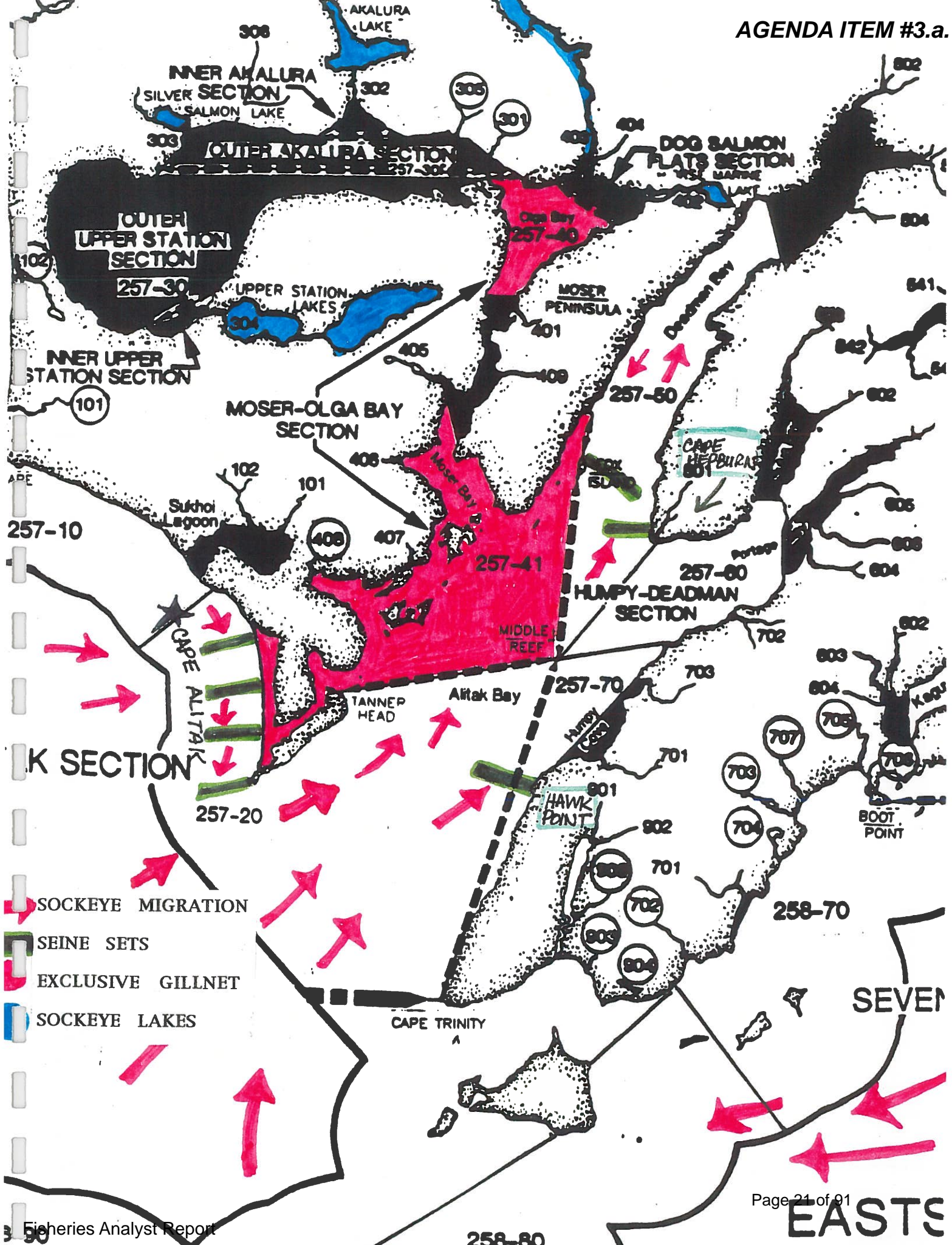
All of Kodiak's seven management districts and fifty two management sections are inter-related. Closures in any district or section impacts fishing effort in the remaining fishery. Moreover, local stocks destined for one or more district or section are frequently intercepted on the capes of another district or section. Perhaps the best illustration of this historical truth is the Outer Sitkalidak section of the East Side District. The Outer Sitkalidak/Cape Baranabus 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.

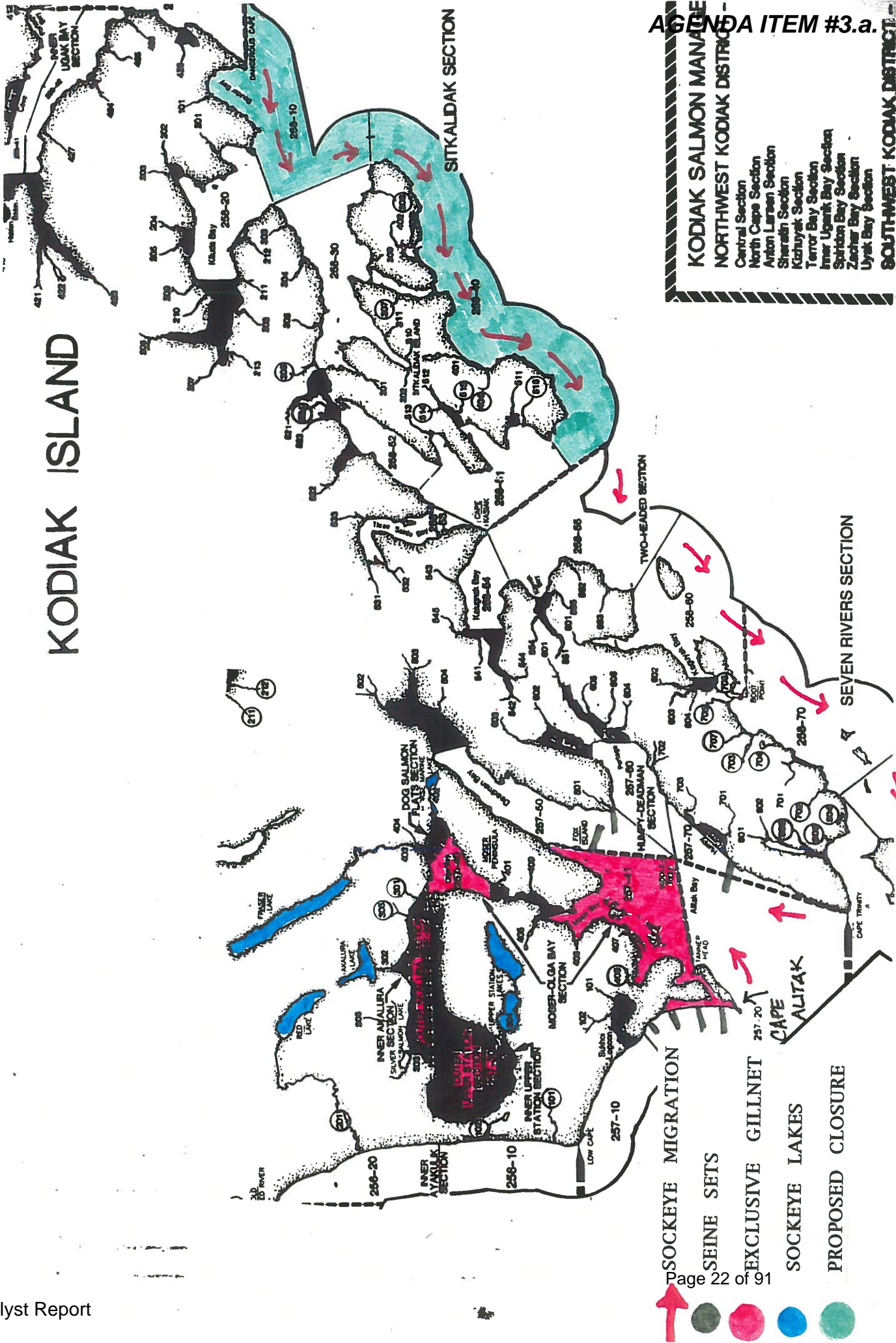
Reallocation between Kodiak gear types of this many sockeye, representing in 1994 in excess of \$1,000,000, will cause continued conflict and a morass of proposals trying to reallocate Kodiak sockeye fishing opportunities between setnetters and seiners. In the Alitak Bay District alone, between 1959 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.



-  SOCKEYE MIGRATION
-  SEINE SETS
-  EXCLUSIVE GILLNET
-  SOCKEYE LAKES

KODIAK ISLAND



PROPOSAL 528

(As revised on 12/15/95)

If the Board determines that some part or parts of the Kodiak fishery is "new and expanding", it is appropriate for the Board to consider proposals that will reduce the expanded fishery. However, regulatory restrictions imposed should maintain the fishery as it existed before the expansion, the regulations should not reduce the fishery to a level below what it had originally been.

The fundamental problem with the following proposal, as well as Cook Inlet's prior proposal, is that it moves beyond regulation of what may be "new and expanding" and tries to wrestle a larger market share from Kodiak by reducing the Kodiak fishery to a level far below what has historically occurred.

A paragraph by paragraph, word for word, comparison of Cook Inlet's current, 12/15/94, proposal with proposal 528 (13/93 proposal) will show that almost no substantive changes have been made to the original Cook Inlet proposal, and, in fact, a whole new section of area specific regulations has been added.

(Changes to proposal 528 which are present in the 12/15/94 proposal are italicized and underlined.)

Paragraph 1:

A. (528) The purpose of this management plan is to provide direction to the Department in the management of the seine fishery during the July 1-25 period when Cook Inlet Bound sockeye salmon are migrating through the Kodiak Management Area. It is the intent of the Board to allow fisheries throughout the management area to be conducted on Kodiak Area salmon stocks while minimizing the harvest of Cook Inlet sockeye salmon stocks.

B. The 12/15/95 proposal is identical to 528 except that the time period is changed from July 1-25 to the July 6-25 time period.

RESPONSE: 1. The proposal will have substantial impact on all gear types in Kodiak. If the intent was to manage the Kodiak seine fishery, the proposal is far too broad.

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Cook Inlet Proposal
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2. The July 6-25 time period is also too broad. Catch records show that during many seasons, substantial numbers of Cook Inlet fish are not present in the Kodiak Management area, eg. 1994. Moreover, these catch records also show that during years when there is a presence of Cook Inlet fish, these fish are not present in any given statistical area for more than 7 -10 days, ie. 1992.
3. If it is the intent of the Board to allow fisheries to be conducted on Kodiak Area salmon stocks, complete closures in any area should not be imposed. Complete closures eliminate or reduce local stock fisheries.
4. "Minimizing" is a vague and ambiguous term and an inadequate directive for fish management. Moreover, there is no statutory or regulatory basis for the "minimize" language. The issue is whether or not there is a new and expanding fishery, not how many fish are taken.
5. Finally, nothing in the first paragraph of the proposal acknowledges the tremendous growth of the Cook Inlet runs. Kodiak's bycatch percentage of Cook Inlet fish is a mirror image of the size of Cook Inlet returns -- with larger runs we tend to catch a larger percentage of Cook Inlet fish. **THE SIZE OF COOK INLET'S RUNS IS THE SINGLE GREATEST VARIABLE IN THIS DEBATE.**

Paragraph 2:

A. (528) The Board recognizes that some incidental catch of Cook Inlet sockeye and other stocks has and will occur in this area while the seine fishery is managed for Kodiak Area Salmon stocks. The Board intends, however, to prevent a repetition of the non-traditional harvest patterns that have occurred since 1986. Therefore, the Board establishes the following direction to the Department for management of salmon stocks during the July 1-25 period:

B. (12/94) The Board recognizes that some incidental catch of Cook Inlet sockeye and other stocks has and will occur in this area while the seine fishery is managed for Kodiak Area Salmon stocks. The Board intends, however, to prevent a repetition of the non-traditional harvest patterns that have occurred since 1987.

RESPONSE: 1. This paragraph gives short shrift to the 100 plus year history of Kodiak's bycatch of Cook Inlet fish. Once again, nothing is

Kodiak Response to 12/15/94

Cook Inlet Proposal

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mentioned about the growth of Cook Inlet stocks and nothing ties this proposal to what is happening with the fishery in Cook Inlet.

2. Internal inconsistency is also apparent in this paragraph. The Kodiak management area is already managed for local stocks, any changes in current management will alter the present system -- which is management for local stocks -- and create a system that is, at least in part, no longer management for local stocks.
3. Non-traditional harvest patterns occurring since 1987 is the thesis of this proposal. If proven, this would be The basis for the Board regulate.

a. The base years used by Cook Inlet to establish "non-traditional" reflect an inaccurate and selective bias. Cook Inlet uses base years of low Kodiak sockeye and low Cook Inlet sockeye abundance to establish what was traditional and then compares these base years to years of large sockeye abundance in both areas to claim "non-traditional" harvests.. This is an apple and oranges comparison.

b. Cook Inlet's time frame for base years of "normal" fishing patterns" is six (6) years. 1980-1986. Since Cook Inlet acknowledges that Kodiak's cape fishery is an historical fishery and that Kodiak has always had "some incidental catch of Cook Inlet sockeye", we believe the base for determining what is traditional should go back at least 50 years. Sockeye catches in Kodiak in the 1940's and 1950's clearly reflect a Cook Inlet component to the catch and a substantial cape fishery. The changes occurring in 1988 and 1992 were primarily due to the size of the Cook Inlet runs.

c. Cook Inlet cannot support the "non-traditional" harvest pattern thesis for more than a year or two in any given statistical area. There are some shifts in Kodiak harvest patterns in years of high Cook Inlet sockeye returns. The shifts, however, do not show a continuing pattern and thus do not support the idea of a new and expanding fishery. For example, in the Sitkalidak section in 1992, (during the large Cook Inlet return), the permit and landing data shows some

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shift in Kodiak fishing effort for about 4 days. However, this is not seen in 1993 or 1994. And, at least 5 times from 1959 to 1987, fishing effort in the Sitkalidak section exceeded what occurred in 1992.

d. The Cook Inlet thesis of "non-traditional" harvest patterns does not account for the changes in Kodiak fishing patterns that necessarily occur with the imposition of the North Shelikof management plan. The fleet displaced by the North Shelikof management plan has been forced to find other capes to fish on. While it is true that this is "new", it does not represent an expansion of the Kodiak fishery -- these vessels have always been fishing the capes. In 1992, for example, the day after the North Shelikof was closed, approximately the same number of vessels that had been fishing in the North Shelikof appeared in the Sitkalidak area.

Paragraph 3:

A. Paragraph 3 was paragraph (5) in the proposal 528.

The board intends to minimize the interception of Cook Inlet sockeye salmon in the Kodiak management Area to not exceed 5% of the total Cook Inlet Sockeye salmon returns. An annual post season analysis will be conducted to determine if the goal of the Board is met.

B. The Board intends to minimize the interception of Cook Inlet sockeye salmon in the Kodiak Management Area to not exceed 5% of the total Cook Inlet sockeye salmon return. An annual post season adjustment will be conducted to determine if the goal of the Board is met. Management adjustments in succeeding years will be made to meet this goal.

RESPONSE:

1. The "minimize" language in paragraph 1 is now attached to a percentage. This is more concrete but does not appear to actually allocate 5% of the run to Kodiak. The goal is still to minimize, and anything less than 5% is acceptable. The proposal, as written, does not actually allocate 5% to Kodiak, it just doesn't want the bycatch to exceed 5%. If the concept of the proposal is caps and closures, it would be better to eliminate the "minimize", "manage for local stocks" and "historical fishery" language and simply state that Kodiak is allocated 5% of the Cook Inlet run. This is clearer but problematic.
2. Caps are crude management tools that, in this situation, will

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eliminate local harvest opportunities and could, in some cases, eliminate necessary local harvest options -- thereby creating overescapement. The Kodiak fishery is distinct from the Chignik/Igvak conflict or the Area M issue. Seven (7) districts and fifty two (52) sections are being managed simultaneously based on local stocks. One third of the local sockeye and up to half of other local non-sockeye are captured when the Cook Inlet fish come through the Kodiak Management Area. For example, in the Sitkalidak Section, even in 1992, 54% of the fish captured were local stocks.

3. Identifying, in-season, the number of Cook Inlet sockeye harvested in Kodiak is exceedingly difficult or not possible.. All available means are not particularly accurate, (weight analysis, scale analysis, catch patterns) and genetic stock identification is neither available nor would it be timely in season. What is the proposed method for determining the 5%? Current fishery managers are unwilling to consider in-season stock identification.
4. A Kodiak allocation of a percentage of Cook Inlet's preseason projected return, based on the experience of the past 10 years, would be highly inaccurate. For example, in 1994 with a preseason forecast of two million, their actual catch was three million seven hundred thousand. Cook Inlet's forecast error rate in 1993 was @ 90% and in 1992 it exceeded 150%.
5. Caps don't reflect the dynamic variables of the fishery. For example, the Cook Inlet returns for 1990 and 1994 were approximately the same. A cap would assume a fixed bycatch rate, however, the Kodiak bycatch rate declined from 5.5% in 1990 to 1.8% in 1994. Note: what is actually happening in the fishery indicates that Kodiak's fishery, over the past two years, is constricting rather than expanding.
6. The current range of Cook Inlet preseason forecast limits accurate approximation of what Kodiak's allocation would be. For example, with the 1995 preseason forecast of between 1.3 and 11.9 million fish, what amount would be allocated to Kodiak?

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7. Why 5%? What are the base years? Why are those base years used? Does this percentage reflect a blend of high runs and low runs. Even if it were possible to manage for a percentage of the run, and it isn't, the 5% is not the correct number. As indicated above, Kodiak's "historical" bycatch rate has been different each year, even for relatively similar size Cook Inlet runs.

7. "Management adjustments in succeeding years" is vague and will cause problems. If managers underestimate the 5 % one year does that mean Kodiak gets more than 5% another year what about if there is a conservation concern? Or, what about value, if the underestimate is on a year of higher value, wouldn't Kodiak be entitled to more fish in years of lower value.

8. Post season adjustments also lock the Department into a yearly post season stock separation analysis for all of Kodiak Island. This is expensive, time consuming, and presumes funding which may not be available.

Paragraph 4: (With subparagraphs (1), (2) and (3).

A. (528) Therefore, the Board establishes the following direction to the Department for management of salmon stocks during the July 1 - 25 period:

- (1) When predominately local Kodiak stocks are present within any management district, emergency orders will be given consistent with the management plan for that district;
- (2) When predominately Cook Inlet sockeye or other non-local stocks are present within any management district, the Department shall use emergency order authority to minimize the interception of these stocks;
- (3) The Department shall attempt to minimize the interception of Cook Inlet Sockeye and other non-local stocks during the July 6-25 period by the following means:

(A) Restrict fishing time: Emergency orders extending fishing time will not be given when it is apparent to the Department that based on fish size, species composition, harvest patterns, or other information available that the predominate salmon stocks harvested within any district or section of the Kodiak Management Area are of non-local origin;

(B) Restrict fishing area: The Department shall restrict the seine fishery in any district or section of the management area from fishing seaward of lines drawn from headland to headland when predominately Cook Inlet sockeye and other non-local stocks are present in offshore waters. Lines drawn closing offshore areas will be based on the Kodiak Area staffs knowledge of the fishery that takes place in the area and the best information available at the time:

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B. The only changes in the 12/15/94 proposal were the dates from July 1st to July 6th and the deletion of the language regarding the Kodiak staff drawing the headland to headland boundaries.

RESPONSE:

1. Kodiak agrees with subparagraph (1). Our fishery should be managed for our local stocks.
2. Identification, with any reliability, of Cook Inlet sockeye stocks, in season, is difficult if not impossible. See comments to the 5% cap concept above.
3. The "other non-local" stocks language is unnecessary. Kodiak has historically fished "non-local" stocks other than the Cook Inlet fish. The issue remains, does Kodiak have a "new and expanding" fishery with regard to Cook Inlet stocks.
4. The "any district" language is much too broad and lacks substantive support or justification. Moreover, such invasive management would interfere with existing management plans, harvest of local stocks and traditional fishing patterns as well as the allocation between gear types. If there are some "new and expanding" aspects to Kodiak's bycatch of Cook Inlet stocks, these do not occur in "any " (and every) district. There is currently an uneasy balance in the allocation between Kodiak setnet and seine fisheries. Changing this balance will create havoc in the Kodiak salmon fishery. There are numerous examples of allocation shift with the imposition of the headland closures.
5. Subparagraphs (2) and (3), as written, still use the "minimize" language. This would be internally inconsistent with the 5% allocation mentioned in paragraph 3. See comments to paragraph 3.
6. Parts (A) and (B) of subparagraph 3 are cumulative. Emergency orders, extending fishing, are always based on the abundance of local stocks and current local escapement. Fishing time in Kodiak is not extended because of the occasional presence of Cook Inlet stocks. (Cook Inlet has yet to furnish an example of when and where this may have occurred.) Consequently, limiting extension of fishing time has a direct and detrimental effect on the harvest of local stocks ---

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especially if we are taking about "any management district".

7. The headland to headland restrictions are apparently applied during regularly scheduled fishing periods -- but not during any extensions, because extensions would have been eliminated. As pointed out earlier, headland to headland restrictions will cause severe reallocation issues and local stock harvest problems.
8. Headland to headland restrictions are cannot be factually supported and would be contrary to Board policy. The Board is directed to regulate only if they determine that there is a new and expanding fishery. If a "new and expanding" determination is made, the regulation should be tailor fit to reduce the fishery back to its level prior to expansion. Kodiak's historical fishery has always been out on the capes -- even if the Board determines that the fishery has expanded, the regulation should be limited to the expansion. Any reduction of fishing to headlands would restrict Kodiak beyond what all parties agree is Kodiak's historical fishery.

Paragraph 5: [This is where the 12/15/94 proposal is somewhat different from the proposal 528. If the proceeding 4 paragraphs of proposal 528 are eliminated, paragraph 5 reflects discussions during the inter-area work group meetings and the Cook Inlet position during those discussions.]]

A. (528) In addition to the above in-season management actions the following areas are closed to seine fishing to protect migrating Cook Inlet sockeye salmon and other non-local stocks during the July 6-25 period.

(A) The Halibut Bay section of the Southwest Kodiak District;

(B) The outer statistical areas 258-10 and 258-40 of the Sitkalidak Section of the Eastside Kodiak District; and

(C) The Katmai and Alinchak Bay Sections of the Mainland District.

B. (12/15/94) In addition to the above actions seine fishing in the following areas will be restricted as follows to protect migrating Cook Inlet sockeye salmon and other non-local stocks during the July 6-25 period;

(A) From July 6-25 in the Halibut Bay Section of the Southwest Kodiak District the department shall manage the fishery as follows:

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(1) *the management of the fishery shall be based on local stocks;*

(2) *the fishery shall remain open during normal fishing periods until the harvest reaches 39,000 sockeye salmon;*

(3) *when the harvest reaches 39,000 sockeye salmon the department shall close the fishery by emergency order until the first regularly scheduled period that follows July 26.*

(B) *From July 6-25 in the Sitkalidak Section of the Eastside Kodiak District the department shall manage the fishery as follows:*

(1) *the management of the fishery shall be based on local stocks;*

(2) *the fishery shall remain open during normal fishing periods until the harvest reaches 17,500 sockeye salmon;*

(3) *when the harvest reaches 17,500 sockeye salmon, the department shall restrict the fishery by emergency order to the inside waters on the Sitkalidak Section (statistical areas 258-20; 30; 51; and 52)*

(4) *terminal harvest areas may be opened by emergency order based on local stock abundance within the outside waters of the Sitkalidak section (statistical area 258-40) once the 17,500 sockeye cap is reached.*

(C) *From July 6-25 in the Katmai/Alinchak Section of the Mainland District the department shall manage the fishery as follows;*

(1) *the management of the fishery shall be based on local stocks;*

(2) *the fishery shall remain open during normal fishing periods until the harvest reaches 6,900 sockeye salmon;*

(3) *when the harvest reaches 6,900 sockeye salmon, the department shall restrict the fishery by emergency order to waters inside (shoreward) of lines drawn from headland to headland.*

RESPONSE:

HALIBUT BAY

1. The regulations in paragraph 5 should be separated from the rest of the proposal. The proposal, as written, is cumulative. These last three area specific regulations come on top of the "minimize" directive, the not to exceed 5% language, the island wide restrictions on extended openings and the headland to headland closures. Now, in addition to all of this, the regulation presents three sets of section specific additional restrictions. Enough!

Cook Inlet has attempted, with this proposal, to boot strap the

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entire Kodiak Management District into a regulation format based on stock separation studies and landing information from these three areas. These three areas are important to the discussion regarding a new and expanding fishery, the entire Kodiak Management District is not. Kodiak believes that any management scheme adopted regarding the bycatch of Cook Inlet fish should address the areas where a new or expanding fishery may have occurred.

3. Halibut Bay is part of an existing, Board approved, management plan. The Halibut Bay fishery is now over 100 years old. When Kodiak has strong local sockeye runs, it is a major sockeye harvest area. Halibut Bay is currently only open when two local sockeye systems have healthy returns. It is always regulated based on local stock abundance and the local fishery. Subpart (A)(1) doesn't need to affirm local stock management.

Clearly, changing how Halibut Bay is managed, will alter the existing Ayakulik and Karluk management plans. It will further reallocate fish between gear types on Kodiak and it will dislocate a portion of the Kodiak fleet to other capes. The mixed stock fish policy wisely counsels, "Existing regulatory management plans are understood to incorporate conservation burden and allocation."

4. Justification for regulation of Halibut Bay is based on what occurred in 1992, a year of large sockeye returns to Cook Inlet. The mixed stock fish policy cautions, "New and Expanding fisheries will not be gaged against single year anomalies in distribution or effort, or against natural fluctuations in the abundance of fish."
5. Subparagraph (A) dealing with Halibut Bay is a clear cap and closure proposal. Closures, when a cap is reached, do not provide for the harvest of local stocks. Overescapement is possible and harvest quality quickly diminishes. This is not a theoretical concern. Currently, Kodiak fishermen are suffering from the oil spill imposed overescapement to the Ayakulik system. The system is not expected to recover until 1997, eight years after the oil spill!

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6. The closure proposed is for whatever time remains in the July 6 to 25 time period. Catch records show that Cook Inlet fish would only be in the Halibut Bay area for a few (3-5) days after the cap is reached. The Closure is too broad.
7. The 39,000 number is some combination of "base years" prior to the large Cook Inlet runs. If a cap is to be determined, Halibut Bay catches should be analyzed for years when there has been maximum local fishing opportunities. Any cap amount should be based on those years. Otherwise, in years of local abundance, the cap will be reached with local fish. Note that this would exclude strike years or years of complete closures. Neither of these types of seasons reflect a "historical" catch amount in the Halibut Bay area.

SITKALIDAK:

1. The Sitkalidak Section of the Eastside Kodiak District is one of the oldest fisheries on Kodiak Island. There is no question that Kodiak salmon fishermen have been fishing off the capes Sitkalidak Island since before recorded history. Since commercial fishing started, the Sitkalidak fishery has consistently been a cape fishery. This is not a "new" fishery.
2. The Sitkalidak fishery is the primary area for Old Harbor residents to fish. Reductions in this fishery will place a disproportionate burden on Old Harbor.
3. Justification for regulation in Sitkalidak is also based primarily on what occurred in 1992. As indicated above, "New and Expanding fisheries will not be gaged against single year anomalies in distribution or effort, or against natural fluctuations in the abundance of fish."
4. The Sitkalidak proposal (unlike the Halibut Bay regulation) recognizes the importance of the harvest of local stocks -- but just barely. The proposal allows for limited harvests of local stocks by emergency order. This is an improvement but does not appreciate the abundance of local stocks in the area. For example, even in 1992, when approximately 300,000 Cook Inlet sockeye were harvested, local stocks consisted of almost 400,000 fish. In 1991, almost 1 million local fish were harvested in this area during the July 6 - July 25 the time

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period. And, the Department is suppose to provide for this harvest by "emergency order"?

5. Necessarily related to the local harvest issue is the allocation issue. If Sitkalidak is restricted, substantial salmon will be reallocated to the setnetters in the Olga\Moser Bay area. Again, such a regulation will unnecessarily create conflict in Kodiak between gear types. As the mixed stock fish policy states, "Most mixed stock fisheries are long standing and have been scrutinized many times by past boards." The allocation between purse seine and setnet gear on Kodiak Island is one of these fisheries.
6. The cap restriction moving the fleet into the inside waters of the Sitkalidak section is better than a closure but, as indicated above, does not account for the historical fishery, restricts local harvests and reallocates fish. The Cap, in general, does not reflect changes in the abundance of Cook Inlet sockeye.
7. As a practical matter, the Department will be unable to accurately monitor caps and impose regulatory restrictions. The Department's only vessel is already employed to the North Shelikof Management Area. Without additional funding and resources, caps will be very difficult to manage in season.
8. The closure proposed is for whatever time remains in the July 6 to 25 time period. Catch records from past years show that this is overbroad. Cook Inlet fish will only remain in the area for another 3 to 5 days.
9. The 17, 500 sockeye number is so low it cannot be taken seriously. It does not reflect that in each of the last 4 years, including 1994 when very few Cook Inlet sockeye were captured, the catch of local sockeye exceeded twice this amount. In short, local sockeye would have triggered the cap in each of the last four years even if not a single Cook Inlet sockeye were present! Any cap number must be based on the availability of local sockeye as well as the abundance of Cook Inlet sockeye. Note that the cap should include the "historical" catch component of the Cook Inlet run as well as whatever local fish could be available.

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10. Kodiak's 1983-1994 analysis, submitted to the work group on 12\15\94 , applies this portion of the Cook Inlet proposal on a year by year, day by day basis to the Sitkalidak area. This analysis shows that there was not a single year when the catch of Cook Inlet sockeye exceeded the catch of local stocks.

KATMAI\ALINCHAK

1. Katmai\Alinchak and all of the Alaska Peninsula in the Kodiak Management area is subject to wide variations in local stock availability and consequently, has had wide variations in fishing effort and fishing time. Comparisons of yearly statistical data must be done with care. The Cook Inlet approach is to ignore strikes, closures, and local abundance and "just take an average" from a few select years. This is not a fair or accurate way to determine a cap.
2. The Cook Inlet proposal does not account for the displacement of the Kodiak fleet that occurred when the N. Shelikof plan was implemented. Regulatory displacement of an existing fleet does not create a new and expanding fishery.
3. The Katmai\Alinchak proposal (unlike the Halibut Bay regulation) recognizes the importance of the harvest of local stocks. It allows for limited harvests of local stocks with the headlands of the area. Such a fishery may have the appearance of allowing for the harvest of local stocks, however, because of the geography of the area and the shallow beaches and tide flats, a headland to headland fishery is almost no fishery at all. There is substantial possibility of loss of local stocks, overescapement and poor quality catches. For example, back in 1984 almost 50,000 local fish were caught in this area. The headland closures could have eliminated the catch of many of these fish.
4. Also at issue in Katmai\Alinchak is how much restriction is justified in the proportional sharing of the allocation burden -- especially given the historical fishing opportunities on the mainland for the Kodiak fleet. The N. Shelikof management plan has already restricted fishing along more than 2/3 of the Mainland management area. Additional closures would restrict

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fishing by Kodiak fishermen for a strip 3 miles wide by 42 miles long, this is an area of 126 square miles!

5. The proposed fishing limitations in Katmai/ Alinchak are for whatever time remains in the July 6-25 time-period after the cap is reached. Catch records from past years show that this is overbroad. Cook Inlet fish will only remain in the area for another 3 to 5 days.
6. The 6,900 sockeye cap for this area before fishing restrictions are imposed is not a fair or accurate calculation of what a cap should be. As indicated above, the individual yearly circumstances of local stock availability and fishing time, as well as strikes, has greatly impacted the catches in the Katmai Alinchak area. If a cap is set, it should reflect the unique yearly circumstances of the area and non-Cook Inlet catch potential as well as the availability of local stocks and the size of Cook Inlet's returns.

In many years, catches of non-Cook Inlet sockeye have exceeded Cook Inlet sockeye and also the proposed cap. For example, in 1987, 1990, and 1993, the cap would have been reached even if not a single Cook Inlet sockeye was captured.

7. Stock separation may not be as accurate for Katmai\Alinchak. This area also has an abundance of large sockeye headed for Chignik. Our stock separation analysis based on average weight is less accurate when another component of large fish is added to the mix. The Chignik fish may account for a significant portion of the sockeye captured in this area, but, because of their size, are attributed to Cook Inlet. Kodiak fishermen indicate that most of their sockeye catches occur when fishing for "southbound" (Chignik?) fish as opposed to "north bound" Cook Inlet fish.
8. Kodiak's 1983-1994 analysis, submitted to the work group on 12/15/94, applies this portion of the Cook Inlet proposal on a year by year, day by day basis to the Katmai\Alinchak area.. This analysis shows that only twice in the last 11 years has the catch of Cook Inlet sockeye exceeded the catch of local stocks in the Katmai\Alinchak area.

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CONCLUSION :

The Cook Inlet proposal seeks to create a restricted Kodiak salmon fishery that has never has never existed. The proposal is not tailored to fit a specific new and expanding fishery. The final section of the proposal, when separated from the first four paragraph, is more of an attempt to regulate for an expanded fishery. Nevertheless, this section is also far too broad and invasive. The final section further affirms that Cook Inlet's position has not substantially changed from the March, 1994 Board meeting.

If the Board determines that regulation is necessary, Kodiak's proposal for dynamic caps and restrictions tailored to our historic fishery is substantively superior to the above proposition. The Kodiak proposal will reduce opportunities for "targeting" Cook Inlet fish, allow for responsible harvesting of local stocks and maintain established allocations between Kodiak gear groups. Last, and perhaps most important, Kodiak's proposal can be implemented by the Department without additional funding or personnel.

12/15/94 ISSUES SUMMARY
(KODIAK/KENAI INTER-AREA WORK GROUP)

KODIAK RESPONSE

The Kodiak\Kenai inter-area work group met in Soldotna on December 15 -16, 1994. Toward the end of the meeting, a number of "issues" or discussion points were listed. It may be helpful to the Board to have input for both sides regarding these issues. The following is a brief summary of Kodiak's responses to these various discussion points.

More in depth responses on many of these issues can be found in Kodiak's responses to Cook Inlet's proposal, Kodiak's support of its own proposal and Kodiak's book identifying and illustrating intercept issues.

1. TIME PERIODS:

a. **All of July:** There is not catch data justification for including all of July in any regulatory scheme. The first week of July is managed for local stock sockeye and the early local stock management plan transitions on July 6th. Moreover, the last week in July shows substantial increases in local pink and chum catches. Regulation during this time period would only increase the interference with the harvest of local stocks.

b. **July 6 to July 25th.** The July 6 to July 25th time period was adopted by the Board during their 1989 deliberations on this issue and applied to the North Shelikof management plan. It was clear, at that time, that unusual catches of large sockeye did not occur in the Kodiak Management Area outside of this time period. Since that time, daily, section specific, landing data has confirmed that the bycatch of Cook Inlet sockeye is within the July 6-25th period.

In general, the catch data shows two additional facts. First, once Cook Inlet sockeye appear in a given Kodiak fishing section or district, they remain available in that section or district for seven (7) days or less. Second, the variation in timing availability in any given Kodiak fishing section or district, from one year to the next, is not significant and generally falls within a 10 day time frame, not the 21 day period from July 6 to July 25th period. For example, in the Outer Sitkalidak sections from 1983 through 1994, the large sockeye catches have always occurred between July 13th and July 23rd.

2. AREAS:

a. **Entire Island:** (Except Igvak and Alitak, N. Shelikof) The island-wide idea is founded on the thesis that the bycatch of Cook Inlet fish should be "minimized" in Kodiak. This approach ignores the statutory guidelines maintaining historical fisheries and historical allocations between fisheries. Moreover, it also overlooks the existing Kodiak management

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plans and the priority given management plans in the mixed stock fish policy. Next, when catch data is reviewed by statistical area, it is apparent that there is no statistical support for Island wide regulation. Finally, it fisheries management turned on its head to manage one management area, such as Kodiak, for a portion of stocks traveling to another area--- especially when these stocks are a small percentage of the total fish caught in the area.

b. Sitkalidak, Halibut Bay, Katmai\Alinchak: These three areas have been identified as "hot spots" or areas where bycatch of Cook Inlet sockeye has occurred. Kodiak agrees that the debate regarding bycatch needs to focus on areas where Cook Inlet bycatch occurs. Each of these management sections should be evaluated individually, based on the fishing history in that area. Halibut Bay is part of an existing management plan and Cook Inlet bycatch only occurred in that area, in any significance, in one year, 1992. 1992 also had the improbable circumstance of a very large Cook Inlet run and strong local Kodiak returns at Karluk and Ayakulik. This is a single year anomaly that should not be regulated. (See response to Cook Inlet's proposal for a detailed analysis of Halibut Bay.)

c. Sitkalidak, Katmai\Alinchak: These are the two Kodiak management sections that should be reviewed by the Board. The Board needs to look at the statistical information on these areas to determine whether or not either area represents a "new and expanding" Kodiak fishery.

3. TRIGGERS: Triggers are a predetermined mechanism for the imposition of regulation. The discussion about triggers, actions and multipliers assumes that the board determines that there is a new and expanding fishery in Kodiak. We do not believe the facts support the thesis of a new and expanding Kodiak fishery. However, we offered a compromise proposal, should the Board decide that a new and expanding fishery exists.

a. Cap (Fixed #'s) A fixed number cap has the advantage of certainty, and is relatively easy to employ. On the other hand, a fixed cap does not account for variables that occur within any given fishery. It would not respond to or be adjusted for a large Cook Inlet run, large local run, or for that matter, an exceptionally weak Cook Inlet run. Thus, the cap would not help with a conservation concern. In this sense, the Cap is a fixed determination that ignores the historical fishery and historical fishing opportunities available during various seasons. Moreover, fixed caps do not reflect fisheries enhancement by either Kodiak or Cook Inlet. And, most importantly, a fixed cap does not consider the amount of local stocks that may be in an area after the cap is imposed.

b. Dynamic Cap -- (Threshold percent of Sockeye) The idea of a dynamic cap is to make a presumption about the presence of Cook Inlet fish while, at the same time preserving traditional local harvest opportunities. The dynamic cap is not a fixed amount of

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fish but a fixed percentage of the fish in any one day. The Kodiak proposal is that after a certain amount of fish are caught in a management area, say 10,000, if 50% or more of those fish are sockeye, then the regulation limitations would be imposed. The Dynamic cap is responsive to the yearly variables occurring in the fishery and preserves the harvest of local stocks. With the dynamic cap the management focus of the fishery is on local stocks. Of course, when non-local stocks exceed local stocks, then the management focus shifts to the non-local stocks.

c. In season change in Average weight: This would be more definitive in identifying the presence of Cook Inlet Sockeye in Kodiak. The Department indicates that this would be a difficult trigger mechanism to employ in-season. Kodiak is not opposed to trying this type of an in-season mechanism.

4. RESTRICTED FISHING AREA:

A. 1.5 Mile Inshore Fishing Zone:

The idea of a trigger is to identify the presence of Cook Inlet stocks in the Kodiak area. Once those stocks are identified, the regulation should protect targeting on those stocks -- or expanding the local fishery to exploit the presence of non-local stocks. Reducing the fishing area in a given management unit by half, from the three mile limit to the 1.5 mile zone -- or three sets out, will significantly reduce the ability of a fleet to target Cook Inlet fish. At the same time, the 1.5 mile zone will preserve the historical fishery, traditional harvest opportunities and exploitation of local stocks. Remember, the idea is to limit the expansions of a fishery, not eliminate the fishery.

B. Headland to Headland Closure:

Headland to headland closures will, of course, eliminate cape fishing. For the areas in question, it will virtually eliminate most fishing opportunities. Outer Sitkalidak is all outside the headlands and much of Katmai\Alinchak goes dry between the headlands at low tide. Headland to headland is better than a complete closure but it does not provide the fishing opportunities necessary for harvesting local stocks. Headland closures do more than reduce the expansion of a fishery, it eliminates or reduces the fishery itself. Also, the headland closures will substantially reallocate local stocks between gear types.

5. MULTIPLIERS: Multipliers are one means of obtaining a fixed cap amount. They assume a certain catch amount for a base period and then calculate the amount of increase in the size of the runs for a subsequent period.

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The discussion regarding multipliers assumes that a fixed cap be imposed. Again, Kodiak doesn't believe a fixed cap is the best available "trigger mechanism" or management tool.

The multiplier discussion persuaded the Kodiak group that multipliers are difficult to calculate accurately and may not be the best means for arriving at a cap amount. For example, the average catch in a management area for the past 15 years is a much easier means of obtaining a cap figure.

A. Harvest Only/ Total Return:

These two options were part of the same discussion and reflect changes in escapement goals and area enhancement. The total return is the best number to reflect the complete fishery picture. Total return, however, must be viewed with local harvest potential in mind with calculating caps. Again, the intent is to limit the expansion of a fishery, not the fishery itself.

B. Year Sequences: (78-87, 88-94, 85-94, 78-94)

Year sequences, in the abstract, are confusing. The idea with year sequences, when working on a multiplier, is to determine the base years and then compare the catch for these years with the fish returning during a set of subsequent years. Years excluded or included will effect the amount of the "multiplier". In this sense, the years 1978-87 are to be compared with the years 1988-94. (The discussion regarding 1985-94 and 1978-94 had to do with an "average yearly catch" approach to caps and not the multiplier approach to caps.) Whatever years are used for comparison, the number of years on each side of the equation should be equal, for example 1980-1986 and 1987-1994 is a comparison of two sets of 7 years. (Remember that there was no season in 1989.)

C. Strike Years and Closure Years.

Strike years and closure years do not reflect a true "historical" fishery. They should be eliminated from the discussion regarding multipliers --- as well as from the discussion regarding yearly average catches.

D. Island Wide/Area Specific

These were idea hooks to illustrate a wide ranging discussion about what needed to be compared when using multipliers. Since a multiplier is to reflect changes in a fishery from one set of years to another, all the changes that have occurred in the fishery should be factored into the multiplier. These changes would include both increases in Sockeye and increases in non-sockeye stocks for both areas. Moreover, any multiplier should take

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into account the harvest potential of local stocks and factor into the equation the local harvest potential so that the fixed cap could not be triggered by local stocks.

6. AVERAGE CATCHES:

Although not separately indicated in the list developed at the 12/15/94 meeting, average catches, as a means of arriving at a cap, were discussed at length.

A. 1983 - 1987: Cook inlet proposes the use of these years as the base years for the average catch and does not favor adjustments for strikes or closure years. Cook Inlet maintains that the fishery became "new and expanded" after 1987. Kodiak's position is that these years present a biased, limited snapshot, of the fishery and ignore most of the past 100 years of fishery experience. Also, the area specific landing data does not show any fishing shifts in most of the years since 1987, landing data indicates some shift in one or two years. In addition these years do not reflect the rebuilding of Kodiak's local sockeye stocks. During the past 6 seasons, Kodiak has hit its sockeye escapement goals 5 times -- indicating strong local runs. During the years proposed by Kenai, Kodiak hit its escapement goal once -- indicating relatively weak local sockeye returns.

It is important to note that Cook Inlet wants to use some of Kodiak's poorest seasons to set a benchmark that would apply to years of record Cook Inlet runs. This is a double standard.

B. 1978-94: Kodiak favors these years as the base years of an average catch and strongly advocates throwing out the years when there were closures or strikes in a given management area. Going back further than 1978 would be acceptable, however that data wasn't available. The years since 1987 are included because they reflect the historical opportunities for harvest in Kodiak. Harvests in these areas were not a problem until the 1992 season and have not been a problem since that season. If we are to impose a fixed cap, all of the past history should be factored into the cap.


**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

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by:

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for

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10 March 1994

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ACKNOWLEDGMENTS

We wish to thank the ADF&G biologists in the Kodiak Region for their generous and timely cooperation. We recognize that the ADF&G biologists were diligently preparing numerous reports on the issue involving harvests of UCI-bound sockeye in the Kodiak Management Area, while making historical reports and data available to us.

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SUMMARY

Beginning in 1988, fishermen from Upper Cook Inlet (UCI) became concerned over the possible increase of UCI sockeye salmon harvested by Kodiak fishermen during July. This concern has led to a proposal by UCI fishermen (Kenai Peninsula Fishermen's Association, KPFA) that would restrict fishing activities in the Kodiak Management Area (KMA) during July. This proposal, if accepted, would likely reduce harvests of non-local salmon, but would also alter fishing patterns for local salmon.

Runs of local Kodiak stocks and UCI stocks have both increased substantially in recent years. Because the KMA has always harvested UCI-bound sockeye salmon and because UCI runs have been exceptional in recent years, we would expect numbers of UCI-bound sockeye salmon harvested in the Kodiak fishery to also increase. However, we believe the important issue is whether the Kodiak fishery has been harvesting proportionately more UCI sockeye in recent years compared to sockeye harvests or runs to UCI and Kodiak.

We compared harvest rate indices of Upper Cook Inlet sockeye salmon captured in the Kodiak Management Area during 6-25 July 1970-1987 and 1988-1993, excluding 1989. A variety of analyses were used. Several analyses suggested harvest rates of UCI-bound sockeye in KMA were not greater than expected during 1988-1993, although one type of analysis indicated the harvest rates in 1988 and 1992 were higher than expected.

Analysis of the percentage of sockeye harvested in areas identified in the KPFA proposal for closure during 6-25 July indicated that harvests in these areas have increased primarily in 1992 and, to a lesser extent, in 1988. Fishing patterns in other years were not unusual. The ADF&G management during most of July is focused on KMA pink salmon stocks.

We reviewed ADF&G reports that estimated numbers of UCI sockeye salmon captured in the Kodiak fishery during 6-25 July. In general, we agree with these reports in that harvests of UCI-bound sockeye salmon by

Kodiak fishermen have been relatively great in recent years. This trend is expected because runs of sockeye salmon to UCI have reached record levels in recent years. Potential sources of error associated with the estimation of UCI sockeye harvested in Kodiak are discussed in the following report.

We conclude, based upon our analyses and our review of the ADF&G reports, that harvests of UCI-bound sockeye salmon in the KMA is highly related to the strength of UCI runs. Higher than expected harvests of UCI-bound sockeye salmon are likely to occur only when runs to UCI are exceptionally large.

INTRODUCTION

The Kodiak Management Area (KMA) includes inland and State marine waters surrounding the Kodiak Island archipelago and adjacent to the Alaska Peninsula between Kilokak Rocks and Cape Douglas (Exhibits 1 and 2). The area is managed primarily for local stocks, although the Cape Igvak Section of the Mainland District is managed for Chignik sockeye salmon prior to 26 July and the North Shelikof Strait area (NSS) is managed during 6-25 July to restrict harvests of sockeye salmon returning to Upper Cook Inlet (UCI). The NSS sockeye management plan was established in November 1989 by the Alaska State Board of Fisheries after reviewing concerns by UCI fishermen regarding the harvest of UCI-bound sockeye salmon within the NSS.

During 1993, UCI fishermen proposed to the Board of Fisheries that additional restriction be applied to the management of salmon harvests in the Kodiak Management Area. The UCI proposal requests the following areas be closed to fishing during 6-25 July:

- Halibut Bay Section of the Southwest Kodiak District
- Areas 258-10 and 258-40 of the Sitkalidak Section of the Eastside Kodiak District
- Katmai and Alinchak Bay Sections of the Mainland District

Additionally, UCI fishermen propose the Board restrict fishing time, area, and gear within the KMA during 1-25 July. The purpose of the proposal is to reduce the catch of sockeye salmon bound for UCI in the Kodiak Management Area.

Acceptance of the UCI proposal by the Board would lead to reduced harvests by Kodiak fishermen of all salmon species during 1-25 July. Because acceptance of the UCI proposal would lead to reduced harvests of local and non-local salmon, the Kodiak Island Borough Salmon Work Group contracted Natural Resources Consultants to evaluate the harvests of UCI-bound sockeye salmon during KMA's July salmon fishery.

The objectives of this report were to:

1. review general factors influencing harvests of migrating non-local sockeye salmon
2. examine trends in harvest rate indices of UCI-bound sockeye salmon within the KMA during 6-25 July
3. quantitatively examine factors influencing harvest rates of UCI-bound sockeye salmon
4. review reports by ADF&G biologists that attempt to estimate numbers of UCI sockeye salmon harvested by Kodiak fishermen.

OVERVIEW OF SALMON DISTRIBUTION AND MIGRATION

Sockeye salmon are distributed in the North Pacific Ocean from the Gulf of Alaska to the Aleutian Islands (Exhibits 3 and 4). Salmon actively migrate counterclockwise with the Alaskan Gyre and may travel 2,000 miles in a year (Royce et al. 1968). The distribution center of sockeye stocks from western Alaska tends to be farther west than sockeye stocks from central Alaska, although considerable overlap exists on the high seas among sockeye salmon stocks from all areas of Alaska (French et al. 1976).

The distribution and migration patterns of salmon stocks in the ocean are dynamic. For example, sockeye salmon tend to be further south during winter and farther north during summer (French et al. 1976).

Furthermore, during winters of relatively warm ocean temperatures, salmon tend to be farther north (Exhibit 5, Blackbourn 1987). When Alaskan salmon are distributed farther north during warm winters, they tend to return to their native streams at a slightly earlier date.

Ocean temperatures can have a dramatic effect on the migration route of sockeye salmon. For example, sockeye salmon returning to Fraser River, British Columbia, tend to migrate from the north through Johnstone Strait during warm winters when the sockeye are distributed farther north. During relatively cool winters when the fish are farther south, the fish migrate from the west through the Strait of Juan de Fuca (Groot and Quinn 1987). The dynamic nature of salmon migration patterns can have a substantial effect on the fishing patterns of commercial salmon fishermen.

Mechanisms enabling salmon populations to return to their natal streams within a brief, highly predictable time period after individuals begin their journey from areas up to about 2,000 miles apart are not well understood. In the open ocean, salmon may use ocean currents and compass orientation to navigate back to coastal areas (Royce et al. 1968; Quinn 1982). Once salmon reach coastal waters, they may encounter physical obstacles, such as islands and inlets, a variety of odors from many streams, reversing tidal currents, and vertical and horizontal gradients of water temperature and salinity. Mechanisms that may be used by salmon to navigate through

coastal waters include compass orientation, tidal stream transport, and orientation to homestream odors (Ruggerone et al. 1990). Tracking studies of salmon in coastal waters have demonstrated salmon often meander considerable distances from a direct course leading back to their homestream (Quinn et al. 1989; Ruggerone et al. 1990).

The number of non-local sockeye harvested by Kodiak or other fishermen will depend, in part, on the distribution of the non-local salmon stocks. As described above, salmon migration patterns can change from year to year. Given the location of the Kodiak Management Area in the Gulf of Alaska and the widespread distribution of sockeye salmon stocks from western and central Alaska, sockeye stocks from Bristol Bay and Chignik could be harvested by Kodiak fishermen during June in addition to local stocks. In July, sockeye salmon from UCI and Chignik could also be harvested by Kodiak fishermen. Catch of non-local salmon undoubtedly occurs in most salmon fisheries.

The high seas distribution of Kodiak sockeye compared to Cook Inlet sockeye salmon can be described from an international tag/recovery effort during 1956-1970. During this period 4,846 maturing sockeye salmon were tagged on the high seas and recovered in North America. Of these 4,846 sockeye salmon, 142 fish were recovered in the Kodiak Management Area and 243 fish were recovered in Cook Inlet. Exhibit 5 shows the relative distribution of maturing Kodiak and Cook Inlet sockeye salmon tagged during April, May, and June of the year of recapture. These data show maturing Kodiak sockeye salmon tend to be distributed farther west than Cook Inlet sockeye salmon. An estimated 32.5% of the tagged Kodiak sockeye were east of 150°W, whereas 10.3% of the tagged Cook Inlet sockeye salmon were east of 150°W (Exhibit 6).

A tagging study conducted near Unimak Island and the Shumagin Islands, which are approximately 250-400 miles southwest of Kodiak, can provide additional information on the relative abundance of Kodiak and Cook Inlet sockeye in that area during 1987. A total of 23 tagged sockeye were recovered in Kodiak, but only 4 tagged sockeye were recovered in Cook Inlet (Eggers et al. 1991). The recapture rate of sockeye released in the

Shumagin Islands was approximately 8 times greater for Kodiak compared to Cook Inlet sockeye salmon. For sockeye captured and released near Unimak Island, the recapture rate for Kodiak sockeye was approximately two times greater. The tag data from 1987 and data from the high seas tagging studies suggest Kodiak sockeye tend to be more abundant than Cook Inlet sockeye in areas west of Kodiak Island. These data suggest the majority of sockeye returning to UCI migrate through Kennedy and Stevenson Entrances rather than Shelikof Strait in most years.

In addition to distribution and migration patterns, the abundance of sockeye salmon from areas throughout Alaska will greatly influence numbers of non-local sockeye salmon intercepted by fisheries targeting on local stocks. Sockeye harvest in western and central Alaska have been exceptionally high since 1978 and have included record harvests in recent years. Both Kodiak and Upper Cook Inlet have enjoyed relatively large harvests of sockeye salmon in recent years. Given the large runs to UCI, one would expect catches of UCI sockeye to increase in KMA's commercial salmon fishery.

The important question the Board of Fisheries should ask is whether an increase has occurred in the number of UCI sockeye captured in the KMA compared to harvests or runs in Upper Cook Inlet. In other words, has the harvest rate of these non-local salmon been consistently high in recent years? We address this question in the next section.

HARVEST RATES OF UCI-BOUND SOCKEYE SALMON

Harvest data for the following analyses were provided in Brennan et al. (1993) and by K. Brennan (pers. comm., ADF&G, Kodiak) (Exhibit 7). The data included all areas of the KMA except the Cape Igvak Section, managed for the harvest of Chignik sockeye salmon. The year 1989 was excluded from analysis because the *Exxon Valdez* oil spill interfered with fishing activities in Kodiak and Upper Cook Inlet. The dataset allowed comparisons of harvests in the KMA during 6-25 July (i.e., the period when most UCI-bound sockeye migrate through the KMA) and the entire season excluding 6-25 July (i.e., "the period when few UCI-bound sockeye migrate through the KMA). Additional analyses were conducted on harvests of sockeye salmon exceeding 6 lbs, which serve as an index of UCI sockeye abundance during July. The analysis will focus on two time periods: 1970-1987 and 1988-1993. The latter period represents the period when UCI fishermen became concerned about catches of UCI sockeye in the Kodiak fishery.

Harvests of Sockeye Salmon

Sockeye harvests in the KMA have increased substantially during both 6-25 July and during the remaining season since the early 1970s (Exhibit 8). During the 6-25 July period, sockeye harvests averaged 0.2 million during 1970-1987 and 1.4 million during 1988-1993. During the remaining period (mostly June and August), sockeye harvests averaged 0.6 million during 1970-1987 and 2.8 million during 1988-1993. During the entire season, sockeye harvests averaged 0.8 million during 1970-1987 and 4.2 million during 1988-1993.

In the Upper Cook Inlet Management Area, sockeye harvests, on average, increased from 2.4 million during 1970-1987 to 5.2 million salmon during 1988-1993 (Exhibit 8). These data indicate sockeye returning to both the Kodiak and Upper Cook Inlet streams have increased substantially over the

past 20 years. This trend is common to nearly all sockeye systems in Alaska.

If harvest rates of UCI-bound sockeye have increased substantially since 1987, as suggested by the UCI proposal, then the percentage of sockeye taken during 6-25 July compared to the entire season would likely increase during 1988-1993 compared to previous years. As shown in Exhibit 9, the percentage of sockeye taken during the 6-25 July period was similar during 1970-1987 (34%) and 1988-1993 (36%), indicating sockeye harvests during 6-25 July have not increased in recent years relative to harvests for the entire year.

The ratio of sockeye salmon harvested in the KMA compared to UCI should also be relatively high during recent years if the harvest rate of UCI-bound sockeye has increased. The ratio of sockeye taken during the 6-25 July period in the KMA to UCI was higher during 1988-1993 (0.35) than 1970-1986 (0.12) (t-test, $df=20$, $p<0.01$) (Exhibit 10). However, the higher ratios in recent years were due to high ratios during 1990 and 1991 rather than 1988 and 1992, the two years having relatively high catches of UCI sockeye salmon based on ADF&G estimates (Vining and Barrett 1994). Harvest of sockeye salmon in UCI could have been higher in 1987, 1988, 1992, and 1993 because escapement in the Kenai River exceeded the escapement goal. Furthermore, the ratio of sockeye taken during June and August in the KMA compared to UCI was also higher during 1988-1993 (0.76) than 1970-1986 (0.27) (t-test, $df=20$, $p<0.01$) (Exhibit 11), indicating the high ratio in recent years during 6-25 July was related to the large increase in local Kodiak sockeye runs compared to those in UCI.

We attempted to develop a multiple regression model that could predict the harvest of sockeye in the KMA from one or more variables. The independent variables tested included sockeye harvests in the KMA during other periods (mostly June and July), sockeye harvests in UCI, sockeye run size in UCI, pink salmon harvests in the KMA, sockeye salmon harvests of the late run to Chignik Lake, winter sea-surface temperature near Kodiak (November to March), and spring sea-surface temperature (March and April). The regression model was built using data from 1970-1987 so

potential deviation in harvests during recent years (1988-1993) could be examined.

The analysis indicated sockeye catch during 6-25 July was correlated with sockeye catch during June and August ($r = 0.86$), harvests in UCI ($r = 0.65$), and run size to UCI ($r = 0.65$). However, sockeye catch during June and August explained the greatest amount of variability and was the best predictor of sockeye catch during 6-25 July ($r^2 = 0.74$, $df = 18$, $p < 0.001$) (Exhibit 12). Sockeye harvests and run sizes in UCI did not add additional information to the single regression model because sockeye catches during June and August were correlated with them. Thus, harvest of all sockeye during 6-25 July was more dependent on harvests or run strength of Kodiak stocks than on run strength of UCI sockeye salmon. No other variables were statistically significant.

Examination of standardized residuals from the regression shows harvests of sockeye during 6-26 July, 1988-1993, were within the range predicted by the model developed from data during 1970-1987, except for harvests during 1988 and 1992 (Exhibit 13). Harvests during 1988 and 1992 were higher than expected based on harvests during June and August. Potential factors explaining this deviation could be strong UCI runs, greater catchability of UCI stocks, or relatively strong returns of Kodiak stocks during July.

Harvests of Sockeye Exceeding 6 lbs

Numbers of sockeye salmon exceeding 6 lbs during 6-25 July can be used as an index of UCI sockeye in the KMA because UCI sockeye tend to be larger than Kodiak sockeye (Vining and Barrett 1994). Brennan et al. (1993) estimated numbers of sockeye >6 lbs by assigning all sockeye from a given fish ticket to this category when the average weight exceeded 6 lbs. Thus, the analysis of fish >6 lbs introduces some error, but the amount of error should be relatively little because the data included nearly all of the KMA for major portions of the season.

During 6-25 July, the number of harvested sockeye >6 lbs was considerably greater during 1988-1993 (avg. 537,000) than during 1970-1987 (avg. 98,000), although year-to-year variability was high in recent years (Exhibit 14). During the remaining season, the number of harvested sockeye >6 lbs averaged approximately 21% less during 1988-1993 (avg. 155,000) than during 1970-1987 (avg. 197,000). This difference was due largely to the great harvest of 6 lb sockeye during the remaining periods (June and August) in 1986. These data suggest that numbers of UCI sockeye harvested in the KMA could be relatively high in recent years. This result was expected, as discussed previously, because runs to UCI have been exceptionally large in recent years.

If harvest rates of UCI-bound sockeye have increased substantially since 1987, then the percentage of sockeye >6 lbs harvested during 6-25 July would likely increase during 1988-1993 compared to previous years. As shown in Exhibit 15, the percentage of sockeye >6 lbs harvested during 6-25 July averaged 26% higher during 1970-1987 than 1988-1993 (44% to 35%). The percentage of sockeye >6 lbs harvested during the entire season declined approximately 51% between 1970-1987 and 1988-1993 (39% to 19%). Although somewhat confounded by the recent decline in the percentage of >6 lb sockeye during the entire season, these data do not suggest an increase in the harvest rate of UCI-bound sockeye salmon.

We developed a multiple regression model that could predict the harvest of >6 lb sockeye in the KMA from one or more variables. The approach was the same as that described above for the prediction of total sockeye catch. The independent variables tested included harvest of 6 lb sockeye in the KMA during other periods (mostly June and July), sockeye harvests in UCI, sockeye run size in UCI, average weight of UCI sockeye, pink salmon harvests in the KMA, sockeye salmon harvests of the late run to Chignik Lake, winter sea-surface temperature near Kodiak (November to March), and spring sea-surface temperature (March and April). The regression model was built using data from 1970-1987 so that potential deviations during recent years could be examined.

The analysis indicated harvests of 6 lb sockeye during 6-25 July was correlated with sockeye harvests in the UCI ($r = 0.81$), sockeye runs in the UCI ($r = 0.80$), harvests of 6 lb sockeye in the KMA during June and August ($r = 0.71$), harvests of all sockeye in the KMA during June and August ($r = 0.52$). The model best explaining harvests of 6 lb sockeye during 6-25 July included harvests in UCI ($p < 0.001$) and harvests of 6 lb sockeye during June and August ($p < 0.004$) (overall $r^2 = 0.81$, $df = 18$, $p < 0.001$) (Exhibit 12). Thus, harvests of 6 lb sockeye during 6-25 July were dependent on both run strength of UCI stocks and run strength of Kodiak 6 lb sockeye salmon during 1970-1987.

Examination of standardized residuals from the regression shows harvests of 6 lb sockeye during 5-25 July, 1988-1993, were within the range predicted by the model developed from data during 1970-1987, except for harvests during 1988 and 1992 (Exhibit 13). Harvest during 1988 and 1992 were higher than expected based on harvests in UCI and harvests of 6 lb sockeye during June and July. Factors explaining the deviation in 1988 and 1992 could be strong UCI runs relative to harvests (overescapement), greater catchability of UCI stocks, greater harvests of other non-local stocks, and relatively poor returns of large local sockeye during June and August compared to July.

An additional regression model was developed to predict the percentage of 6 lb sockeye harvested during 6-26 July, 1972-1987. The final model included average weight of UCI sockeye ($p < 0.001$), the percentage of 6 lb sockeye during June and July ($p < 0.009$), and sockeye harvest in UCI ($p = 0.030$) ($r^2 = 0.87$, $df = 15$, overall $p < 0.001$). This model had the greatest precision of the three models described here, explaining 87% of the variability.

Examination of residuals during 1970-1987 and 1988-1993 does not indicate an abnormally high percentage of 6 lb sockeye harvested in the KMA during 1988-1993 (Exhibit 16). Thus, this model indicates harvests of UCI sockeye salmon by Kodiak fishermen have not been unusually high during recent years.

In summary, runs of local Kodiak stocks and UCI stocks have both increased in recent years. The percentage of sockeye harvested during

6-25 July compared to the entire season has not increased in recent years. The ratios of sockeye harvested in Kodiak compared to UCI during both periods (June and August vs. July) did not indicate unusually high harvest rates of UCI-bound salmon during 6-25 July of recent years. Regression and residual analyses suggested harvests of 6 lb and total sockeye salmon during 6-25 July were greater than expected in 1988 and 1992, based on pre-1988 relationships. However, the percentage of 6 lb sockeye harvested in the Kodiak fishery during 6-25 July has not increased more than expected, based on average weight of UCI sockeye, the percentage of 6 lb sockeye in the Kodiak fishery during June and August, and sockeye harvest in UCI. Several analyses conducted here suggested harvest rates of UCI-bound sockeye were not greater than expected during 1988-1993, based on relationships developed from data prior to 1988. One type of analysis suggested that harvest rates of UCI-bound sockeye in 1988 and 1992 were greater than expected.

Sockeye Harvests in Areas Targeted For Closure

Fishermen from the UCI Management Area have proposed closure of several sections within the KMA during 6-25 July. These "target areas" are Halibut Bay in the Southwest District, areas 258-10 and 258-40 in the Eastside Kodiak District, and Katmai and Alinchak Sections in the Mainland District (Exhibit 2).

Sockeye harvests in the target areas during 6-25 July of each year have increased from approximately 9,200 sockeye during 1970-1987 to 268,000 sockeye during 1988-1993 (Exhibit 17). Similarly, sockeye harvests in the remaining areas of the KMA have increased from approximately 307,000 sockeye during 1970-1987 to 1.2 million sockeye during 1988-1993. Although sockeye harvests have increased in all areas of the KMA, the percentage of sockeye harvested in the targeted areas has increased from 2% during 1970-1987 to 19% during 1988-1993. Thus, locations of sockeye harvests in the KMA have changed somewhat over the years. Such changes are not uncommon in salmon fisheries.

To examine whether harvest patterns during 1988-1993 were different from previous years, we developed a regression model to predict the percentage of sockeye harvested in the target areas compared to other areas.

Independent variables tested included UCI sockeye harvest, UCI run, Kodiak sockeye harvests during June and August, pink salmon harvests, and sockeye run to Chignik Lake. The only significant variable was Kodiak sockeye harvests during June and August ($r = 0.60$). Examination of residuals indicated the percentage of sockeye harvested in the target areas was higher than expected in only 1992, although the deviation in 1988 was high compared to most but not all prior years (Exhibit 18).

In summary, the percentage of sockeye harvested in areas targeted for closure during 6-25 July has increased primarily in two recent years. The greatest increase occurred in 1992 and, to a lesser extent, in 1988. Fishing patterns in other years were not unusual. Management during July focuses on local pink salmon runs, therefore fishing patterns may be influenced by management of pink salmon runs. This subject needs more attention, but was beyond the scope of the current investigation.

REVIEW OF ADF&G REPORTS

This section of the report will review and critique draft reports by ADF&G biologists who attempted to estimate numbers of UCI sockeye salmon captured by Kodiak fishermen during 6-25 July. In general, we thought the reports were carefully written, displayed innovative ideas, and clearly identified the assumptions used in their analyses. We acknowledge ADF&G biologists were presented with a difficult task given the amount and type of resources available to them. Many of the problems associated with harvest estimates of UCI-bound sockeye were discussed in the ADF&G reports.

While numerical harvest estimates of UCI-bound sockeye could be useful, the most important estimate is the harvest rate, that is, the percentage of UCI-bound sockeye harvested by Kodiak fishermen or the harvest of UCI-bound sockeye compared to harvest of local Kodiak sockeye salmon. Essentially all of the earlier ADF&G reports dealt with numerical harvest estimates of UCI-bound sockeye rather than harvest rates.

Vining, I.W., and B.M. Barrett. 1994. 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.

This report describes an innovative approach to the problem of estimating catches of UCI sockeye during 6-25 July. They use average weights of Kodiak and UCI sockeye salmon to estimate harvests of UCI-bound sockeye salmon. The method uses the following equation:

$$\text{Proportion Non-local} = \frac{\text{Avg. wt IP} - \text{Avg. wt Kodiak}}{\text{Avg. wt UCI} - \text{Avg. wt Kodiak}}$$

where IP is the average weight observed during the 6-25 July. This model could work very well if only two stocks were involved and accurate weights of the two stocks and accurate observed weights in the mixed stock fishery were available.

In general, the model probably identifies years of high compared with low harvests of UCI-bound sockeye salmon, but a number of factors may affect the accuracy of these estimates. The authors note some limitations of the model when they describe the assumptions and conditions for use of the model. Most of the model limitations involve the accuracy or representativeness of weight estimates. If the estimates of weight used in the model are not representative, then the calculated estimates of variance are less meaningful. Potential problems arising from the estimates of weight used in the model can be described by the following questions:

1. How much error is present among estimated average sockeye weights for specific statistical areas?
2. Are sockeye weights from June and August representative of local Kodiak sockeye weights during July?
3. Can sockeye weights generated by purse seine harvests in the KMA, which are relatively non-selective (French et al. 1976), be compared with weights generated by highly selective gillnets in UCI?
4. Are Kodiak and UCI sockeye the only stocks passing through the KMA during July?
5. How much weight do sockeye gain between Kodiak and UCI?
6. How sensitive is the model to small errors in average weight?

Question 1 refers to the fact that the average weight model relies on average weights reported from fish tickets for specific statistical areas. Barrett et al. (1994) demonstrated that average weight derived from fish tickets are reasonably accurate when average weights from many fish tickets are averaged together. However, the difference between fish ticket and ADF&G estimates of average weights for individual landings averaged 0.27 lbs or 4.9%. Absolute differences in average weight estimates for individual landings ranged up to 0.79 lbs or 15%. Thus, the accuracy of average weights derived from fish tickets from individual statistical areas will depend on the number of fish tickets. Accuracy should increase with greater numbers of fish tickets.

Question 2 refers to the use of sockeye weights in June and August as an estimate of local sockeye weight in July. This approach is reasonable if average sockeye weights during June and August are representative of sockeye during July. This assumption should be tested because several factors could cause sockeye weights during June and August not to be representative.

The relative contribution of each local stock to the Kodiak fisheries during June, July, and August is different. Each stock is likely to have a different average weight. Also, weight within each local stock is likely to change through the season. Weight during June, July, and August is related to age composition (e.g., Bristol Bay sockeye spending 3 years at sea (6.9 lbs) averaged 1.8 lbs more than sockeye spending two years (5.1 lbs)), which is different for each local stock and changing within a stock over the course of the season. The assumption that weights during June and August can be used to estimate accurately the weight of local stocks in July should be validated.

Non-local sockeye salmon (e.g., Bristol Bay, Chignik, and Cook Inlet) migrate through Kodiak in June and might influence estimates of average weight. In August, some Chignik sockeye might be harvested in the KMA. The presence of these stocks could affect estimates of average weight, depending on the number of these non-local stocks in the Kodiak harvests and the difference in average weight between the non-local and local sockeye salmon. Tagging studies primarily from the late 1940s and 1981 reported a small percentage of non-local sockeye salmon harvested near Kodiak during June (1.4% to 4.3%, Nicholson 1978, Tyler et al. 1986). Although unequal tag recovery efforts may skew stock composition estimates, these data suggest that error caused by the harvest of non-local sockeye during June may be small.

Question 3 was thought by Vining and Barrett to be a major factor causing the "ridiculous estimated proportions" for some areas and some years. Gillnets, such as those used in UCI, are widely known to select larger than average sockeye salmon, whereas purse seines, the principal gear type in Kodiak, are considered to be non-selective (French et al. 1976). Thus,

weights from UCI harvests are not directly comparable with weights from harvests in Kodiak.

Question 4 refers to the fact that sockeye stocks other than UCI and Kodiak stocks migrate through the Kodiak Management Area during July. Such stocks might include the late run to Chignik and Bear River sockeye salmon. Vining and Barrett noted the presence of stocks other than Cook Inlet and Kodiak stocks during July might have caused unreasonable results in some areas and years.

Question 5 refers to the fact that sockeye grow rapidly during their homeward migration. For example, Alaskan salmon returning to spawn after three winters at sea grow approximately 12.9% by weight per month (Ricker 1962). Thus, a 6 lb sockeye could gain approximately 0.2 lbs in 7-9 days, the time Barrett and Nelson (1994) assumed it would take for sockeye to travel to UCI. However, anecdotal information on salmon (few or no belly burns, or regurgitation of food upon capture) suggests that UCI sockeye salmon are not feeding once they reach the Kodiak area (B. Barrett, ADF&G, pers. comm.). If UCI sockeye are not feeding between Kodiak and Upper Cook Inlet, then average sockeye weight of the sockeye run in UCI would likely be representative.

Question 6 refers to the sensitivity of the model to small errors in average weight. To illustrate the sensitivity of the model to small errors in average weight, we selected three estimates of non-local proportions made by Vining and Barrett, then assumed an average weight error during July of -0.25 lbs, -0.5 lbs, 0.25 lbs, and 0.5 lbs (Exhibit 19). Such errors might arise from fish ticket error and non-representative average weights in June and August. These absolute errors (-0.5 lbs to 0.5 lbs) were equivalent to percent errors in July weight ranging from -9.4% to 11.6%. However, the resulting error in the stock composition ranged from -30% to 738%. Stock composition error (absolute and %) was greater when July weight for Kodiak sockeye was underestimated than when it was overestimated. For the given examples, the percentage of UCI sockeye in Kodiak harvests was overestimated by 22.5% when the July weight of Kodiak sockeye was underestimated by 0.38 lbs. In contrast, the percentage of UCI sockeye in

Kodiak harvests was underestimated by 10.4% when the July weight of Kodiak sockeye was overestimated by 0.38 lbs.

This analysis suggests that (1) error in average weight translates to a relatively larger error in stock composition and (2) errors in the sockeye weight during July may have a biased or unequal effect on stock composition estimates. Biases such as this might explain, in part, why about 12% of the stock proportion estimates exceeded 1.0, values that were impossible. Further research should be conducted to evaluate potential bias in stock composition estimates caused by error in average weight.

Many of the problems described above were known to Vining and Barrett. To correct for some of the problems, they excluded data when they did not meet two criteria. First, if the difference between the average weight in the UCI fishery and the estimated Kodiak local stock average weight did not exceed 0.75 lbs, no estimates of stock composition were made. Second, if the difference between the observed and estimated local average weight in July was not greater than 0.5 lbs, then no estimates were made for that year. These criteria and the frequency with which they eliminated stock composition estimates indicated the problems associated with the application of the average weight model to the Kodiak fishery.

In summary, the average weight model appears to be able to approximate the relative magnitude of UCI sockeye harvested in the KMA. However, further validation of the data used in the model appears to be necessary in order to insure that the input data are accurate and representative.

Barrett, B.M. and P.A. Nelson. 1994. Estimated run timing of selected sockeye salmon stocks on the west and east sides of Kodiak Island.

The authors present a logical and reasonable approach to the exploration of run timing of selected salmon stocks, given the data available to them and the objective of the analysis. However, it should be noted that run timing based on escapement timing (as for Kodiak stocks) or harvest timing (as for

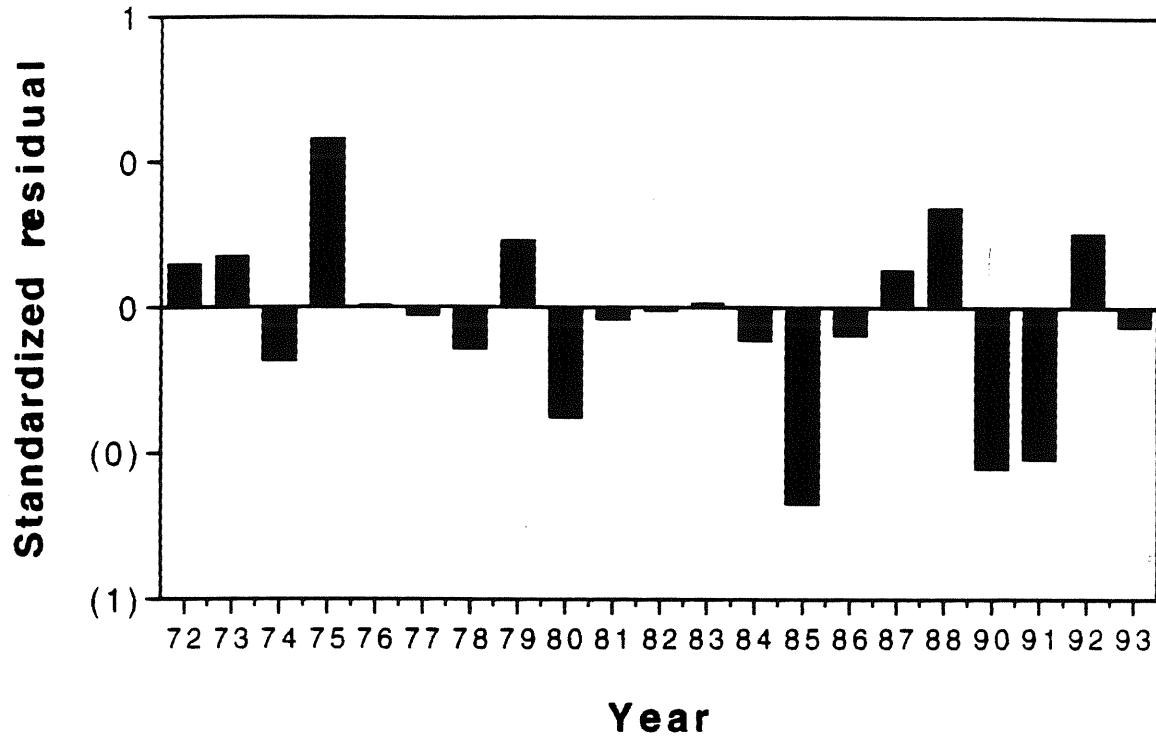


Exhibit 16. Standardized residuals $((\text{observed}-\text{predicted})/\text{predicted})$ of the regression to predict the percentage of sockeye >6 lbs during 6-25 July. Multiple regression based on average sockeye weight in UCI harvests, the percentage of sockeye >6 lbs during June and August, and sockeye harvests in UCI during 1972-1987.

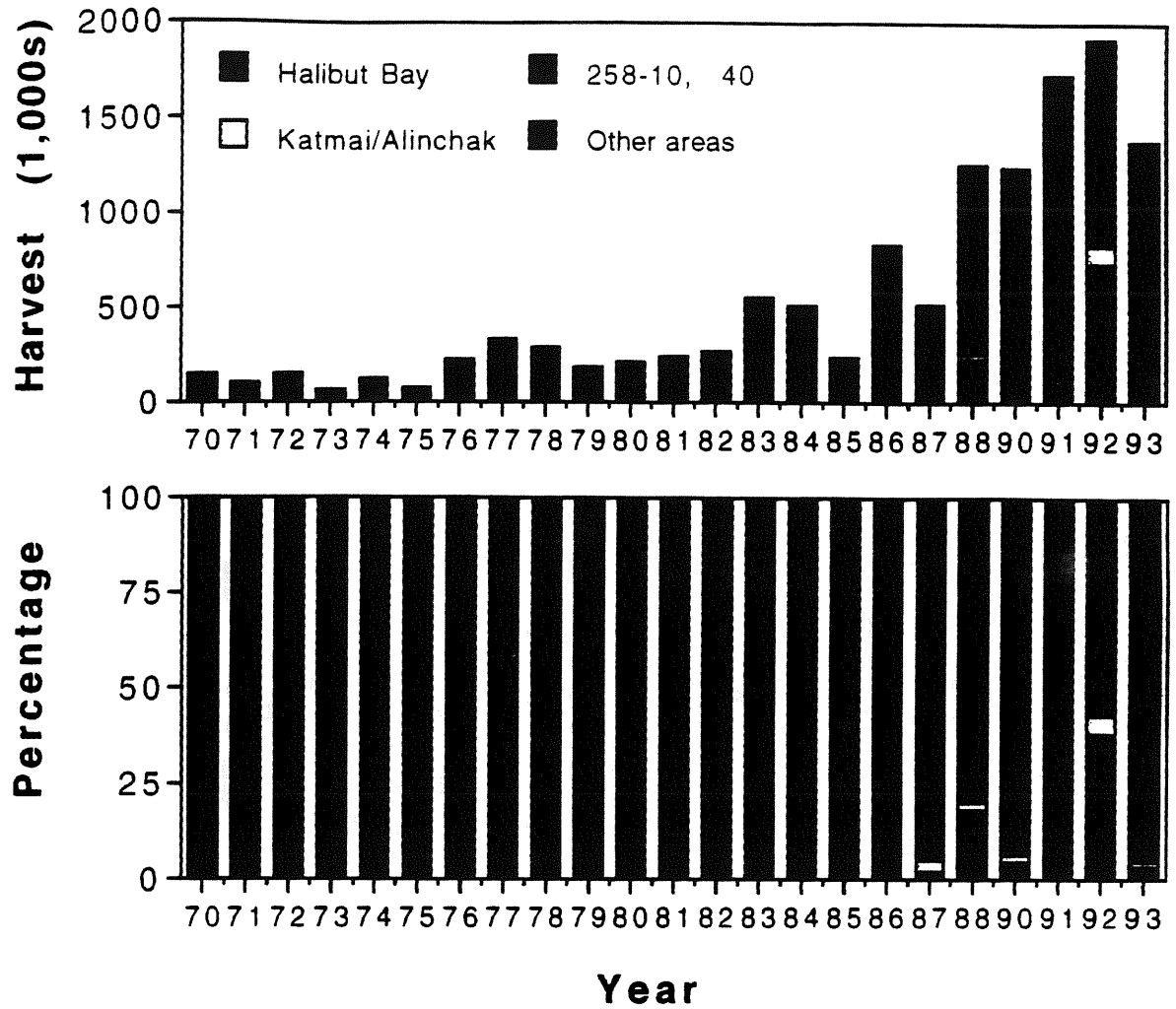


Exhibit 17. Number and percentage of sockeye harvested in areas targeted for closure and the remaining fishing areas in the Kodiak Management Area, 1970-1993.

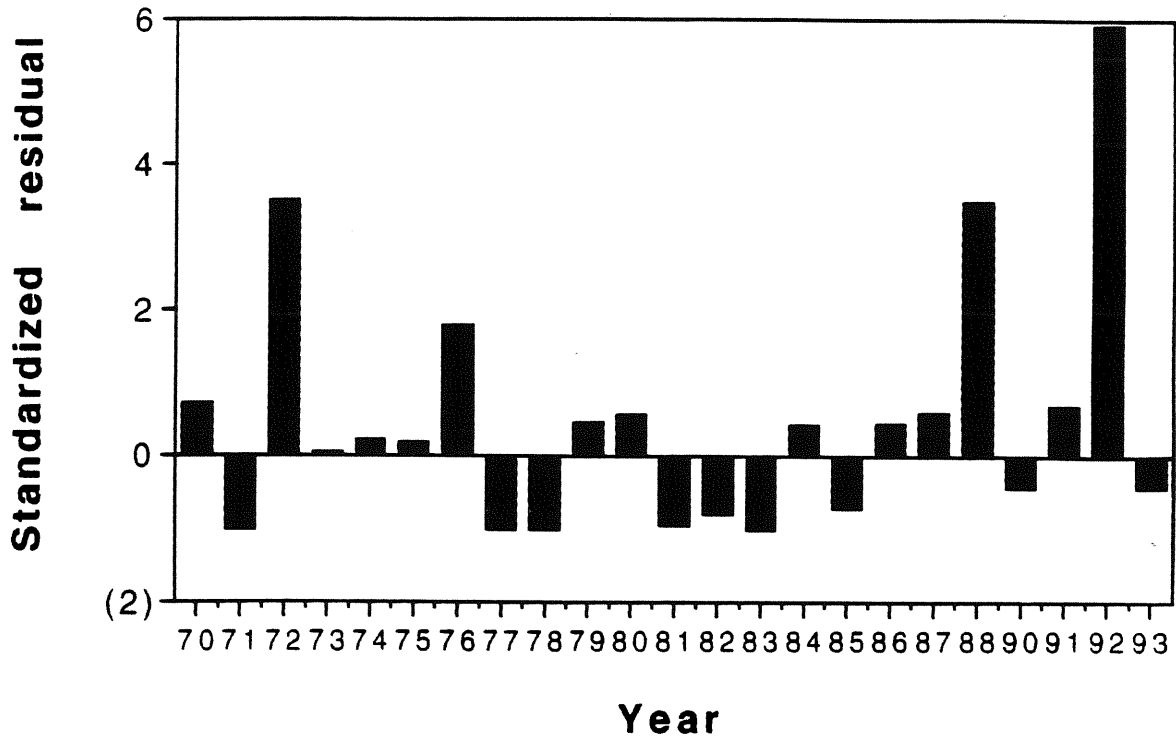


Exhibit 18. Standardized residuals ((observed-predicted)/predicted) of regression to predict the percentage of sockeye harvested within areas targeted for closure during 6-25 July. Regression based on harvests of sockeye salmon in all Kodiak areas during June and August, 1970-1987.

Exhibit 19. Three examples showing the sensitivity of the average weight model to small errors in the estimated local sockeye weight during July.

Year, area	Observed values			What If		Then	
	UCI wt.	Observed wt.	Kodiak June/ Aug. wt. Estimated %UCI	Kodiak actual July wt.	Assumed July error (%)	Actual %UCI	Est. -Actual %UCI Error in stock composition (%)
1983, 253	6.48	6.03	5.50	5.00	10.0	69.7	-15.5
				5.25	4.8	63.6	-9.3
				5.75	-4.3	38.6	15.7
				6.00	-8.3	6.5	47.8
1993, 253	5.89	5.59	4.81	4.31	11.6	81.2	-8.7
				4.56	5.5	77.6	-5.2
				5.06	-4.9	64.1	8.3
				5.31	-9.4	48.5	23.9
1992, 254	6.60	5.50	4.92	4.42	11.3	49.5	-15.0
				4.67	5.4	43.0	-8.5
				5.17	-4.8	23.1	11.4
				5.42	-9.2	6.8	27.7

February 8, 2017

From: Fisheries analyst

To: Kodiak Fisheries Work Group

Re: Potential Board of Fisheries (BOF) action on Kodiak salmon management

Background:

At the BOF meeting in Kodiak last month, the ADF&G staff presented the results of genetic analysis of salmon caught in the Kodiak region. There was a high percentage of salmon found to have originated in other regions, including Cook Inlet. The expectation and concern expressed by Kodiak salmon fishermen to the KFWG was that the Cook Inlet stakeholders would attempt to initiate BOF action to change salmon management in the Kodiak region to minimize catch of salmon bound for Cook Inlet.

Indeed, the BOF has received requests from Cook Inlet harvesting organizations asking for the Board to schedule consideration of Kodiak salmon management changes in light of the genetic origin information. Darren Platt provided a letter (sender unknown) with information he sent to the Clerks on this matter, and attached here are two documents submitted to the BOF during their meeting in Kodiak. One request was authored by the United Cook Inlet Drift Association, and one was from the Kenai Peninsula Fishermen's Association.

According to Glenn Haight, Executive Director of the Board of Fisheries, ADF&G staff will again present this genetic information report to the BOF in the Reports section of their Cook Inlet meeting scheduled to run from February 23 through March 8 in Anchorage. This will most likely take place the first day. Following consideration of the over 180 Cook Inlet proposals on their agenda, the BOF may take up these request letters at the end of their meeting. Haight said that nothing has been decided yet, but it is possible that the Board could establish a working group to further discuss this issue, and that working group could include representation from the Kodiak area. Haight will be consulting further with Board Chair John Jenson, and will get back to me with more specific information, which I will forward.

Potential action:

If the Kodiak salmon stakeholders want the support of the Kodiak municipal bodies, it would be helpful for the BOF to hear that support in the form of a letter from the community entities. It makes sense to first seek input from the salmon fishermen as to how they plan to proceed, and to provide that written support as needed and requested.

In terms of in-person participation, the first day or two, and the last day of the meeting would at this point seem to be essential times to be in attendance at the BOF meeting to hear the staff reports and questions and comments from BOF members. Individual meetings with BOF members might also be helpful. Until we know more about precisely how the BOF intends to deal with this, it is hard to determine if oral testimony on this issue will be appropriate at this meeting. That should become more clear as this issue develops.

Regardless of what occurs at this February meeting, the BOF will likely be dealing with this issue at some point. The community recognizes the paramount importance of the salmon fisheries to Kodiak, and it seems there would be widespread support for weighing in on this crucial management issue.

February 8, 2017

To: FWG members
 From: Fisheries analyst
 Re: IPHC meeting

The following table indicates the annual catch limits for 2017 agreed to by the IPHC at their January meeting. For Area 3A, surrounding Kodiak Island, the catch limit has made an upward movement from 9.6 million pounds in 2016 to 10 million pounds in 2017. This is a reflection of the positive results of the survey and stock assessment process.

The 10 million number is between the 2017 Blue Line of 9.57, which reflects staff assessment of the risk associated with this level of harvest, and the 2017 Status Quo Spawning Potential Ratio (SPR) number of 10.88, which is a newer method the IPHC is now using to help determine the effects on the stock of a certain level of harvest. SPR is essentially a measure of the impact that fishing has on the ability of each recruit (i.e. the average recruit or adult fish) to contribute to spawning.

2017 IPHC Meeting - Catch Limits

	2A	2B	2C	3A	3B	4A	4B	4CDE	Total
2016 Adopted	1.14	7.3	4.95	9.6	2.71	1.39	1.14	1.66	29.89
2017 Blue Line	0.75	4.72	4.08	9.57	3.14	1.26	1.12	1.55	26.19
SQ SPR (F46)	0.84	5.28	4.69	10.88	3.53	1.43	1.25	1.92	29.82
IPHC Approved	1.33	7.45	5.25	10.00	3.14	1.39	1.14	1.70	31.40
Change from 2016 (M lbs)	0.19	0.15	0.3	0.4	0.43	0	0	0.04	1.51
% Change from 2016	16.7%	2.1%	6.1%	4.2%	15.9%	0.0%	0.0%	2.4%	5.1%
% Change from Blue Line	77%	58%	29%	4%	0%	10%	2%	10%	20%

Opening date, March 11
 Closing date, November 7

February 8, 2017

To: KFWG
From: Fisheries Analyst
Re: NPFMC meeting

The item of most interest to the FWG at the Council meeting was the workshop on Abundance Based Management (ABM) of halibut bycatch. This action is confined to the Bering Sea halibut bycatch management at this point, but the Council has directed staff to provide them with information in April as to what it would take to apply this sort of bycatch management to the Gulf of Alaska.

Currently, the halibut bycatch in the Gulf is controlled by a cap, which is an upper limit on bycatch. If the cap is reached – or approached – in a target groundfish fishery, that fishery can be closed.

The abundance-based approach is based on a cap or limit that changes with the abundance of halibut in the system. If halibut abundance goes down, the directed harvest of halibut goes down, and, under an abundance-based management system for halibut bycatch, the bycatch limits would also go down. The same is true in reverse if the halibut abundance goes up – directed fisheries go up and bycatch limits go up. There are a number of intricacies, but that is the general approach.

The workshop was well attended but of limited value. It was originally designed to allow for stakeholder input on a draft discussion paper – the discussion paper will be presented at the April Council meeting. Instead, the discussion was limited to the “measurable objectives and performance metrics for use in developing alternative management measures” for the action. The discussion ranged well beyond that limited agenda, but did not address the appropriateness of the objectives themselves, the proposed indices to measure halibut abundance, and the control rules that might be applied.

There was little discussion of the expansion of this action to the Gulf. Two stakeholders from the Gulf testified, with one of those saying of this approach “I kinda like it and I kinda don’t. Surveys don’t capture what is really going on out there.”

In April the Council will receive the discussion paper and take the next steps in the process. They will also discuss in more depth whether the Gulf should be included. Most observers believe that the time will not be right at the April meeting to offer actual management alternatives.

January 2017

To: Kodiak Fisheries Work Group
From: Heather McCarty, Fisheries Analyst

I will expand on the following items during my oral report to the KFWG on January 18, 2017:

1. The December meeting of the North Pacific Council (NPFMC)

As you are aware, the NPFMC in December voted 8 to 3 to postpone indefinitely any further action on the Gulf Trawl Bycatch Management action that has dominated its Gulf agenda for the last three years. Commissioner Sam Cotten made the motion to postpone, citing the lack of consensus on the question of creating a catch share-based management program for trawl fisheries in the Gulf. The Commissioner stated that he believes that a management change of such magnitude should be undertaken with broad agreement. He also stated that the State of Alaska does not believe that a target species catch share program is warranted for the Gulf trawl fisheries. The six Alaska members of the Council along with two others voted to postpone.

A number of trawl representatives from the Gulf fisheries testified in favor of Alternative 2, and restated their need for tools to deal with restrictive bycatch limits, and the assurances they had received from the Council to provide those tools. The City of Sand Point, the Aleutians East Borough, and representatives of the fishermen's association in the Western Gulf testified that they were not in favor of a catch share program. A representative from Silver Bay Seafoods testified that they were not in favor of the provision in Alternative 2 that limits harvesters to a cooperative with their historic processor for the first two years of the program.

While it remains unclear what might happen with the GTBM action in the future, the Commissioner also made several motions that could initiate actions he believes could help mitigate trawl management issues in the Western Gulf.

There was also a motion to ask the Council staff to determine what it would take to apply Abundance-based Management of halibut bycatch to the Gulf groundfish fisheries.

2. The January 10-13 meeting of the Alaska Board of Fisheries in Kodiak

Board of Fisheries member Sue Jeffrey has agreed to make a report to the FWG on the actions taken by the Board that relate to Kodiak interests. I attended the first two days of the BOF meeting, and can add any details as needed. Several members of the FWG also attended the BOF meeting.

3. The upcoming meeting of the International Pacific Halibut Commission (IPHC)
January 23-27

The IPHC is made up of representatives of the United States and Canada, and meets annually to determine the catch limits in the individual halibut management areas from California to Alaska. They also have an interim meeting. I attend both meetings. The catch limit determinations are regularly controversial, and this year will be no exception.

Also, the IPHC has recently become more involved in the discussions about halibut bycatch in other groundfish fisheries, and its effect on halibut directed harvests. Trawl interests have become more involved in the IPHC process, and are making regular presentations to the Commission on their efforts to reduce halibut bycatch in the Bering Sea.

The IPHC is also engaged on the subject of abundance-based management of halibut bycatch.

4. Future focus of the FWG

During the long GTBM process at the Council, the KFWG was deeply engaged in review of all the program elements, hearing extensive public input, and developing comment letters for approval by the City Council and Borough Assembly. These letters and public testimony made significant impacts on the NPFMC and the State of Alaska, and reinforced the importance of considering community impacts in management decisions.

While it was driven by necessity, this intense concentration on the Gulf Trawl issue took most of the time and energy of the KFWG, particularly during the last year. With the recent postponement of any further GTBM action, the KFWG should now be able to turn more attention to other important matters, ranging from local requests for fisheries-related services in the harbor, to the impending Congressional reauthorization of the Magnuson Stevens Act.

The State management process for salmon, herring, crab and other species through the Board of Fisheries has a large influence on the community of Kodiak, as do the halibut management activities of the International Pacific Halibut Commission.

In addition to interacting with these major regulatory bodies that set fisheries management policy, the community should also continue to engage with the regulatory agencies that carry out the policies – the National Marine Fisheries Service on the Federal side and the Department of Fish and Game on the State side. The fishing industry organizations and companies are also a large part of successful engagement with the participants.

I believe an important question for the FWG going forward is how to focus the FWG – in short, how are matters developed and agreed upon as items for the agenda and further study?

February 8, 2017

From: Fisheries analyst

To: Kodiak Fisheries Work Group

Re: Potential Board of Fisheries (BOF) action on Kodiak salmon management

Background:

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From: Nova Javier
Cc: "darren.platt"
Bcc: [Angela MacKenzie](#); [BRANSON](#); dmarlar@city.kodiak.ak.us; hdmccarty@gmail.com; [John Burnett \(jburnett@gci.com\)](#); [KNIAZIOWSKI](#); "[Kyle Crow](#)"; "[Larry LeDoux](#)"; [Larry LeDoux Personal](#); [Laurie Pardoe](#); [Mary Berestoff](#); [Akhiok](#); [Matthew VanDaele \(assembly\)](#); [Matthew VanDaele \(Personal\)](#); [Michael Powers](#); [Pat Branson](#); [Randy Bishop](#); [WHIDDON \(jwhiddon@city.kodiak.ak.us\)](#); [WHIDDON2](#)
Subject: Email from Mr. Darren Platt
Date: Monday, February 06, 2017 1:17:00 PM
Attachments: [Resolution_xx.pdf](#)

Hello KFWG Members and staff,

This is an email being forwarded from Mr. Darren Platt.

**Thank you,
Nova**

From: darren platt [<mailto:darrenplatt@yahoo.com>]
Sent: Friday, February 03, 2017 2:06 PM
To: Clerks
Subject: ATTN: Fisheries Workgroup

Please provide to the fisheries workgroup members this email and attached draft resolution that is being offered to the Board of Fish by an Upper Cook Inlet fishing association.

The resolution proposes that the Board of Fish (BOF) re-address Kodiak area salmon management within a year with the intention of limiting Kodiak salmon harvests to prevent what they are calling the "interception" of Cook Inlet bound salmon (the term interception is being mis-used here in a legal sense, since in Alaska law it is defined and the unauthorized, illegal harvest of salmon).

There will be a strong push at the upcoming BOF meeting to begin the process of devising a plan to curtail Kodiak harvests. I would suggest consulting James at ADF&G to initially get an idea of what is being planned and proposed behind the scenes, and also consult Sue Jeffries to better understand what may happen through the BOF process. I'm not sure whether it would be appropriate to submit comments for the upcoming BOF meeting since, technically, Kodiak is not on the agenda, though it will certainly be a part of dialogue up there.

Thank you,
Darren Platt

RESOLUTION XX-2017

AK BOARD OF FISHERIES

WHEREAS, the Alaska Board of Fisheries (BOF) recently received new salmon genetic reports from the Kodiak Management Area (KMA) and;

WHEREAS, these ADF&G reports present new information on the genetic identity of both Chinook and sockeye salmon stocks harvested in the KMA, and;

WHEREAS, the 2014 and 2015 KMA Commercial Salmon Fishery Annual Management Reports are not yet available to the BOF and stakeholders, and:

WHEREAS, the 2016 KMA Commercial Salmon Fishery Annual Management Report was made public only a couple of weeks prior to the Kodiak BOF regulatory meeting, and;

WHEREAS, there was limited opportunity for public testimony and public comment in regard to this new information, and;

WHEREAS, there was limited time available to analyze and incorporate the new biological, genetic and annual reports into BOF deliberation at the Kodiak BOF meeting, and;

WHEREAS, there has been increasing public concern and confusion as to how the KMA salmon fisheries are to be managed and bear the burden of conservation, and;

WHEREAS, the BOF, ADF&G and the public did not have sufficient time or opportunity to develop regulatory proposals or participate in discussions concerning the impacts of the new information and the compliance with the Sustainable Salmon Policy, the Escapement Goal Policy or the Mixed-Stock Management Policy, and;

WHEREAS, the new genetic and harvest data information may also effect the development of new Fishery Management Plans as prescribed by the recent Ninth Circuit Court decision.

NOW, THEREFORE, BE IT RESOLVED THAT THE ALASKA BOF EXPRESSES THE FOLLOWING:

1. The BOF will demonstrate its concern and commitment to, within the next year, hold a special regulatory meeting in reference to the new genetic information and harvest data as it relates to the Chignik, Kodiak and Cook Inlet Management Areas.
2. The BOF reaffirms the regulatory intent written into the KMA management plans and directs the ADF&G to focus the KMA salmon harvests on local stocks and minimize the interception of non-local stocks.

We request the Alaska Board of Fisheries extend the regulatory notice for 2017 Kodiak meeting to run concurrently with the February 23 - March 8, Upper Cook Inlet BOF regulatory meeting in Anchorage, AK.

Justification for extending the notice is to allow the public, ADF&G and the BOF more time to analyze the data in both Genetic Stock Composition reports FMS 16-10 and FMS 16-11 and how that data may apply to or affect fishery management plans and other fishery management concerns in both the Kodiak Management Area and the Upper Cook Inlet Management Area.

This request meets the following criteria for Board Generated Proposals.

1. Is this in the public's best interest? Yes, the Genetic Stock Report clearly identifies hundreds of thousands of Cook Inlet Sockeye Salmon that are harvested in the Kodiak Management Area. Reference RC 20 and RC 31
2. Is there urgency in considering the issue? Yes, salmon fisheries in both the KMA and UCI will start in just a few months.
3. Are current processes insufficient to bring the subject to the Board's attention? Yes, this information was not available in time to incorporate into proposals for the Kodiak BOF meeting.
4. Will there be reasonable and adequate opportunity for public comment? Yes, there will be reasonable opportunity for the public to participate at the next BOF meeting in Anchorage .

The BOF may discuss the following Kodiak Management Area Salmon Management Plans from February 23 - March 8 Upper Cook Inlet BOF regulatory meeting in Anchorage, AK.

1. 5 AAC 18.360 Cape Igvak Salmon Management Plan
2. 5 AAC 18.361 Cape Alitak District Management Plan
3. 5 AAC 18.362 Westside Kodiak Salmon Management Plan
4. 5 AAC 18.363 North Shelikof Straight Sockeye Salmon Management Plan
5. 5 AAC 18.364 Crescent Lake Coho Salmon Management Plan
6. 5 AAC 18.365 Eastside Afognak Management Plan
7. 5AAC18.366 Spiridon Bay Sockeye Salmon Management Plan
8. 5 AAC 18.367 Eastside Kodiak Salmon Management Plan
9. 5 AAC 18.368 North Afognak/Shuyak Island Salmon Management Plan
10. 5 AAC 18.369 Mainland District Salmon Management Plan

KPFA and Cook Inlet stakeholders are extremely concerned that "new and significant" information relative to sound •conservation and sustainable management" of Cook Inlet bound sockeye and chinook salmon migrating through the entire Kodiak Management Area will be seriously compromised if the Alaska Board of Fisheries does not address in a timely manner "stocks of concern" identified in the two genetics reports (FMS No. 16-11 *Genetic Stock*

Composition of the Commercial and Sport Harvest of Chinook Salmon in the Westward Region & FMS No. 16-10 *Genetic Stock Composition of the Commercial Harvest of Sockeye Salmon in the Kodiak Management Area*).

A memorandum from the Department of Fish and Game dated 10.03.16 titled "Upper Cook Inlet Stock of Concern Recommendations submitted at the October worksession (RC 005) states "*King salmon - the department recommends no change to the status of the seven king salmon stocks of concern*» and "*Sockeye salmon - The department recommends no change to the status of Susitna River sockeye salmon stock of yield concern*."

The final sentence of the memorandum, "*As part of the UC/escape ment goal presentation to the board in February. Staff will include an update on stocks of concern and review the department's recommendations for stocks of concern*"

The Kodiak Management Area has been clearly defined by the genetics reports as a significant harvesters of Cook Inlet bound stock. If the board were to complete their review of the Kodiak region without incorporating conservation recommendations from the Upper Cook Inlet meeting they would knowingly violate key tenants in the SSFP (5 AAC 39.222).

Sockeye forecast for the Cook Inlet area for 2017 appears to be extremely low. The post season review of the 2016 return appears to be 1,000,000 short of the forecast. If we were to apply the same percentage of loss to the projections for 2017 sockeye returns, minimum escapement goals might be in jeopardy. Interception of Cook Inlet sockeye harvested and possibly targeted in the Kodiak Management Area could conceivably trigger onerous restrictions on Cook Inlet, personal use, sport, commercial and subsistence users.

Of particular concern for sockeye is the large apportionment of Cook Inlet sockeye within the Chignik, Igvak, Mainland and south Kodiak Island sections. We have suggested in our previous submittal (RC 31) that a thorough review with department recommendations with the intent to revise 5 AAC 18.395, 5 AAC 18.363 and 5 AAC 18.332 may be mechanisms to develop a Board Generated Proposal to address revisions. We would also suggest that this proposal be brought up at the Upper Cook Inlet Regulatory meeting in February-March 2017.

It is unfortunate that the relative genetics reports were released with very little time for stakeholders to review and comment on them prior to this regulatory meeting. We are

concerned that preliminary results may have been available in the first and second years of the analysis yet no forewarnings from fisheries managers or geneticists. If the department had alerted the public with some preliminary information prior to the deadline in April of 2016, stakeholders may have been able to address their concerns within the proposal process. Particular concerns could have been addressed at the very least in *placeholder proposal format*.

Please note that;

"The duty to conserve and develop fishery resources implies a concomitant power to allocate fishery resources among competing users".

"Conservation" defined. - "Conserving " implies controlled utilization of a resource to prevent its exploitation, destruction, or neglect. (pg. 24 - 25, AK F&G Laws and Regulations Annotated 2015-2016).

We strongly encourage the board to utilize policy 2016-282-FB or 2013-270-FB or other means to extend this Kodiak regulatory meeting to address dear conservation concerns.

Submitted by:
The Kenai Peninsula Fishermen's Association

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Opinions

Alaska needs to update fisheries management

✍ Author: **Karl Johnstone** ⌚ Updated: 14 hours ago 📅 Published 16 hours ago



Thousands of people were on the Kenai River to dipnet for sockeye salmon in July 2015. (Anne Raup / Alaska Dispatch News)

The Alaska of today is not the Alaska of statehood. The 49th state has grown and changed radically. The economy of the state is wholly different, and yet Alaska salmon management continues to be treated as if we just became a state.

Almost all major fisheries in the state have, for decades, been managed on the premise that commercial catches are always the highest and best use of Alaska salmon resources. This is especially true in upper Cook Inlet.

This premise ignores the changes that have occurred. In 1976, 191,000 sportfishing licenses of all types — resident and nonresident — were sold in Alaska. Nonresidents accounted for only 47,000 of them. By 2015, nonresident license sales alone **had topped 278,000** — a six-fold increase.

Sport, both by residents and nonresidents, and dipnet fisheries on the Kenai Peninsula are now big business. With Alaska's economy fading, we can no longer ignore the economics of angler- and personal-use-caught fish. University of Alaska Anchorage economist Gunnar Knapp suggested in a **2009 report to a Cook Inlet Salmon Task Force** that, with caveats, "the economic contribution of sport fishing may have been as much as four and a half times that of commercial fishing,"

[Appeals court rules feds can't leave fisheries management to the state]

Alaska can ship Cook Inlet salmon south in coolers sent by tourists and residents and make hundreds of millions of dollars or the state can continue to move the fish out of the state unseen as commercial catch and make tens of millions of dollars. One can argue at length the exact value of the sport and commercial fisheries in the upper Cook Inlet, The facts that are not debatable are these:

- The sport and dipnet fisheries in upper Cook Inlet are newer businesses that continue to show growth and the potential for even greater participation. At the same time, upper Cook Inlet commercial fishing is declining in value.
- In 1964 there were few sportfishing businesses on the Kenai Peninsula and scattered across the Susitna Valley. There were few homes on the banks of the Kenai River. And it was unusual to see more than a handful of anglers. Today there is over \$500 million of assessed valuation of homes on the river and tens of thousands of anglers using the river, not to mention the over 100,000 dipnetters and their family members.
- An 8-year-old study by Steve Colt and Tobias Schwoerer of the UAA Institute of Social and Economic Research tagged angler spending, both resident and nonresidents, in the Susitna Valley alone at something between \$63 million and \$163 million in 2007. "This spending generated between 900 and 1,900 jobs and between \$31 million and \$64 million of personal income for people who work in the Borough," they added. "Mat-Su sport fishing activity also generated between \$6 million and \$15 million in state and local taxes."

[Put politics aside and salmon on the grill]

The Kenai tax value that year — with the Kenai supporting the state's largest sport fisheries — was at least equal and probably greater. Total economic impact from angler spending in upper Cook Inlet can be measured in the hundreds of million dollars.

On the other hand, the ex-vessel value (prices paid to the fishers) in the upper Cook Inlet commercial salmon harvest, in 2007, was pegged at \$23.4 million. Total economic impact was higher, but a fraction compared to the impact from angler spending.

The new businesses that are Alaska's economic future, along with the average Alaska angler and dipnetter, get treated like ugly stepsisters while the focus remains on trying to prolong the life of the aged and fading sibling for as long as possible even though the benefits to the Alaska family are destined to steadily decline.

Alaska salmon are today small players in a global market where salmon farms, like it or not, dictate price. The Norwegians produced a record 1.3 million tons of farmed salmon in 2015. Canadians, 1.2 million tons.

The Chileans, with help from Mitsubishi, are continuing to grow their production and, so too are the Scots. And these farms aren't producing pink salmon for cans. They're producing Atlantic salmon for fillets that compete directly with upper Cook Inlet salmon in the market place.

As Alaskans, we can all agree wild salmon is better than any farmed product. But price dictates in the market. It is clear that Alaska sockeye salmon prices have been going down.

Commercial prices have flatlined. Unfortunately, one cannot rule out the possibility that prices will continue downward as aquaculture operations follow a 50-year trend and become ever more efficient. The Worldwatch Institute, an influential NGO, is now calling aquaculture "the most hopeful trend in the world's increasingly troubled food system."

The world has changed, and it is changing evermore by the day. We need to keep up!

Alaska has a choice. It can continue to manage in the interest of old, fading businesses at the expense of young business with growth potential, or it can start trying to figure out how to slowly and as painlessly as possible transition the fisheries economy of the upper Cook Inlet, the state's most populous region, going forward. Upper Cook Inlet's economic past was as the fishery of the few. Its economic future is as the fishery of the many. It's time for the state to make the first real changes in moving toward that goal.

Not only would this make good economic sense, it is mandated by the Alaska Constitution. That document, which the legislators and Board of Fisheries members swear to uphold, requires that Alaska fisheries resources be managed for the "maximum benefit of its people." Out-of-date priorities for one user group at the expense of the hundreds of thousands of other Alaskans who depend on the resource is out of step with the Constitution and ignores economic realities.

***Karl Johnstone** is a retired Superior Court judge and former chair of the Alaska Board of Fisheries.*

The views expressed here are the writer's and are not necessarily endorsed by Alaska Dispatch News, which welcomes a broad range of viewpoints. To submit a piece for consideration, email commentary@alaskadispatch.com. Send submissions shorter than 200 words to letters@alaskadispatch.com.