

SCOMM

156:6

An Overview of the Alaska Board of Fisheries Process

**Presentation to the
Cook Inlet Salmon Task Force
May 29, 2008**



Jim Marcotte

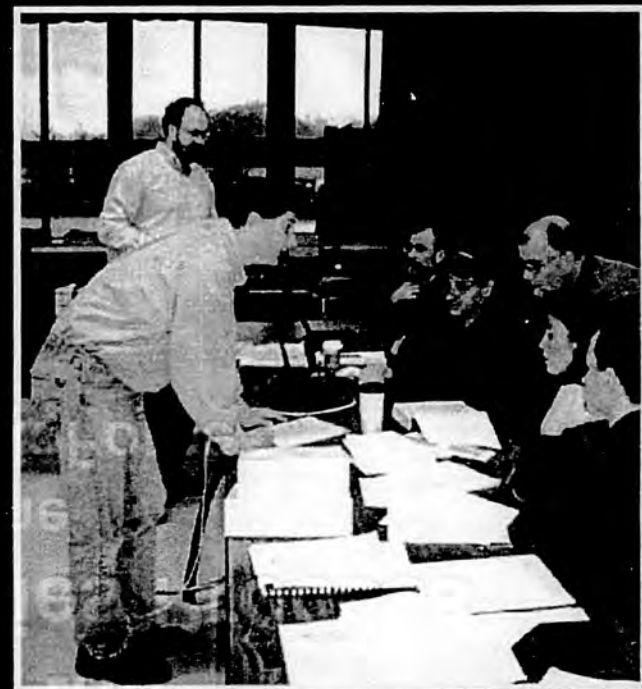
**Executive Director, Alaska Board of Fisheries
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Outline

- Board's function and composition
- Steps in board process
- Input on board decisions
 - Public
 - Agency
- Legal and policy factors in board decisions
 - Statutes and regulations
 - Policies and findings



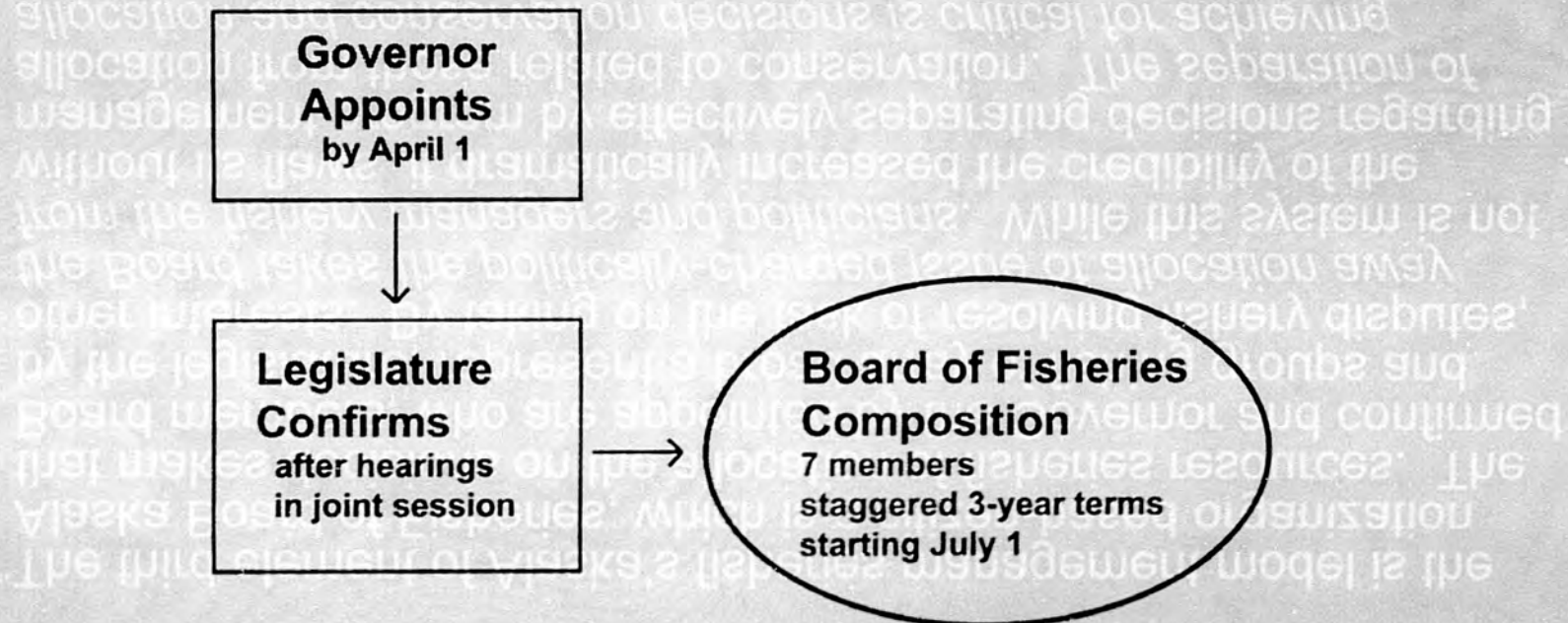
Main function of the board: Allocation

"The third element of Alaska's fisheries management model is the Alaska Board of Fisheries, which is a citizen-based organization that makes decisions on the allocation of fisheries resources. The Board members, who are appointed by the Governor and confirmed by the legislature, represent a broad array of fishing groups and other interests. By taking on the task of resolving fishery disputes, *the Board takes the politically-charged issue of allocation away from the fishery managers and politicians.* While this system is not without its flaws, it dramatically increased the credibility of the management program by effectively separating decisions regarding allocation from those related to conservation. *The separation of allocation and conservation decisions is critical for achieving sustainable fisheries in the state and elsewhere in the Northwest.*"

(excerpt from: *The Elements of Alaska's Sustainable Fisheries*, by Fran Ulmer in *Sustainable Fisheries Management: Pacific Salmon*, E. Knudsen et al Editors, Lewis Publishers, 2000, p. 65)

Sec. 16.05.221. Boards of fisheries and game.

(a) For purposes of the conservation and development of the fishery resources of the state, there is created the Board of Fisheries composed of seven members appointed by the Governor, subject to confirmation by a majority of the members of the legislature in joint session. The Governor shall appoint each member on the basis of interest in public affairs, good judgment, knowledge, and ability in the field of action of the board, and with a view to providing diversity of interest and points of view in the membership. The appointed members shall be residents of the state and shall be appointed without regard to political affiliation or geographical location of residence.



Authority:

AS 16.05.221; AS 39.05.060; AS 39.05.080; AS 39.05.100

Major Steps in Proposal Process

- 1- Call for Proposals
- 2- Distribution of Proposals
- 3- Public Review and Comment
- 4- Board Regulatory Meeting
- 5- Implementation

See 5 AAC 96.610



Board of Fisheries three-year meeting cycle

Meeting Cycle: 2007/2008, 2010/2011, etc.

Area:

Kodiak and Chignik Areas (All Finfish)

Cook Inlet Area (All Finfish)

King and Tanner Crab (Statewide, except Southeast)

Meeting Cycle: 2008/2009, 2011/2012, etc.

Area:

Prince William Sound Area (All Finfish)

Southeast/Yakutat Areas (All Finfish, Shellfish, King and Tanner crab)

Dungeness Crab, Shrimp, and Miscellaneous Shellfish (Statewide)

Statewide Provisions (Shellfish)

Meeting Cycle: 2009/2010, 2012/2013, etc.

Area:

Bristol Bay Area (All Finfish)

Arctic-Yukon-Kuskokwim Areas (All Finfish)

Alaska Peninsula/Aleutian Island Areas (All Finfish)

Statewide Provisions (Finfish)

Proposal Form

ALASKA BOARD OF FISHERIES AND ALASKA BOARD OF GAME REGULATION PROPOSAL FORM, P.O. BOX 25526, JUNEAU, ALASKA 99802-5526

BOARD OF FISHERIES REGULATIONS

- ☐ Fishing Area _____
☐ Subsistence ☐ Personal Use
☐ Sport ☐ Commercial

JOINT BOARD REGULATIONS

- ☐ Advisory Committee ☐ Regional Council ☐ Rural

BOARD OF GAME REGULATIONS

- Game Management Unit (GMU) _____
☐ Hunting ☐ Trapping
☐ Subsistence ☐ Other _____
☐ Resident
☐ Nonresident

Please answer all questions to the best of your ability. All answers will be printed in the proposal packets along with the proposer's name (address and phone numbers, will not be published). Use separate forms for each proposal.

1. Alaska Administrative Code Number 5 AAC _____ Regulation Book Page No. _____

2. What is the problem you would like the Board to address?

3. What will happen if this problem is not solved?

4. What solution do you prefer? In other words, if the Board adopted your solution, what would the new regulation say?

5. Does your proposal address improving the quality of the resource harvested or products produced? If so, how?

6. Solutions to difficult problems benefit some people and hurt others:

A. Who is likely to benefit if your solution is adopted?

B. Who is likely to suffer if your solution is adopted?

7. List any other solutions you considered and why you rejected them.

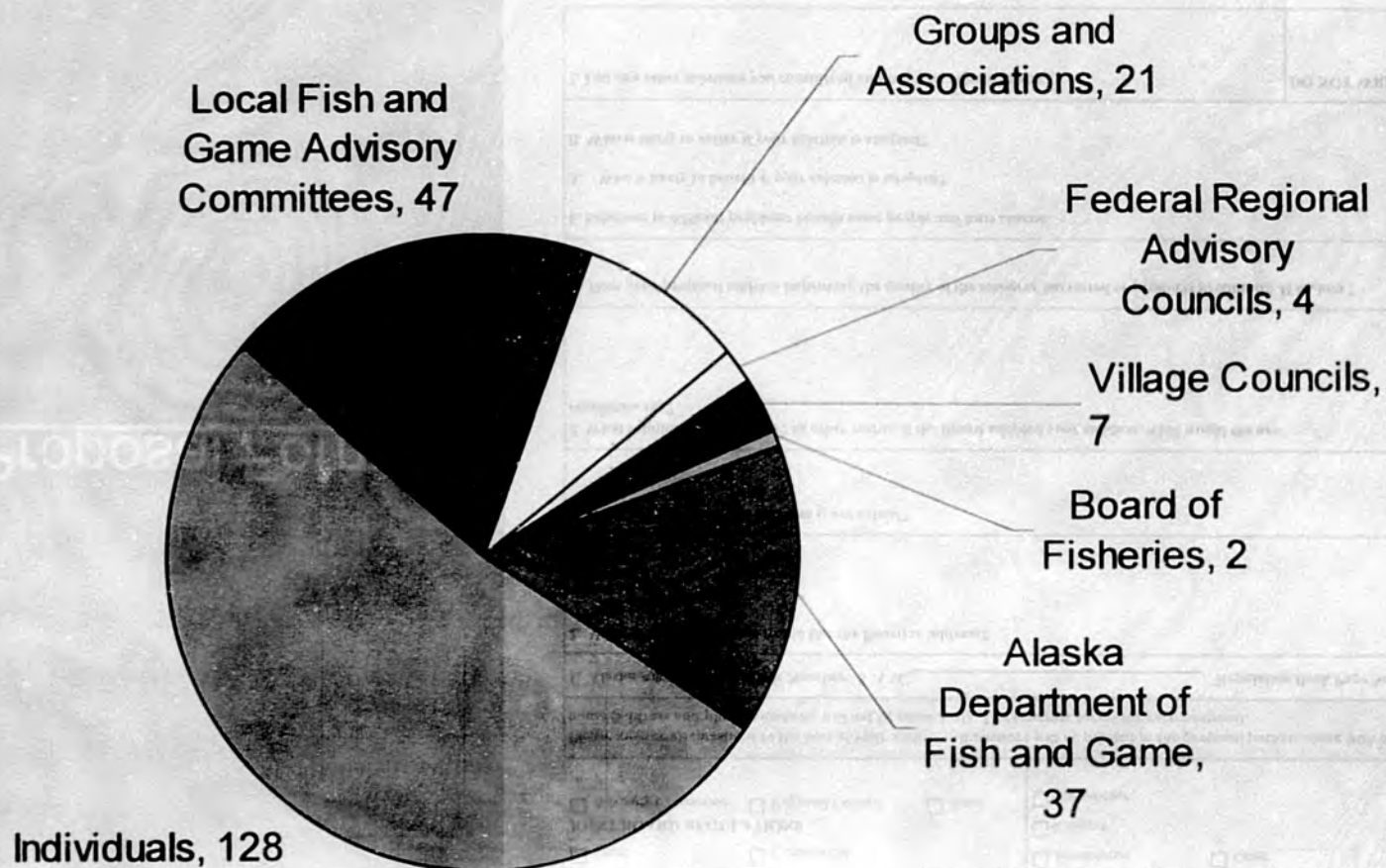
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Submitted By: Name _____

Individual or Group _____

Address _____ Zip Code _____ Phone _____

Source of Fishery Proposals (2006/2007)



Step 4 – Board Regulatory Meeting

Typical agenda for board meetings

- ▶ Introductions, ethics disclosures
- ▶ Department staff reports (~ half day)
- ▶ Oral public testimony (up to two days)
- ▶ Board committees* (3 board members, public panel and staff)
to develop recommendations
- ▶ Board deliberation on proposals
- ▶ Miscellaneous Business

All elements of building a clear record

* board findings #2000-200-FB and #2000-199-FB describe committee process

Actions on Board of Fisheries Proposals

Board of Fisheries Actions on Proposals, 2005-2006

Action	Dec. 2005	Jan. 2006	Feb. 2006	Mar. 2006	All meetings	Percentage
Carried	11	27	23	14	75	21.2%
Carried as amended	12	19	11	12	54	15.3%
Failed	34	52	26	8	120	33.9%
No action	24	43	20	12	99	28.0%
Deferred	3	0	3	0	6	1.7%
Total	84	141	83	46	354	100.0%

Typically about one-third are adopted

Sources of Public Input:

- General public
- Fishery groups and associations
- Industry groups
- Local governments
- Tribal groups, village councils
- Local fish and game advisory committees
— (82 statewide)



LOCAL FISH AND GAME ADVISORY COMMITTEES

Arctic Region: 9

Kotzebue, Lower Kobuk, Noatak/Kivalina, Northern Norton Sound, Northern Seward Peninsula, North Slope, St. Lawrence, Southern Norton Sound, Upper Kobuk

Interior Region: 15

Central, Delta, Eagle, Fairbanks, G.A.S.H., Koyukuk River, Lake Minchumina, McGrath, Middle Nenana River, Middle Yukon, Minto/Nenana, Ruby, Tanana/Rampart/Manley, Upper Tanana/Fortymile, Yukon Flats

Southcentral Region: 18

Anchorage, Central Peninsula, Cooper Landing, Copper Basin, Copper River/PWS, Denali, Homer, Kenai/Soldotna, Matanuska Valley, Mt. Yenlo, Paxson, Seldovia, Seward, Susitna Valley, Tok Cutoff/Nebesna Road, Tyonek, Valdez, Whittier

Southeast Region: 23

Angoon, Craig, East Prince of Wales, Edna Bay, Elfin Cove, Hydaburg, Hyder, Icy Straits, Juneau-Douglas, Kake, Ketchikan, Klawock, Klukwan, Pelican, Petersburg, Port Alexander, Saxman, Sitka, Sumner Strait, Tenakee, Upper Lynn Canal, Wrangell, Yakutat

Southwest Region: 12

Central Bering Sea, Chignik, False Pass, King Cove, Kodiak, Lake Iliamna, Lower Bristol Bay, Lower Kuskokwim, Naknek/Kvichak, Nelson Lagoon, Nushagak, Sand Point, Togiak, Unalaska/Dutch Harbor

Western Region: 5

Central Bering Sea, Central Kuskokwim, Lower Kuskokwim, Lower Yukon, Stony/Holitna

Examples of Public Comment Sources

Board of Fisheries Meetings (Jan. 2006 and Feb. 2008)

January 2006 - Southeast Finfish (Ketchikan)

- 141 proposals
- 106 oral public testimony
 - 10 advisory committees written comment
 - 1 regional advisory council
- 97 other written public comments
- 120 record copies submitted during meeting



February 2008 – Upper Cook Inlet Finfish (Anchorage)

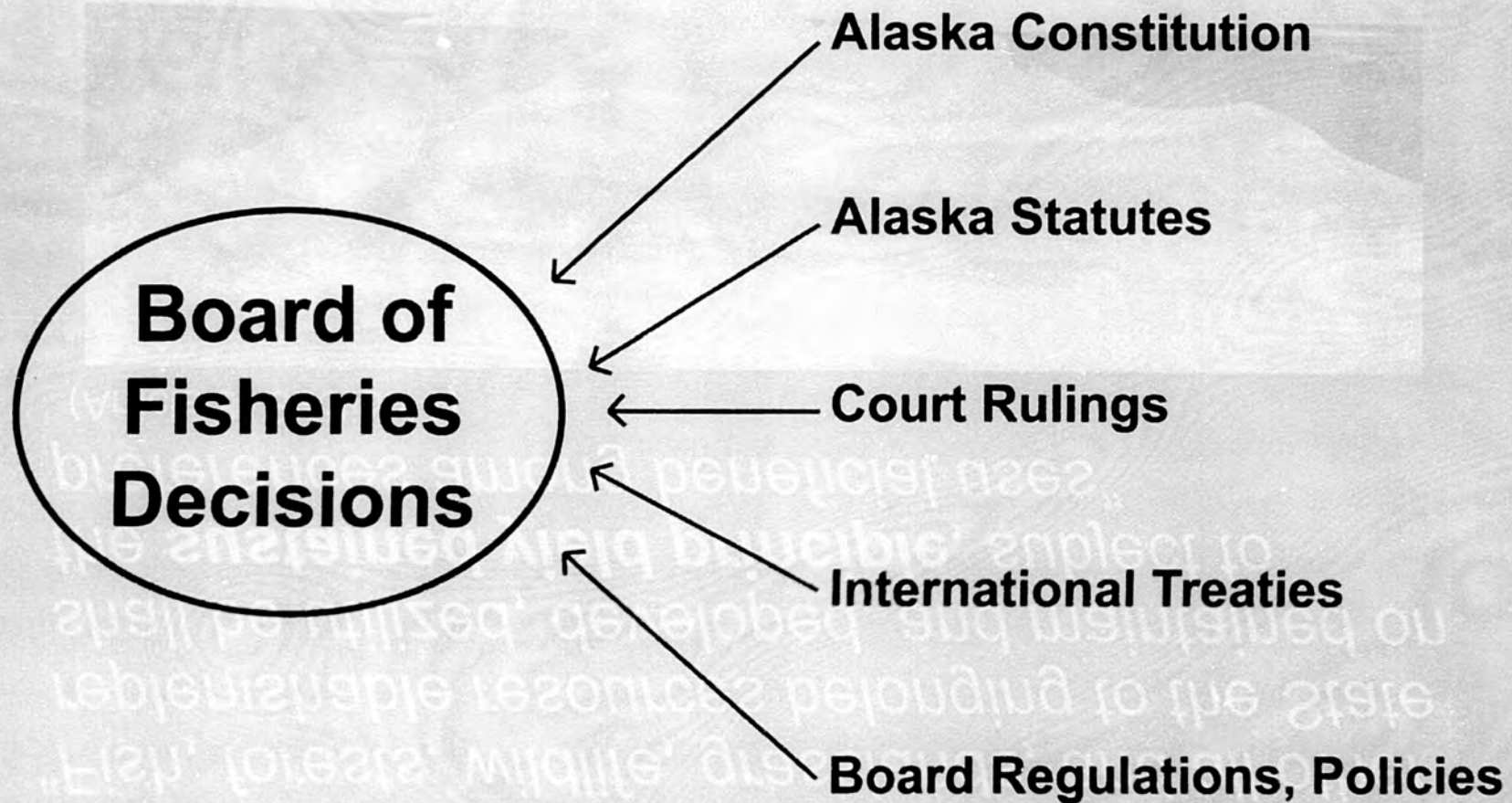
- 286 proposals
- 125 oral public testimony
 - 11 advisory committees written comment
- 55 other written public comments
- 225 record copies submitted during meeting

Sources of Agency Input

- **Alaska Dept. of Fish & Game**
 - *Commercial Fisheries Division*
 - *Sport Fish Division*
 - *Subsistence Division*
- **Dept. of Law**
- **Dept. Public Safety - Division of Alaska Wildlife Troopers**
- **Commercial Fisheries Entry Commission**
- **Office of Subsistence Management (*federal*)**
- **North Pacific Fishery Management Council (*federal*)**



Legal and Regulatory Considerations



Alaska Constitution

*"Fish, forests, wildlife, grasslands, and all other replenishable resources belonging to the State shall be utilized, developed, and maintained on the **sustained yield principle**, subject to preferences among beneficial uses"*

(Article 8, Section 4)



Alaska Statutes (general)

- Alaska Administrative Procedures Act (AS 44.62)
- Open Meetings Act (AS 44.62.310)
- Executive Branch Ethics Act (AS 39.52)



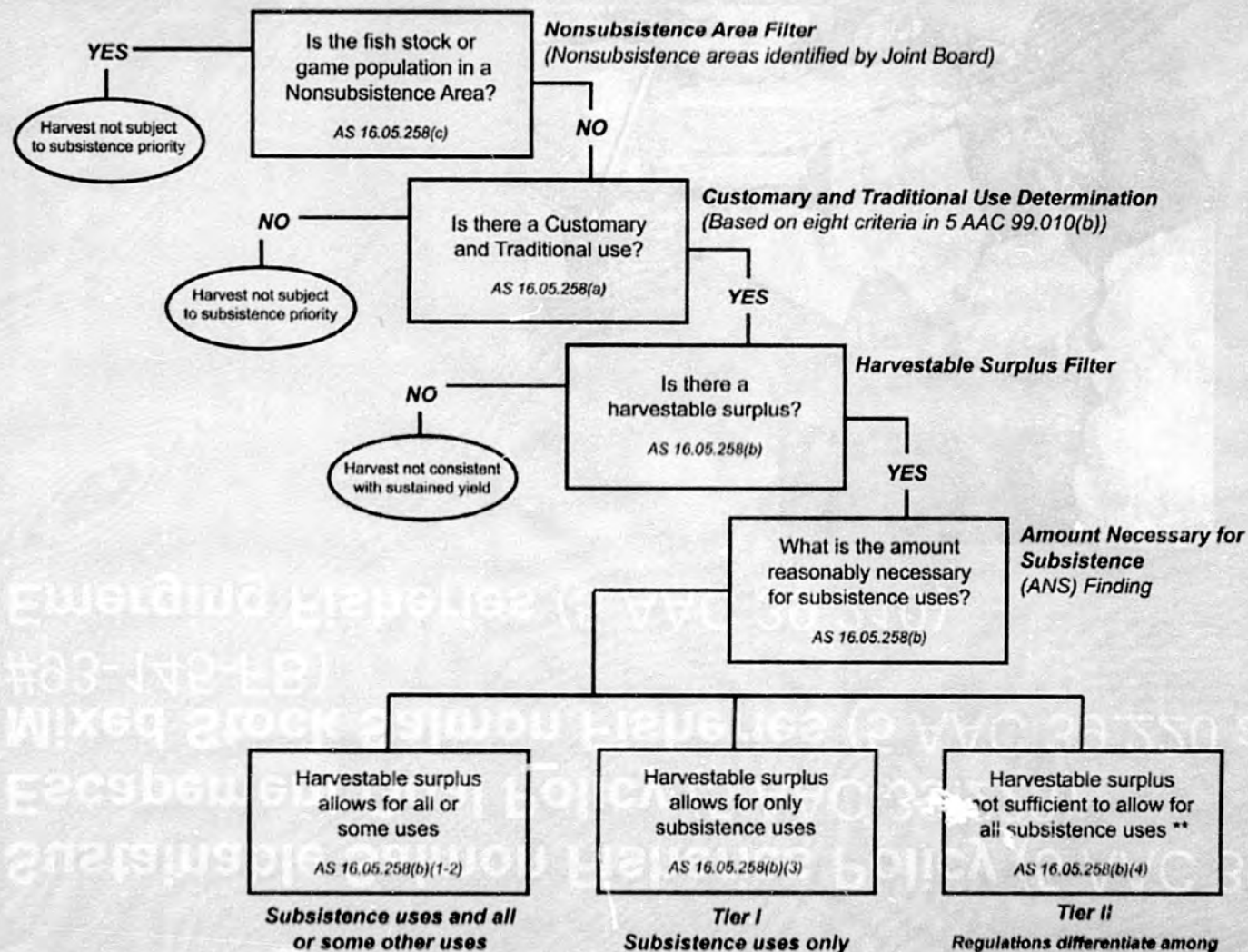
Alaska Statutes (specific)

- Board of Fisheries Authority
(AS 16.05.221; AS 16.05.251)
"Conservation and Development"
- Allocation Criteria
(AS 16.05.251(e) and #91-129-FB)
 - >history of each fishery
 - >number of participants
 - >importance for personal and family consumption
 - >availability of alternative resources
 - >importance in local, regional, and state economy
 - >importance for providing recreational opportunity
- Management of Wild and Enhanced Stocks (AS 16.05.730)
- State Subsistence Law (AS 16.05.258)



Alaska Board of Fisheries and Game

Steps When Considering Regulations that Affect Subsistence Uses*



* Alaska Statute 16.05.258 Subsistence Use and Allocation of Fish and Game

** Harvestable surplus below lower end of ANS range

Board Regulations and Policies

- Sustainable Salmon Fisheries Policy (5 AAC 39.222)
- Escapement Goal Policy (5 AAC 39.223)
- Mixed Stock Salmon Fisheries (5 AAC 39.220 and #93-145-FB)
- Emerging Fisheries (5 AAC 39.210)



see list of all board findings at
<http://www.boards.adfg.state.ak.us/fishinfo/regs/pfindx.php>

Summary

- Structured process
- Transparent
- High level of public participation



Economic Comparisons of Commercial and Sport Fisheries: Measures, Things to Keep in Mind, and Potential Misuses

Prepared for
Cook Inlet Salmon Task Force
May 22, 2008
Soldotna, Alaska

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Institute of Social and Economic Research

University of Alaska Anchorage

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Who I Am and Why I am Testifying

- I am a professor of economics at the UAA Institute of Social and Economic Research (ISER). I've been studying economic issues related to Alaska fisheries for many years. I also teach a course at UAA on the Alaska economy, and will be teaching a new online course (beginning September 2008) on "An Introduction to Fisheries Economics and Markets."
- I'm currently engaged in a research project (funded by the Alaska Sea Grant program) on what kinds of economic information exists and does not exist for Alaska's commercial, sport and subsistence fisheries.
- I'm testifying today because Rep. Craig Johnson, co-chair of the Task Force, asked me to testify and provide the task force some background information about what kinds of economic data are available for Cook Inlet salmon fisheries and what they mean.
- I'll testify again next week in Wasilla about "Economic Impacts and Net Economic Value of Cook Inlet Commercial and Sport Salmon Fisheries: What We Know and What We Don't Know."
- I'm available to assist the Task Force over the next few months in providing additional economic information or data if it would be helpful to you.
- I'm not taking any position on any of the issues which the Task Force is addressing.

Commercial and Sport Fisheries

What They Produce and Who the Consumers and Producers Are

	Commercial fisheries	Sport fisheries
What the fishery produces	Fish	Angling experience Aesthetics Fishing Catching fish Fish
Consumers	Fish consumers	Sport fishermen
Producers	Commercial fishermen Processors Fish transportation industries Distributors Retailers Restaurants	Independent anglers Charter operators Lodges Passenger transportation industries
Production measures	Number of fish	Number of fishing trips Number of fishing days Number of fish

How can we measure the economic contributions of a fishery?

	Economic impact	Net economic value
Definition	How the fishery affects the economy	What people would be "willing to pay" for what the fishery produces, minus the costs of production
Examples of measures	Number of jobs \$ of income \$ of tax revenue	\$ of net value
How hard is it to understand the concept?	Relatively easy	Relatively hard
How hard is it to calculate the measures?	Relatively easy	Relatively hard
How much data do we have?	Some	Less

How economists define "value" . . .

- The value of a product or experience is what someone would be willing to pay for it—regardless of whether they actually do pay for it.

HYPOTHETICAL EXAMPLES:

- The value of my beat-up old car is \$2300, because that's what I could sell it for
- The value of a ticket to the Elton John concert in Anchorage is \$500 because that's what some people would be willing to pay for a ticket, even if the official ticket price is \$65*
- The value of a day of cross-country skiing at Kincaid Park in Anchorage is probably at least \$20, even though people can ski there for free—because that's what people pay for that kind of skiing in other places

**I made these Elton John concert prices up for the purposes of the example. I have no idea what the actual prices were or what people would have been willing to pay for tickets!*

“Total Value” vs. “Net Value”

- Total value is consumers' total willingness to pay.
- Net value is consumers' total willingness to pay minus the cost of producing the product or experience.
- Economists often argue that net value is the most useful and important measure of the economic contribution of an industry—for the same reason they argue that profits are a more useful measure of how a business is doing than gross revenues.

HYPOTHETICAL EXAMPLES:

- The value of a product or experience is what someone would be willing to

How economists define “value” . . .

Contrasting “Economic Impact” and “Net Economic Value” Effect of Using More Workers

Measure	Effect of more workers	Change in the measure
Economic impacts	Increases number of jobs Increases wage income	Increases economic impact
Net value	Increases costs	Reduces net value

Note that “greater economic impact” doesn’t necessarily mean greater net economic value. It might mean less net economic value.

More broadly, our public policy goal shouldn’t necessarily to maximize economic examples. For example, suppose we are building a new road. We could maximize economic impacts such as employment by requiring that the road be built with manual labor (pickaxes and shovels and wheelbarrows) rather than bulldozers. But that might not be the best choice from other perspectives, such as getting the cheapest or best-constructed road.

Here is a simplified hypothetical example of how we might calculate "net value" for a sport fishing day. One thing that makes it difficult is that we can't directly observe an angler's "willingness to pay" for a sport fishing day. Economists have ways of estimating willingness to pay, but they require a lot of data and aren't all that precise.

Hypothetical Net Value Calculation for a Sport Fishing Day

		Costs and Revenues	Net value	Are data collected on a regular basis?
Angler	Angler's willingness to pay	\$600		E
	Angler's payment to gas station	\$50		No*
	Angler's payment for guide service	\$250		No*
	Angler's net value		\$300	
Gas Station	Gas station revenue	\$50		
	Gas station costs	\$40		No
	Gas station net value		\$10	
Guide service	Guide service revenue	\$250		
	Guide service costs	\$100		No
	Guide service net value		\$150	
Total			\$460	

E: Can't be observed--can only be estimated

*ADFG has a study underway which is intended as the first of a regular data collection effort.

Note: This simple example doesn't adjust for what portion of value may be going to non-resident anglers or guides.

Here is a simplified hypothetical example of how we might calculate "net value" for a commercially caught fish. One thing that makes it difficult is that we can't directly observe a consumer's "willingness to pay" for a fish. But in general that's less of an issue for commercial fisheries, partly because consumers pay for the fish, and partly because most of the consumers are non-residents.

Hypothetical Net Value Calculation for a Commercially Caught Fish

		Costs and Revenues	Net value	Are data collected on a regular basis?
Consumer	Consumer's willingness to pay	\$6.00		E
	Consumer's payment to store	\$5.00		No
	Consumer net value		\$1.00	
Store	Store's revenue	\$5.00		No
	Store's payment to processor	\$2.40		Yes
	Store's other costs	\$2.00		No
	Store's net value		\$0.60	
Processor	Processor revenue	\$2.40		
	Processor payment to fisherman	\$1.50		Yes
	Processor's other costs	\$0.60		No
	Processor net value		\$0.30	
Fisherman	Fisherman revenue	\$1.50		
	Fisherman costs	\$1.00		No
	Fisherman net value		\$0.50	
Net value			\$2.40	

E: Can't be observed--can only be estimated

Note: This simple example doesn't adjust for what portion of value may be going to non-resident consumers, stores, processors or fishermen.

Here are some important things to keep in mind when thinking about economic impacts and net values of commercial and sport fisheries, and using estimates that exist for what these impacts and values are:

- Not all economic impacts or benefits go to residents.
- You may not be interested in all economic impacts or benefits.
- How fisheries are managed affects their economic impacts and value
- Public investments affect fisheries' economic impacts and value
- Even if catches and allocations stay the same, economic impacts and value can change significantly from year to year
- Economic impacts and value aren't necessarily proportional to fish catches
- The effect of catching one more fish on economic impacts and value isn't necessarily the same as average impact and value

Comparing Commercial and Sport Fishing Economic Impacts and Values How to Misuse Economics

- Compare economic values with economic impacts
- Compare complete measures of impact and value with incomplete measures of impact and value
- Cherry-pick high or low years to characterize the impact or value of fisheries
- Present economic information that isn't relevant to the policy issue under consideration
- Use average values as economic effects of marginal changes in catches
- Present irrelevant information about economic impacts and values in other areas
- Overstate the accuracy of estimated impacts or values

Task Force Members:

Ghost Dollars and Economics



Members of the sport fishing community testified concerning the economic value of sport vs. commercial fishing. In making these unsubstantial comments, most of this "economic benefit" really does not exist.

A couple of examples:

1. A person from the Chicago area travels to Alaska for sport fishing; 2 days traveling and 3 days in Alaska:

Location of Expenditures

	Alaska \$\$	Lower 48 \$\$	Total \$\$
Air Fare	200	1000	1200
Airport Parking	--	200	200
Car Rental (4 @ \$100)	400	--	400
Gas / Car	100	100	200
Meals (5 @ \$60)	200	100	300
Lodging (4 @ \$125)	500	--	500
Guide Fees (2 @ 200)	400	--	400
Fishing Gear	100	300	400
Total	\$1600	\$2000	\$3600

The majority (\$2000) of the costs never enter the Alaskan economy. The majority of the costs occur in the economy of the Lower 48. It is misleading to apply the full \$3600 to the sport fishing economy of Alaska.

2. A person travels from the Mat-Su to halibut fish at Homer; 3 day trip:

Fuel - 30 gal @ \$4.50	135
Meals - 3 @ \$50	150
Charter - 1 @ \$225	225
Gear/Ice	25
Total	\$535



It is deceptive and misleading to include the \$535 for this Homer halibut trip in the "sport fishing" economy when discussing **salmon** issues. Be careful when discussing **salmon** economics that the term "sport fishing economic benefits" **only include salmon sport fishing**. The term "sport fishing economic benefit" includes trout, grayling, halibut, rockfish, ling cod and salmon fisheries. In all sport fishing activity, both the consumptive and non-consumptive economic benefits are included. These comprehensive economic values are presented as applying only to **salmon** when **salmon** allocations are discussed. When **halibut** allocations were being discussed, these same comprehensive economic benefits are were presented as applying to **halibut**.



These above examples are, in part, what Dr. Gunnar Knapp referred to as inappropriate values or economics when making comparisons. Most of the economic values presented at the Soldotna hearing had Lower 48 "ghost" economic values included. Also, all sport fish economic benefits that were given were collective values for all species of sport fish and were not only salmon economic values.

Sincerely,

Roland R. Maw

Roland R. Maw, PhD
ams

MEMO

To: Alaska State Legislature
Joint Cook Inlet Salmon Task Force

Date: May 29, 2008

Subject: Testimony, Salmon Management

From: Carl A. Grauvogel,
Biologist, Alaska Dept Fish & Game, Retired.
P.O. Box 1062
Palmer, Alaska 99645
Telephone: 907-746-2125

Mr. Chairman, members of the committee, I am a retired Biologist from the Alaska Department of Fish & Game, past chairman of the Mat-Su advisory committee, a permanent resident of the Mat-Su valley for twenty plus years, and an avid outdoors man who spends several weeks each year boating our local rivers. I been extensively involved in salmon management issues in Cook Inlet since 1990. I believe I have a reasonably good understanding of the salmon data and the management problems. I'm not going to rehash the sad state of affairs of our northern Cook Inlet salmon stocks, instead I want to focus on why we have this problem and how it can be resolved.

First, though I want to address this issue that the Department of Fish & Game raises about the possibility of over escapement of northern bound sockeye. Do not be led astray by this assertion! The Department points out that they counted more salmon at some of their new weir sites that they counted at their long term sonar site, and then they make the conclusion that their sonar site must be under-counting all these years. It is total erroneous to make any comparison between the these two sets of data. If the Department had a weir at these locations twenty years ago, they would have counted many more fish, and now they would have a weir trend-count (similar to the sonar count) showing a population in a precipitous decline, especially in the past decade. The Department's new weir data are an easy scape-goat tool to interject an "uncertainly factor" about the status of northern sockeye stocks, implying that nothing needs to be done. This assertion gets the Department off the hook. Rest assured sockeye, chum, and some coho stocks in northern Cook Inlet are in tough shape, and their decline is supported by many other kinds of data. Management practices must be implemented soon to prevent a population collapse that will be difficult if not impossible to reverse.

So what needs to be done? What the legislature needs to address, involves changing the emphasis on how salmon are managed in Cook Inlet. Right now, the highest priority goes to that species and that population with the greatest economic impact: e.g. Kenai sockeye at the expense of all the other salmon populations and species of salmon in Cook Inlet. Presently, the Department (and Board of Fish) can let all salmon populations decline to very low numbers, so long as they don't go completely extinct. That's what's been happening for the past 25 years, and its coming to roost now. Think about it! If there were several million cohos, and chums returning to Cook Inlet (which there were at one time), its acceptable policy to bring all these populations to the brink of extinction, so long as there are a few fish left for breeding. No university, teaching fisheries management today, would define this practice as anything close to "sustainable", but that's the our current policy in Cook Inlet. It's justified because supposedly the harvest of Kenai sockeye by the commercial fleet has been determined to be the highest economic use.

That logic, itself, is patently false! If more fish were returned to all the rivers in Cook Inlet, it would provide an economic return several-fold, and it would involve many thousands of people, rather than a few hundred commercial fishermen. However, the Board of Fish is unlikely to change Cook Inlet policy on their own (as recently demonstrated at the last board meeting). They do not have the political will or the political muscle. It's clear to many of us now, that the legislature is going to have to pass new legislation that mandates that all populations of salmon in Cook Inlet (and other important mix-stocked fisheries) will be managed for maximum sustained yield on an equal basis with other mixed stocks, and no salmon population will be allow to decline or be depleted to low numbers at the expense of another. Enacting such a mandate will not be easy, but if Alaska is going to continue to boast about their effective salmon management practices in this state, then it is long past time to move in a new progressive direction. Antiquated management practices, now so prevalent in Northern Cook Inlet, should no longer be tolerated. Right now, our present Cook Inlet policy does not meet our constitutional mandates to manage all species for sustained yield.

If something is not done by this legislature, I predict the courts will soon be issuing injunctions that could throw Cook Inlet salmon management into complete chaos. Time to correct past mistakes is running out, you need to act soon.

Honorable Curt Menard
Mayor, Matanuska-Susitna Borough
350 E. Dahlia
Palmer, AK 99645

May 16, 2008

Dear Mayor Menard,

The Mat-Su Borough Blue Ribbon Sportsmen's Committee finds ourselves greatly disturbed with the manner in which the Board of Fisheries (BOF) and the Department of Fish and Game (ADF&G) is addressing the Stock of Concern status of Susitna Sockeye Salmon. The Committee met following the February Board of Fisheries meeting on Upper Cook Inlet Fin Fish and discovered this sentiment unanimous among our membership. We are writing in hopes of escalating this concern to build support for bringing the Susitna Sockeye Action Plan better into compliance with the Sustainable Salmon Fisheries Policy.

During the course of the BOF meeting, the Board declared Susitna Sockeye a Stock of Concern under the Sustainable Salmon Fisheries Policy (5 AAC 39.222). Pursuant to that designation, the ADF&G proposed what they considered an "Action Plan" to the BOF for consideration. The BOF accepted that document without modification. It is our position that this document fails to meet the criteria set forth in the Sustainable Salmon Fisheries Policy (SSFP) for an Action Plan by a wide margin.

We would like to see the ADF&G and the BOF withdraw this document and generate an SSFP-compliant Action Plan for these stocks and we ask your assistance in advancing our position to the state.

The SSFP is very clear about what to do in the case where the sustainability of a salmon stock is uncertain. The ADF&G has repeatedly documented their "uncertainty" regarding Susitna/Yentna salmon. Quoting from their "Action Plan", "Although sockeye salmon escapements are estimated via a Bendix sonar system, there is *great uncertainty* surrounding their accuracy and precision. . . . the department has *low confidence* in the accuracy of our estimate of the Susitna sockeye salmon harvest".

This uncertainty has been consistent for many years and only this season has the BOF succumbed to pressure and taken steps to address the situation. On its face, this is good news, however the action part of this "Action Plan" is lacking.

The SSFP states clearly, "in the face of uncertainty, salmon stocks, fisheries, artificial propagation, and essential habitats shall be managed conservatively as follows:" Excerpting from the SSFP it reads:

(4) in association with the appropriate management plan, the department and the board will, as appropriate, collaborate in the development and periodic review of an action plan for any new or expanding salmon fisheries, or stocks of concern; action plans should contain goals, measurable and implementable objectives and provisions including

- (A) measures required to restore and protect salmon habitat including necessary coordination with other agencies and organizations;
- (B) identification of salmon stock or population rebuilding goals and objectives;
- (C) fishery management actions needed to achieve rebuilding goals and objectives in proportion to each fishery's use of, and hazards posed to, a salmon stock;
- (D) descriptions of new or expanding salmon fisheries, management concern, yield concern, or conservation concern; and;
- (E) performance measures appropriate for monitoring and gauging the effectiveness of the action plan that are derived from the principles and criteria contained in this policy;

It is the position of the Mat-Su Mayor's Blue Ribbon Sportsmen's Committee that the abbreviated 9-page "Action Plan" prepared by the ADF&G and the BOF fails to comply with any of the requirements listed above.

By comparison, the 24-page 2006 Kvichak River Sockeye Salmon Stock Status and Action Plan, as well as, the 21-page Norton Sound Shaktoolik and Unalakleet Subdistrict Chinook Salmon Stock Status and Action Plan contain extensive discussion of goals and objectives along with performance measures that enable the BOF to know whether the concerns regarding these stocks are improving.

To further the insult of what many consider an "Inaction Plan" the BOF under the encouragement of the ADF&G violated the most basic principle of the SSFP by not only failing to proceed cautiously, but by further liberalizing the commercial harvest of Upper Cook Inlet sockeyes.

During the BOF meeting, the ADF&G released statistics collected in the past couple years showing that on certain days the Central District commercial fishery caught as many as 100,000 Northern District-bound sockeyes. The implication of this information is that had the fishery been closed for as little as a few days, the escapement of sockeyes to the Northern District could have been doubled.

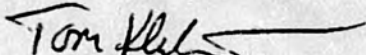
Making matters worse, we have received word that ADG&G held closed-door meetings with Cook Inlet Aquaculture regarding the nature of research the department plans to contract for as a result of this alleged Action Plan and rumor is that they plan to discontinue the salt water research that provides this kind of information.

Again, the SSFP calls for public input and we feel the appearance of evasive behavior that denies the public any input in this highly sensitive subject will be detrimental to the ADF&G. The department has not even enlisted input from their regional Advisory Committees on this matter.

It is saddening to report that after attempting to participate in the Board of Fisheries process in good faith the perspective of our committee is that the integrity of both the ADF&G and the BOF appears questionable.

Any recommendations on how to elevate these concerns is greatly appreciated.

Sincerely,


Tom Kluberton, Chairman

Cc: John Duffy, MSB Manager

Attachments: SSFP

2008 Susitna Sockeye Action Plan

2007 Kvichak River Sockeye Salmon Stock Status and Action Plan

2003 Norton Sound Shaktoolik and Unalakleet Subdistrict Chinook
Salmon Stock Status and Action Plan

5 AAC 39.222. Policy for the management of sustainable salmon fisheries

(a) The Board of Fisheries (board) and Department of Fish and Game (department) recognize that

(1) while, in the aggregate, Alaska's salmon fisheries are healthy and sustainable largely because of abundant pristine habitat and the application of sound, precautionary, conservation management practices, there is a need for a comprehensive policy for the regulation and management of sustainable salmon fisheries;

(2) in formulating fishery management plans designed to achieve maximum or optimum salmon production, the board and department must consider factors including environmental change, habitat loss or degradation, data uncertainty, limited funding for research and management programs, existing harvest patterns, and new fisheries or expanding fisheries;

(3) to effectively assure sustained yield and habitat protection for wild salmon stocks, fishery management plans and programs require specific guiding principles and criteria, and the framework for their application contained in this policy.

(b) The goal of the policy under this section is to ensure conservation of salmon and salmon's required marine and aquatic habitats, protection of customary and traditional subsistence uses and other uses, and the sustained economic health of Alaska's fishing communities.

(c) Management of salmon fisheries by the state should be based on the following principles and criteria:

(1) wild salmon stocks and the salmon's habitats should be maintained at levels of resource productivity that assure sustained yields as follows:

(A) salmon spawning, rearing, and migratory habitats should be protected as follows:

(i) salmon habitats should not be perturbed beyond natural boundaries of variation;

(ii) scientific assessments of possible adverse ecological effects of proposed habitat alterations and the impacts of the alterations on salmon populations should be conducted before approval of a proposal;

(iii) adverse environmental impacts on wild salmon stocks and the salmon's habitats should be assessed;

(iv) all essential salmon habitat in marine, estuarine, and freshwater ecosystems and access of salmon to these habitats should be protected; essential habitats include spawning and incubation areas, freshwater rearing areas, estuarine and nearshore rearing areas, offshore rearing areas, and migratory pathways;

(v) salmon habitat in fresh water should be protected on a watershed basis, including appropriate management of riparian zones, water quality, and water quantity;

(B) salmon stocks should be protected within spawning, incubating, rearing, and migratory habitats;

(C) degraded salmon productivity resulting from habitat loss should be assessed, considered, and controlled by affected user groups, regulatory agencies, and boards when making conservation and allocation decisions;

(D) effects and interactions of introduced or enhanced salmon stocks on wild salmon stocks should be assessed; wild salmon stocks and fisheries on those stocks should be protected from adverse impacts from artificial propagation and enhancement efforts;

(E) degraded salmon spawning, incubating, rearing, and migratory habitats should be restored to natural levels of productivity where known and desirable;

(F) ongoing monitoring should be conducted to determine the current status of habitat and the effectiveness of restoration activities;

(G) depleted salmon stocks should be allowed to recover or, where appropriate, should be actively restored; diversity should be maintained to the maximum extent possible, at the genetic, population, species, and ecosystem levels;

(2) salmon fisheries shall be managed to allow escapements within ranges necessary to conserve and sustain potential salmon production and maintain normal ecosystem functioning as follows:

(A) salmon spawning escapements should be assessed both temporally and geographically; escapement monitoring programs should be appropriate to the scale, intensity, and importance of each salmon stock's use;

(B) salmon escapement goals, whether sustainable escapement goals, biological escapement goals, optimal escapement goals, or inriver run goals, should be established in a manner consistent with sustained yield; unless otherwise directed, the department will manage Alaska's salmon fisheries, to the extent possible, for maximum sustained yield;

- (C) salmon escapement goal ranges should allow for uncertainty associated with measurement techniques, observed variability in the salmon stock measured, changes in climatic and oceanographic conditions, and varying abundance within related populations of the salmon stock measured;
 - (D) salmon escapement should be managed in a manner to maintain genetic and phenotypic characteristics of the stock by assuring appropriate geographic and temporal distribution of spawners as well as consideration of size range, sex ratio, and other population attributes;
 - (E) impacts of fishing, including incidental mortality and other human-induced mortality, should be assessed and considered in harvest management decisions;
 - (F) salmon escapement and harvest management decisions should be made in a manner that protects non-target salmon stocks or species;
 - (G) the role of salmon in ecosystem functioning should be evaluated and considered in harvest management decisions and setting of salmon escapement goals;
 - (H) salmon abundance trends should be monitored and considered in harvest management decisions;
- (3) effective management systems should be established and applied to regulate human activities that affect salmon as follows:
- (A) salmon management objectives should be appropriate to the scale and intensity of various uses and the biological capacities of target salmon stocks;
 - (B) management objectives should be established in harvest management plans, strategies, guiding principles, and policies, such as for mixed stock fishery harvests, fish disease, genetics, and hatchery production, that are subject to periodic review;
 - (C) when wild salmon stocks are fully allocated, new fisheries or expanding fisheries should be restricted, unless provided for by management plans or by application of the board's allocation criteria;
 - (D) management agencies should have clear authority in statute and regulation to
 - (i) control all sources of fishing mortality on salmon;
 - (ii) protect salmon habitats and control non-fishing sources of mortality;
 - (E) management programs should be effective in
 - (i) controlling human-induced sources of fishing mortality and should incorporate procedures to assure effective monitoring, compliance, control, and enforcement;
 - (ii) protecting salmon habitats and controlling collateral mortality and should incorporate procedures to assure effective monitoring, compliance, control, and enforcement;
 - (F) fisheries management implementation and outcomes should be consistent with regulations, regulations should be consistent with statutes, and effectively carry out the purpose of this section;
 - (G) the board will recommend to the commissioner the development of effective joint research, assessment, and management arrangements with appropriate management agencies and bodies for salmon stocks that cross state, federal, or international jurisdictional boundaries; the board will recommend the coordination of appropriate procedures for effective monitoring, compliance, control, and enforcement with those of other agencies, states, or nations;
 - (H) the board will work, within the limits of its authority, to assure that
 - (i) management activities are accomplished in a timely and responsive manner to implement objectives, based on the best available scientific information;
 - (ii) effective mechanisms for the collection and dissemination of information and data necessary to carry out management activities are developed, maintained, and utilized;
 - (iii) management programs and decision-making procedures are able to clearly distinguish, and effectively deal with, biological and allocation issues;
 - (I) the board will recommend to the commissioner and legislature that adequate staff and budget for research, management, and enforcement activities be available to fully implement sustainable salmon fisheries principles;
 - (J) proposals for salmon fisheries development or expansion and artificial propagation and enhancement should include assessments required for sustainable management of existing salmon fisheries and wild salmon stocks;

(K) plans and proposals for development or expansion of salmon fisheries and enhancement programs should effectively document resource assessments, potential impacts, and other information needed to assure sustainable management of wild salmon stocks;

(L) the board will work with the commissioner and other agencies to develop effective processes for controlling excess fishing capacity;

(M) procedures should be implemented to regularly evaluate the effectiveness of fishery management and habitat protection actions in sustaining salmon populations, fisheries, and habitat, and to resolve associated problems or deficiencies;

(N) conservation and management decisions for salmon fisheries should take into account the best available information on biological, environmental, economic, social, and resource use factors;

(O) research and data collection should be undertaken to improve scientific and technical knowledge of salmon fisheries, including ecosystem interactions, status of salmon populations, and the condition of salmon habitats;

(P) the best available scientific information on the status of salmon populations and the condition of the salmon's habitats should be routinely updated and subject to peer review;

(4) public support and involvement for sustained use and protection of salmon resources should be sought and encouraged as follows:

(A) effective mechanisms for dispute resolution should be developed and used;

(B) pertinent information and decisions should be effectively disseminated to all interested parties in a timely manner;

(C) the board's regulatory management and allocation decisions will be made in an open process with public involvement;

(D) an understanding of the proportion of mortality inflicted on each salmon stock by each user group, should be promoted, and the burden of conservation should be allocated across user groups in a manner consistent with applicable state and federal statutes, including AS 16.05.251 (e) and AS 16.05.258; in the absence of a regulatory management plan that otherwise allocates or restricts harvests, and when it is necessary to restrict fisheries on salmon stocks where there are known conservation problems, the burden of conservation shall be shared among all fisheries in close proportion to each fisheries' respective use, consistent with state and federal law;

(E) the board will work with the commissioner and other agencies as necessary to assure that adequately funded public information and education programs provide timely materials on salmon conservation, including habitat requirements, threats to salmon habitat, the value of salmon and habitat to the public and ecosystem (fish and wildlife), natural variability and population dynamics, the status of salmon stocks and fisheries, and the regulatory process;

(5) in the face of uncertainty, salmon stocks, fisheries, artificial propagation, and essential habitats shall be managed conservatively as follows:

(A) a precautionary approach, involving the application of prudent foresight that takes into account the uncertainties in salmon fisheries and habitat management, the biological, social, cultural, and economic risks, and the need to take action with incomplete knowledge, should be applied to the regulation and control of harvest and other human-induced sources of salmon mortality; a precautionary approach requires

(i) consideration of the needs of future generations and avoidance of potentially irreversible changes;

(ii) prior identification of undesirable outcomes and of measures that will avoid undesirable outcomes or correct them promptly;

(iii) initiation of any necessary corrective measure without delay and prompt achievement of the measure's purpose, on a time scale not exceeding five years, which is approximately the generation time of most salmon species;

(iv) that where the impact of resource use is uncertain, but likely presents a measurable risk to sustained yield, priority should be given to conserving the productive capacity of the resource;

(v) appropriate placement of the burden of proof, of adherence to the requirements of this subparagraph, on those plans or ongoing activities that pose a risk or hazard to salmon habitat or production;

(B) a precautionary approach should be applied to the regulation of activities that affect essential salmon habitat.

(d) The principles and criteria for sustainable salmon fisheries shall be applied, by the department and the board using the best available information, as follows:

(1) at regular meetings of the board, the department will, to the extent practicable, provide the board with reports on the status of salmon stocks and salmon fisheries under consideration for regulatory changes, which should include

- (A) a stock-by-stock assessment of the extent to which the management of salmon stocks and fisheries is consistent with the principles and criteria contained in the policy under this section;
- (B) descriptions of habitat status and any habitat concerns;
- (C) identification of healthy salmon stocks and sustainable salmon fisheries;
- (D) identification of any existing salmon escapement goals, or management actions needed to achieve these goals, that may have allocative consequences such as the
 - (i) identification of a new fishery or expanding fishery;
 - (ii) identification of any salmon stocks, or populations within stocks, that present a concern related to yield, management, or conservation; and
 - (iii) description of management and research options to address salmon stock or habitat concerns;

(2) in response to the department's salmon stock status reports, reports from other resource agencies, and public input, the board will review the management plan, or consider developing a management plan, for each affected salmon fishery or stock; management plans will be based on the principles and criteria contained in this policy and will

- (A) contain goals and measurable and implementable objectives that are reviewed on a regular basis and utilize the best available scientific information;
- (B) minimize the adverse effects on salmon habitat caused by fishing;
- (C) protect, restore, and promote the long-term health and sustainability of the salmon fishery and habitat;
- (D) prevent overfishing; and
- (E) provide conservation and management measures that are necessary and appropriate to promote maximum or optimum sustained yield of the fishery resource;

(3) in the course of review of the salmon stock status reports and management plans described in (1) and (2) of this subsection, the board, in consultation with the department, will determine if any new fisheries or expanding fisheries stock yield concerns, stock management concerns, or stock conservation concerns exist; if so, the board will, as appropriate, amend or develop salmon fishery management plans to address these concerns; the extent of regulatory action, if any, should be commensurate with the level of concerns and range from milder to stronger as concerns range from new and expanding salmon fisheries through yield concerns, management concerns, and conservation concerns;

(4) in association with the appropriate management plan, the department and the board will, as appropriate, collaborate in the development and periodic review of an action plan for any new or expanding salmon fisheries, or stocks of concern; action plans should contain goals, measurable and implementable objectives, and provisions, including

- (A) measures required to restore and protect salmon habitat, including necessary coordination with other agencies and organizations;
- (B) identification of salmon stock or population rebuilding goals and objectives;
- (C) fishery management actions needed to achieve rebuilding goals and objectives, in proportion to each fishery's use of, and hazards posed to, a salmon stock;
- (D) descriptions of new or expanding salmon fisheries, management concern, yield concern, or conservation concern; and
- (E) performance measures appropriate for monitoring and gauging the effectiveness of the action plan that are derived from the principles and criteria contained in this policy;

(5) each action plan will include a research plan as necessary to provide information to address concerns; research needs and priorities will be evaluated periodically, based on the effectiveness of the monitoring described in (4) of this subsection;

(6) where actions needed to regulate human activities that affect salmon and salmon's habitat that are outside the authority of the department or the board, the department or board shall correspond with the relevant authority including the governor, relevant boards and commissions, commissioners, and chairs of appropriate legislative committees, to describe the issue and recommend appropriate action.

(e) Nothing in the policy under this section is intended to expand, reduce, or be inconsistent with, the statutory regulatory authority of the board, the department, or other state agencies with regulatory authority that impacts the fishery resources of the state.

(f) In this section, and in implementing this policy,

(1) "allocation" means the granting of specific harvest privileges, usually by regulation, among or between various user groups; "allocation" includes quotas, time periods, area restrictions, percentage sharing of stocks, and other management measures providing or limiting harvest opportunity;

(2) "allocation criteria" means the factors set out in AS 16.05.251 (e) considered by the board as appropriate to particular allocation decisions under 5 AAC 39.205, 5 AAC 75.017, and 5 AAC 77.007;

(3) "biological escapement goal" or "(BEG)" means the escapement that provides the greatest potential for maximum sustained yield; BEG will be the primary management objective for the escapement unless an optimal escapement or inriver run goal has been adopted; BEG will be developed from the best available biological information, and should be scientifically defensible on the basis of available biological information; BEG will be determined by the department and will be expressed as a range based on factors such as salmon stock productivity and data uncertainty; the department will seek to maintain evenly distributed salmon escapements within the bounds of a BEG;

(4) "burden of conservation" means the restrictions imposed by the board or department upon various users in order to achieve escapement, rebuild, or in some other way conserve a specific salmon stock or group of stocks; this burden, in the absence of a salmon fishery management plan, will be generally applied to users in close proportion to the users' respective harvest of the salmon stock;

(5) "chronic inability" means the continuing or anticipated inability to meet escapement thresholds over a four to five year period, which is approximately the generation time of most salmon species;

(6) "conservation concern" means concern arising from a chronic inability, despite the use of specific management measures, to maintain escapements for a stock above a sustained escapement threshold (SET); a conservation concern is more severe than a management concern;

(7) "depleted salmon stock" means a salmon stock for which there is a conservation concern;

(8) "diversity", in a biological context, means the range of variation exhibited within any level of organization, such as among genotypes within a salmon population, among populations within a salmon stock, among salmon stocks within a species, among salmon species within a community, or among communities within an ecosystem;

(9) "enhanced salmon stock" means a stock of salmon that is undergoing specific manipulation, such as hatchery augmentation or lake fertilization, to enhance its productivity above the level that would naturally occur; "enhanced salmon stock" includes an introduced stock, where no wild salmon stock had occurred before, or a wild salmon stock undergoing manipulation, but does not include a salmon stock undergoing rehabilitation, which is intended to restore a salmon stock's productivity to a higher natural level;

(10) "escapement" means the annual estimated size of the spawning salmon stock; quality of the escapement may be determined not only by numbers of spawners, but also by factors such as sex ratio, age composition, temporal entry into the system, and spatial distribution within the salmon spawning habitat;

(11) "expanding fishery" means a salmon fishery in which effective harvesting effort has recently increased significantly beyond historical levels and where the increase has not resulted from natural fluctuations in salmon abundance;

(12) "expected yields" mean levels at or near the lower range of recent historic harvests if they are deemed sustainable;

(13) "genetic" means those characteristics (genotypic) of an individual or group of salmon that are expressed genetically, such as allele frequencies or other genetic markers;

(14) "habitat concern" means the degradation of salmon habitat that results in, or can be anticipated to result in, impacts leading to yield, management, or conservation concerns;

(15) "harvestable surplus" means the number of salmon from a stock's annual run that is surplus to escapement needs and can reasonably be made available for harvest;

(16) "healthy salmon stock" means a stock of salmon that has annual runs typically of a size to meet escapement goals and a potential harvestable surplus to support optimum or maximum sustained yield;

(17) "incidental harvest" means the harvest of fish, or other species, that is captured in addition to the target species of a fishery;

- (18) "incidental mortality" means the mortality imposed on a salmon stock outside of directed fishing, and mortality caused by incidental harvests, interaction with fishing gear, habitat degradation, and other human-related activities;
- (19) "inriver run goal" means a specific management objective for salmon stocks that are subject to harvest upstream of the point where escapement is estimated; the inriver run goal will be set in regulation by the board and is comprised of the SEG, BEG, or OEG, plus specific allocations to inriver fisheries;
- (20) "introduced stock" means a stock of salmon that has been introduced to an area, or portion of an area, where that stock had not previously occurred; an "introduced salmon stock" includes a salmon stock undergoing continued enhancement, or a salmon stock that is left to sustain itself with no additional manipulation;
- (21) "management concern" means a concern arising from a chronic inability, despite use of specific management measures, to maintain escapements for a salmon stock within the bounds of the SEG, BEG, OEG, or other specified management objectives for the fishery; a management concern is not as severe as a conservation concern;
- (22) "maximum sustained yield" or "(MSY)" means the greatest average annual yield from a salmon stock; in practice, MSY is achieved when a level of escapement is maintained within a specific range on an annual basis, regardless of annual run strength; the achievement of MSY requires a high degree of management precision and scientific information regarding the relationship between salmon escapement and subsequent return; the concept of MSY should be interpreted in a broad ecosystem context to take into account species interactions, environmental changes, an array of ecosystem goods and services, and scientific uncertainty;
- (23) "mixed stock fishery" means a fishery that harvests fish from a mixture of stocks;
- (24) "new fishery" means a fishery that new units of effort or expansion of existing effort toward new species, areas, or time periods, results in harvest patterns substantially different from those in previous years, and the difference is not exclusively the result of natural fluctuations in fish abundance;
- (25) "optimal escapement goal" or "(OEG)" means a specific management objective for salmon escapement that considers biological and allocative factors and may differ from the SEG or BEG; an OEG will be sustainable and may be expressed as a range with the lower bound above the level of SET, and will be adopted as a regulation by the board; the department will seek to maintain evenly distributed escapements within the bounds of the OEG;
- (26) "optimum sustained yield" or "(OSY)" means an average annual yield from a salmon stock considered to be optimal in achieving a specific management objective other than maximum yield, such as achievement of a consistent level of sustained yield, protection of a less abundant or less productive salmon stock or species, enhancement of catch per unit effort in sport fishery, facilitation of a non-consumptive use, facilitation of a subsistence use, or achievement of a specific allocation;
- (27) "overfishing" means a level of fishing on a salmon stock that results in a conservation or management concern;
- (28) "phenotypic characteristics" means those characteristics of an individual or group of salmon that are expressed physically, such as body size and length at age;
- (29) "rehabilitation" means efforts applied to a salmon stock to restore it to an otherwise natural level of productivity; "rehabilitation" does not include an enhancement, which is intended to augment production above otherwise natural levels;
- (30) "return" means the total number of salmon in a stock from a single brood (spawning) year surviving to adulthood; because the ages of adult salmon (except pink salmon) returning to spawn varies, the total return from a brood year will occur over several calendar years; the total return generally includes those mature salmon from a single brood year that are harvested in fisheries plus those that compose the salmon stock's spawning escapement; "return" does not include a run, which is the number of mature salmon in a stock during a single calendar year;
- (31) "run" means the total number of salmon in a stock surviving to adulthood and returning to the vicinity of the natal stream in any calendar year, composed of both the harvest of adult salmon plus the escapement; the annual run in any calendar year, except for pink salmon, is composed of several age classes of mature fish from the stock, derived from the spawning of a number of previous brood years;
- (32) "salmon" means the five wild anadromous semelparous Pacific salmon species *Oncorhynchus* sp., except steelhead and cutthroat trout, native to Alaska as follows:
- (A) chinook or king salmon (*O. tshawytscha*);
 - (B) sockeye or red salmon (*O. nerka*);
 - (C) coho or silver salmon (*O. kisutch*);
 - (D) pink or humpback salmon (*O. gorbuscha*); and

(E) chum or dog salmon (*O. keta*);

(33) "salmon population" means a locally interbreeding group of salmon that is distinguished by a distinct combination of genetic, phenotypic, life history, and habitat characteristics, comprised of an entire stock or a component portion of a stock; the smallest uniquely identifiable spawning aggregation of genetically similar salmon used for monitoring purposes;

(34) "salmon stock" means a locally interbreeding group of salmon that is distinguished by a distinct combination of genetic, phenotypic, life history, and habitat characteristics or an aggregation of two or more interbreeding groups which occur within the same geographic area and is managed as a unit;

(35) "stock of concern" means a stock of salmon for which there is a yield, management, or conservation concern;

(36) "sustainable escapement goal" or "(SEG)" means a level of escapement, indicated by an index or an escapement estimate, that is known to provide for sustained yield over a 5 to 10 year period, used in situations where a BEG cannot be estimated due to the absence of a stock specific catch estimate; the SEG is the primary management objective for the escapement, unless an optimal escapement or inriver run goal has been adopted by the board, and will be developed from the best available biological information; the SEG will be determined by the department and will be stated as a range that takes into account data uncertainty; the department will seek to maintain escapements within the bounds of the SEG;

(37) "sustainable salmon fishery" means a salmon fishery that persists and obtains yields on a continuing basis; characterized by fishing activities and habitat alteration, if any, that do not cause or lead to undesirable changes in biological productivity, biological diversity, or ecosystem structure and function, from one human generation to the next;

(38) "sustained yield" means an average annual yield that results from a level of salmon escapement that can be maintained on a continuing basis; a wide range of average annual yield levels is sustainable; a wide range of annual escapement levels can produce sustained yields;

(39) "sustained escapement threshold" or "(SET)" means a threshold level of escapement, below which the ability of the salmon stock to sustain itself is jeopardized; in practice, SET can be estimated based on lower ranges of historical escapement levels, for which the salmon stock has consistently demonstrated the ability to sustain itself; the SET is lower than the lower bound of the BEG and lower than the lower bound of the SEG; the SET is established by the department in consultation with the board, as needed, for salmon stocks of management or conservation concern;

(40) "target species" or "target salmon stocks" means the main, or several major, salmon species of interest toward which a fishery directs its harvest;

(41) "yield" means the number or weight of salmon harvested in a particular year or season from a stock;

(42) "yield concern" means a concern arising from a chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs; a yield concern is less severe than a management concern, which is less severe than a conservation concern;

(43) "wild salmon stock" means a stock of salmon that originates in a specific location under natural conditions; "wild salmon stock" may include an enhanced or rehabilitated stock if its productivity is augmented by supplemental means, such as lake fertilization or rehabilitative stocking; "wild salmon stock" does not include an introduced stock, except that some introduced salmon stocks may come to be considered "wild" if the stock is self-sustaining for a long period of time;

(44) "action point" means a threshold value for some quantitative indicator of stock run strength at which an explicit management action will be taken to achieve an optimal escapement goal.

History: Eff. 9/30/2000, Register 155; am 11/16/2000, Register 156; am 6/22/2001, Register 158

Authority: AS 16.05.251

5 AAC 39.223. Policy for statewide salmon escapement goals

- (a) The Department of Fish and Game (department) and the Board of Fisheries (board) are charged with the duty to conserve and develop Alaska's salmon fisheries on the sustained yield principle. Therefore, the establishment of salmon escapement goals is the responsibility of both the board and the department working collaboratively. The purpose of this policy is to establish the concepts, criteria, and procedures for establishing and modifying salmon escapement goals and to establish a process that facilitates public review of allocative issues associated with escapement goals.
- (b) The board recognizes the department's responsibility to
- (1) document existing salmon escapement goals for all salmon stocks that are currently managed for an escapement goal;
 - (2) establish biological escapement goals (BEG) for salmon stocks for which the department can reliably enumerate salmon escapement levels, as well as total annual returns;
 - (3) establish sustainable escapement goals (SEG) for salmon stocks for which the department can reliably estimate escapement levels when there is not sufficient information to enumerate total annual returns and the range of escapements that are used to develop a BEG;
 - (4) establish sustained escapement thresholds (SET) as provided in 5 AAC 39.222 (Policy for the Management of Sustainable Salmon Fisheries);
 - (5) establish escapement goals for aggregates of individual spawning populations with similar productivity and vulnerability to fisheries and for salmon stocks managed as units;
 - (6) review an existing, or propose a new, BEG, SEG and SET on a schedule that conforms, to the extent practicable, to the board's regular cycle of consideration of area regulatory proposals;
 - (7) prepare a scientific analysis with supporting data whenever a new BEG, SEG, or SET, or a modification to an existing BEG, SEG, or SET is proposed and, in its discretion, to conduct independent peer reviews of its BEG, SEG, and SET analyses;
 - (8) notify the public whenever a new BEG, SEG, or SET is established or an existing BEG, SEG, or SET is modified;
 - (9) whenever allocative impacts arise from any management actions necessary to achieve a new or modified BEG, SEG or SET, report to the board on a schedule that conforms, to the extent practicable, to the board's regular cycle of consideration of area regulatory proposals so that it can address allocation issues.
- (c) In recognition of its joint responsibilities, and in consultation with the department, the board will
- (1) take regulatory actions as may be necessary to address allocation issues arising from implementation of a new or modified BEG, SEG, and SET;
 - (2) during its regulatory process, review a BEG, SEG, or SET determined by the department and, with the assistance of the department, determine the appropriateness of establishing an optimal escapement goal (OEG); the board will provide an explanation of the reasons for establishing an OEG and provide, to the extent practicable, and with the assistance of the department, an estimate of expected differences in yield of any salmon stock, relative to maximum sustained yield, resulting from implementation of an OEG.
- (d) Unless the context requires otherwise, the terms used in this section have the same meaning given those terms in 5 AAC 39.222(f).

History: Eff. 6/22/2001, Register 158

Authority: AS 16.05.251

INTRODUCTION

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SUSITNA SOCKEYE SALMON ACTION PLAN

SUSITNA SOCKEYE SALMON ACTION PLAN

STOCK ASSESSMENT

February 2008

SUSITNA RIVER SOCKEYE SALMON STOCK STATUS AND ACTION PLAN, 2008

INTRODUCTION

SYNOPSIS

In response to the guidelines established in the Sustainable Salmon Fisheries Policy (SSFP; 5 AAC 39.222), the Alaska Board of Fisheries has identified the Susitna River sockeye salmon stock as a stock of yield concern. For this determination, the estimated Susitna River commercial harvest for the most recent 5-year average was compared to the previous 10- and 20-year averages for the Central District drift and Northern District fisheries. Identification of Susitna River sockeye salmon as a stock of yield concern is based on the definition of "yield concern" contained in SSFP. A "yield concern" is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs; a yield concern is less severe than a management concern, which is less severe than a conservation concern" [5 AAC 39.222 (f) (42)]. The policy defines "chronic inability" as "the continuing or anticipated inability to meet escapement thresholds over a four to five year period, which is approximately the generation time of most salmon species" [5 AAC 39.222 (f) (5)].

This report describes the existing management plans and Emergency Order authority that the department follows to conserve Susitna River sockeye salmon. In light of increased uncertainty of the department's ability to accurately assess escapements of sockeye salmon into the Susitna River, a research plan has been developed to improve the department's ability to assess sockeye salmon stocks within the drainage. With these ongoing studies, the department will have better information on the productivity and sustainability of the stock at the 2011 Upper Cook Inlet Board of Fisheries meeting.

STOCK ASSESSMENT

Since 1981 the Yentna River daily sonar estimates have been used as an indicator of sockeye salmon escapement into the Susitna River drainage. The sockeye salmon escapement in the Yentna River has been thought to be approximately one half of the total Susitna River sockeye salmon escapement based on a combination of 1981-1985 capture-recapture abundance estimates passing Sunshine (1982-1985; Susitna River rkm 116), and sonar abundance estimates passing Yentna (1981-1985; Yentna River rkm 7) and Susitna Station (1981; Susitna River rkm 116; Westerman and Willette 2006).

Based on Bendix sonar estimates since 1981, the number of Yentna River spawners has ranged from approximately 37,000 to 181,000 sockeye salmon. The sonar estimate of sockeye salmon escapement into the Yentna River has not met the current SEG range of 90,000 to 160,000 for 5 of the past 8 years.

Although sockeye salmon escapements are estimated via a Bendix sonar system, there is great uncertainty surrounding their accuracy and precision. The high variability observed between various methods of escapement assessment (i.e., ongoing Bendix estimates compared with recent

estimates from capture-recapture and DIDSON sonar projects; Yanusz et al. 2007) has added to the uncertainty regarding our previous assessments.

In the Central District drift gillnet fishery, the estimated commercial harvest of Susitna River sockeye salmon for the most recent 5-year average (2003–2007) is 59% of the previous 10-year (1993–2002) average and 49% of the previous 20-year (1983–2002) average. In the Northern District, the most recent 5-year average is 31% of the previous 10-year average and 22% of the previous 20-year average. Since the total Upper Cook Inlet (UCI) commercial harvest averages 2.9 million sockeye salmon and the age composition allocation model estimate of the Susitna sockeye salmon harvest is only 8.4% of the total, the department has low confidence in the accuracy of our estimate of the Susitna sockeye salmon harvest.

ESCAPEMENT GOAL HISTORY

An escapement goal of 200,000 sockeye salmon was established for the Susitna River in 1979. It was set using a return-per-spawner value of 4, and an assumption that the Susitna River could produce about 800,000 adult sockeye salmon. A review of the goal in 1989 based on euphotic volume of rearing lakes suggested the existing goal was valid. In 1986, the sonar site at Susitna Station was destroyed by a flood, and no alternative hydroacoustic site could be found on the mainstem of the Susitna. Therefore, hydroacoustic estimates from a Yentna River site were used to assess total Susitna River escapement. Based on comparisons of estimates for the Yentna and the Susitna Rivers over 5 years, 1981–1985, it was decided that an escapement of 100,000 to 150,000 sockeye salmon into the Yentna River should result in a total escapement of at least 200,000 sockeye salmon into the entire Susitna drainage (Fried 1994). This was based on the average proportion of the total Susitna River escapement, which entered the Yentna River (49%) during the 5 years studied, as well as the range of annual proportions (41–59%) for these 5 years.

In 2001, the biological escapement goal for the Yentna River was changed to a sustainable escapement goal of 90,000–160,000 sockeye salmon based on Yentna sonar data from 1981–2000, because reliable estimates of total return to the system were not available (Bue and Hasbrouck *Unpublished*). Escapement goal reviews since 2001 have resulted in no change recommended to this goal type or range (Hasbrouck and Edmundson 2007, Fair et al. 2007). In 2005, an optimal escapement goal of 75,000–180,000 Yentna River sockeye salmon was adopted by the Alaska Board of Fisheries contingent on the sockeye salmon run to the Kenai River being projected to exceed 4 million.

ACTION PLAN FOR ADDRESSING STOCK OF CONCERN

MANAGEMENT ACTIONS IN COMMERCIAL FISHERIES

Northern District Set Gillnet

In light of recent department data revealing concerns about the validity of Yentna River sockeye salmon enumeration data, it is the intent of the Board that Susitna River sockeye salmon stocks will be conservatively managed while the Department continues its studies in this drainage. Until the UCI BOF finfish meeting in 2011, Susitna River sockeye salmon will be managed as follows:

(1) From the beginning of the regular commercial salmon fishing season, which occurs on or after June 25, through July 19, the Northern District set gillnet fishery will fish no more than two regular 12-hour Monday and Thursday fishing periods per week.

(2) From July 20 through August 6, the Northern District set gillnet fishery will fish regular 12-hour Monday and Thursday fishing periods, but will be limited to no more than one 35-fathom set gillnet per permit. If it is determined by the Department that the Yentna River sockeye salmon [SEG or OEG] will be achieved during this time frame, the Department may increase the allowable fishing gear from one 35-fathom set gillnet per permit to two 35-fathom set gillnets per permit or the full complement of three set gillnets that are not more than 105 fathoms in aggregate length per permit.

(3) On the first regular fishing period after August 6, and thereafter, the Northern District set gillnet fishery will again return to a full complement of fishing gear of three set gillnets that are not more than 105 fathoms in aggregate length per permit, unless restricted or closed by emergency order.

Central District Drift Gillnet

The Central District drift gillnet fishery will be managed to conserve Susitna drainage sockeye salmon.

In the Central District drift gillnet fishery, there are two time periods in July where area restrictions are implemented by management plan to conserve northern bound salmon stocks. First, from July 9-15 the department must restrict the drift gillnet fishing fleet for two regular fishing periods to Area 1 (Figure 1) of the Central District (section A below), which is that area south of the south end of Kalgin Island, and to the Kenai and Kasilof Sections (the corridor).

From July 16-31 there are two regular period area restrictions to the drift gillnet fleet that are dependent upon the size of the Kenai River sockeye salmon run. For Kenai River sockeye salmon runs less than 2 million, the department must restrict the drift fleet to Area 1 (and the Kenai and Kasilof Sections); for runs of 2 million to 4 million, the drift fleet is restricted to Area 1 and Area 2 (and the Kenai and Kasilof Sections); and for runs greater than 4 million there are no mandatory restrictions. These restrictions apply to any two regular periods during this time frame.

The purpose of the July 9-15 restrictions are to allow for the passage of northern-bound sockeye salmon, while the July 16-31 restrictions are primarily for northern-bound sockeye and coho salmon.

MANAGEMENT ACTIONS IN SPORT FISHERIES

The sockeye salmon sport fishery in the Susitna River drainage will be prosecuted with a bag limit of 3 fish. If the Northern District set gillnet fishery is closed to conserve sockeye salmon, the Susitna River drainage sport fisheries will remain open unless the board directs otherwise. The Susitna River sport harvest is not used to determine spawning escapement or in the development of escapement goals.

RESEARCH PLAN

The department currently assesses Yentna River sockeye salmon escapement and commercial and sport harvests annually. The following research projects include current and proposed projects used to gather detailed information about sockeye salmon stocks in the Susitna River.

CURRENT SUSITNA RIVER DRAINAGE SOCKEYE SALMON RESEARCH PROJECTS

YENTNA RIVER SALMON ESCAPEMENT

Objectives: The primary objectives of this project are to estimate (1) the daily and cumulative escapement of sockeye salmon into the Yentna River, and (2) the age, length, and sex composition of those escapements.

Description: Fish passage into the Yentna River is estimated using side-looking (formerly referred to as side-scanning) Bendix sonar. Fish caught and sampled at companion fish wheels are used to apportion sonar counts to estimate species composition of fish passage (i.e., estimate abundance of sockeye salmon) and the age, length, and sex composition of the inriver sockeye salmon run.

COMPARING BENDIX AND DIDSON SONAR PASSAGE ESTIMATES IN THE YENTNA RIVER

Objective: The primary objective of this project is to compare the Bendix sonar estimates of migrating salmon in the Yentna River with estimates from a Dual frequency Identification SONar (DIDSON).

Description: A DIDSON sonar is placed on both banks of the Yentna River to collect fish passage data independent of the existing Bendix sonar. Both types of sonar equipment are operated at the same time and ensonify the same/similar area of the river so that the passage data is directly comparable.

INRIVER ABUNDANCE AND SPAWNER DISTRIBUTION OF SUSITNA RIVER SOCKEYE SALMON

Objectives: The primary objectives of this study are to (1) estimate the inriver abundance of adult sockeye salmon migrating into the Susitna River with a capture-recapture experiment, and (2) identify sockeye salmon spawning areas in the Susitna River.

Description: In 2006-2008, a capture-recapture experiment is conducted to estimate sockeye salmon abundance in the entire Susitna River. Radio telemetry is used to estimate the spawning distribution throughout the watershed.

EVALUATION OF SOCKEYE SALMON PRODUCTION FROM LAKES IN THE SUSITNA RIVER WATERSHED

Objectives: The primary objectives of this study are to (1) evaluate limnological conditions in seven lakes considered important (major) to sockeye salmon production and compare current conditions to those observed in the 1980s and 1990s, (2) estimate the abundance and mean body size of juvenile sockeye salmon and other juvenile fishes rearing in each lake in the fall, (3) estimate the age composition of the juvenile sockeye salmon in each lake, and (4) evaluate the survival from potential egg deposition to fall fry and from fall fry to smolt.

Description: Estimates of smolt and fall fry abundance, and limnological characteristics such as water chemistry and zooplankton abundance by species are collected (Chelatna, Shell, Byers, Swan, Larson, Stephan, and Judd lakes). Analyses focus on determining carrying capacity of the lakes for sockeye salmon fry and assessing the adequacy of spawning escapements over time.

BIOLOGICAL COMPOSITION OF COMMERCIAL SOCKEYE SALMON HARVEST IN UPPER COOK INLET

Objective: The primary objective of this project is to estimate the age and sex composition of the commercial salmon harvest.

Description: Sockeye salmon harvested in various commercial fisheries in UCI are sampled using a stratified systematic sampling design. Area strata are determined *a priori* using established fishery districts and subdistricts. Temporal stratification is determined post season based on catch patterns in each fishery and the number of samples collected.

STOCK COMPOSITION OF THE UPPER COOK INLET SOCKEYE SALMON COMMERCIAL HARVEST

Objectives: The primary objectives of this study are to (1) estimate the stock composition of sockeye salmon harvested in major commercial fisheries in spatial/time strata, and (2) compare stock composition among substrata (i.e., fish processors for the drift gillnet fishery and beaches within each management subdistrict for the set gillnet fishery).

Description: This project uses new single nucleotide polymorphism (SNPs) genetic stock identification (GSI) methods to estimate stock-specific composition of the commercial harvest in UCI.

PROPOSED SUSITNA RIVER DRAINAGE SOCKEYE SALMON RESEARCH PROJECTS

A recent review of Division of Commercial Fisheries and Sport Fish Division programs in the Susitna River drainage identified the need for improved escapement, smolt, and habitat information for sockeye salmon. The following research programs are planned to gather further detailed information about sockeye salmon stocks in the Susitna River drainage:

SUSITNA RIVER SOCKEYE SALMON MAJOR SYSTEM ADULT WEIRS

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon spawners entering 7 major rearing lakes in the Susitna River watershed.

Description: Adult weirs will be collaboratively operated by the Department and the Cook Inlet Aquaculture Association (CIAA) on 7 major sockeye salmon rearing lakes (Chelatna, Shell, Byers, Swan, Larson, Stephan, and Judd lakes) in the Susitna River watershed to estimate spawner abundance. The age, sex, and length composition of the adult sockeye salmon escapement will be estimated at each weir. Environmental conditions will be recorded daily (i.e., percent cloud cover, precipitation, and stream and air temperature). Sockeye salmon spawner abundance estimates will be used to (1) evaluate the accuracy of sockeye salmon passage estimates from the Yentna River sonar project, (2) help set escapement goals, and (3) estimate freshwater production of sockeye salmon in the watershed (in conjunction with smolt production project described below).

SUSITNA RIVER SOCKEYE SALMON ADDITIONAL SYSTEM ADULT WEIRS

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon spawners entering 7 additional rearing lakes in the Susitna River watershed.

Description: Adult weirs will be collaboratively operated by the Department and CIAA on 7 additional sockeye salmon rearing lakes (Whiskey, Hewitt, Lockwood, Trapper, Red Shirt, Spink, and Trinity lakes) in the Susitna River watershed to estimate spawner abundance. The age, sex, and length composition of the adult sockeye salmon escapement will be estimated at each weir. Environmental conditions will be recorded daily (i.e., percent cloud cover, precipitation, and stream and air temperature). Sockeye salmon spawner abundance estimates will be used to (1) evaluate the accuracy of sockeye salmon passage estimates from the Yentna River sonar project, (2) help set escapement goals, and (3) estimate freshwater production of sockeye salmon in the watershed (in conjunction with smolt production project described below).

SUSITNA RIVER SOCKEYE SALMON MAJOR SYSTEM SMOLT PRODUCTION

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon smolt emigrating from 7 major rearing lakes in the Susitna River watershed.

Description: The abundance of sockeye salmon smolt emigrating from 7 major sockeye salmon rearing lakes (Chelatna, Shell, Byers, Swan, Larson, Stephan, and Judd lakes) in the Susitna River watershed will be collaboratively estimated by the Department and CIAA. Fyke nets will be operated from late May through June at 6 of the lakes to provide a total smolt enumeration. At the remaining lake (Chelatna Lake), three inclined-plane traps will be operated from late May through August, and smolt population size will be estimated using standard mark-recapture techniques. Age, weight and length of smolts will be estimated from samples collected daily at each site. Smolt abundance estimates will be used to (1) forecast adult returns, and (2) estimate freshwater production of sockeye salmon in the watershed (in conjunction with adult escapement estimates).

SUSITNA RIVER SOCKEYE SALMON ADDITIONAL SYSTEM SMOLT PRODUCTION

Objective: The primary objective of this project is to estimate the abundance of sockeye salmon smolt emigrating from 7 additional rearing lakes in the Susitna River watershed.

Description: The abundance of sockeye salmon smolt emigrating from 7 additional sockeye salmon rearing lakes (Whiskey, Hewitt, Lockwood, Trapper, Red Shirt, Spink, and Trinity lakes) in the Susitna River watershed will be collaboratively estimated by the Department and CIAA. Fyke nets will be operated from late May through June at all of these lakes to provide a total smolt enumeration. Age, weight and length of smolts will be estimated from samples collected daily at each site. Smolt abundance estimates will be used to (1) forecast adult returns, and (2) estimate freshwater production of sockeye salmon in the watershed (in conjunction with adult escapement estimates).

SUSITNA RIVER FISH PASSAGE RESTORATION

Objective: The primary objective of this project is to restore and improve salmonid access to upstream spawning and rearing habitats in the lower Susitna River.

Description: Upstream access to historically occupied salmonid habitats will be evaluated in the lower Susitna River to facilitate removal of culvert barriers or other in-stream obstructions. As many as 10 upstream fish passage barriers will be identified, prioritized according to cost-benefit

analyses of fishery values and project costs, and upstream access improved and restored. During construction and after the fish passage restoration projects have been completed, an established monitoring protocol will be used to track individual restoration project performance.

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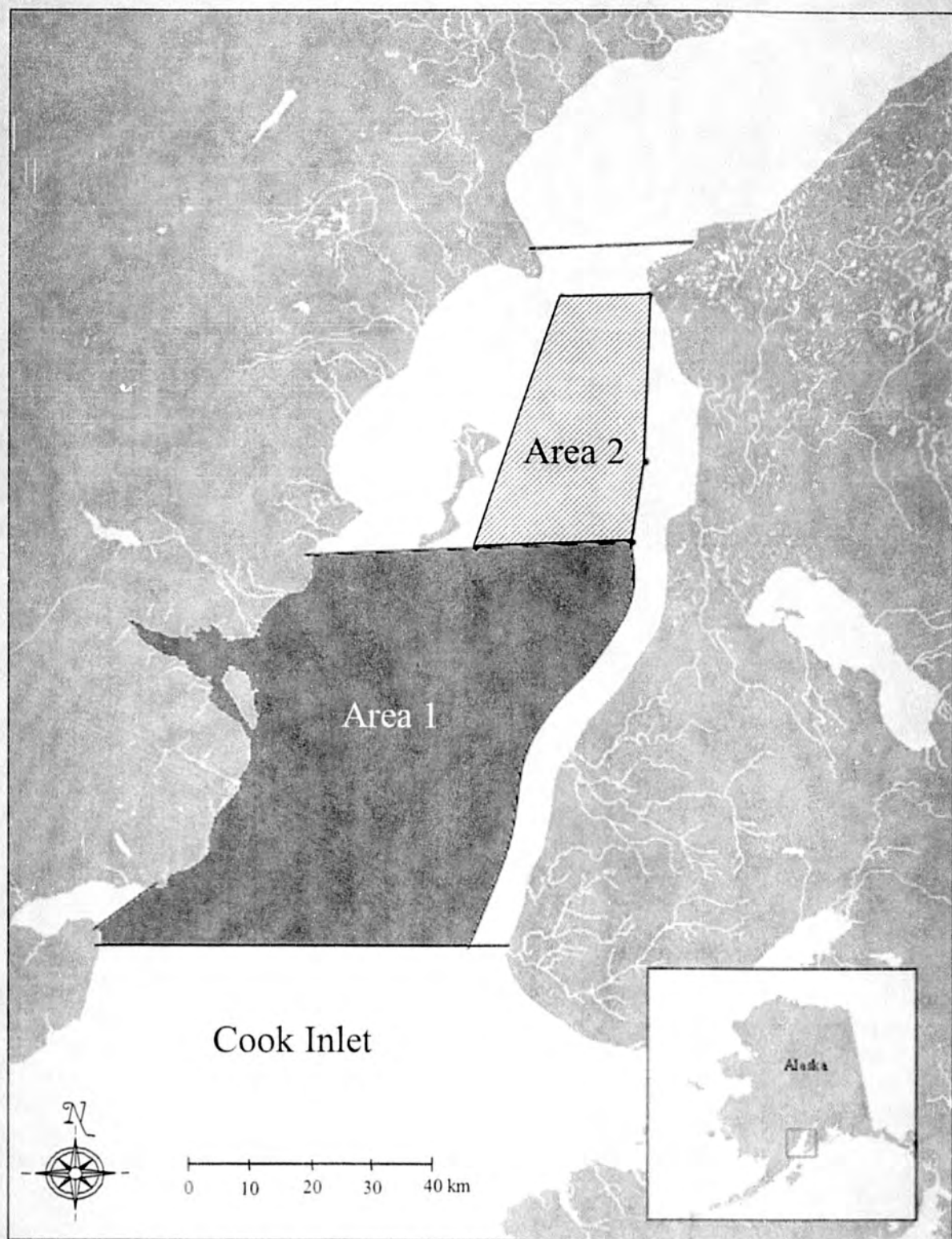


Figure 1.—Map of Central Cook Inlet showing management fishing boundaries for Area 1 and Area 2 for drift gillnet fisheries.

Kvichak River Sockeye Salmon Stock Status and Action Plan, 2006; a Report to the Alaska Board of Fisheries

by

Steve Morstad

and

Timothy T. Baker

November 2006

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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KVICHAK RIVER SOCKEYE SALMON STOCK STATUS AND ACTION PLAN, 2006; A REPORT TO THE ALASKA BOARD OF FISHERIES

by

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KVICHAK RIVER SOCKEYE SALMON STOCK STATUS AND ACTION
PLAN, 2006; A REPORT TO THE ALASKA BOARD OF FISHERIES

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ABSTRACT

In response to the guidelines established in the *Sustainable Salmon Fisheries Policy* (ADF&G 2000), the Alaska Department of Fish and Game (ADF&G) first classified the Kvichak River sockeye salmon *Oncorhynchus nerka* stock as a "Stock of Yield Concern" in 2001 (Bristol Bay Staff 2000). The classification of Kvichak River sockeye salmon was subsequently changed to a "Stock of Management Concern" in 2003. This classification change was based on the definition of "management concern" found in the policy. A "management concern" is defined as, "a concern arising from a chronic inability, despite use of specific management measures, to maintain escapements for salmon stocks within the bounds of Sustainable Escapement Goal (SEG), Biological Escapement Goal (BEG), Optimal Escapement Goal (OEG), or other specified management objectives for the fishery." The increased protection provided by commercial, sport, and subsistence fisheries restrictions and closures that have occurred in recent years appears to be helping the Kvichak River sockeye salmon stock recover: there was a surplus harvest of Kvichak River sockeye salmon in the commercial fishery in 2006; minimum escapement goals were met in 2005 and 2006; recruits per spawner have improved in recent years; and the Kvichak River sockeye salmon stock exploitation rates have been significantly reduced in recent years. Even with these recent improvements, there is still need for concern. The sockeye salmon escapements to the Kvichak River have fallen below the lower end of the current escapement goal during 7 of the past 11 years, including 5 of the past 7 years. Therefore, it is recommended that the Kvichak River sockeye salmon stock remain classified as a "Stock of Management Concern." ADF&G would like to see the continued improvement of the Kvichak River sockeye salmon stock before demoting to a lower classification.

Key words: Kvichak River, sockeye salmon, *Oncorhynchus nerka*, stock of concern, commercial, fishing, ADF&G, sustainable salmon fisheries policy, Alaska Board of Fisheries, Bristol Bay, Alaska.

INTRODUCTION

The *Sustainable Salmon Fisheries Policy* (SSFP; 5 AAC 39.222) directs the Alaska Department of Fish and Game (ADF&G) to provide the Alaska Board of Fisheries (BOF), at regular meetings, with reports on the status of salmon stocks and identify any salmon stocks that present a concern related to yield, management, or conservation. In the Bristol Bay Management Area one stock (Kvichak River sockeye salmon, *Oncorhynchus nerka*) has been identified (Figures 1 and 2). This report provides ADF&G's assessment of this candidate stock of concern and recommendation that Kvichak River sockeye salmon remain a stock of management concern.

KVICHAK RIVER SOCKEYE SALMON

Stock Assessment

Previously the Kvichak River sockeye salmon stock, on average, was the largest contributor to the Bristol Bay salmon harvest. The Kvichak stock has historically had a 5-year cycle with individual years labeled as: peak, pre-peak and off-cycle years. Since 1955, the number of Kvichak River spawners has ranged from 227,000 to 24 million sockeye salmon (Table 1). The largest recorded total run was 48 million in 1965, a peak cycle year (Table 1). ADF&G has operated a counting tower to enumerate salmon escapements on the Kvichak River since 1955. Additionally, each spring from 1975 to 2003, the number of migrating smolt were estimated using hydroacoustics. In conjunction, age, length, and weight information was obtained from smolt sampled with fyke nets (Crawford and Fair 2003); this also began in 1975 and is ongoing.

The current Biological Escapement Goal (BEG) for Kvichak River sockeye salmon, adopted in 1997, is 2 million to 6 million for off-cycle years and 6 million to 10 million for pre-peak and peak years (Fair 2000). Setting a BEG for the Kvichak River sockeye salmon run has proven difficult because of divergence in productivity between cycle years and off-cycle years, poor density dependence in spawner-recruit data, and a lack of fit for Ricker type spawner-recruit

curves. In addition to the goal, an exploitation rate of 50% was set on runs of 4–20 million to provide guidance in setting goals within the range. The management objective for a given off-cycle year would then be defined as 50% of the total inshore Kvichak River run, and would never be less than 2 million or greater than 10 million. The management objective for a given pre-peak or peak cycle year would then be defined as 50% of the total inshore Kvichak River run, and would never be less than 6 million or greater than 10 million. Beginning in 1996, escapements were frequently less than the lower goal with 7 of the past 11 years below the goal (Figure 3).

Commercial harvests have also declined in recent years from a combined average of approximately 5.7 million (1966 to 1995) to an average of approximately 1.4 million (1996 to 2005; Figure 4). Moreover, commercial fishing was restricted in the Naknek-Kvichak District at some point each year since 1996, forcing the fishery into the Naknek River Special Harvest Area. In recent years, as directed in *Kvichak River Sockeye Salmon Management Plan* (5 AAC 67.025), sport fishing restrictions have routinely been imposed when escapements were projected to be less than 2 million fish. Restrictions have generally taken the form of bag limit reductions and area closures designed to minimize potential conflicts with subsistence users. Prior to enacting the current management plan, the poor return in 2000 resulted in a closure of the sockeye salmon sport fishery in the entire Kvichak drainage.

Prior to commercial fishing, area residents harvested Bristol Bay salmon for subsistence uses. The BOF determination of the amount reasonably necessary for subsistence uses is described in 5 AAC 01.336 as 157,000–172,171 salmon in the Bristol Bay area, “including 55,000 to 65,000 Kvichak River sockeye salmon; this finding does not include salmon stocks in the Alagnak River.” In the Naknek-Kvichak District, sockeye subsistence harvest averaged about 92,000 from 1985–1994 and 72,000 from 1995–2004. Annual subsistence harvest of Kvichak River sockeye salmon averaged 60,000 fish from 1985 to 2004 (Westing et al. 2006) with recent harvests ranging from 33,000 to 53,000 (2000–2005).

In April 2006 an interdivisional salmon escapement goal review team, including staff from the Divisions of Commercial Fisheries and Sport Fish, was formed to comprehensively review the existing salmon escapement goals in the Bristol Bay Management Area based on the *Policy for the Management of Sustainable Salmon Fisheries* (5 AAC 39.222 and the *Policy for Statewide Salmon Escapement Goals* (5 AAC 39.223). While this review is ongoing, fisheries data analyses indicate that the current Kvichak River sockeye salmon escapement goal will be changed from a BEG to an Sustainable Escapement Goal (SEG), but otherwise remain unchanged. Results of this escapement goal review will be presented at the December 2006 BOF meeting.

Commercial Fisheries Management

The Bristol Bay commercial fishery is managed using several measures of inseason run strength so that spawning escapement goals are met by distributing the escapement through time based on the historical run timing schedule. Commercial fishing periods are opened based on both spawning escapement and harvest indicators. Commercial fishing in Bristol Bay is not opened by emergency order until indicators suggest a harvestable surplus of sockeye salmon is available.

Daily and cumulative inseason escapement estimates, based on visual counts from towers, are compared to expected counts derived from historical averages of counts and run timing. This gives managers the ability to determine whether a run is smaller, the same, or larger than

expected. Unfortunately, sockeye salmon often require several days to travel from fishing districts to the counting towers. Therefore, inriver test fishing projects have been established to estimate the number of sockeye salmon that have left the fishing district but have not yet reached the counting tower (West and Fair 2006). This allows managers to provide adequate fishing opportunity to harvest surplus production while still achieving spawning escapement goals.

Commercial harvest information is used in a similar fashion to spawning escapement information. The actual daily and cumulative number of sockeye salmon harvested is compared to expected numbers derived from pre- and inseason projections to provide information on run size. Additionally, ADF&G conducts district test fishing during closed fishing periods to gauge the relative abundance and distribution of sockeye salmon within areas that may be open to harvest.

Previous Alaska Board of Fisheries Actions

The Kvichak River sockeye salmon stock was found to be a "Stock of Yield Concern" during the January 2001 Alaska Board of Fisheries meeting. In response to the "Stock of Yield Concern" designation, the BOF modified 5AAC 06.357 *Ugashik River Sockeye Salmon Special Harvest Area Management Plan*, 5AAC 06.359 *Egegik River Sockeye Salmon Special Harvest Area Management Plan*, 5AAC 06.360 *Naknek River Sockeye Salmon Special Harvest Area Management Plan*, and 5AAC 67.025 *Kvichak River Drainage Sockeye Salmon Management Plan* to provide additional protection for Kvichak River sockeye salmon. Bristol Bay fisheries were managed in accordance with these plans with no directed commercial fishing and a reduced sport fishery for Kvichak River sockeye salmon.

During the 2003 December Bristol Bay BOF meeting, several regulation changes were adopted concerning the Naknek/Kvichak District. The Kvichak sockeye salmon stock was elevated from a Stock of Yield Concern to a Stock of Management Concern due to the recent chronic inability to meet escapement goals. A Stock of Management Concern is defined (5 AAC 39.222) as "a concern arising from a chronic inability, despite use of specific management measures, to maintain escapements for a salmon stock within the bounds of the SEG, BEG, Optimal Escapement Goal (OEG), or other specified management objectives for the fishery."

With this 2003 action came the stipulation that if the Kvichak River run is forecasted to be less than 30% above the minimum BEG, fishing will begin in the Special Harvest Areas of Naknek, Egegik and Ugashik Rivers (5 AAC 06.360 (h)).

Regulatory History

Kvichak River sockeye salmon have been utilized for subsistence for centuries. This system's main producer is sockeye salmon and its importance is increased due to the system's inclusion of the villages of Levelock, Igiugig, Pedro Bay, Kokhanok, Iliamna/Newhalen, Nondalton, and Port Alsworth.

Permits are required to harvest salmon for subsistence purposes in the Kvichak River drainage. Since 1990, under state regulations, all state of Alaska residents have been eligible to participate in subsistence salmon fishing in all Bristol Bay drainages. Gillnets up to 25 fathoms are the only recognized legal subsistence gear.

The commercial fishery is closed between June 1 and September 30, but it can be opened by emergency order. There are three management plans addressing commercial fishing within the Naknek-Kvichak District. The first is referred to as the *Commercial Set and Drift Gillnet Sockeye*

Salmon Fisheries Management and Allocation Plan (SAAC 06.355; ADF&G 2001). This plan specifies the allocation of sockeye salmon between commercial set and drift gillnet fisheries within the district and establishes management measures to achieve allocation. Part of this plan (SAAC 06.364 (e); ADF&G 2001) attempts to provide adequate Kvichak River sockeye salmon spawning escapement by managing, to the extent practicable, a fishery in the Naknek Section with limited set and drift gillnet gear fishing during ebb tides.

The second plan is referred to as the *Naknek River Sockeye Salmon Special Harvest Area Management Plan* (SAAC 06.360; ADF&G 2001). This plan states that on or after June 27, if Kvichak River cumulative escapement is one or more days behind the historical schedule for meeting the goal, the following actions are taken:

1. The Naknek-Kvichak District will be closed, and to reduce the potential for interception of Kvichak River sockeye salmon in other districts,
 - a. Fishing in the Egegik District may be restricted to the Egegik River Special Harvest Area;
 - b. Fishing in the Ugashik District will occur within a restricted area prior to June 29; and
 - c. If Naknek River spawning escapement is projected to be greater than 800,000 sockeye salmon, the Naknek River Special Harvest Area can open, and the upper spawning escapement goal for the Naknek River will be raised from 1.4 million to 2.0 million sockeye salmon.

The third plan is referred to as the *Naknek-Kvichak District Commercial Set and Drift Gillnet Sockeye Salmon Fisheries Management and Allocation Plan* (SAAC 06.364; ADF&G 2001). The purpose of this plan is to establish the allocation of sockeye salmon between the commercial set and drift gillnet fisheries within the Naknek-Kvichak District and to establish management measures for ADF&G to achieve the allocation.

Stock of Concern Analyses

Escapement

During the most recent 5 years, the minimum escapement goal was achieved in 2005 and 2006 (Table 2; Figure 3). The minimum escapement goal has been met in only 4 out of the last 11 years: 1998, 1999, 2005, and 2006 (Figure 3). It should be noted that the off-cycle escapement goal was changed from 4 million to 2 million (variable) in 1997 (implemented in 1998; Table 2). Escapements in 1996 and 1997 would not have met the current off-cycle goal of 2 million although the shortfall is not alarming. However, ADF&G was concerned with the 70% escapement shortfall during a Kvichak peak year (2000). There have been two pre-peak (1959 and 1964) and no peak year escapements which were less than the escapement in 2000. ADF&G was encouraged that the minimum escapement goal was met in 2005 and 2006.

Yield

The actual yield was less than the median yield in all years (both peak and off-cycle) except one (2006) of the most recent 5-year period (Table 3 and Figure 4). The term "lower range of historic harvest" was not defined in the "Sustainable Salmon Fisheries Policy." Therefore, the degree of yield concern and the point at which a yield concern was classified were subject to interpretation.

Exploitation Rate

The commercial fishing exploitation rate on Kvichak sockeye salmon was significantly reduced in recent years, especially for very low runs (Figure 5). For example, in 2002 and 2003, the exploitation rate of Kvichak stocks was less than 2%.

Return per Spawner

There has been an increase in the production of the Kvichak River sockeye salmon stock in recent years. The return per spawner from brood years 1991–1999 averaged 0.8 fish per spawner (Figure 6). There has been an increase in the return per spawner in recent years (brood years 2000–2002) averaging 3.1 returns per spawner since 2000. We expect the return per spawner to increase for these recent years even further because the return for these broods has not been completed.

Stock of Concern Recommendation

The increased protection provided by commercial and sport fisheries restrictions and closures that have occurred in recent years appears to be helping the Kvichak River sockeye salmon stock recover: there was a surplus harvest of Kvichak River sockeye salmon in the commercial fishery in 2005 and 2006; minimum escapement goals were met in 2005 and 2006; recruits per spawner have improved in recent years; and Kvichak River sockeye salmon stock exploitation rates have been significantly reduced in recent years. Even with these recent improvements, there is still need for concern. The sockeye salmon escapements to the Kvichak River have fallen below the lower end of the current escapement goal during 7 of the past 11 years, including 5 of the past 7 years. Therefore, it is recommended that the Kvichak River sockeye salmon stock remain classified as a "Stock of Management Concern". AD&FG would like to see the continued improvement of the Kvichak River sockeye salmon stock for 4 or 5 years before demoting to a lower classification.

KVICHAK RIVER SOCKEYE SALMON ACTION PLAN

ACTION PLAN REVIEW

Current Stock Status

In response to the guidelines established in the Sustainable Salmon Fisheries Policy, the Alaska Board of Fisheries during the October 1–3, 2003 work session classified the Kvichak River sockeye salmon stock as a management concern. This determination was based on the inability, despite the use of specific management measures, to maintain escapement for a salmon stock within the bounds of the BEG for 4 of the past 5 years.

Customary and Traditional Use Finding and the Amount Necessary

The Alaska Board of Fisheries has made a positive finding for Customary and Traditional Use for all salmon in the Bristol Bay area of 157,000 to 172,171 salmon. Of those, 55,000 to 65,000 sockeye salmon were determined reasonably necessary for Kvichak River drainage.

Habitat Factors Adversely Affecting the Stock

There are no habitat factors adversely affecting the Kvichak stock within the entire drainage.

Do New Or Expanding Fisheries On This Stock Exist?

Presently, there are no new or expanding fisheries on this stock. There are no proposals specific to expanding fisheries on this stock.

Existing Management Plans

The Board reviews existing management plans for consistency with principles and criteria of the Sustainable Salmon Fisheries Policy or adopts new management for the stock consistent with the principles and criteria of the Sustainable Salmon Fisheries Policy.

The following are the current regulations:

5 AAC 06.200. FISHING DISTRICTS, SUBDISTRICTS, AND SECTIONS.

5 AAC 06.310. FISHING SEASONS.

5 AAC 06.320. FISHING PERIODS.

5 AAC 06.355. BRISTOL BAY COMMERCIAL SET AND DRIFT GILLNET SOCKEYE SALMON FISHERIES MANAGEMENT AND ALLOCATION PLAN.

5 AAC 06.359. EGEGIK RIVER SOCKEYE SALMON SPECIAL HARVEST AREA MANAGEMENT PLAN.

5 AAC 06.360. NAKNEK RIVER SOCKEYE SALMON SPECIAL HARVEST AREA MANAGEMENT PLAN.

5 AAC 06.364. NAKNEK/KVCHIAK DISTRICT COMMERCIAL SET AND DRIFT GILLNET SOCKEYE SALMON FISHERIES MANAGEMENT AND ALLOCATION PLAN.

5 AAC 06.365. EGEGIK DISTRICT COMMERCIAL SET AND DRIFT GILLNET SOCKEYE SALMON FISHERIES MANAGEMENT AND ALLOCATION PLAN.

5 AAC 09.200. DESCRIPTION OF DISTRICTS AND SECTIONS.

5 AAC 09.310. FISHING SEASONS.

ACTION PLAN DEVELOPMENT

Kvichak Sockeye Salmon Action Plan Goal

To rebuild the Kvichak sockeye salmon run back to historical levels by attaining the escapement goal.

Previous Actions

During the BOF meeting in January of 2001, ADF&G presented a summary of four potential action plans (Bristol Bay staff, 2000) of which three reduced the exploitation rate on Kvichak stocks in each eastside district. In deliberation the BOF made the following changes: (1) In the Ugashik District, when the preseason forecast of Kvichak sockeye salmon does not provide for an exploitation rate greater than 40%, fishing time between June 16 to June 23 can not exceed 48-hours. In addition, if the Naknek River Special Harvest Area (NRSOA) is in effect anytime before June 29, fishing will be restricted to the Ugashik River Special Harvest Area (URSHA); (2) In the Egegik District, when the NRSOA is open to commercial fishing then fishing in the Egegik District is restricted to the Egegik River Special Harvest Area (ERSHA) and will remain in the ERSOA until fishing resumes in the Naknek/Kvichak District; and (3) In the

Naknek/Kvichak District, the district is closed to both gear groups when Kvichak River escapement falls one or more days behind the cumulative escapement goal curve on or after June 27. When fishing the NRSHA, an OEG is in effect raising the upper end of the escapement goal range from 1.4 million to 2.0-million sockeye salmon. During the 2003 BOF meeting, ADF&G presented one additional action plan item to further reduce the exploitation rate on Kvichak stocks (Bristol Bay 2003). The BOF required that fishing will begin in the Special Harvest Areas of Naknek, Egegik and Ugashik Rivers if the Kvichak River run is forecasted to be less than 30% above the minimum biological escapement goal (5 AAC 06.360 (h)).

Management Under Current Regulations

In 2004, the forecast for the Kvichak River projected a harvestable surplus of 6.6 million sockeye salmon with an escapement goal of 6.0 million. The BOF authorized a General District fishery in 2004, which opened areas outside of the normal district boundaries. With these additional areas open and a projected harvest of 6.6 million sockeye no restrictions were placed on the eastside fisheries. Limited fishing occurred in the Naknek/Kvichak District prior to June 23 with most of the harvest caught in the General District. Commercial fishing was restricted to the Naknek Section for the drift fleet and marginal fishing in the Kvichak Section for set gillnet gear. Escapement to Kvichak River was on track until July 6 when it fell more than 1 day behind. At that time, the District was closed and fishing was restricted to the NRSHA. The final escapement was 5.5 million sockeye salmon which was slightly less than the minimum escapement goal of 6.0 million. In 2005 and 2006, the preseason forecast projected a surplus of less than 30% above the minimum escapement goal and the eastside fisheries began in their respective special harvest areas. The outcome both in 2005 and 2006 was that the Kvichak River met its escapement objectives.

It is ADF&G's opinion that it has the necessary regulations to meet escapement objectives for Kvichak River sockeye salmon when the total run exceeds the minimum escapement goals and is forecasted within 30%. Further, it is the department opinion that the restrictions in current regulations are sufficient to minimize the exploitation and insure the vast majority of the sockeye salmon returning to the Kvichak River will escape the commercial fishery when total run is less than the minimum escapement goal.

Action Plan Alternatives

No new action plans necessary, continue under current plans.

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- Bristol Bay Staff. 2000. Kvichak River sockeye salmon stock status and action plan 2000. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 2A00-37, Anchorage.

Table 1.—Historical yield, escapement and total inshore run of Kvichak River sockeye salmon.

Year	Actual Yield		Actual Escapement		Total Inshore Run	
	Pre-Peak & Peak	Off-cycle	Pre-Peak & Peak	Off-Cycle	Pre-Peak & Peak	Off-Cycle
1959	281,930		680,000		961,930	
1960	7,976,500		14,630,000		22,606,500	
1961		6,863,814		3,705,849		10,569,663
1962		1,833,401		2,580,884		4,414,285
1963		223,459		338,760		562,219
1964	763,486		957,120		1,720,606	
1965	17,785,664		24,325,926		42,111,590	
1966		4,168,575		3,775,184		7,943,759
1967		1,800,652		3,216,208		5,016,860
1968		387,565		2,557,440		2,945,005
1969	3,760,565		8,394,204		12,154,769	
1970	16,581,224		13,935,306		30,516,530	
1971		3,764,861		2,387,392		6,152,253
1972		342,150		1,009,962		1,352,112
1973		21,791		226,554		248,345
1974	148,595		4,433,844		4,582,439	
1975	1,605,407		13,140,450		14,745,857	
1976		1,458,180		1,965,282		3,423,462
1977		739,464		1,341,144		2,080,608
1978		3,815,636		4,149,288		7,964,924
1979	13,418,829		11,218,434		24,637,263	
1980	12,743,074		22,505,268		35,248,342	
1981		5,234,733		1,754,358		6,989,091
1982		1,858,475		1,134,840		2,993,315
1983		16,534,901		3,569,982		20,104,883
1984	12,523,803		10,490,670		23,014,473	
1985	6,183,103		7,211,046		13,394,149	
1986		787,303		1,179,322		1,966,625
1987		3,526,824		6,065,880		9,592,704
1988		2,654,364		4,065,216		6,719,580
1989	11,456,509		8,317,500		19,774,009	
1990	10,551,217		6,970,020		17,521,237	
1991		3,808,873		4,222,788		8,031,661
1992		5,718,947		4,725,864		10,444,811
1993		5,287,523		4,025,166		9,312,689
1994	13,893,613		8,337,840		22,231,453	
1995	17,391,906		10,138,720		27,530,626	
1996		1,983,269		1,450,578		3,433,847
1997		179,480		1,503,732		1,683,212
1998		1,069,294		2,296,074		3,365,368
1999	6,392,296		6,196,914		12,589,210	
2000	1,026,986		1,827,780		2,854,766	
2001		330,538		1,095,348		1,425,886
MED	9,263,859	1,858,475	8,366,022	2,387,392	18,647,623	4,414,285
MAX	17,785,664	16,534,901	24,325,926	6,065,880	42,111,590	20,104,883
MIN	148,595	21,791	680,000	226,554	961,930	248,345
2002				703,884		703,884
2003		34,244		1,686,804		1,721,048
2004	2,211,186		5,500,134		7,711,320	
2005		532,450		2,320,332		2,852,782
2006		2,736,218 *		3,068,226		5,804,444

* Yield is a preliminary estimate in 2006.

Table 2.—Escapement analysis of Kvichak River sockeye salmon, 2002–2006.

Year	Actual Escapement	Minimum Escapement Goal	Difference	% Deviation from Goal ^a	Escapement > Goal	Frequency of Occurrence ^b
2002	703,884	2,000,000	-1,296,116	-65%	No	3 (n=27)
2003	1,686,804	2,000,000	-313,196	-16%	No	9 (n=27)
2004	5,500,134	6,000,000	-499,866	-8%	No	4 (n=27)
2005	2,320,332	2,000,000	320,332	16%	Yes	13 (n=27)
2006	3,068,226	2,000,000	1,068,226	53%	Yes	18 (n=27)

^a Percent deviation = (Actual - Goal) / Goal.

^b The number of escapement observations (1956–1998) which are less than the escapement of the current year.

Table 2.—Escapement analysis of Kvichak River sockeye salmon, 2002–2006.

Year	Actual Escapement	Minimum Escapement Goal	Difference	% Deviation from Goal ^a	Escapement > Goal	Frequency of Occurrence ^b
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2003	1,686,804	2,000,000	-313,196	-16%	No	9 (n=27)
2004	5,500,134	6,000,000	-499,866	-8%	No	4 (n=27)
2005	2,320,332	2,000,000	320,332	16%	Yes	13 (n=27)
2006	3,068,226	2,000,000	1,068,226	53%	Yes	18 (n=27)

^a Percent deviation = (Actual - Goal) / Goal.

^b The number of escapement observations (1956–1998) which are less than the escapement of the current year.

Table 3.—Comparison of recent (2002–2006) pre-peak, peak and off-cycle yields to historical median yield for Kvichak River sockeye salmon.

Year	Actual Yield	Historical Median Yield		Difference	% Deviation from Median ^a	Yield < Lower Range ^b	Frequency of Occurrence ^c
		Pre-peak, Peak 1959–2000, n=18	Off-cycle 1961–2001, n=25				
2002	0		1,858,475	-1,858,475	-100%	Yes	0 (n=27)
2003	34,244		1,858,475	-1,824,231	-98%	No	2 (n=27)
2004	2,211,186	9,263,859		-7,052,673	-76%	No	5 (n=27)
2005	532,450		1,858,475	-1,326,025	-71%	No	8 (n=27)
2006	2,736,218		1,858,475	877,743	47%	No	18 (n=27)

^a Percent deviation = (Actual - Median) / Median.

^b Lower range of Pre-Peak and Peak years was 148,595 and off-cycle years were 21,791.

^c The number of yield observations (1959–2001) which are less than the yield of the current year.

^d Yield is a preliminary estimate in 2006.

Bristol Bay Area Commercial Salmon Fishery Management Districts

Alaska Department of Fish and Game

Division of Commercial Fisheries

(For Illustration Purposes Only - BBSALALL.PPT, Revised 10/14/97)

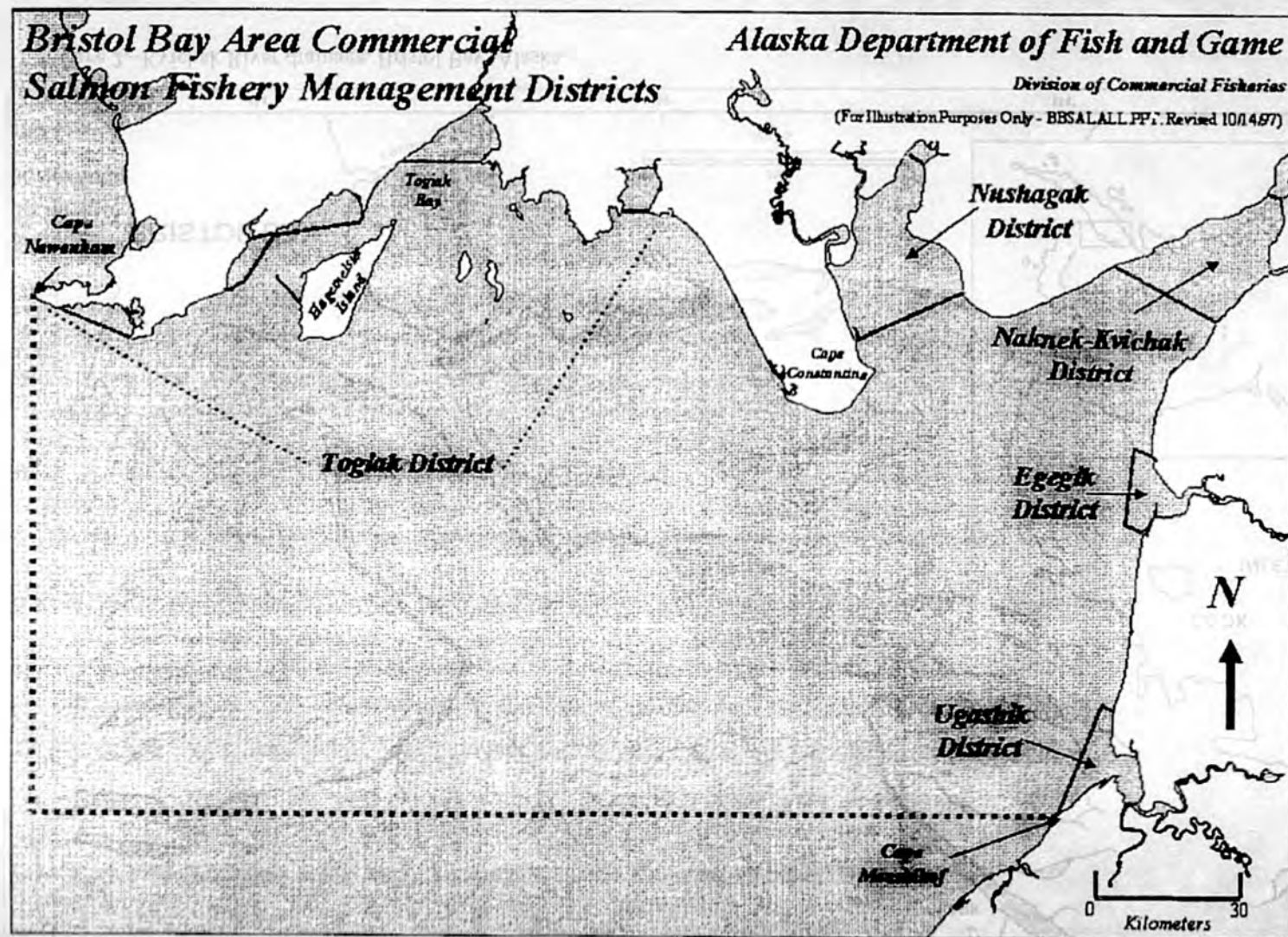


Figure 1.—Bristol Bay commercial salmon fishery management area, Alaska.

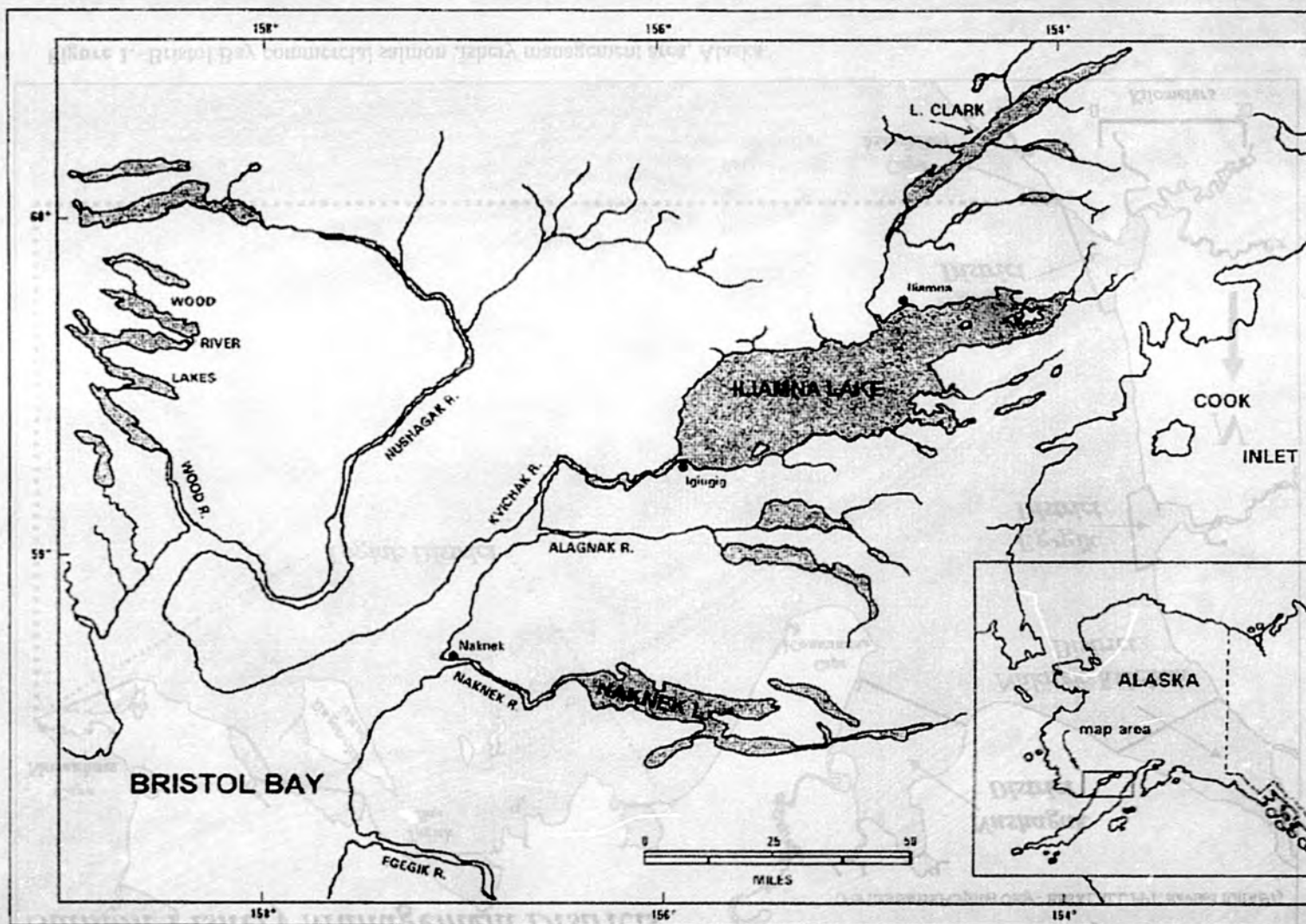


Figure 2.—Kvichak River drainage, Bristol Bay, Alaska.

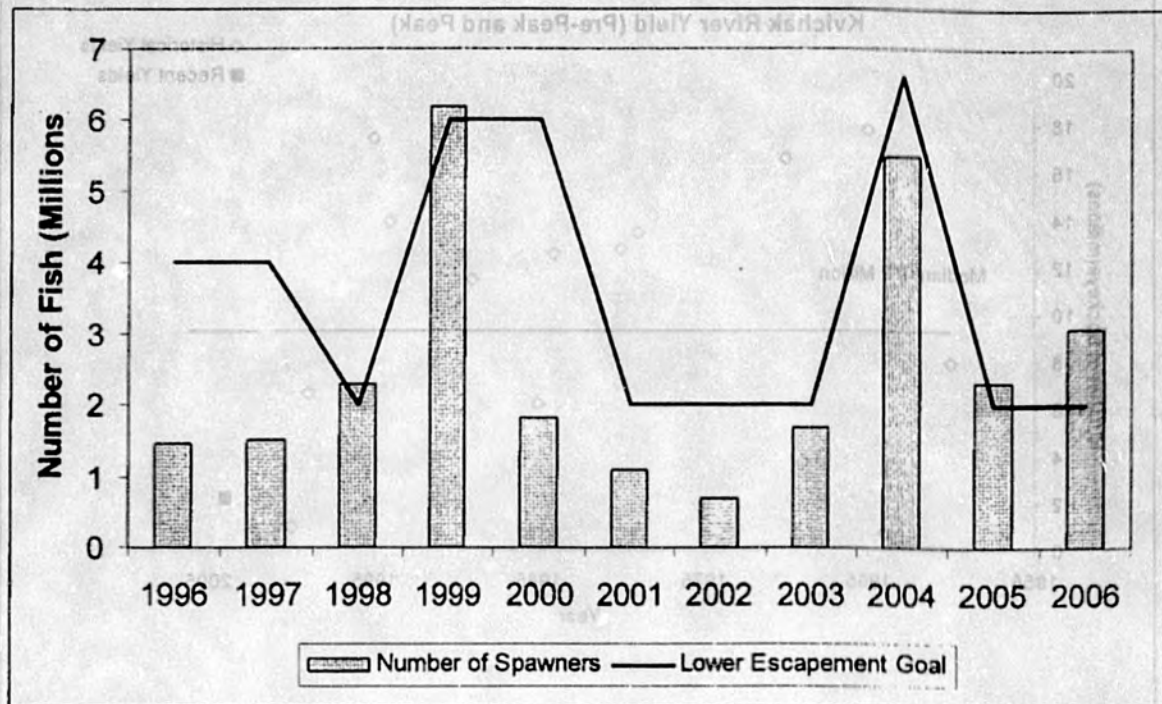


Figure 3.—Kvichak River sockeye salmon lower escapement goals and number of spawners, 1996–2006.

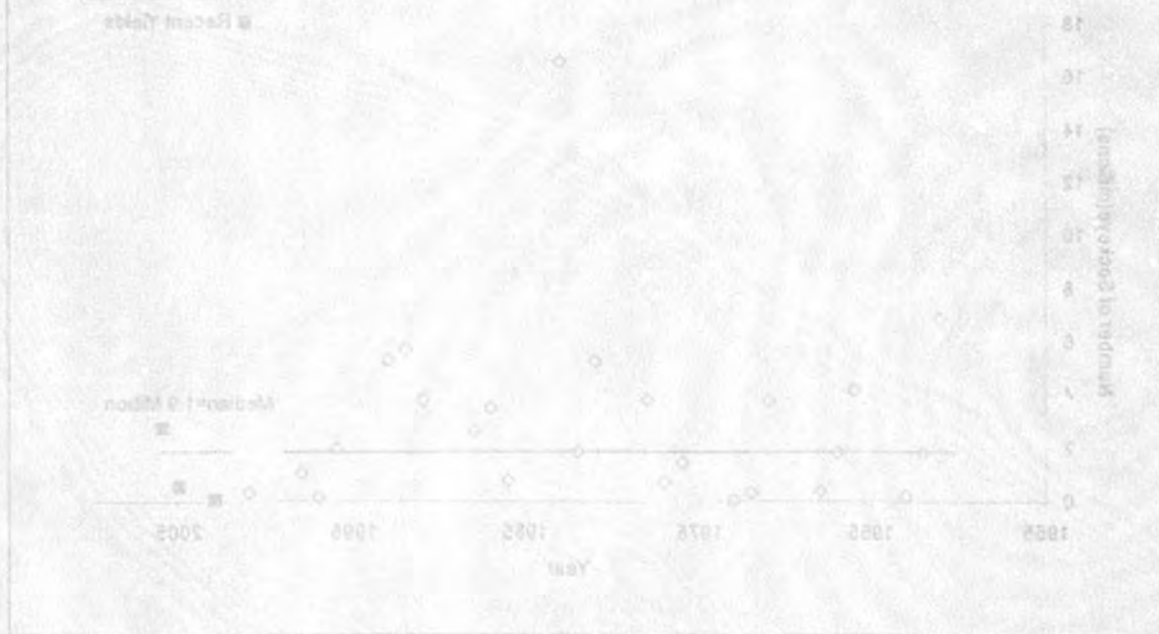


Figure 4.—Kvichak River sockeye salmon yield by year.

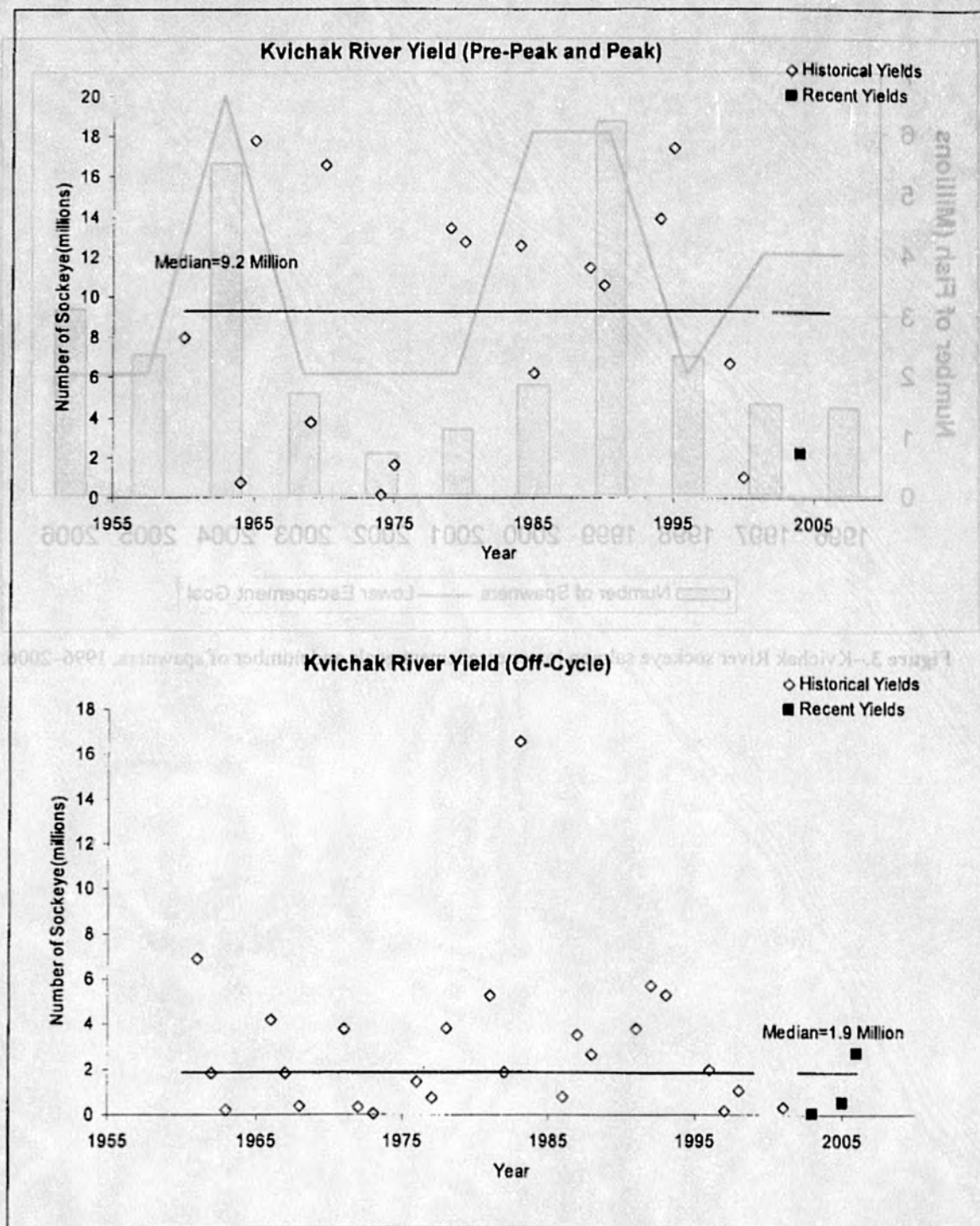


Figure 4.—Kvichak River sockeye salmon yield by year.

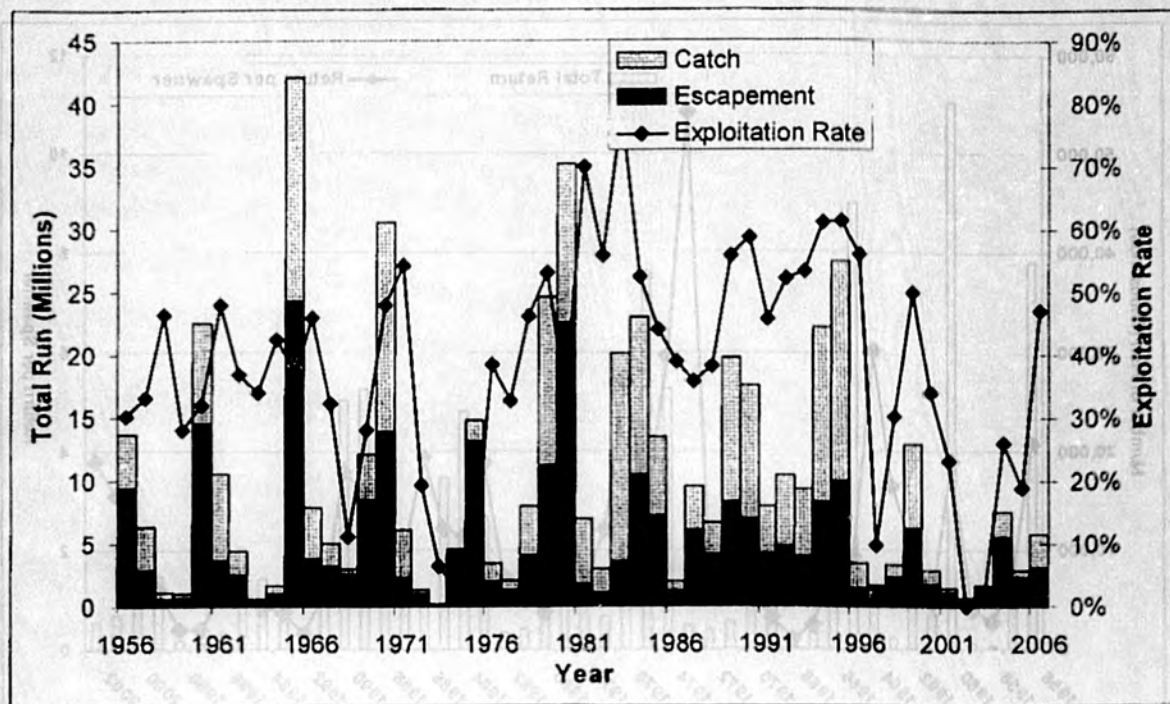


Figure 5.—Kvichak River sockeye salmon catch, escapement, and exploitation rate, 1956–2006.

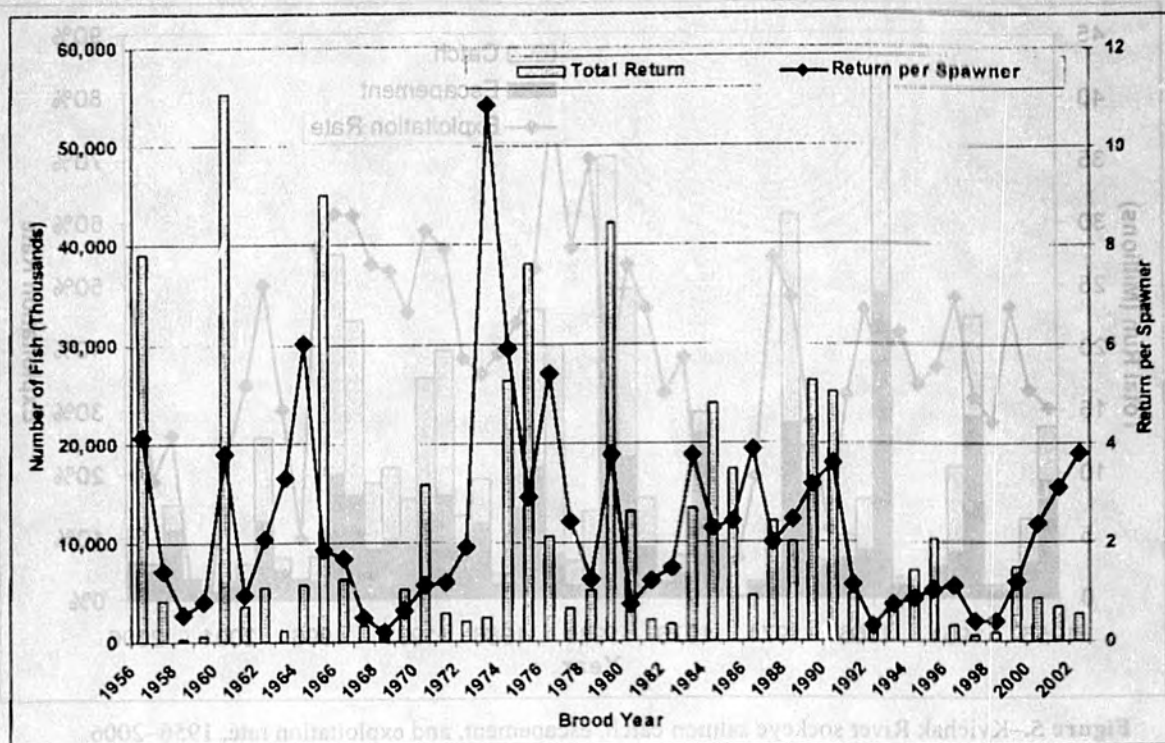


Figure 6.—Total returns and return per spawner by brood year for sockeye salmon in the Kvichak River system, 1956–2002.

NORTON SOUND SHAKTOOLIK AND UNALAKLEET
SUBDISTRICTS CHINOOK SALMON STOCK STATUS AND
ACTION PLAN



A Report to the Alaska Board of Fisheries

By:

Wesley W. Jones

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EXECUTIVE SUMMARY

Synopsis

In response to the guidelines established in the Sustainable Salmon Fisheries Policy (SSFP) 5 AAC 39.222, the department recommended designating the Norton Sound Subdistrict 5 (Shaktoolik) and Subdistrict 6 (Unalakleet) chinook salmon stock as a yield concern at the October 2003 Board work session. Since 1998, escapement goals have usually been met, but harvests have been severely restricted to do so. These restrictions resulted in an average commercial harvest of 695 fish per year for the five-year period (1999-2003), which is 90% below the previous 10-year harvest (1989-1998) of 7,131 (Table 1). Subsistence harvests during the period 1999-2002 declined 42% compared to the 1994-1998 period. In 2003, there was no commercial harvest of chinook salmon and the subsistence harvest is anticipated to be below average because of inseason restrictions. Therefore, during the past five years there has been a chronic inability to maintain near average yields despite specific management actions taken annually.

Stock Assessment Background

The Norton Sound District is composed of six commercial fishing subdistricts (Figure 1). Most subdistricts have several rivers where subsistence fishing occurs and except for the Nome Subdistrict there are few restrictions (Figure 2).

The salmon harvests for subsistence uses in Norton Sound have gradually increased since statehood, but have remained stable the last decade. Commercial harvests have decreased for salmon in many subdistricts the last few years, but escapements have not increased in response to less fishing pressure. Throughout Norton Sound a number of salmon runs have been lower in recent years. Most of the decreasing harvests were due to weak runs, low prices resulting in less fishing effort, and in some subdistricts the lack of a market.

There are two escapement projects in Subdistrict 6 (Unalakleet). The department operates a test net several miles upstream from the mouth of the Unalakleet River and the Native Village of Unalakleet operates a counting tower further upstream on the North River tributary. Unalakleet River test net indices for chinook salmon have declined over the period 1999-2003 (Figure 3). The North River tower escapement goal has been met four of the five years from 1999-2003 (Figure 4). Following 2000 when the goal was not met, more restrictions have been placed on chinook salmon fishing in order to meet escapement.

Commercial chinook salmon harvests for the two subdistricts combined (Table 1, Figure 5) averaged 7,131 per year for the period 1989-1998. This average declined substantially to 695 fish for the last five years (1999-2003) as chinook runs became weaker (Figures 6, 7 and 8). Subsistence harvest data were not collected in both subdistricts from 1986 through 1993. Subsistence harvests declined from an average of 6,329 for the period 1994-1998 to an average of 3,643 for the four-year period 1999-2002, a 42% decrease (Table 1). A four-year period is used because subsistence harvest is not yet available for 2003.

Fishery Management Background

Commercial and Subsistence Fisheries

Subdistrict 5 (Shaktoolik) and Subdistrict 6 (Unalakleet) have been managed as one fishery because past studies have shown salmon bound for these Subdistricts (Figure 1) intermingle and that harvests in one subdistrict most likely affect the other. The Unalakleet River test net and the North River Tower in Subdistrict 6 are used by the department to assess chinook escapement. North River tower has proven to be a good indicator of chinook salmon abundance in relation to the Unalakleet River (Wuttig, 1999).

The strategy used by the department to open the commercial chinook salmon fishery in Subdistricts 5 and 6 is to wait until increasing subsistence catches have been observed for at least 7 days at the mouth of the Unalakleet River. Typically, chinook salmon commercial fishing periods have been scheduled twice weekly and of 24 hours in duration. This strategy is followed to prevent fishing on milling chinook salmon, migrating Yukon River stocks and to allow for adequate escapement. The only subsistence fishing schedule is for the Unalakleet River which is closed for 36 hours per week from June 1 to July 15 because there is more fishing pressure due to a larger population in Unalakleet than Shaktoolik. The Shaktoolik River is open seven days per week to subsistence fishing and escapements are thought to track well with the Unalakleet River drainage. Aerial surveys are attempted on the Shaktoolik River when conditions are favorable.

In 2000 and 2001, the chinook salmon commercial fishery was closed after two periods because of weak runs. In 2002 and 2003, there were no commercial chinook fisheries because of weak runs. Subsistence fishing for chinook salmon was also closed for three weeks in the Shaktoolik and Unalakleet River drainages during 2003 (Table 2).

Sport Fisheries

Sport fisheries have been active on the Unalakleet River for many years. The U. S. Air Force operated a recreational fishing camp on the river in the early 1960s, and a commercial sport fishing lodge was constructed on the river in the late 1960s by the Breedlove family. The lodge is still in operation but has changed hands and expanded. Between 1983 and 2001 estimated sport fishing effort has ranged from 1,701 angler days in 1989 to 6,257 in 2000 with an average of 3,772 angler days. In 2002, estimated effort increased to 8,195 angler days. The estimated chinook harvests have ranged from 39 fish in 1983 to 850 fish during 1986 (Table 1). The 10-year (1989-1998) average harvest was 350 chinook salmon, and the recent 4-year (1999-2002) average harvest was 389 chinook salmon. In 2002, the estimated harvest was 544 chinook salmon. The estimated exploitation of chinook in the Unalakleet River by sport fisheries has ranged from about 3.0% in 1996 to about 7.6% in 2002 with an overall average of 4.2% between 1996 and 2002 (Table 4).

Sport fishing effort in the Shaktoolik River is very light, and data are not available.

Sport fishery management actions are usually not taken inseason unless it appears that escapement goals will not be met and an action to reduce subsistence harvest is contemplated.

Most management actions to date have focused on coho salmon. Only one emergency order to reduce sport fish harvest of chinook has been written. In 2003, the Unalakleet and Shaktoolik rivers were closed to the retention of chinook and chum salmon from July 3 through August 15.

STOCK OF CONCERN RECOMMENDATION

Based on the definitions provided in the sustainable salmon policy of 5 AAC 39.222(f) (42), the department considers the Shaktoolik and Unalakleet Subdistricts chinook salmon stock as a candidate for stock of concern status. Specifically, the department assesses the level of concern for the Shaktoolik and Unalakleet Subdistricts chinook salmon stock as a yield concern. Escapement goals have usually been met, but managers have increased restrictions on fishing to do so. These restrictions resulted in an average commercial harvest of 695 fish per year for the five-year period 1999-2003, which is 90% below the previous 10-year harvest (1989-1998) of 7,131 fish and no directed commercial chinook salmon harvest was allowed in 2002 and 2003. Therefore, there has been a chronic inability to maintain near average yields despite specific management actions taken annually.

Stream	Escapement	Year	Type	Recommendation	Goal
Shaktoolik R.	400-800	1999	Yield	Discontinue	Discontinue
Unalakleet Women R.	500-1,000	1999	Yield	Discontinue	Discontinue

Outlook

The 2004 chinook salmon run in Norton Sound Subdistricts 5 and 6 should be similar to runs in recent years when no commercial fishing was allowed. However, if the chinook salmon run is stronger than expected and escapement is projected to be met, commercial fishing will be allowed. Information from Bering Sea studies (BASIS) and trawl bycatch information indicate a higher abundance of all salmon species than last year. Depending on the origin of these salmon, the 2004 run may be larger than anticipated.

Alaska Board of Fisheries Action

In response to the guidelines established in the Sustainable Salmon Fisheries Policy, the Alaska Board of Fisheries, during the January 12-19, 2004 regulatory meeting, is anticipated to classify the Norton Sound Subdistricts 5 and 6 chinook salmon stock as a yield concern.

ESCAPEMENT GOAL EVALUATION

The department has undertaken a review of escapement goals for several Norton Sound salmon stocks where long-term escapement, catch, and age composition data exist that enable the development of biological escapement goals (BEG) or sustainable escapement goals (SEG) based on analysis of production consistent with the escapement goal policy. Chum salmon escapement goals developed in 2000 (Clark 2001a, 2001b) were reviewed and updated for this Board cycle. Additionally, all Norton Sound chinook salmon goals were reviewed in 2003 and additional information was considered in the development of additional goals. A separate report details the escapement goal review for the AYK Region (ADF&G 2004).

In 1999 the department established chinook salmon aerial survey escapement goals for the Shaktoolik, Unalakleet/Old Women and North rivers. An escapement goal for the North River Tower was also established in 1999. It is difficult to obtain aerial survey counts for chinook salmon from the Shaktoolik, Unalakleet/Old Women and North Rivers because of weather and river conditions. A tagging study completed by the Division of Sport Fish in 1999 showed the North River tower chinook salmon count represents about 40% of the chinook salmon escapement to the Unalakleet River Drainage (Table 3; Wuttig 1999). The department recommends discontinuing the use of the aerial escapement goals for the Shaktoolik, Unalakleet/Old Women and North Rivers in favor of using information from the Unalakleet test net and the North River tower. Utilizing additional data since the escapement goal for the North River was established resulted in the department recommending a range of 1,200 to 2,600 chinook salmon (ADF&G 2004).

List of Current Goals and Proposed SEGs for Subdistricts 5 and 6 Chinook Salmon Stock.

Stream	Escapement Target	Year Adopted	Target Type	BEG Team Recommendation	Recommended Goal
Shaktoolik R	400-800	1999	EG	Discontinue	
Unalakleet/Old Women R	550-1,100	1999	EG	Discontinue	
North River (aerial)	250-500	1999	EG	Discontinue	
North River (Tower)	1,200-2,400	1999	EG	Establish	SEG 1,200 - 2,600

MANAGEMENT ACTION PLAN OPTIONS FOR ADDRESSING STOCKS OF CONCERN AS OUTLINED IN THE SUSTAINABLE FISHERIES POLICY

Norton Sound Subdistricts 5 and 6 Chinook Salmon Management Plan Review/Development

Current Stock Status

In response to the guidelines established in the Sustainable Salmon Fisheries Policy (5 AAC 39.222), the department recommended the designation of the Subdistricts 5 and 6 chinook salmon stock as a yield concern at the October 2003 Board work session. The Board of Fisheries, after reviewing stock status information and public input during the January 2004 regulatory meeting, is anticipated to classify the Subdistricts 5 and 6 chinook salmon stock as a yield concern. This determination is based on the inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs for the last five years.

C&T Use Finding and the Amount Necessary

The Board of Fisheries has made a positive finding for Customary and Traditional Use to be 96,000 to 160,000 for all salmon in the Norton Sound-Port Clarence Districts. Because subsistence fishing restrictions targeting the chinook salmon stocks has only occurred once (2003) in the last five years in Subdistricts 5 and 6 and the Department is not anticipating the

need for restrictions, it is believed amount necessary for subsistence (ANS) findings specific to chinook salmon is not necessary at this time.

Habitat Factors Adversely Affecting the Stock

Annual spring flooding causes ice to scour many rivers sections with in the Shaktoolik and Unalakleet Rivers. There has been fish habitat damage in the Unalakleet drainage due to road construction. An access road has blocked complete estuarine exchange within the lower Unalakleet River Estuary; although fish passage is maintained through other channels. Historically this area has not been mined as in the northern Norton Sound and in particular the Nome Area. The upper Unalakleet River is designated as a Wild and Scenic River and the habitat remains pristine.

Do New Or Expanding Fisheries On This Stock Exist?

There are no new or expanding fisheries on this stock. However, Norton Sound bound chinook salmon may be caught as bycatch in the Bering Sea groundfish fishery.

Existing Management Plan

5 AAC 01.160 FISHING SEASONS AND PERIODS. (b) In the Norton Sound District, fish may be taken at any time except as follows:

(3) in the Unalakleet River from June 1 through July 15, salmon may be taken only from 8:00 a.m. Monday until 8:00 p.m. Saturday.

5 AAC 01.170 LAWFUL GEAR AND GEAR SPECIFICATIONS. (g) In the Unalakleet River from June 1- July 15, no person may operate more than 25 fathoms of gillnet in the aggregate and no person may operate an unanchored fishing net.

ACTION PLAN DEVELOPMENT

Norton Sound Subdistricts 5 and 6 Chinook Salmon Action Plan Goal

Reduce fishing mortality in order to meet spawning escapement goals, to provide reasonable opportunity for subsistence fishing, and to reestablish historic range of harvest levels by other users.

ACTION PLAN ALTERNATIVES

Action 1. Provide subsistence salmon gillnet mesh size specifications in Subdistricts 5 and 6, and use of gear types other than gillnets to allow harvest of other species when it is necessary to conserve chinook salmon.

Objective

The objective of this recommended action is to allow subsistence fishers the opportunity to target other species of salmon when it is necessary to conserve chinook salmon.

Specific action recommended to implement the objective

Provide the department emergency order authority to restrict subsistence salmon gillnets to 6 inch or smaller mesh size and to 4 and one-half inch or smaller mesh size when there is an inadequate surplus of chinook salmon. In addition, provide emergency order authority to close fishing with gillnets, but allow use of other gear types (such as beach seines). This would allow the department to target other species such as chum and pink salmon, while conserving chinook salmon.

5 AAC 01.170. LAWFUL GEAR AND GEAR SPECIFICATIONS. (i)

- (1) the pink salmon fishing season in Subdistricts 1-3 1-6 and immediately reopen the season in these subdistricts, during which gillnets must have a mesh size of four and one-half inches or less;
- (2) the fishing season in Subdistricts 2 and 3 2-6 and immediately reopen the season in those subdistricts to subsistence fishing with any gear that is lawful under 5 AAC 01.170, except gillnets.

5 AAC 01.160. FISHING SEASONS AND PERIODS. (b)

(6) in Subdistricts 5 and 6, salmon other than king salmon may be taken by beach seine during periods established by emergency order.

5 AAC 01.170. LAWFUL GEAR AND GEAR SPECIFICATIONS. (j) Notwithstanding (a) - (i) of this section, during times when the commissioner determines it to be necessary for the conservation of king salmon, the commissioner, by emergency order may close the fishing season in Subdistricts 5 and 6 and immediately reopen the season in these subdistricts, during which gillnets:

- (1) must be 6 inch or less mesh;
- (2) may not exceed the length specified by the commissioner in the emergency order.

Subsistence issues/considerations

The recommended action is consistent with state subsistence law requirements.

Cost/Benefit Analysis

There would be a cost to subsistence fishers if they need to purchase another gillnet of the required mesh size or a beach seine. The benefit is that subsistence fishers would be able to harvest other abundant salmon species during times of inadequate chinook salmon surplus.

Performance measures

Projects are set in place to monitor escapement inseason.

Action 2. When a very low chinook salmon run is identified, determine when commercial and sport fisheries are closed or restricted in relation to one another.

Objective

The objective of this action is to provide the department guidance in management actions taken in regard to the commercial fishery and the sport fishery during poor runs. The general public, sport fishers, and sport fishing guides would benefit if there was a policy or regulation that addressed what conservation actions would occur in the sport fishery based on conservation actions taken in the commercial fishery.

Specific action recommended to implement the objective

When commercial fishing is closed to conserve chinook salmon then sport fishing will be limited (reduce bag limits, catch and release, or closure).

Subsistence issues/considerations

The recommended action is consistent with user group priorities.

Cost/Benefit Analysis

There would be a cost to sport fish guides and outfitter businesses if sport fishing was closed or restricted for a species sport fishers wanted to target. The benefit would be having more chinook salmon on the spawning grounds during times of poor runs.

Performance measures

Projects are set in place to monitor escapement inseason and to obtain commercial, sport and subsistence harvests.

BOARD OF FISHERIES REGULATORY PROPOSALS ADDRESSING NORTON SOUND SUBDISTRICTS 5 AND 6 CHINOOK SALMON STOCK OF CONCERN

Change daily bag limits and set seasonal bag limits for chinook salmon - proposal numbers: 127 and 129.

Change fishing hours for guided sport fishing - proposal number: 128.

RESEARCH PLAN

Norton Sound Initiative and AYK Sustainable Salmon Initiative

The Norton Sound Research and Restoration Initiative (NSR&RI) Steering Committee (SC) has been formed and in association with the NSR&RI Scientific Technical Committee (STC) is identifying and prioritizing research needs in response to the low chum salmon run in 1999. Through this initiative, native organizations, private industry, non-profit organization, state and federal agencies have joined together to form an innovation partnership to cooperatively address salmon research and restoration needs. The Arctic-Yukon-Kuskokwim Sustainable Salmon

Initiative (AYK SSI) was formed after the NSR&RI and is similar in organization, but encompasses the Yukon and Kuskokwim areas in addition to Norton Sound.

Research Projects

The NSR&RI has several projects occurring in Norton Sound. One project surveyed the Shaktoolik, Unalakleet and North Rivers for possible resistance board weirs sites. Two suitable sites were identified on the Unalakleet River (Menard 2001). Further studies are proposed to NSR&RI and AYK SSI that will help evaluate the utility of counts from the Unalakleet River weir site in management.

The department has submitted proposals to radio tag chum and coho salmon to determine their spawning distribution in the Unalakleet River drainage. Previously there was a radio tagging project to document chinook salmon distribution (Wuttig 1999). Data obtained from these telemetry studies and the weir site study will allow the department to submit a proposal for a weir at the best counting location.

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Table 1. Commercial, subsistence and sport chinook salmon harvests for Subdistricts 5 and 6, 1961-2003.*

Year	Combined Subdistricts 5 & 6		Subdistrict 5 (Shaktolik)		Subdistrict 6 (Unalakleet)		Sport Fish Unalakleet River	
	Commercial	Subsistence	Commercial	Subsistence	Commercial	Subsistence	Catch	Harvest
1961	5,300		140		5,160			
1962	6,827		1,738		5,089			
1963	6,421		480		5,941			
1964	1,904	565	631	77	1,273	488		
1965	1,448	552	127	31	1,321	521		
1966	1,518	232	310	142	1,208	90		
1967	1,794	752	43	262	1,751	490		
1968	1,021	196	61	10	960	186		
1969	2,309	364	33	40	2,276	324		
1970	1,801	538	197	43	1,604	495		
1971	2,450	998	284	87	2,166	911		
1972	2,654	707	419	64	2,235	643		
1973	1,686	374	289	51	1,397	323		
1974	2,683	406	583	93	2,100	313		
1975	2,289	181	651	18	1,638	163		
1976	2,103	166	892	24	1,211	142		
1977	4,212	772	1,521	49	2,691	723		
1978	8,864	1,125	1,339	81	7,525	1,044		
1979	8,731	702	2,377	62	6,354	640		
1980	5,425	1,103	1,086	57	4,339	1,048		
1981	7,641	877	1,484	8	6,157	869		
1982	5,445	981	1,677	68	3,768	913		
1983	9,764	1,868	2,742		7,022	1,868		93
1984	8,417	1,650	613		6,804	1,650		39
1985	17,933	1,695	5,312	298	12,621	1,397		179
1986	5,569		1,075		4,494			850
1987	5,460		2,214		3,246			
1988	2,889		671		2,218			
1989	5,643		1,241		4,402			49
1990	8,642	2,476	2,644		5,998	2,476	361	278
1991	5,858		1,324		4,534		375	296
1992	4,507		1,098		3,409		476	117
1993	8,700		2,756		5,944		2,340	382
1994	5,285	6,469	885	1,175	4,400	5,294	517	379
1995	8,856	6,324	1,239	1,275	7,617	5,049	588	259
1996	4,984	6,438	1,340	1,114	3,644	5,324	2,059	384
1997	11,516	7,471	2,449	1,146	9,067	6,325	5,144	842
1998	7,323	4,945	910	982	6,413	3,963	1,539	513
1999	2,508	3,509	581	818	1,927	2,691	669	415
2000	742	2,869	160	440	582	2,429	1,045	345
2001	206	4,598	90	936	116	3,662	542	250
2002	5	3,597 ^b	1	1230 ^b	4	2,367 ^b	835 ^b	544 ^b
2003	12	^b	2	^b	10	^b	^b	^b
1999-2003 average	695	3,643 ^b	167	856 ^b	528	2,787 ^b	Sport Fish 1999-2002 average 773	389
Commercial 1989-1998 average	7,131		1,589		5,543		Sport Fish 1989-1998 average	350
Subsistence 1994-1998 average		6,329		1,138		5,191	Sport Fish 1994-1998 average	475

* Subsistence harvest data are incomplete prior to 1979. Subsistence surveys not conducted in all communities between 1986-1993.

^b 2003 data not yet available, average is 1999-2002.

Table 2. Subdistricts 5 and 6 Management Actions

1993	-Commercial drift fishing allowed in June so fishers can avoid fouling their nets with the debris loads in the spring. Chum fishing closed early because of weak run.
1994	-Chinook salmon periods limited to two 24-hour periods per week. Pink salmon fishing opened continuously. There was no fisher interest in chum salmon. A strong coho salmon run results in record harvest.
1995	-Strong chinook salmon run. Buyer expresses interest in pink salmon and limited interest in chum salmon. Late season coho salmon closure (August 26) to bolster escapement.
1996	-Early run of chinook salmon. Limited market for chum salmon. Pink salmon fishing opened continuously. Strong run of coho salmon.
1997	-The last year the majority of the chinook periods are two 48-hour periods per week. Best chinook commercial harvest of the decade. Limited market for chum salmon. Coho run is below average and season closes on August 23.
1998	-The majority of chinook periods are now 24 hours in length. Limited market for chum salmon. Pink salmon fishing opened continuously because of large surplus of pink salmon. Shaktoolik Subdistrict opened to continuous fishing the last two weeks of August to provide flexibility during persistent inclement weather.
1999	-Weak runs of chinook, chum and coho salmon. Coho commercial fishing restricted to two 24-hour periods per week instead of the normal two 48-hour periods per week.
2000	-Only two commercial chinook fishing periods. Lowest commercial chinook and chum harvest to date. Pink salmon fishing opened continuously to allow buyer to more effectively direct fleet. Pink catches were below average which was attributed to low volumes of fish and lack of fishing interest.
2001	-Only two commercial chinook fishing periods. Lowest commercial chinook and chum harvest to date.
2002	-No commercial chinook or chum fishing because of weak runs. No market interest in pink salmon unless there is a 500,000 pink salmon harvest projection. -Coho commercial fishing time reduced to two 24 hour periods per week. Commercial coho fishing closed on August 19 to protect coho salmon. Sport fish reduces bag limit to one per day from five per day.
2003	-No commercial chinook or chum fishing because of weak runs. -Three week (July 3-25) subsistence salmon fishing closure to protect chinook and chum in Shaktoolik and Unalakleet River drainages. Subsistence beach seining for pink salmon is allowed.

Table 3. North River Tower Chinook Salmon count expanded to the Unalakleet Drainage.

Year	Operating Period	North River Tower Chinook Count	Estimated Unalakleet River Drainage Chinook Count ^a
1984	June 25-July 28	2,844	7,110
1985	June 27-Aug 31	1,426	3,565
1986	June 25-July 18	1,613	4,033
1996	June 16-July 25	1,197	2,993
1997	June 16-Aug 21	4,185	10,463
1998	June 15-Aug 12	2,100	5,250
1999	June 30-Aug 31	2,263	5,658
2000	June 17-Aug 12	1,046	2,615
2001	July 5-Sept 15 ^b	1,337	3,343
2002	June-19-Aug 30	1,505	3,763
2003	June 15-Sept 13	1,452	3,630

^a North River Tower chinook count represents 40% of the Unalakleet drainage chinook escapement (Wuttig 1999)

^b Minimum count due to late start of project

Table 4. Exploitation of Unalakleet River drainage chinook salmon.

Year	North River Count	Estimated Total Unk Escapement ^a	Estimated total run (Esc+Harvest)	Proportion exploited Commercial	Proportion exploited Subsistence	Proportion exploited Sport	Total exploitation com+sub	Total exploitation com+sub+sp
1996	1,197	2,993	12,730	0.286	0.418	0.030	0.705	0.735
1997	4,185	10,463	27,539	0.329	0.230	0.031	0.559	0.590
1998	2,100	5,250	16,652	0.385	0.238	0.031	0.623	0.654
1999	2,263	5,658	11,106	0.174	0.242	0.037	0.416	0.453
2000	1,046	2,615	6,316	0.092	0.385	0.055	0.477	0.531
2001	1,337	3,343	6,769	0.017	0.415	0.037	0.432	0.469
2002	1,505	3,763	7,243	0.001	0.330	0.076	0.331	0.407
2003	1,452	3,630						
Avg 97-01	2,186	5,466	13,676	0.199	0.302	0.038	0.501	0.539
Avg 00-02	1,296	3,240	6,775	0.037	0.377	0.056	0.413	0.469

^a Escapement estimated based on data from Wuttig 1999.

Figure 1. Norton Sound commercial salmon fishing districts and subdistricts.

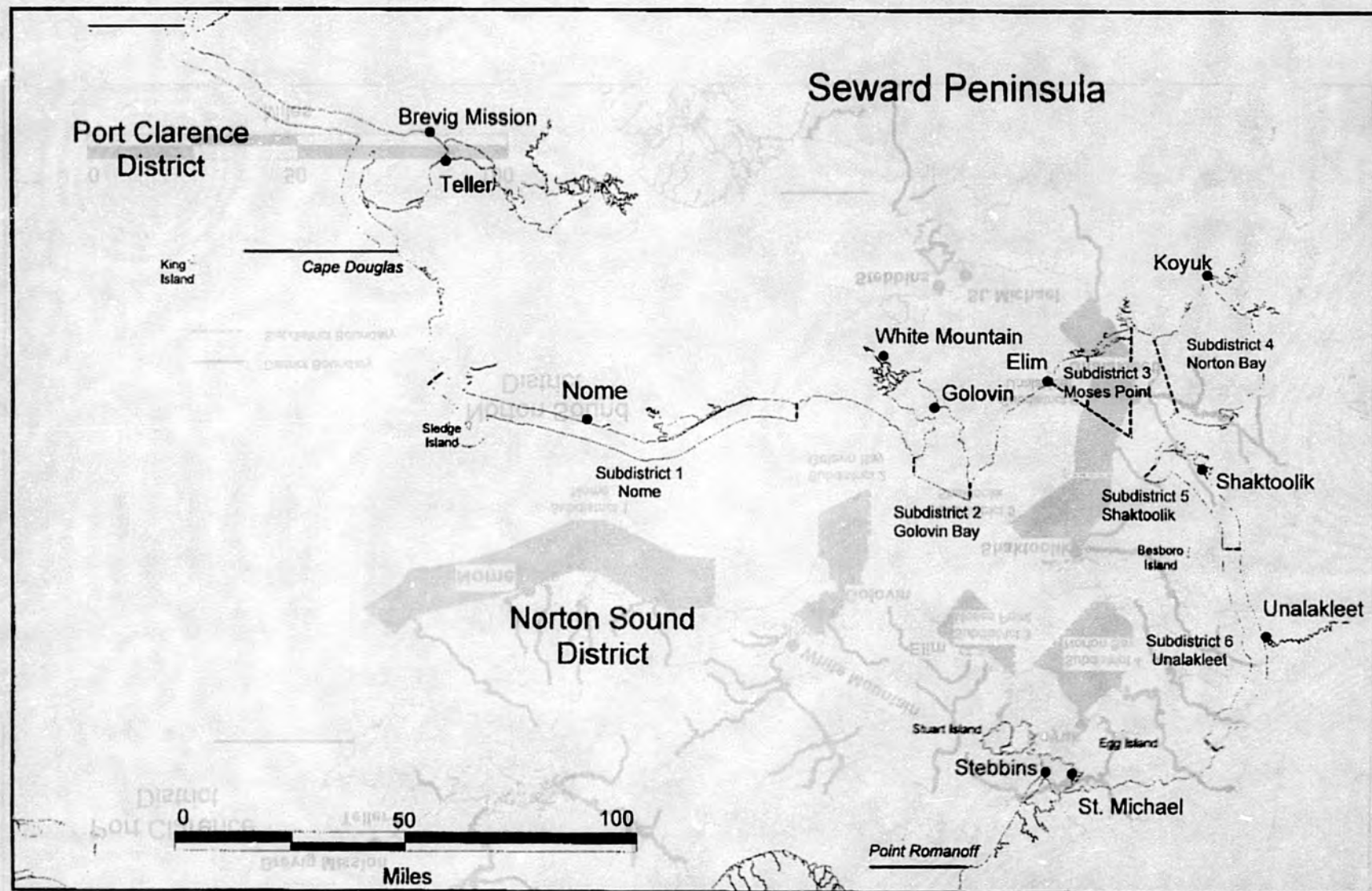


Figure 2. Map of Salmon Rivers in Norton Sound

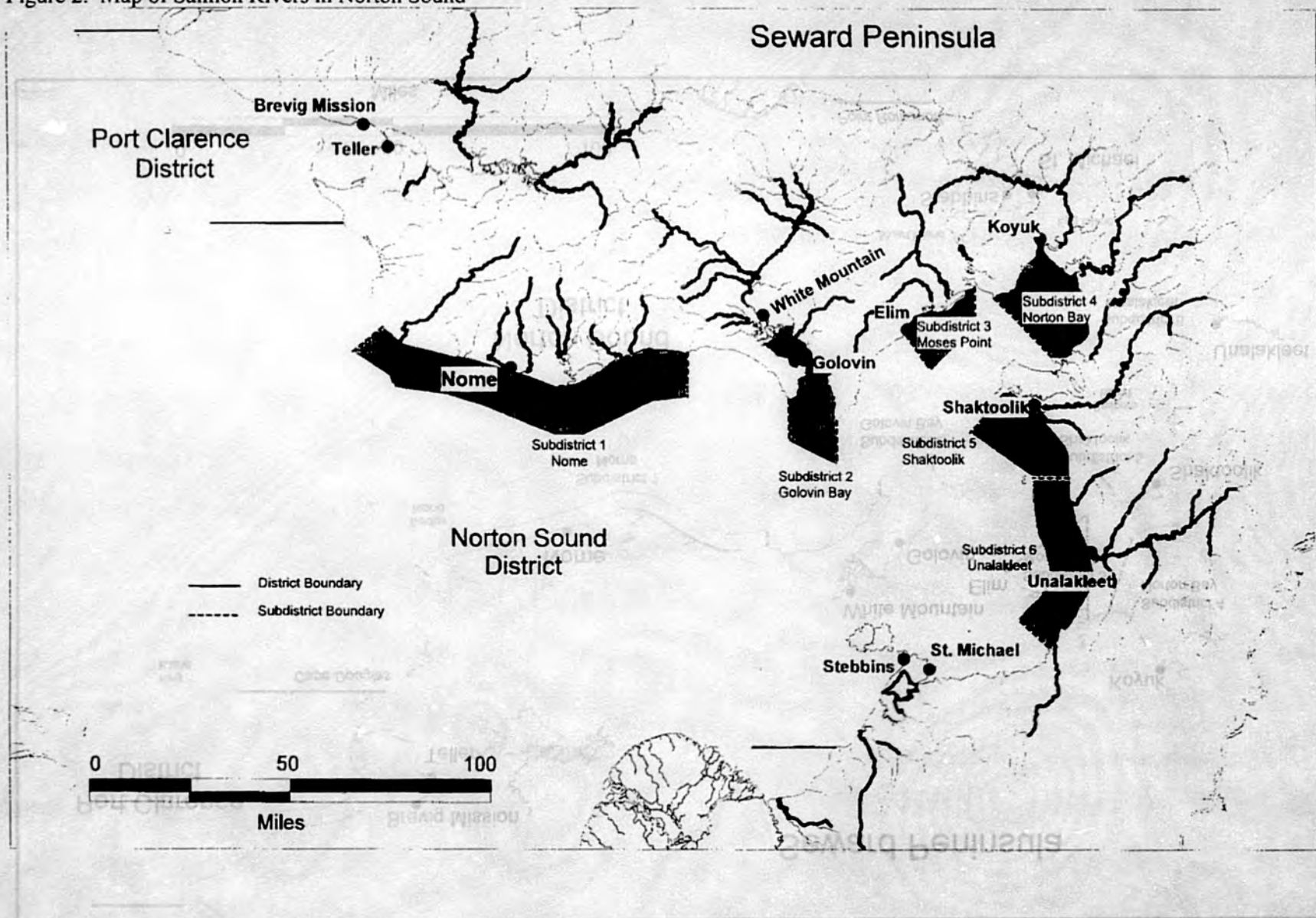


Figure 3. Unalakleet Test Net Chinook Salmon Catch.

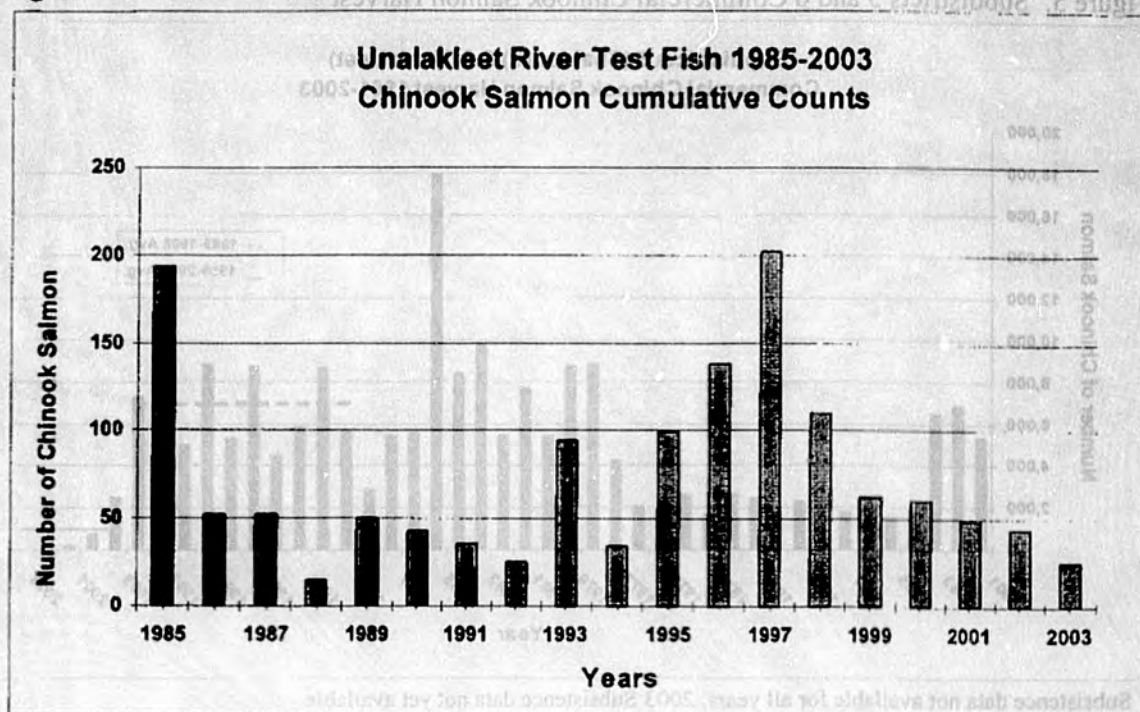


Figure 4. North River Chinook Salmon Escapement.

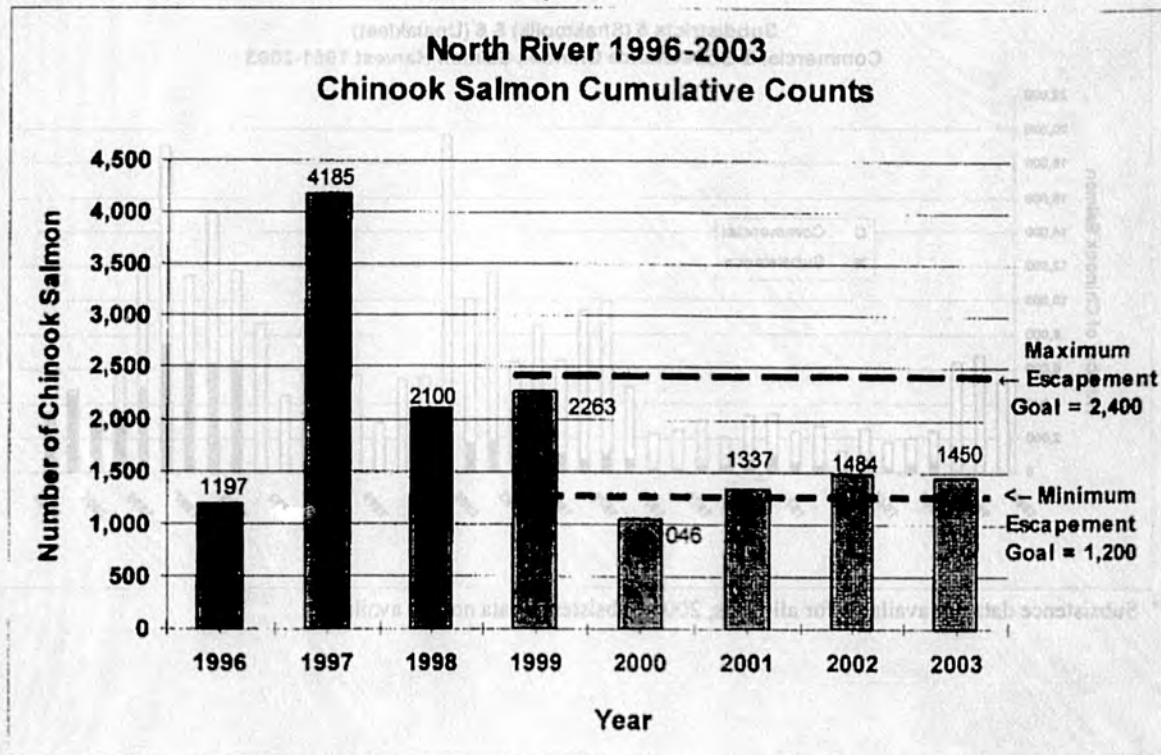
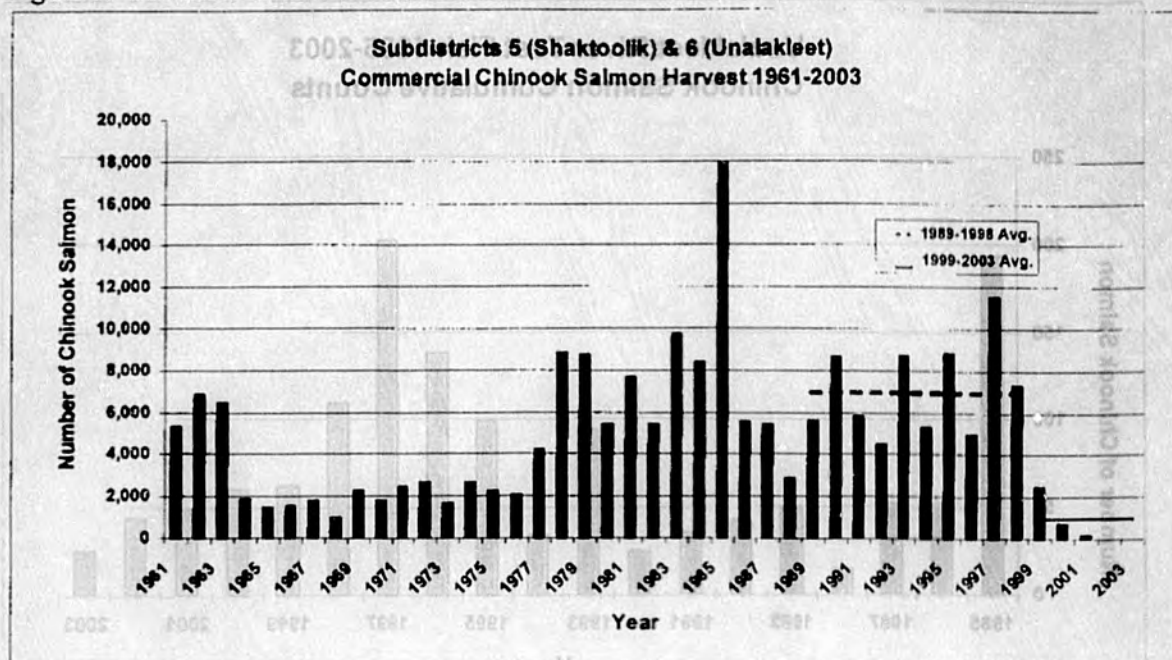
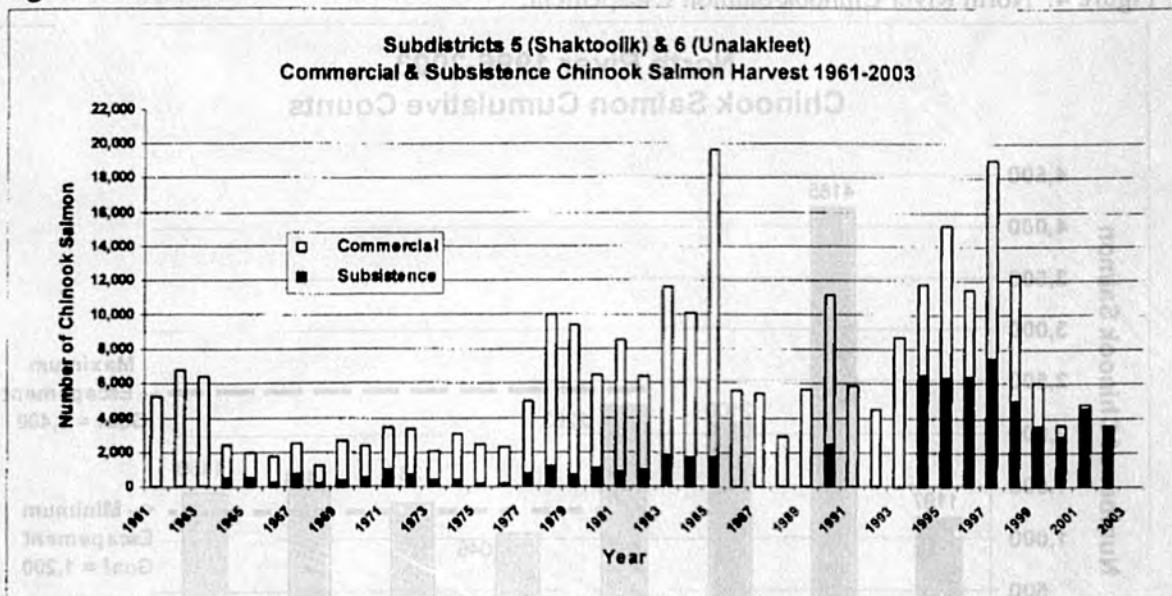


Figure 5. Subdistricts 5 and 6 Commercial Chinook Salmon Harvest^a.



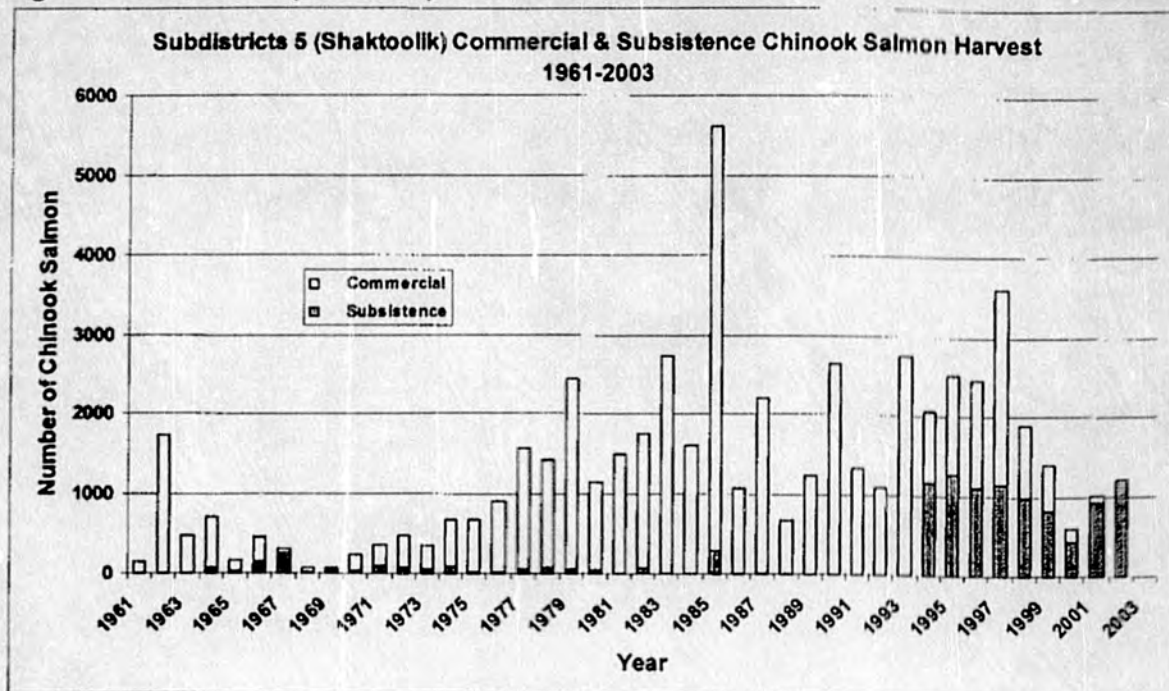
^a Subsistence data not available for all years, 2003 Subsistence data not yet available.

Figure 6. Subdistricts 5 and 6 Combined Chinook Salmon Harvest^a.



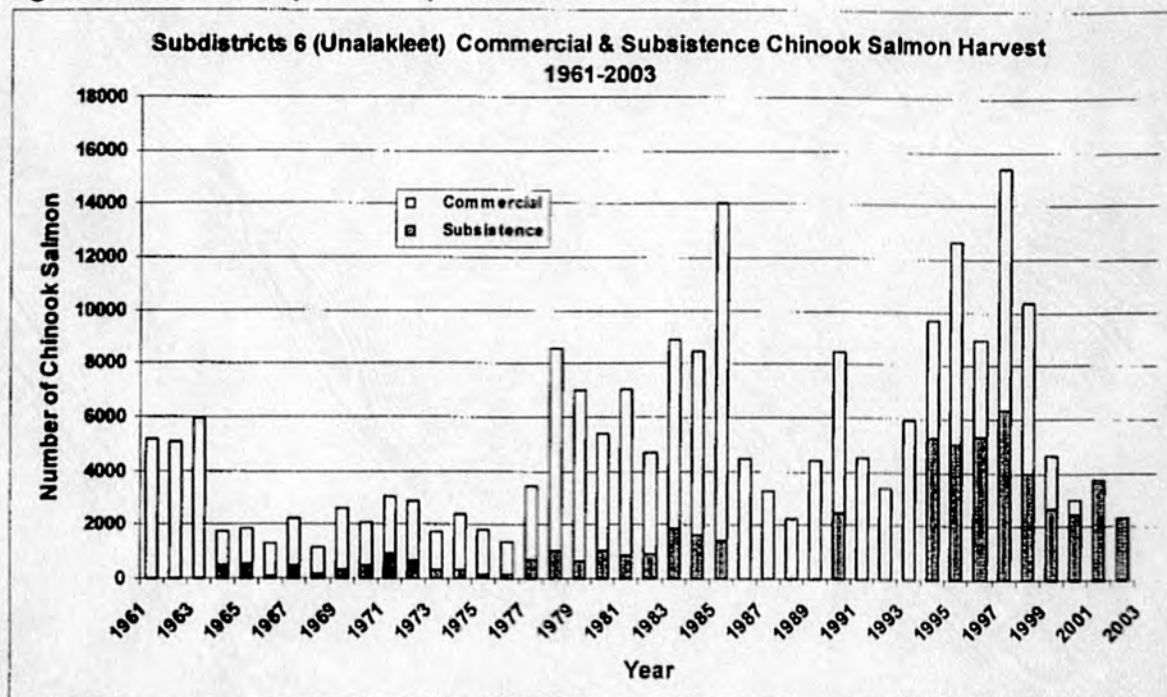
^a Subsistence data not available for all years, 2003 Subsistence data not yet available.

Figure 7. Subdistrict 5 (Shaktoolik) Chinook Salmon Harvest^a.



^a Subsistence data not available for all years, 2003 Subsistence data not yet available.

Figure 8. Subdistrict 6 (Unalakleet) Chinook Salmon Harvest^a.



^a Subsistence data not available for all years, 2003 Subsistence data not yet available.



COOK INLETKEEPER

PROTECTING ALASKA'S COOK INLET WATERSHED AND THE LIFE IT SUSTAINS

VIA EMAIL ONLY
(representative_craig_johnson@legis.state.ak.us)

June 3, 2008

Craig Johnson, Chairman
Cook Inlet Salmon Task Force
716 W 4th Avenue, Suite 640
Anchorage, AK 99501

Dear Representative Johnson:

I. INTRODUCTION

Cook Inletkeeper is a community-based nonprofit organization whose members include sport, commercial and subsistence fishermen concerned about the health of wild salmon fisheries throughout the Cook Inlet watershed. Please include these comments in the proceedings of the 2008 Cook Inlet Salmon Task Force.

II. COMMENTS

A. *Climate change is making salmon increasingly vulnerable to pollution, predation and disease*

For the past eight years, Inletkeeper and its partners have been collecting temperature data in Cook Inlet salmon streams.¹ Among other things, these data show routine violations of state Water Quality Standards established under the Clean Water Act to protect spawning and migrating fish. Inletkeeper's research also shows that such temperature changes have been wrought by climate rather than landscape change, and that such changes are expected to continue for the foreseeable future. Because elevated stream temperatures are known to cause stress in fish, Cook Inlet salmon are increasingly vulnerable to stress-related deficiencies stemming from pollution, habitat disturbance, predation and disease. As a result, salmon management strategies must increasingly embrace a precautionary approach that recognizes the significant ecosystem changes ongoing throughout the Cook Inlet watershed.

¹ See www.inletkeeper.org/salmon/networkoverview.htm

B. *Mixing zones in spawning areas reflect short-sighted fisheries policy*

Mixing zones are controversial regulatory tools that embrace the notion that dilution is the solution to pollution. Instead of measuring regulatory compliance at the end of the pollution discharge pipe as originally intended, mixing zones allow compliance to be measured far from the discharge point, after pollutants have mixed with the receiving waters. Although Congress never once mentioned the term "mixing zone" in passing the Clean Water Act in 1972, these sacrifice zones have become common in marine waters throughout Alaska.

Prior to the Murkowski Administration, mixing zones had rightly been banned in salmon spawning areas. However, despite broad-based opposition from Alaskans across the state, the Murkowski Administration pushed through rules in 2006 that allow pollution mixing zones in spawning areas. As you know, legislation has been introduced to remedy this salmon habitat rollback, and most recently, the House Resources Committee – which you Chair – has not had a hearing on the current bill (HB 74).

While industry and government proponents of the new mixing zone rule argue that agencies need discretion to address specific discharges on a case-by-case basis, we know from experience that agencies frequently abuse that discretion. For example, in the recent Clean Water Act proceeding regarding oil and gas discharges from Cook Inlet facilities, the ADEC authorized a nearly three-fold increase in the amount of toxic pollutants that may be dumped into mixing zones in Cook Inlet marine fisheries each year. Accordingly, for the reasons cited above in Section II.A, it's imperative for the Legislature to create a bright line standard that prohibits toxic and other pollution discharges into salmon habitat.

C. *Cook Inlet facilities and projects routinely ignore impacts to salmon habitat*

Cook Inlet is the most populated and heavily-developed watershed in Alaska, and as the state's economic hub, it's subject to a variety of pollution streams that affect water quality, and projects that directly impact salmon habitat. While many of these impacts stem from large projects and discharges (see below), perhaps the gravest threat to Cook Inlet salmon habitat entails the so-called "death by a thousand cuts" – i.e., the piecemeal permitting and decisionmaking around smaller, seemingly unconnected projects that nonetheless can pose significant cumulative effects to salmon habitat. These projects reflect the very development philosophy that has led to the decimation of once-thriving salmon habitat in the Pacific Northwest. Throughout Anchorage and the Kenai Peninsula and Mat-Su Boroughs we see such projects on a routine basis, yet no management regime exists to collectively consider, understand and manage these growing threats.

For example, the Knik River Public Use Area has been plagued for years by poor management and oversight, yet DNR appears unable or unwilling to adequately protect salmon resources in the area. While the Palin Administration's decision to return habitat biologists to their rightful domain within ADFG is a good first step, the Murkowski Administration's rollbacks to the Alaska Coastal Management Program have rendered that once-proud program virtually useless. While there may be no single "silver bullet" to address these complex management problems, one immediate solution is to employ more ADFG habitat biologists, to ensure that each and

every project gets the attention it deserves when salmon habitat is implicated. As for larger projects and discharges, these include, but are not limited to:

1. Existing Major Pollution Discharges & Risks

- Nonpoint Source Pollution: Each year, billions of gallons of snowmelt and stormwater run off from de-icing activities, fertilizers and pesticides, pet wastes, motor vehicles and construction activities enter Cook Inlet from the developed communities of Kenai, Anchorage, Girdwood, Eagle River, Palmer, Wasilla and other areas. These sources represent the largest pathways of chronic pollution into salmon habitat in Cook Inlet, and also pose some of the thorniest regulatory challenges. Enhanced land use management controls coupled with regular monitoring and testing are two management responses that can help alleviate stormwater impacts.
- Anchorage Sewage: The Asplund Sewage Treatment Plant is authorized to discharge up to 40 million gallons of primary-treated sewage each day. While the Clean Water Act envisions at least secondary treatment for such discharges, the Asplund plant enjoys a loophole in the law that allows discharges to marine waters lesser scrutiny. In addition to the nutrients, bacteria, chlorine and other pollutants that traditionally flow from sewage wastes, these discharges contain a wide array of chemicals (such as pharmaceutical drugs) that can impact salmon but for which no sampling and testing occurs. As a result, upgrading the treatment efficiency at the Asplund and other sewage treatment plants in Cook Inlet should be a high priority for the Task Force.
- Oil & Gas Discharges: As discussed above, EPA and ADEC recently re-issued a Clean Water Act permit for oil and gas discharges that allows industry to dump over a billion gallons of toxic and other wastes annually into important salmon migration corridors in Upper Cook Inlet. While the technology exists to properly treat (i.e., reinject) these wastes, Chevron and XTO Energy have chosen to continue the archaic strategy of dumping the wastes directly into Cook Inlet, despite record high oil and gas prices. In response, Inletkeeper, commercial fishermen and Native subsistence users have been forced to litigate to protect Cook Inlet salmon. As a result, the Task Force should urge industry, ADEC and EPA to immediately deploy readily-available zero discharge technologies.
- Eagle River Flats Firing Range: Each year the Department of Defense discharges tens of thousands of pounds of toxic and other pollutants to waters and wetlands that support salmon in the Eagle River estuary. Pursuant to a federal court consent decree, the DOD was to obtain a Clean Water Act permit for such discharges, but after five years, a permit is still not in place. As a result, the Task Force should urge EPA and ADEC to immediately proceed with a permit proceeding to determine whether such discharges should continue.
- Oil Tanker & Other Vessel Traffic: Cook Inlet supports major transit routes for crude oil, LNG, and refined petroleum products, including vessel fuel oil. In 2006, the oil tanker *Seabulk Pride* ran aground laden with 5 million gallons of oil product in the heart of Cook Inlet salmon habitat. Luck and a highly competent response averted a disaster, and Tesoro Alaska recently brought into service a high-powered tug to assist vessels at the Nikiski docks. Nonetheless, this past winter, we experienced at least two forced departures from the Nikiski

docks by tanker vessels due to extreme tides and ice. As a result, the Task Force should press for enhanced navigational safeguards in Cook Inlet, including but not limited to mandatory vessel traffic shut-downs when conditions warrant, enhanced vessel tracking systems, and fulltime escort tugs from the Forelands to points north.

2. Proposed Projects in Salmon Habitat in Cook Inlet

- **Port of Anchorage Expansion:** The Port of Anchorage is moving ahead with a \$700 million expansion project that will fill 135 acres of Essential Fish Habitat (EFH) in Knik Arm. The Army Corps issued the necessary permit over the objections of EPA, USFWS and NMFS, and despite the fact the Port can point to no concrete need for an expansion this large, decisionmakers have turned a blind eye to fisheries impacts stemming from this mega-project. As a result, the Task Force should review and understand the objections from the above-referenced federal agencies, and press for meaningful mitigation measures that will offset the salmon impacts from this project.
- **Port Mackenzie Expansion:** While nowhere near as large as the Port of Anchorage expansion, the Port Mackenzie facility is also undergoing an expansion that will fill important fish habitat in Cook Inlet. Similar to the recommendation above, the Task Force should review the impacts from this project, to understand its potential individual and cumulative impacts on salmon habitat.
- **Knik Arm Bridge:** The proposed Knik Arm Bridge would bisect Essential Fish Habitat in Knik Arm, and constrict Knik Arm by building two miles of gravel-filled, intertidal causeway fill (permanent loss of approximately 90 acres of intertidal and subtidal EFH habitat). The project will entail significant construction impacts, including but not limited to pile driving and habitat filling, to salmon and other fish habitat. Furthermore, constriction of Knik Arm likely will eliminate significant shoreline foraging habitat for juvenile salmon (especially Chinook and coho salmon), and will force some juvenile and adult salmon to move into the higher velocity waters under the bridge, thus making them more vulnerable to deep-water predators. Additionally, motor vehicle fluids and stormwater run-off from the bridge and its access roads likely will adversely affect the Knik Arm environment. As a result, the Task Force should understand how this proposed project will individually and cumulatively impact salmon in Knik Arm.
- **Chuitna Coal Strip Mine:** A Delaware corporation – PacRim Coal – is moving ahead with plans to build a massive coal strip mine near the communities of Beluga and Tyonek on the West side of Cook Inlet. According to DNR, this would be the first mine ever in Alaska to actively mine through a salmon stream, despite the fact no one has been able to re-construct a salmon stream in the cold, wet conditions found in the area. Furthermore, according to permit applications, the project would dump an average of 7 million gallons of mine waste and run-off into the salmon-bearing waters of the Chuitna River, would entail the construction of an offshore gravel island that will displace set net and subsistence fishermen, and would include a 10,000 foot long dock and trestle out into Cook Inlet. As a result, the Task Force should recognize the important precedent this project represents, and ask ADFG whether salmon will be adequately projected under projected mine development plans.

III. CONCLUSION

As climate change continues throughout the state, effective fisheries management can and must include smart, forward-looking mechanisms to protect the vital habitat that sustains our magnificent salmon runs in Cook Inlet. We need look no further than the Pacific Northwest to understand that turning a blind eye toward landscape and climate change results in denuded fisheries. Accordingly, we strongly urge the Task Force to include the specific recommendations referenced above for salmon habitat management and oversight in its final report.

Thank you for your attention to these important matters, and please do not hesitate to contact me if you have any questions or comments.

Very truly yours,



Bob Shavelson
Executive Director

Cc: (VIA EMAIL ONLY)
Representative Kyle Johansen
Representative Mark Neuman
Representative Bill Stoltze
Representative Mike Doogan
Representative Paul Seaton
Senator Lyda Green
Senator Charlie Huggins
Senator Lesil McGuire
Senator Bill Wielechowski
Senator Tom Wagoner
Senator Gary Stevens
Mayor Mark Begich, Municipality of Anchorage
Mayor John Williams, Kenai Peninsula Borough
Mayor Curt Menard, Mat Su Borough
United Fisherman of Alaska
United Cook Inlet Drift Association
Kenai Peninsula Fisherman's Association
Northern District Set Netters Association
Cook Inlet Fishermans Fund
Kenai River Sports Fisherman's Association
Fish & Game Advisory Committees for Anchorage, Central Peninsula, Cooper Landing,
Homer, Kenai/Soldotna, Matanuska Valley, Seldovia, Susitna Valley & Tyonek
(via Sherry Wright, ADFG)

Guide to Meeting Documents from the February 1-12, 2008 Board of Fisheries Upper Cook Inlet Finfish Meeting

Prepared by Boards Support Section, Alaska Department of Fish and Game
May 12, 2008

This is a quick reference guide to the 3,366 pages of written materials from the Board of Fisheries (board) meeting on Upper Cook Inlet Finfish issues held in Anchorage February 1-12, 2008. It provides a very brief description of the types of information presented to the board; however, it does not attempt to summarize the information given the large number of issues considered. During the 12 day meeting the board acted on 286 regulatory proposals, many of which addressed various aspects of the management plans established by the board for the Upper Cook Inlet fisheries.

The complete set of written materials submitted to the board for the record is available on the Board of Fisheries website under the link to meeting document archives: <http://www.boards.adfg.state.ak.us/archive/bof/farch.php> (or see "Document Archives" link on left side of the Board of Fisheries main webpage). All the files are in PDF format and can be downloaded. The larger sections such as public comments or department reports were broken into multiple PDF files. Still, the files are up to 10MB so a high speed internet connection will shorten downloading time. Many of these materials were available to the board and public weeks or months in advance of the meeting. Table 1 provides a reference guide to the materials.

Table 1. Description of meeting documents (February 2008 meeting)

Link	Description
<u>Agenda/Roadmap</u> (4 pages)	The agenda describes the basic schedule for staff reports, public testimony, committee work, and deliberations. The "roadmap" shows the tentative committee structure, that is the thematic grouping of the 286 proposals into seven board committees.
<u>Legal Notice</u> (4 pages)	This is the formal legal notice as required by the Alaska Administrative Procedures Act. (The notice was also posted on the state's legal notice page.)
<u>Board of Fisheries</u> (3 pages)	Board membership roster , contact info for Boards Support Section, and meeting schedule for the 2007/2008 meeting cycle.
<u>Findings/Policies</u> (24 pages)	Selected findings and policies of the board pertinent to this particular meeting, including a description of the board's committee process. (The complete set of all 260 findings and policies is available on the board's website.)
<u>Dept. of Law</u> (11 pages)	This Department of Law memo to the board is a succinct overview of board procedures and an explanation of guiding statutes and policies. It notes requirements relative to ethics, open meetings, sustained yield, allocation criteria, subsistence priority, and Sustainable Salmon Fisheries Policy (SSFP). It also included a checklist for applying the SSFP.

<u>Proposals</u> (505 pages)	Proposals. These are the 286 proposals scheduled for consideration during the Upper Cook Inlet meeting. All were received by the April 10, 2007 proposal deadline and were available for public review starting July 2007. This format as presented during the meeting shows a cross-reference to the relevant timely public comment and indicates support or opposition. Comments are numbered by "AC#" or "PC#" (AC refers to advisory committee comment, PC refers to public comment).
<u>AC Comments1-7</u> <u>AC Comments8</u> <u>AC Comments9-12</u> (107 pages)	Advisory committee comments (AC#). Included here are comments received before the two-week written comment deadline (1/18/08). A committee's support or opposition to specific proposals is shown along with the rationale for the position. Page 1 of the first file provides a list . Eight of the 11 advisory committees in the Cook Inlet area submitted timely comments. Comments from the remaining 3 area committees were included as record copies (see below).
<u>Public Comments 1-5</u> <u>Public Comments 6-20</u> <u>Public Comments 21-26</u> <u>Public Comments 27</u> <u>Public Comments 28-31</u> <u>Public Comment 32</u> <u>Public Comments 33-45</u> <u>Public Comments 46-52</u> (396 pages)	Public comments (PC#) included here are those received prior to the two-week written comment deadline. These came from wide variety of stakeholder groups, associations, and individuals. These show support or opposition to specific proposals and offer other information to the board. Page 1 of the first file provides a list of comment sources.
<u>RC Index</u> (6 pages)	This handy reference is an index of the 225 various documents submitted to the board during the course of the meeting from all sources. Each Record Copy (or "RC") is numbered. Documents include late advisory committee comments, other public comments, background on specific proposals, deliberation materials, the seven committee reports, and draft regulatory wording.
<u>RC 2.1</u> <u>RC 2.2</u> (382 pages)	Staff Comments (RC 2) explain the department's preliminary position on each proposal. See pages 14-20 of the first PDF file for a summary. Positions indicate support, opposition, neutral, or a recommendation for no action. Department positions are neutral on the allocation aspects of proposals. For each proposal there is a description of 1) what the proposal is asking, 2) the current regulations, 3) the effect of the proposal, 4) background, 5) department position, and 6) potential cost to private persons.
<u>RC 3.1</u> <u>RC 3.2</u> <u>RC 3.3</u> (775 pages)	Department Written Reports (RC 3) contain all seven written reports. See Page 2 of the first file for a list of report titles. Included are topics such as fishery overviews, escapement goal reviews, and stock composition analysis. The last section (third file, pages 166-191) is a collection of useful maps.

<u>RC 4</u> (147 pages)	Department Oral Reports (RC 4) contain the PowerPoint slides from all 11 staff presentations. See Page 2 for report titles.
<u>RC 5-37</u> <u>RC 38-51</u> <u>RC 52-76</u> <u>RC 77-114</u> <u>RC 115-132</u> <u>RC 133-255</u> (1,002 pages)	Other Record Copies submitted during the meeting. See RC Index above for the complete list. Selected documents of general interest include the following: RC 8 - "Options Memo" from ADF&G summarizing potential management options facing the board for Upper Cook Inlet. RC 12 - Memo from ADF&G discussing stock of concern status for Yentna River sockeye. RC 33, RC 34, RC 35, RC 36, RC 48, RC 83 - Deliberation materials presented by ADF&G for proposals in each of the seven board committees. RC 72 - List of oral public testimony identifies the 125 individuals, organizations, and advisory committees that signed up to testify before the board. RC 101, RC 102, RC 103, RC 104, RC 105, RC 106, RC 107 - Committee Reports are the written product from the seven board committees. Listed for each proposal is 1) a summary of key points in support and opposition, 2) a cross-reference to pertinent documents in the record, 3) a consensus if any among board committee members or among public panel members, and 4) suggested substitute language. RC 154 - Preliminary draft action plan to address Susitna River sockeye salmon stock developed in response to the stock of concern finding. RC 224 - Draft board finding on Upper Cook Inlet salmon management plans. (See 2008-259-FB for final version.)

Note: references to page numbers listed above refer to the page of the PDF file and not the page listed on the original document.

Other background information available

Board of Fisheries website main page:

<http://www.boards.adfg.state.ak.us/fishinfo/index.php>

Audio files of the meeting are available. Please submit requests to Boards Support Section, Department of Fish and Game (465-4110).

A list of the actions taken on the 286 proposals is available on the Board of Fisheries website (see: <http://www.boards.adfg.state.ak.us/fishinfo/meetsum/meetsum.php> or follow links to "Summary of Actions" for the 2007/2008 cycle).

Board finding on Upper Cook Inlet salmon management (2008-259-FB):

<http://www.boards.adfg.state.ak.us/fishinfo/regs/2008/2008-259-FB.pdf>

Also available on the board's website is a map depicting the general location of the 11 local fish and game advisory committees in the Cook Inlet portion of the Southcentral Region. All 11 were active participants of the 2008 Upper Cook Inlet meeting.

Link: <http://www.boards.adfg.state.ak.us/advisory/listac/acreg.php>

The Sustainable Salmon Fisheries Policy (SSFP) can be found in 5 AAC 39.222.

Link: <http://www.boards.adfg.state.ak.us/fishinfo/regs/ssfptext.pdf>

The Board of Fisheries allocation criteria can be found in AS 16.05.251(e) and Board Finding #91-121-FB.

Link: <http://www.boards.adfg.state.ak.us/fishinfo/regs/ff91129x.pdf>

For additional information on the Board of Fisheries, please contact:

Jim Marcotte

Executive Director, Alaska Board of Fisheries

Alaska Department of Fish and Game

465-4110

Other background information available

Board of Fisheries website main page:

<http://www.boards.adfg.state.ak.us/fishinfo/index.php>

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A list of the actions taken on the 2008 proposals is available on the Board of Fisheries website (see: <http://www.boards.adfg.state.ak.us/fishinfo/summaryofactions.pdf> or follow links to "Summary of Actions" for the 2007/2008 cycle).

**The Commercial Alaska Salmon Fisheries
Managed by the Alaska Department of Fish and Game
A 5-Year Re-Assessment Based on the
Marine Stewardship Council Program**

Contract Number: IHP-05-069

Version: SCS_Final Draft Assessment Report for Posting

Date: 30 October 2007

Client: Alaska Department of Fish and Game (ADF&G)

MSC reference standards:

MSC Accreditation Manual Issue 4,

MSC Fisheries Certification Methodology (FCM) Version 5,

MSC TAB Directives (All)

MSC Chain of Custody Certification Methodology (CoC CM) Version 6.

Accredited Certification Body:

Scientific Certification Systems, Inc.

Marine Fisheries Conservation Program

2200 Powell Street, Suite 725

Emeryville, CA 94608, United States

Assessment Team

Dr. Chet Chaffee, Project Manager, SCS

Dr. Greg Ruggerone (Natural Resources Consultants, Seattle, Washington, USA)

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Dr. Louis W. Botsford (University of California, Davis, California, USA)

*This is the body
that confirms the
sustainability of
Alaska Salmon
w/o their stamp
of approval, Alaska
salmon cannot be
sold as sustainable
which is key to
marketing in Europe
and other markets.*

8.1.8 Upper Cook Inlet Gillnet

All five species of Pacific salmon are subject to commercial harvest in upper Cook Inlet set net and drift net fisheries (Fox and Shields 2005). Sockeye are the primary target species. Recent 10-year harvests have averaged 3.1 million sockeye, 221,000 coho, 194,000 pink, 168,000 chum, and 15,700 chinook (Fox 2005). Chinook, sockeye, and coho are also subject to significant sport and personal use fisheries (Pappas and Marsh 2004).

Management of directed sockeye fisheries is based on production from the five largest sockeye salmon producing drainages (Kenai, Kasilof, Susitna, and Crescent rivers and Fish Creek) (ADFG 2005). Chinook return to a number of large rivers and streams with the largest runs into the Kenai, Deshka, and Kasilof rivers (ADFG 2005). Coho are found in approximately 1,100 streams and rivers in UCI (Lafferty et al. 2005). Chum return to rivers and streams throughout the inlet. Pink salmon return in even years to rivers and streams throughout the Inlet. Escapement goals have been identified for 8 sockeye, 21 chinook, 3 coho, 1 chum, and 0 pink stocks (Hasbrouck and Edmundson 2005).

Commercial fisheries are regulated in two districts and 8 subdistricts encompassing about 3,400 square miles (Fox and Shields 2005). A series of species and area management plans provide detailed guidance on goals, allocations, and fishery implementation in upper Cook Inlet. Enhancement activities include limited releases of sockeye in the Kenai River, chinook in the Kasilof River and Ship Creek, and coho in Ship Creek (Eggertsen-Goff 2004, White 2005). Enhancement of Kasilof and Fish Creek sockeye has been discontinued.

Summary Assessment

The upper Cook Inlet commercial fishery passes Principle I criteria based on a weighted average score exceeding 80. However, scores for several specific indicators fell between 60 and 80.

Upper Cook Inlet		Criteria @ 100							Criteria @ 80							Criteria @ 60							Score	Weight		
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	0-100	
PRINCIPLE I - Fishery Management for Target Populations																										
Criterion 1.1 - Maintain high productivity of target population & associated ecological community																										
Subcriterion 1.1.1 - Stock units																										
Indicator 1.1.1.1	Stock management units defined	1	0.5						1	1							1	1							95	0.317
Indicator 1.1.1.2	Scientific agreement on units	1	0.5	na					1	1							1								95	0.194
Indicator 1.1.1.3	Geographic distribution known								1	0.5	na						1								77	0.108
Indicator 1.1.1.4	Indicator Stocks	0.5	1	0.5	0.5				1	1							1	1							93	0.064
Indicator 1.1.1.5	Enhanced Stocks		0.5	1					1	1							1	1							95	0.317
Subcriterion 1.1.2 - Monitoring and assessment																										
Indicator 1.1.2.1	Reliable estimates of removals	0.5	1	1	1				1	1	1	1					1	1	1					98	0.274	
Indicator 1.1.2.2	Reliable estimates of escapement								0.5	na	1	1					1	1	1					77	0.369	
Indicator 1.1.2.3	Information on fish age and size	0.5							1	1							1							90	0.112	
Indicator 1.1.2.4	Productivity estimates	0.5	0.5						1	na	na						1	1						90	0.246	
Subcriterion 1.1.3 - Management goals																										
Indicator 1.1.3.1	Limit reference points								1	1							1							80	0.667	
Indicator 1.1.3.2	Target reference points	1	0.5	0.5					1	1							1	1	1					93	0.333	
Criterion 1.2 - Fishery allows for the recovery of depleted stocks (Target Stocks)																										
Indicator 1.2.1	Well-defined and effective strategy																1	1						60	0.158	
Indicator 1.2.2	Stocks not depleted and harvest rates are sustainable																1	1						60	0.5	
Criterion 1.3 - Fishing does not impair reproductive capacity																										
Indicator 1.3.1	Age, sex and genetic structure are monitored								0.5	0.5	1						1	1	1					74	0.07	

1.1 Productivity / 1.1.1 Stock Units.

1.1.1.1: Stock units defined. - There is a description of each stock unit, including: its geographic location, run timing, details on all the component stocks, and rationale for its definition. The rationale for sockeye and chinook stock units is generally clear with regard to conservation, fisheries management and stock assessment requirements. Coho, pink, and chum stock units combine component stocks for management purposes. The conservation and stock assessment rationale for this aggregate species approach is sometimes unclear. These species are generally harvested at a significantly lower rate than sockeye and chinook.

1.1.1.2: Scientific agreement on units. - Review of stock units has been primarily limited to within the management system. The stock units have been reviewed and found to be scientifically defensible by ADFG. The degree of review by other management authorities such as NMFS and the USFW is unclear although we are not aware of any significant objections from those quarters. A focused review of stock units by regional fisheries scientists outside the management system might not produce a consensus on aggregate stock units for coho, pink, and chum, particularly in the face of evidence for significant genetic differences among many populations (Seeb et al. 2000, Spearman 2000). There are no non-target species of salmon in upper Cook Inlet by our working definition as species that are actively avoided by management.

1.1.1.3: Geographic distribution known. - Harvest of Upper Cook Inlet salmon occurs within a known geographic range which is primarily upper Cook Inlet with limited interception of some species in Peninsula and Kodiak fisheries. Current information appears generally adequate to ensure that escapement goals for all stocks are met in most but not all years. In-season assessments of stock composition in mixed stock commercial fisheries of Cook Inlet are generally based on assumed time and area patterns inferred from post-season analysis of scale patterns for sockeye and historical tag recovery data for selected chinook and coho populations. In-river escapement estimates also provide some indication of relative run size and stock contribution. Time and area patterns may or may not be accurate in any given year. Previous attempts to infer sockeye stock composition in-season from scale patterns have been discontinued. Questions have been raised within the management system regarding the accuracy of historical stock composition data and an extensive sockeye GSI program is being implemented in 2006 for the Upper Cook Inlet commercial fisheries. The lack of accurate in-season information on sockeye stock composition can confound attempts to manage mixed stock commercial sockeye fisheries for stock-specific escapement goals, particularly in years of disparate returns of different stocks.

In-season information is not available on chinook and or stock composition although stock structure of Chinook in particular is less complex than that of sockeye during periods of intensive commercial salmon fisheries. ADFG believes that the need for improved stock composition data for Chinook salmon is minor in comparison with sockeye. UCI chinook salmon stocks are well known based on geographic and temporal proximity of fishing to spawning aggregates. The early run stocks (Susitna, early-run Kenai and a few relatively smaller stocks e.g. Anchor, Kasilof) have not been subjected to significant commercial fishing since the 1970s when the early run period was closed by regulation in face of low Chinook runs. Because of the lack of early run sockeye, ADFG notes that the early run period commercial fisheries have and will likely continue to be restricted for allocative reasons. The Kenai stock is the primary late-run stock and the UCI fishery management plan has many provisions to protect this stock, and expressly limits the interceptions of late run Kenai Chinook in face of strong Kenai late run

sockeye returns. There have been numerous radio telemetry studies of the Kenai (to verify sonar counts, etc), and the components of the early and late run Kenai Chinook are well known. However, significant questions remain regarding the status of late run Chinook in the Kasilof River and ADFG has initiated an assessment of that stock. With the advent in recent years of intensive fisheries for large returns of Kasilof sockeye, the relative contribution of late run Kasilof and Kenai Chinook stocks in Kasilof area fisheries has come into question. The fishery did not meet the 80 scoring guidepost for monitoring of the geographic range of all target stocks during the fishing season sufficient to prevent over harvest. Significant questions are remain for sockeye and to a lesser extent Kasilof Chinook.

Condition 35. Complete evaluations of sockeye and assess Kasilof chinook stock composition in fisheries to ensure accuracy of post-season analyses and clarify effectiveness of in-season time and area management. [Upper Cook Inlet]

1.1.1.4: Indicator stocks. - The status of the indicator stocks is somewhat but not entirely correlated with the stocks that are most at risk from a conservation point of view. The stocks used have been reviewed by ADFG although it is unclear how much outside review has been made. Formal analyses of the relationships between stocks and stocks of interest are not assessed every three to five years for all species. Management decisions in Upper Cook Inlet are heavily influenced by a subset of stocks, particularly the large productive Kenai and Kasilof sockeye runs. It is unclear to what degree current indicator stocks are representative of other unrepresented stocks for all species. Some information is available on the relationships among stocks of sockeye and chinook. Information is lacking on how representative the index stocks are of the larger groups of stocks in the region for coho, pink, and chum although fishery risks are somewhat ameliorated by reduced fishery interest in those species.

1.1.1.5: Enhanced stocks. - Enhancement activities are limited in upper Cook Inlet relative to Southeast Alaska and Prince William Sound. The scale of salmon enhancement of Upper Cook Inlet stocks is minor particularly since the elimination of the Tustumena Lake (Kasilof) sockeye program, which produced the majority of enhanced returns to UCI. Small Chinook and coho enhancement projects directed primarily at providing additional sport harvest opportunities for urban anglers while deflecting fishing effort from small wild stocks. Contribution estimates of UCI hatchery coho projects to commercial and sport harvests and stocked stream escapements during 1999-2001 have been evaluated by Bosch and Evans (2006). Sockeye salmon enhancement in UCI is now limited to fry plants into Hidden Lake (Kenai) and Big Lake (Fish Creek). Simpson and Edmundson (1999) have evaluated potential impacts of the Hidden Lake program. Litchfield and Willette (2002) provide a technical review of Fish Creek sockeye production. All enhancement programs are reviewed annually by ADF&G through the hatchery annual management plan process for the respective facilities, and must comply with department policies, including the genetics policy. The Cook Inlet Regional Salmon Enhancement Plan is currently being updated to provide direction for future salmon enhancement throughout the Cook Inlet area. Fisheries harvest both enhanced and wild (un-enhanced) stocks at the same time but harvest guidelines are generally based on the goals and objectives established for the wild (un-enhanced) stocks. No obvious hatchery problems have been reported. Given the limited scale of hatchery releases in this area, data and analyses appear to be adequate for evaluating the effects of enhanced fish in the management units on the wild (un-enhanced) fish stocks. Mark and recovery programs are operated for specific systems where enhanced: wild interactions are a potential concern.

1.1 Productivity / 1.1.2 Monitoring and Assessment.

1.1.2.1: Reliable estimates of removals. – Accurate and timely catch estimates are available for commercial fisheries based on daily in-season reporting. Catch estimates of sport and personal use fisheries that also affect escapement rely on in-season indices and post season estimates. Salmon are not released or discarded by the commercial fishery. Significant harvests of upper Cook Inlet salmon do not occur outside U.S. waters. Catch estimates are available for enhanced (e.g., hatchery) fish.

1.1.2.2: Reliable estimates of escapement. – Estimates are available for the annual escapement of most significant sockeye and chinook stocks harvested in the fishery. However, the reliability of sockeye sonar escapement estimates, particularly in the Susitna, has been called into question and is subject to an evaluation by the management system. Chinook escapement data is lacking for the Kasilof. In-season escapement data is collected for key sockeye and chinook stocks and used to regulate the fishery. Escapement estimates, particularly fishery independent in-season estimators, are lacking or limited for other species including coho, pink and chum although these species are not currently subject to intensive target fisheries. Estimates are available for the annual escapement and natural spawning of enhanced (e.g., hatchery) sockeye in the Kenai but not the Kasilof although the latter program has been discontinued. The fishery did not meet the 80 scoring guidepost for estimates of annual escapement of each target stock harvested in the fishery. New Susitna sockeye and Kasilof Chinook escapement assessment programs are in the process of being implemented.

Condition 36. Develop appropriately reliable estimates or indices of escapement for Susitna sockeye and Kasilof Chinook and incorporate into fishery management practices. [Upper Cook Inlet]

1.1.2.3: Information on age and size. – Annual monitoring programs collect data on the age and size of the catch and escapement for some but not all species and stocks. Extensive age, size, and length (ASL) data is collected from the commercial fishery catch. Annual ASL data is also collected from the escapement of most key sockeye and chinook stocks. This data used to reconstruct stock-recruitment relationships and to forecast future run sizes. Periodic monitoring programs have collected ASL data from the escapement of additional stocks although the scientific basis for sampling frequency of non-driver stocks is unclear.

1.1.2.4: Productivity estimates. – Scientifically defensible productivity estimates have been derived for some but not all target stocks. Stock-recruitment data based on run reconstructions is adequate to identify biological or sustainable escapement goals for most sockeye and chinook stocks. However, information is incomplete or lacking on the productivity of some key stocks including Susitna sockeye, Kasilof chinook, and coho. Risk assessments have considered uncertainty in productivity but formal assessments have concentrated on key fishery stocks. For instance, management considerations in recent years have included a substantial focus on productivity concerns associated with exceeding the upper end of Kenai and Kasilof sockeye escapement goals.

1.1 Productivity / 1.1.3 Management Goals.

1.1.3.1: Limit Reference Points. – For the purposes of this evaluation, sustainable and biological escapement goals (SEGs and BEGs) established for indicator stocks are treated as the operational equivalent of limit reference points. These goals are defined in Alaska's policy for the management of sustainable salmon fisheries (5 AAC 39.222). LRPs are defined as a state of the fishery that is not considered desirable where management action should severely curtail or stop

the fishery if it is reached. The LRP definition would appear to more closely fit the sustainable escapement threshold definition in Alaska's Sustainable Salmon Policy but no technical basis for establishing an SET has been established by ADFG and no SETs have been adopted. ADFG has recently defined a sustainable escapement goal threshold (SEGT) which is analogous to the lower end of an SEG range rather than an SET. The lack of SETs has been driven by the lack of an empirical basis for application of this theoretical concept as well as a belief system within the management agency that conservation risks of overfishing are practically nil for salmon stocks where the habitat is intact. Conditioned on this operational definition, there is some scientific basis for the LRP's for target stocks, these LRP's are defined to protect the stocks harvested by the fisheries, and there is no significant scientific disagreement regarding the LRP's used by the management system to formulate management decision for the fishery. Use of this operational definition will have implications for interpretation of other indicators that reference the LRP.

1.1.3.2: Target Reference Points. – Escapement goal ranges (SEGs and BEGs) established for indicator stocks clearly fit the definition of a Target Reference Point (TRP) as the desirable fishery level that management action should aim at maintaining. Escapement goals provide TRP's for the dominant fishery stocks and a subset of the other stocks in upper Cook Inlet. These goals have undergone extensive review and found to be scientifically defensible by ADFG. The extent of review and agreement among regional fisheries scientist outside the management system is unclear.

1.2 Recovery of Depleted Stocks

1.2.1: Recovery strategy and plan. – Under the operational definition of an LRP used in the evaluation, this evaluation identified depleted stocks based on a consistent failure to meet the lower end of the prescribed escapement goal range. This is equivalent to the definition of a "stock of concern" in Alaska's sustainable fisheries policy (SSFP) where yield, management, or conservation concerns are identified based on a chronic inability to meet escapement thresholds over a four to five year period. The SSP defines a "depleted salmon stock" based on identification of a conservation concern which is a chronic inability, despite the use of specific management measures, to maintain escapements for a stock above a sustained escapement threshold (SET). However, SETs have not been established for any Alaska stock and so conservation concerns have never been formally recognized by the management system. Lacking definition of specific SETs, application of sustainability criterion relative to LRPs and identification of depleted stocks was based on designated SEGs and BEGs.

No stocks of concern have been formally designated by the board of Fisheries for Upper Cook Inlet. Fish Creek sockeye were previously designated as a species of management concern but this designation has been removed based on new information and the response to management actions. However, Yentna sockeye met our operational definition of a depleted stock based on failure to meet escapement goals in 4 of last 5 years. Failure to meet the minimum escapement goal for this stock is particularly concerning because goals have been reduced on two previous occasions.

According to ADFG, escapement goals and stock status of Cook Inlet sockeye stocks were reviewed during the 2004 Board of Fisheries cycle. At that time, the Yentna stock had not met the Sustainable Escapement Goal for the stock for 3 of the previous 5 years. It was not considered by ADF&G or the BOF as a SOC. The escapement goal for the Yentna was again not reached in 2005. An agenda change request for designation of Yentna sockeye as a stock of concern was rejected by the BOF at its fall work session. Comments submitted to the BOF on the ACR stated that ADF&G did not believe the sustainability of this stock, as defined by the SSFP

is jeopardized despite failure to reach escapement goals. ADF&G has expressed concerns with regard to Susitna River sockeye (for which the Yentna has served as an index). Time and area management actions were taken in Northern and Central Districts to limit harvest of Susitna sockeye based on low in-season returns in 2005. ADF&G has also implemented major stock assessment research including a genetic stock identification program that will provide information of where, when and in what numbers Susitna sockeye (and other Cook Inlet stocks) are harvested in Upper Cook Inlet, and a large mark-recapture program to estimate escapement to the Susitna River.

Our qualitative assessment of the management response to stock depletion suggests that planned time and area restrictions under existing management plans adopted by the Board of Fisheries and intensive stock assessments that have been implemented, provide a reasonable expectation for significant improvements in Yentna sockeye escapements within the scale and time period prescribed at the 60 scoring guidepost. However, recovery plans do not rise to the standard of the 80 scoring guidepost due to the lack of a formal stock of concern designation contrary to the SSFP definition based on chronic inability to meet escapement thresholds over a four or five year period, lack of a written action or recovery plan, absence of specific targets consistent with recovery within 3 reproductive cycles, and absence of specific fishery closure triggers consistent with the intent of a true limit reference point.

Yentna sockeye have failed to meet minimum escapement goals in 4 of the last 5 years and are a depleted stock based on our operational definition of limit reference points. ADF&G reviews stock status relative to identification of stocks of concern for consideration by the Board of Fisheries. Final content of action plans is determined in an open public process by ADF&G and the Board. However, the BOF did not elect to designate Yentna sockeye as a stock of concern at the 2005 meeting. The management response to depletion of Yentna sockeye does not meet the requirements of the 80 scoring guidepost with respect development and implementation of a specific plan for recovery within 3 reproductive cycles and or limitations of the fishery which allow the stock to recover to more than 150% of the LRP for abundance before any fisheries are permitted that target these stocks.

Condition 37. Review stock status of Susitna sockeye and develop an action plan intended to ensure achievement of Susitna sockeye escapement goals. Action plan should provide specific goals and an anticipated timeline for achieving the goals (see condition under Principle 3 for Indicator 3.4.1.2 [Upper Cook Inlet])

1.2.2: Stocks not depleted. - There is general agreement among regional fisheries scientist inside the management system that the methods of estimating escapements and exploitation rates for the majority of target stocks are scientifically defensible. Management actions have reduced fishing as the target stocks approach the LRP (i.e. escapement goals) and fisheries have only resulted in escapements that approach or are below the LRP escapement goal in no more than two years in a period of the most recent 5 consecutive years, for the majority of the target stocks. This fishery fails the 80 scoring guidepost for this indicator which is based on any rather than most target stocks. Yentna sockeye have failed to reach escapement goals in 4 of 5 recent years and significant questions exist regarding the accuracy of methods for estimating escapement and exploitation rates of this stock. The fishery did not meet the 80 scoring guidepost for this indicator due to failure of Yentna sockeye to reach escapement goals in 4 of 5 recent years and significant questions exist regarding the accuracy of methods for estimating escapement and exploitation rates of this stock. ADF&G is improving its assessment program for Yentna/Susitna sockeye salmon, and is taking management actions to limit commercial harvests of these fish in

2006. Improved management tools and performance are expected from improved assessment programs.

Application of this criterion recognizes that salmon management agencies cannot ensure ALL target stock escapements will meet goals four out of every five consecutive years given the variable nature of salmon returns. For instance, short-term declines in productivity as a result of environmental conditions can result in escapement goals not being met even when a management agency has closed fisheries in response to low returns. This is not the case for Yentna sockeye. Significant sockeye fisheries have been prosecuted in Cook Inlet despite a chronic failure to meet the Yentna escapement goal. Continuing strong returns of other sockeye stocks in Cook Inlet and other portions of Alaska indicate favorable environmental conditions for ocean rearing and maturation. The fact that Yentna sockeye have apparently declined during a period of favorable ocean productivity could be indicative of changes in local productivity in the Susitna system, problems with the assessment methods, a fishery effect. Any of these causes could be construed as a basis for significant concern from the standpoint of stock sustainability.

Condition 38. Develop a method for specifically setting an LRP that is comparable to the SET (Sustainable Escapement Threshold) outlined in the Sustainable Escapement Goal Policy (see Condition under Principle 3, Indicator 3.1.1) [Upper Cook Inlet]

1.3 Reproductive capacity

1.3.1: Age, size, sex and genetic considerations. - Extensive information on biological characteristics such as the age, size, sex and component stocks provides a reasonable basis for detection of fishing threats to the reproductive capacity of the target stocks. The management system includes provisions to minimize any adverse impacts to the genetic structure of wild (un-enhanced) stocks that may be due to the enhancement of other stocks. The significance of these considerations is specifically identified in the SSFP. Fishery management plans include specific actions aimed at protecting diversity and reproductive capacity.

ADFG believes its existing management and assessment programs are adequate to assure the long-term biological characteristics and reproductive capacity of UCI salmon stocks. Important elements include distributing escapements temporally across runs through use of time and area fishery restrictions, establishing and managing for escapement goals, and extensive age, sex and size sampling of runs. ADFG is unaware of no demonstrated detrimental effects of selective fishing that have occurred in salmon populations managed to maintain escapements, including several sockeye stocks from different areas of Alaska that have been harvested extensively with size selective gillnets for over a century "without measurable effects".

However, given the intensive nature of UCI fisheries, it is unclear whether management actions are adequate for the health of all target stocks relative to biological characteristics such as age, size, sex and genetic structure. Fishery assessments have considered potential selective fishery impacts on some species such as early run Kenai chinook which is primarily a sport fishery species. It is unclear whether similar assessments have been completed for other species and stocks, particularly in large systems like the Kenai, Susitna, and Kasilof where genetic data has identified significant genetic substock structure. The fishery did not completely meet the 80 scoring guidepost for this indicator with respect to the consistency of management actions with maintaining healthy biological characteristics such as age, size, sex, and genetic structure of all target stocks.

Harvest rates in many of these fisheries are high. High harvest rates have the potential for differential harvest of stock components. Genetic studies using ever-advancing techniques are

documenting high diversity among and within subcomponents of a stock. Salmon conservationists have increasingly recognized the close relationship between diversity and productivity. All of this adds up to a real, albeit theoretical risk that intensive fisheries could exert a directional selective pressure which, over a period of time, could alter the genetic composition and performance of a stock. Of particular concern to the reviewers has been a prevailing belief in the management system that fisheries cannot pose a significant risk to salmon sustainability where habitats are intact. Until this belief has been thoroughly vetted, documented, and published in the scientific literature, this review must continue to treat this view as an untested hypothesis. Further, precautionary management requires that the burden of proof fall on demonstration that selective fisheries do not jeopardize diversity.

Condition 39. Evaluate appropriate existing age-sex-size information to determine if fisheries are exerting significant selectivity; continue ASL sampling in fisheries and several spawning stocks to continue a database for long-term evaluation of potential fishery selectivity. [Upper Cook Inlet]

Norton Sound	80.56	82.12	92.73
Kodiak	82.48	82.12	92.73
Chignik	87.55	82.12	92.73
Peninsula	80.13	82.12	92.73

12 Requirements for Continued Certification

To be awarded an MSC certificate for a fishery, the applicants or client must agree in written contract to develop an action plan for meeting the required 'Conditions'; a plan that must provide specific information on what actions will be taken, who will take the actions, and when the actions will be completed. An Action Plan has been submitted by ADF&G and approved by SCS (see Appendix 6).

As the applicant, ADF&G must also provide proof to SCS that a written contract is in place that obligates ADF&G to be both financially and technically responsible for annual surveillance visits by an MSC accredited certification body. The contract must also specify that ADF&G will endeavor to meet all specific "Conditions" and that evidence of not meeting the "Conditions" specified in the original assessment report is cause for the revocation of the MSC certificate.

The MSC allows fishery clients to switch Certification Bodies from the original CB and its assessment team to one with little background in the fisheries that have been assessed, and with no requirement to use any of the original assessment team members to ensure consistency of quality with the original assessment and original Conditions. Stakeholders in this process have identified to SCS some concern that switching CBs may, at a minimum, provide the potential for unintentional gaps in performance against the original assessment team's intent in the Conditions placed on each fishery. To ensure this is not a problem, any future review of the Conditions in this report requires that the CB of record for all future surveillance audits contact the team leader and team members of the original assessment team and provide the opportunity for both to comment on the management of the fisheries, as well as the opportunity to review and comment on the level of performance identified by Moody Marine and ADF&G in answering each Condition.

The contract for future annual surveillance audits is in place prior to certification being awarded.

12.1.1 General Requirements for Continued Certification

Surveillance audits will be comprised in general of (1) checking on compliance with the agreed action plan for meeting pre-specified 'Conditions', and (2) sets of selected questions that allow the certifier to determine whether the fishery is being maintained at a level of performance similar to or better than the performance recognized during the initial assessment.

The general 'Conditions' set for the Alaska salmon fisheries are:

- ADF&G must recognize that MSC standards require regular monitoring inspections at least once a year, focusing on compliance with the 'Conditions' set forth in this report (as outlined below) and continued conformity with the standards of certification.
- ADF&G must agree by contract to be responsible financially and technically for compliance with required surveillance audits by an accredited MSC certification body, and a contract must be signed and verified by SCS prior to certification being awarded.
- ADF&G must recognize that MSC standards require a full re-evaluation for certification (as opposed to yearly monitoring for update purposes) every five years.
- Prior to receiving final certification, ADF&G shall develop an 'Action Plan for Meeting the Condition for Continued Certification' and have it approved by SCS.

12.1.2 Specific Requirements (Conditions) for Continued Certification

ADF&G must agree in a written contract with an accredited MSC certification body to meet the specific conditions as described in Section 8 of this report (within the agreed timelines that will be agreed in the 'Action Plan for Meeting the Condition for Continued Certification' to be approved by SCS).

An Action Plan has been submitted by ADF&G and reviewed by SCS. A contract for future surveillance audits has been signed between Alaska Department of Fish and Game and Moody Marine for surveillance audits beginning in 2008.

As stated above, the MSC allows fishery clients to switch Certification Bodies from the original CB and its assessment team to one with little background in the fisheries that have been assessed, and with no requirement to use any of the original assessment team members to ensure consistency of quality with the original assessment and original Conditions. Stakeholders in this process have identified to SCS some concern that switching CBs may, at a minimum, provide the potential for unintentional gaps in performance against the original assessment team's intent in the Conditions placed on each fishery. To ensure this is not a problem, any future review of the Conditions in this report requires that the CB of record for all future surveillance audits (Moody Marine) contact the team leader and team members of the original SCS assessment team and provide the opportunity for all to comment on the management of the fisheries, as well as on any information provided or summary reports on the level of performance identified by Moody Marine and ADF&G in answering each Condition.

13 MSC Logo Licensing Responsibilities

As the "applicant" for certification of the Alaska salmon fisheries, ADF&G is the only entity that has the right to apply for a license to use the MSC logo. It is also the case that ADF&G has the right to approve the use of the logo for others associated with the fishery at its discretion.

A New Story for Salmon





The Matanuska Susitna Basin Salmon Conservation Partnership

Every year, the streams of the Matanuska Susitna Basin (Mat-Su) fill with hundreds of thousands of salmon returning to their natal homes to spawn. Ocean-bright Chinook, coho, sockeye, pink and chum pour into the rivers, feeding everything from world-class rainbow trout, char and grayling to bald eagles, brown bears and humans.

People travel from around the world to fish for these salmon and trout and to view the wildlife that feed on them. Alaskans depend on these fish for sportfishing, subsistence, commercial fishing and the economic benefits of tourism. Salmon are at the heart of the Alaskan economy and way of life.

The greatest risk to salmon and other freshwater fish arises from many small actions compounding over time to degrade riparian habitat and water quality, change water flow and quantity, and block access to habitat. This steady loss of valuable habitat is the story behind declining and extinct wild fish in the rest of the country.

With rapidly growing communities and increased demand for natural resources in the

basin, Mat-Su citizens now have the opportunity to write a different story, one that combines economic prosperity with healthy salmon and fish habitat. That story is beginning now with the Mat-Su Basin Partnership, which is comprised of local communities, landowners, agencies, businesses and non-profit organizations.

The new story for salmon is a story of balance—a story of thriving fish and wildlife, healthy sport, commercial and subsistence fisheries, economic growth, and dynamic human communities. We believe this work can be accomplished cost effectively with sufficient planning, wise development and modest investment in fish habitat protection, restoration, and enhancement.

Few opportunities remain in the world to do it right the first time around. Conservation funding is limited. We must invest in places where there is great likelihood of strong return and success on the ground. The Mat-Su Basin is one of those places and the timing couldn't be better for this effort.

Denali, North America's highest mountain, reigns supreme over the headwaters of the Susitna. The king of salmon—the Chinook—also thrives in this watershed; the Susitna and its tributaries host the fourth largest run of Chinook in Alaska. Though the upper watershed includes some of the country's wildest lands, the lower watershed is one of the most densely populated areas in Alaska.



The basin offers world-class fly-in and road-accessible sportfishing, a pillar of the local economy. Many Alaskans rely on these fisheries to put food on the table, harvesting roughly 115,000 Chinook and coho from area streams each year. More than 160,000 rainbow trout are caught annually. Each year, the Mat-Su Basin sees nearly 300,000 angler days of sportfishing effort.



The region's many lakes, rivers, streams and creeks are abundant with fish; they are also desirable places to site homes and businesses. With its convenient location near Alaska's largest city and its wealth of recreational opportunities and extraordinary scenery, the Mat-Su is one of the fastest growing areas in the U.S. From 1990 to 2000, the basin grew at a rate of 49 percent—nearly four times the statewide growth rate of 13 percent. In 1990, the population was roughly 40,000. The borough projects that before 2025 the population will top 100,000 people.

Our Vision:

With its rich history of farming, the Mat-Su Basin is Alaska's heartland. As in many places in the U.S., however, agricultural areas are rapidly being converted to residential and recreational subdivisions, with accompanying commercial development. Moreover, the basin boasts mineral, timber, petroleum and other natural resources. As populations grow and resource demand soars, the potential impacts to fish habitat rise. Citizens, developers, and agencies are challenged to address issues of water quality, water quantity, and habitat degradation and fragmentation. Cooperative local actions are necessary now so that the Mat-Su develops responsibly—balancing economic growth with the fish habitat conservation necessary to maintain bountiful fish for future generations.

Ken Gifford / AlaskaWild.com

Chad Jones / Mat-Su

The Mat-Su Basin's rivers, lakes, wetlands, tundra, boreal forest, glaciers and mountain ranges cover an area of 24,500 square miles, roughly the combined size of Vermont, New Hampshire and Massachusetts. From small cities and suburban homes to recreational subdivisions and isolated cabins, the basin possesses one of the most diverse and fragmented land ownership patterns in Alaska. Cooperation and partnership among stakeholders is essential for habitat conservation success.



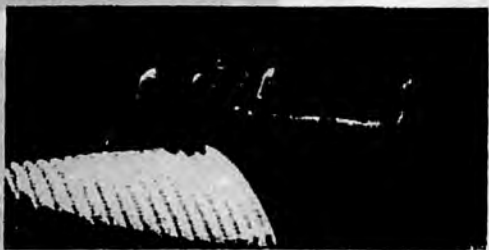
The Nature Conservancy



Alaskans love their fish. In some areas of the Mat-Su Basin, Alaskans inadvertently risk loving fish habitat to death by trampling or removing important riparian habitat when fishing or improving lake and stream views. Local efforts to restore trampled vegetation and streambanks and to couple better fishing access

with stream bank management are underway with great success. Residents are learning easy, everyday techniques for fish habitat conservation, from siting homes and other structures back from lakeshores and streambanks to avoiding ATV use in spawning streams. Education and outreach are vital to this effort.





Taking Action

In the next five years, the Mat-Su Basin Partnership will:

- Complete a comprehensive assessment of Mat-Su watersheds, including a prioritization of fish habitat protection, restoration and enhancement needs;
- Coordinate an outreach and education campaign, and establish an organized network of volunteers, organizations, agencies and businesses working on watershed issues;
- Restore key fish habitat by revegetating damaged stream banks, creating fish-and-people-friendly fishing areas, removing barriers to fish passage, and reestablishing natural stream structure and flow;
- Protect threatened essential fish habitats and public access by working with willing landowners to acquire habitat and conservation easements;
- Improve management of habitat on public lands by increasing coordination between local, state and federal partners; and
- Leverage significant private and public funding in the achievement of the partnership goals for watershed and salmon conservation.

Local community members and partner organizations work together to restore structure and vegetation to an eroded streambank during a recent restoration workshop.

On-the-Ground Results

First Project, First Success of the National Fish Habitat Initiative in Alaska

Athabascan Elders of the Chickaloon Tribe tell stories of Moose Creek abundant with five species of wild salmon. Those stories changed in the early 1900s when coal mining and associated railroad building caused extensive alterations to the creek, damaging in-stream habitat and cutting off the creek's meanders. The channel straightening caused the formation of a 10-foot high waterfall which blocked access by salmon and other fish to miles of upstream habitats. Salmon populations declined, leaving a few remnant Chinook and coho beneath the falls. In 2005, the Chickaloon Village Traditional Council, with support from Mat-Su partners, reconstructed the stream channel in the historic meander bend around the waterfall. Within days of

project completion, adult Chinook salmon were passing the project site, gaining access to more than five miles of reopened spawning and rearing habitats. Phase 2 of the project is scheduled for completion in August 2006. For more information, visit www.chickaloon.or

Removing barriers to fish passage, such as improperly sited or sized road culverts, is an easy way to restore access to large areas of aquatic habitat. The Mat-Su partnership expects to improve or reopen 100 miles of salmon habitat in the Matanuska and Susitna watersheds through restoration over the next five years.



Unnatural waterfall obstruction prevented salmon passage to upper Moose Creek.



Construction of the new creekbed following the historic stream meander.



Chinook salmon return to upper Moose Creek within days of project completion.

The Matanuska Susitna Basin Salmon Conservation Partnership is the first National Fish Habitat Initiative (NFHI) project recognized in Alaska and is one of only five fish habitat partnerships selected nationwide as initial pilot programs for the initiative.

NFHI is an unprecedented partnership with a shared interest in protecting, restoring and enhancing the nation's waterways and fisheries. The initiative brings together anglers, farmers, local government planners, conservationists, tribes, community groups, private landowners, state and federal agencies, and many others to focus national attention on fish habitat. The vision: healthy fish, healthy habitats, healthy people and healthy economies.

The National Fish Habitat Initiative is:

- Non-regulatory and voluntary;
- Locally and regionally based, and driven by grassroots partners;
- Focused and targeted toward fisheries restoration in key watersheds;
- Based on a consolidation of the best scientific expertise on fisheries and habitat management;
- Linked nationally, to facilitate comprehensive coordination and evaluation of progress; and
- Sustainable and accountable, recognizing the need for long-term investments and demonstrable results.

*The Matanuska Susitna Basin Salmon Conservation Partnership is
(as of April 6, 2006)*

Alaska Center for the Environment
Alaska Department of Fish and Game
Alaska Department of Environmental Conservation
Alaska Department of Natural Resources
Alaska Department of Commerce, Community,
and Economic Development
Alaska Department of Transportation and
Public Facilities
Alaska Railroad Corporation
Alaskans for Palmer Hay Flats Game Refuge
Bureau of Land Management
Chickaloon Village Traditional Council
ConocoPhillips
Cook Inletkeeper
Friends of Mat-Su
Glacier Ridge Properties

Great Land Trust
Knik River Watershed Group
Matanuska River Watershed Coalition
Matanuska-Susitna Borough
National Marine Fisheries Service
National Park Service Rivers, Trails and
Conservation Assistance Program
Native Village of Eklutna
Natural Resources Conservation Service
The Nature Conservancy
US Army Corps of Engineers
US Environmental Protection Agency
US Fish and Wildlife Service
US Geological Survey
USDA Forest Service
Wasilla Soil and Water Conservation District

To join, or for more information on the Mat-Su Basin Partnership, contact:

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For more information on the National Fish Habitat Initiative visit www.fishhabitat.org or contact Christopher Estes.



Perched culverts on Swiftwater Creek blocked fish passage and impaired stream structure. By replacing the culverts with a bridge, three miles of fish habitat were reopened for juvenile salmon and other species.



Local, on-the-ground partnerships are essential for successful restoration of fish habitat.

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SITE: Wasilla -
Palmer

COMMITTEE: Joint Cook Inlet
Salmon Task Force

DATE: May 29, 2008

AGENDA:

Presentation by Dept. of Fish &
Game; Mat-Su Public Testimony

TESTIFY
Y or N

PRINT YOUR NAME

TOWN/CITY

REPRESENTING/AFFILIATION

N	April Moore	Trapper Creek	Self
Y	Gunnar Knapp	Anchorage	UAA-ISER
Y	Rod Arno	Wasilla	Alaska Outdoor Council
Y	Bruce Knowles	Willow	Susitna River Advisory Committee
Y	Larry Engel	Palmer	Self
Y	Kenny Rodgers	Anchorage	Self
N	Paul Shadura II	Kenai	Self
Y	Dennis Hamann	Wasilla	Self
N	Richard Vogt	Wasilla	Self
Y	Andy Couch	Palmer	Self
Y	Drew Sparlin	Kenai	Self
N	Roland Maw	Ninilchik	United Cook Inlet Drift Assn.
Y	Tom Kluberton	Talkeetna	MSB Blue Ribbon Sportsmen Comm.
Y	Ken Federico	Wasilla	Self

COMMITTEE: Joint Cook Inlet

AGENDA: Presentation by Dept. of Fish &
Game; Mat-Su Public Testimony

SITE: 1

AGENDA:

SITE: Wasilla -
Palmer

COMMITTEE: Joint Cook Inlet
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Game; Mat-Su Public Testimony

TESTIFY Y or N	PRINT YOUR NAME	TOWN/CITY	REPRESENTING/AFFILIATION
N	Steve Tvenstrup	Kenai	Self
N	Linda Menard	Wasilla	Self
Y	Noel Woods	Palmer	Matanuska Valley Sportsmen
N	Corinne Smith	Anchorage	The Nature Conservancy
N	Katherine Fuselier	Anchorage	Sierra Club
N	Brian Winnestaffer	Palmer	Mat Valley Sportsmens Committee
Y	Nancy Sult	Big Lake	Self
Y	Carl Grauvogel	Palmer	Self
N	Carl Gatto	Palmer	Representative
Y	Steve Runyan	Wasilla	Self
N	Tom Payton	Skwenta	Self
N	John Davies	Wasilla	Self
N	Jody Simpson	Wasilla	Staff to Senator Huggins