Explanation of the U.S. and Canadian Proposals for District 104 Pacific Salmon Commission Meeting February 7-17, 1989 -- Portland, Oregon

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Alaska Department of Fish and Game
Division of Commercial Fisheries
P.O. Box 20
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EXPLANATION OF THE U.S. AND CANADIAN PROPOSALS FOR DISTRICT 104 MADE DURING THE 7 to 17 FEBRUARY 1989, PSC MEETING IN PORTLAND, OREGON

By

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INTRODUCTION

The Pacific Salmon Treaty annex (Annex IV, Chapter 2, Paragraph 2a.) concerning conduct of Alaska's District 104 purse seine fishery expired in 1988. This annex limited the total catch of sockeye salmon prior to Statistical Week 31 for the 1985 to 1988 4-year period to a maximum of 480,000 fish. This annex was to be renegotiated at the 7 to 17 February 1989 Pacific Salmon Commission (PSC) meeting in Portland, Oregon. However, impasses between Canadian and U.S. negotiators on this and other issues resulted in simply a "rolling over" of the treaty annexes that were up for renegotiation. This was done on other annexes simply by extending the expiration dates by one year. For the District 104 annex, since the expiration date could not simply be extended, it was decided that the fishery would be managed for a maximum catch of 120,000 sockeye salmon prior to Week 31. This is an average of the 480,000 fish over the 4-year period in the expired annex. Any overages or underages from this 120,000 maximum catch are to be taken into account in future negotiations.

Over the course of the February PSC meeting, a lot of work was done both in joint Northern Panel and joint and unilateral District 104 Working Group sessions on the development of a new annex for the District 104 purse seine fishery. It is our opinion that substantial progress was made in understanding of each nations needs and interests and in development of a mutually agreeable proposal to address these concerns. We made a concerted effort to understand Canada's concerns and to address those concerns through modifications of our original Noyes Island (District 104) Fishery position paper of 20 January 1989 (Appendix A.1). Members of the Joint District 104 Working Group included Dave Peacock, Bill Lefeaux-Valentine, and Alan Ronneseth for Canada and Dave Cantillon, David Jones, Ben Van Alen, and Bruce Wallace for the U.S.

The purpose of this document is to describe the details of the U.S. proposal and our interpretations of the Canadian proposal. We attempt to summarize the major differences between our positions that existed on 17 February. This document will be a valuable reference for entering into future District 104 negotiations.

CANADA'S EXPECTATIONS VERSUS ALASKA'S NEEDS

Canadian spokesmen at this PSC meeting made it clear that their principal concern in the Northern Boundary Area is over our conduct of the District 104 purse seine fishery. They said that resolution of other northern boundary

issues is largely dependent on an agreement for this fishery that adequately addresses their concerns. In particular, we interpret from Canada's 20 January 1989 position paper concerning "U.S. Interceptions of Northern B.C. Sockeye" (Appendix A.2) and from statements made throughout the course of this meeting that most of Canada's concerns are centered around our interceptions of sockeye salmon of Nass and Skeena origin and, specifically, about our interceptions of these sockeye salmon in District 104. Note that Canada did not provide a Position Paper specific to the District 104 Annex; instead they provided the general position paper (Appendix A.2) with a general concept over what might be done to meet their expectations.

We understand that it is Canada's perception that the previous four-year annex did **not** provide adequate control over Alaska's purse seine harvest of sockeye salmon in District 104. Specifically, under the previous annex there was no Treaty control over our conduct of this fishery after Statistical Week 30. Canada is concerned that we might target on sockeye salmon, especially in years that they are abundant in the district.

It was our position that we would **not** accept any provisions that would disrupt the way we normally manage this fishery, i.e., compared to the way the Alaska Department of Fish and Game (ADF&G) has prosecuted this fishery in recent years (since 1977). We clearly expressed our need to have complete domestic management control over the harvest of pink salmon. Further, we stated our interest in not increasing harvests of sockeye salmon outside of that which would occur under our normal fishery on pink salmon. We expect Canada to accept our harvest of sockeye salmon during our prosecution of this fishery. We understand that Canada is particularly concerned about our harvest of sockeye salmon when that species comprises a high percent of the catch and we expressed a willingness to address this concern. We also clearly expressed our need to provide a minimum of 15 hours of fishing time each week to purse seine fishers in this district. We described the need for harvest opportunities in District 104 in distributing the seine effort throughout the Region and the tremendous importance of this district to the seine fleet in terms of fishing opportunities and earnings.

THE JOINT DRAFT ANNEX

General Overview

During the February PSC meeting, members of the Joint District 104 Working Group wrote several drafts of the proposed District 104 revised Annex. In the last draft (Appendix B.1) wording enclosed in brackets and flagged "*U.S.*" or

"*Canada*" reflect differences between U.S. and Canada's proposals that existed on 17 February. Differences between the U.S. and Canada proposals are summarized in our notes from joint District 104 work group meetings held on 15 February (Appendix B.2) and 16 February (Appendix B.3).

In this joint draft annex proposal we (U.S. members) first sought a mutually acceptable definition for when the fishery should be managed for sockeye salmon and when it should be managed for pink salmon; and second, we sought to define what management actions Alaska needs to take to avoid increasing the harvest of sockeye salmon when the fishery is managed for this species.

The U.S. wording in this proposal reasonably addresses the concerns of Alaska and Canada by: (1) restricting fishing time prior to Statistical Week 31 when sockeye usually comprise a high percent of the harvest; and, (2) further restrictions of weekly fishing time after Statistical Week 30 if the percentage of sockeye exceeds a negotiated percent of the catch and there is not a harvestable surplus of pink salmon (Figure 1). The determination of a harvestable surplus of pink salmon is dependent on another negotiated value - the catch per boat-day of pink salmon.

There were two main areas of disagreement between the parties that existed in this draft annex on 17 February. First, that Canada desired a "compliance adjustment" which would penalize the U.S. by reducing fishing time prior to Statistical Week 31 in the following year(s) for sockeye harvested in excess of specified percentages of the catch (see Appendix B.1; Item 2.c.viii). The U.S. was opposed to this or any compliance adjustment. Likewise, Canada did not agree with the concept of a pink salmon CPUE management trigger (see B.1; Item 2.c.x. and xi).

Conduct of the Fishery Prior to Statistical Week 31

The U.S. proposal realistically limits early season interceptions of Canadian sockeye salmon and continues to provide normal access to United States pink salmon stocks after Statistical Week 30. The early season four-year quota at Noyes Island would incorporate a maximum fixed fishing time limitation. This fishing time limitation would be one day (15 hours) in the initial statistical week and two days (39 hours) in each subsequent statistical week through Statistical Week 30. In addition, a ceiling catch of 560,000 sockeye salmon over four years would be in effect to prevent increased interceptions in the event of a series of seasons with higher than normal sockeye availability. Just as importantly, the fishing time limitation would prevent us from increasing our fishing time in order to attain the ceiling of 560,000 sockeye. Our inability to reach this ceiling over the four year period would be an indication of low sockeye abundance. Our proposed ceiling of 560,000 sockeye

is approximately what we would have caught over the 1985 to 1988 period under these proposed fishing times. This equates to an informal annual catch limit of 140,000 fish per year compared to 120,000 fish per year under the prior 4-year Annex. This part of our proposal has remained unchanged from our 20 January 1989 position paper (Appendix A.1).

It is important to note that our proposed fishing times of 15, 39, and 39 hours during the first three weeks of the fishery is close to the 1985 to 1988 average of 21, 35, and 38 hours. It is also important to note that in two of the four years of this proposed Annex (1989 and 1990) we will, under Alaska Board of Fisheries regulations to open the fishery the first Sunday in July, commence fishing in Statistical Week 27, rather than Statistical Week 28 (Table 1). Thus, we will have an additional 39 hours of fishing prior to Statistical Week 31 in two of these years. This situation did not occur in any of the previous four years.

Conduct of the Fishery After Statistical Week 30

After Statistical Week 30 the management will be based principally on pink salmon abundance. However, in order to prevent any targeting on sockeye salmon after Statistical Week 30, restrictive management action will be taken if the weekly percentage of sockeye salmon to the total salmon harvest in District 104 is above a given percentage trigger for that statistical week as described in the Proposal (Appendix B.1). The restricting of fishing time based on percent of sockeye salmon in the catch will **only** be effected if the catch per boat-day (CPUE) of pink salmon is less than 2,000. This CPUE figure is a little less than the average CPUE on pink salmon for Statistical Weeks 31, 33, and 34 for the 1977 to 1988 period in District 104 (Table 2). Pink salmon CPUE is usually greatest during Statistical Week 32 and has averaged over 3,000 fish per boat-day for this week.

It was our opinion that ADF&G would have in the past, and would desire in the future, to manage the District 104 fishery based on pink salmon abundance when the pink CPUE was greater than 2,000 fish per boat-day. Thus, this pink CPUE trigger level is consistent with how the fishery historically has been managed and would allow us to manage the fishery based on pink salmon abundance in the event of unusually high sockeye abundance. For instance, in 1988 in Statistical Week 32, even if we had had over 6 times the CPUE on pink salmon that we did and a pink CPUE of almost 15,000 (which is over twice what has ever been observed), we still would not have been allowed to fish since sockeye salmon were so abundant they would have comprised greater than the 7% trigger percentage of the catch (Appendix C). This pink CPUE trigger adequately addresses the potential, but yet observed, situation of having a

harvestable surplus of pinks and large numbers of sockeye. It also reduces the impact that flooding of enhanced sockeye would cause.

We proposed using the statistic "percent sockeye in the catch" for four reasons: first, that this statistic specifically reflects Canada's concern over our "targeting" on sockeye in the absence of a harvestable surplus of pinks (and other species); second, that we anticipate that it can be quickly, inexpensively, and accurately estimated within 18 hours of a closure, an essential criteria for determination of additional openings in a week; third, it is not based on estimates of stock compositions; and, fourth, it reflects a stable and relatively predictable trend throughout the season (Table 3; Figures 2 and 3). The statistic "percent sockeye to pink" was also considered (Table 4; Figures 4 and 5) but it was not selected since coefficients of variation for this statistic were consistently larger and we feel that the percent sockeye in the catch statistic more directly addresses Canada's concern over "targeting" on sockeye.

The weekly percent sockeye triggers of >24% in Week 30, >17% in Week 31, and >7% in Weeks 32 were proposed by Canada based on examination of PSC data from 1961 to 1988 (Table 3). Note that these percent sockeye figures are close to the 1961 to 1988 means. We used all the data points available, 1961 to 1988, to compute the mean percent sockeye values so that this statistic would reflect the natural variability of this species relative contribution to the fisheries. It is important to note that this statistic is an estimate of the species composition available to seine gear and is independent of number of boats and hours fished.

The percent of sockeye in the catch decreases rapidly between Statistical Weeks 29 and 33 (Table 3). Between the beginning and end of Week 30 the percent sockeye drops an average of 7.9% (1.1%/day), in Week 31 this drop is approximately 9.3% (1.3%/day), and in Week 32 is approximately 3.3% (0.5%/day). This change in percent sockeye through time should be accounted for in the percent sockeye targets established for each week since the weekly percent sockeye trigger would be invoked based on catches made during the initial opening for these weeks.

Annular changes in statistical week dates also should be taken into account in establishing these weekly percent sockeye triggers. The actual calendar date which a statistical week falls on can vary $\pm$3 days between years (Table 1). In 1989 the statistical weeks fall 3 days later than average, in 1990 2 days later than average, in 1991 1 day later than average, in 1992 1 day earlier than average, and in 1993 2 days earlier than average (Table 1). The mean percent sockeye values in Table 3 are calculated from the entire weeks catch and probably reflect the actual percent sockeye about 2.5 days after the mean date for each statistical week since Sundays and Mondays are traditionally

fished. We could "fine tune" the percent sockeye triggers to be specific to these variations in statistical week dates.

Since 1960, the percent of sockeye salmon between Statistical Week 30 and 36 has always decreased each week within a year, with exception of Statistical Week 31 in 1970 and Statistical Week 33 in 1973 (note total catch equaled only 1,282 salmon in 1973 Week 33) (Table 3). Once the percent of sockeye falls below a trigger percent on any week, it would be extremely rare for this statistic to be above the trigger percent in subsequent weeks.

It is important to note that if our proposed Annex for District 104 had been in place since 1977 that it would have affected our management **only** in 1988 (Table 3). In 1988 we would have been restricted to fishing a maximum of 15 hours in Statistical Week 32 (we fished 39) and a maximum of 15 hours in Statistical Week 33 (we fished 54 hours). Under this proposed Annex we would have foregone a harvest of approximately 1.0 million salmon worth approximately $5.0 million in 1988. In all respects, 1988 is an outlier with a combination of an extremely large pink salmon return forecasted (44 million) and unusually high CPUE on sockeye for most of the season. The percentage of sockeye in Statistical Weeks 31 and 32 was the highest observed since 1960. It is also worth noting here that we only fished 15 hours in Statistical Week 31 in 1988 (what this Annex would have required) and in 1982 this Annex would have restricted our initial opening in Statistical Week 32 to 15 hours (we actually fished only 12 hours in the initial opening of this statistical week).

Our proposal does not involve any "pay back" stipulations as Canada's does. We feel it unwise to agree on any payback scheme that we have **no control over** such as the one proposed by Canada. We have no control over the percent of sockeye in our catch. This is dependent on the relative number of sockeye and other salmon in the district that are susceptible to seine gear. We only have direct control over the where, when, and how long fishing is permitted. We know of no way to alter the percentage of sockeye in our catch. Such a pay back plan would possibly force us to fish more intensively later in the season when sockeye comprise a lower percent of the catch and, unfortunately, when pink salmon catches are dominated by females which might be more valuable in escapements than catches. If Canada's pay back provision was in place in 1988 and we assume that 1989 catches are the same as 1988's, then we would have had to forego a catch of over 350,000 salmon (200,000 sockeye) (Appendix D).

SUMMARY - A MAJOR DIFFERENCE BETWEEN CANADA'S EXPECTATIONS AND ALASKA'S NEEDS

There is one important difference in expectations between the U.S. and Canada. Alaska is not too worried about how many of our pink salmon are caught by British Columbia fishermen, as long as they are taken in the "normal conduct" of their fishery. Conversely, Canada **is** concerned about the number of sockeye salmon that we catch in the "normal conduct" of our fishery. We use the term "normal conduct" to mean that each nation prosecutes their intercepting fisheries in a manner which: (1) addresses conservation concerns; and, (2) is consistent with historical fishing patterns. Neither nation accepts increased targeting on the other nation's fish through development of new or expanded interception fisheries.

When Alaskan pink returns are larger than normal, we are not concerned that both Canadian and Alaskan fishers have above average catches - that both nations receive benefits of ADF&G management practices of prior years. Each nation's catches should reflect run strengths. This apparently is not Canada's expectation. It is our interpretation that Canada feels that there needs to be a ceiling on the number of salmon intercepted and that we should be indebted to them in future year(s) should strong natural (and perhaps enhanced) returns result in Alaska intercepting more than this vaguely defined number. This position is unacceptable to us and inconsistent with the Treaty principals of Article III. Paragraph 3. of "...avoiding undue disruption of existing fisheries" and "...take into account annual variations in abundance of the stocks".

The U.S. proposal addresses two of the three concerns expressed in Portland: (1) United State's need to fish when there is a harvestable surplus of pink salmon (as regulated by CPUE of pinks); and, (2) Canada's desire that we are prevented from targeting on sockeye when the pink run is weak (as regulated by percent sockeye in the catch). Our model doesn't address the third concern, one expressed by Canada that seeks to limit or cap our total interceptions of Canadian sockeye. We attempt to portray these three factors in Figures 6 and 7 with CPUE used to index both pink and sockeye abundance. On the 90° rotated image (Figure 7) we shaded the situations in which we would want to establish fishing time based on the abundance of pink salmon and when our incidental catches of sockeye might be greater than Canada is comfortable with. It is in this area that we have a basic disagreement since any restriction on our fishing here would be a serious disruption in the normal conduct of our fishery and result in lost harvest opportunity on the harvestable surplus of pink salmon. It is our opinion that resolution of this basis disagreement is a requisite for a successful negotiation of this Annex.

Resolution of this and other issues would have been more likely if we had exchanged and discussed position papers at the January 1989 PSC meeting in

Vancouver. It was not until the February PSC meeting that we knew specifically what Canada's concerns were on Northern Boundary Area issues.

Table 1. Beginning dates for Statistical Weeks 27 to 36 for years 1985 to 1993.

bva psc#3,statweek.wk1,3/17/89

Stat. Week	Mean Beg. Date	Mean Mid. Week Date	Year								
			1985	1986	1987	1988	1989	1990	1991	1992	1993
27	29-Jun	02-Jul					02-Jul	01-Jul			
28	06-Jul	09-Jul	07-Jul	06-Jul	05-Jul	03-Jul	09-Jul	08-Jul	07-Jul	05-Jul	04-Jul
29	13-Jul	16-Jul	14-Jul	13-Jul	12-Jul	10-Jul	16-Jul	15-Jul	14-Jul	12-Jul	11-Jul
30	20-Jul	23-Jul	21-Jul	20-Jul	19-Jul	17-Jul	23-Jul	22-Jul	21-Jul	19-Jul	18-Jul
31	27-Jul	30-Jul	28-Jul	27-Jul	26-Jul	24-Jul	30-Jul	29-Jul	28-Jul	26-Jul	25-Jul
32	03-Aug	06-Aug	04-Aug	03-Aug	02-Aug	31-Jul	06-Aug	05-Aug	04-Aug	02-Aug	01-Aug
33	10-Aug	13-Aug	11-Aug	10-Aug	09-Aug	07-Aug	13-Aug	12-Aug	11-Aug	09-Aug	08-Aug
34	17-Aug	20-Aug	18-Aug	17-Aug	16-Aug	14-Aug	20-Aug	19-Aug	18-Aug	16-Aug	15-Aug
35	24-Aug	27-Aug	25-Aug	24-Aug	23-Aug	21-Aug	27-Aug	26-Aug	25-Aug	23-Aug	22-Aug
36	31-Aug	03-Sep	01-Sep	31-Aug	30-Aug	28-Aug	03-Sep	02-Sep	01-Sep	30-Aug	29-Aug
Days Shifted From Mean			1	0	-1	-3	3	2	1	-1	-2

Table 2. Weekly pink salmon catch per boat day (CPUE) in District 104 purse seine fishery, 1977 to 1988.

bva psc#3,pinkcpue.wk1

Stat. Week	Year												Mean
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
27		50	77					159					95
28	136	76	275	147	562	50	460	588	248	778	220	72	301
29	463	114	450	87	198	125	969	998	569	1,175	800	118	506
30	1,201	478	873	420	1,060	136	3,010	914	972	1,353	648	482	962
31	2,383	1,590	2,778	1,660	3,308	138	4,644	2,151	1,623	3,677	3,163	230	2,279
32	2,130	3,524		1,881	2,428	935	7,031	2,614	4,483	6,006	3,527	1,075	3,239
33	1,180	3,056	389	1,153	1,669	2,415	5,200	2,411	5,173	4,472	872	1,939	2,494
34		1,142	244	1,679	841	1,875	4,559	2,964	2,755	5,295	1,077	4,476	2,446
35	425	684		593		3,103	4,119	1,431	1,810	3,842		3,051	2,118
36		63		36		2,548				1,057		1,512	1,043
Total	7,918	10,777	5,086	7,656	10,066	11,325	29,992	14,230	17,633	27,655	10,307	12,955	15,483

Table 3. Weekly purse seine catch of sockeye salmon in District 104 as percent of the total catch of all salmon, 1961 to 1988.

nbtc#3;%sockd4.wk1;2/15/89;0945

	Statistical Week										
Year	26	27	28	29	30	31	32	33	34	35	36	37
1961		0.0%		35.9%	24.4%	17.2%	7.6%	3.4%	0.3%	0.2%	0.0%	
1962		48.8%	60.3%	48.1%	41.2%	29.0%	3.9%	1.0%	0.4%	0.5%	0.0%	0.0%
1963		52.9%			16.7%	6.7%	3.7%	1.6%	1.1%	1.0%	0.0%	
1964		48.0%	37.2%	40.0%	35.5%	15.0%	5.7%	1.4%	0.7%	0.2%		
1965		9.7%	30.8%	27.9%	23.1%	20.5%	10.7%	5.7%	4.5%	0.6%		
1966		0.0%	37.5%	20.8%	16.5%	7.5%	3.7%	0.8%	0.2%	0.2%	0.4%	
1967		55.6%	63.3%	69.0%	59.0%	38.5%	17.3%	11.5%				
1968		23.2%	25.9%	43.1%	25.4%	7.3%	1.6%	0.2%	0.6%	0.1%	0.1%	
1969			47.1%	40.3%	19.1%	18.1%	7.5%	4.6%	1.4%			
1970	0.1%		44.3%	5.8%	16.2%	23.3%	5.6%	2.2%	0.5%	0.3%		
1971								2.5%	1.6%	0.5%	0.2%	
1972			15.3%	13.7%	27.1%	25.3%	7.1%	4.2%	1.1%	0.4%	0.1%	3.8%
1973			38.6%	17.7%	15.1%	8.2%	4.1%	20.7%	0.5%			
1974			33.5%	53.0%	45.2%	20.1%	6.9%	1.6%	0.8%	0.2%	0.0%	
1975			22.0%	24.1%								
1976			36.3%	36.5%	26.6%				0.4%			
1977			34.5%	24.2%	20.4%	15.7%	9.1%	5.4%		0.9%		
1978		38.8%	23.8%	26.1%	10.2%	4.5%	1.6%	0.7%	0.4%	0.3%	6.5%	
1979		32.6%	23.7%	22.8%	20.8%	11.7%	0.0%	4.1%	7.6%			
1980		9.1%	34.3%	41.2%	23.2%	14.7%	5.4%	3.0%	0.4%	0.0%	0.2%	
1981			33.7%	34.8%	12.9%	3.4%	2.5%	3.5%	3.8%	1.7%		
1982		32.0%	46.5%	51.3%	40.6%	29.4%	6.1%	2.5%	1.7%	0.6%	0.2%	0.7%
1983			14.7%	14.6%	7.8%	4.5%	2.7%	2.1%	2.8%	3.0%		
1984		23.5%	23.3%	23.3%	18.2%	9.7%	3.3%	1.5%	0.7%	0.2%		
1985			26.0%	32.9%	17.2%	13.7%	3.9%	1.8%	1.4%	3.0%		
1986			13.6%	9.1%	6.2%	4.2%	1.9%	1.5%	0.9%	0.7%	1.0%	
1987			23.7%	26.9%	20.6%	13.0%	5.9%	2.8%	1.7%			
1988			31.2%	60.0%	58.7%	52.7%	33.4%	6.7%	2.2%	1.0%	1.3%	
1961 to 1988:												
Mean =	0.1%	28.8%	32.9%	32.4%	24.9%	16.6%	6.4%	3.7%	1.5%	0.7%	0.8%	1.5%
SD =		19.7	12.7	15.7	13.9	11.7	6.6	4.2	1.7	0.8	1.8	2.0
Min =	0.1%	0.0%	13.6%	5.8%	6.2%	3.4%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%
Max =	0.1%	55.6%	63.3%	69.0%	59.0%	52.7%	33.4%	20.7%	7.6%	3.0%	6.5%	3.8%
+1 SD =		48.5%	45.5%	48.1%	38.9%	28.3%	13.1%	7.9%	3.2%	1.6%	2.5%	3.5%
+2 SD =		68.2%	58.2%	63.8%	52.8%	40.0%	19.7%	12.1%	4.8%	2.4%	4.3%	5.5%
1978 to 1987:												
Mean =		27.2%	26.3%	28.3%	17.8%	10.9%	3.3%	2.4%	2.1%	1.2%	2.0%	0.7%
SD =		11.5	9.7	12.4	9.9	7.9	2.0	1.0	2.2	1.2	3.0	
Min =		9.1%	13.6%	9.1%	6.2%	3.4%	0.0%	0.7%	0.4%	0.0%	0.2%	0.7%
Max =		38.8%	46.5%	51.3%	40.6%	29.4%	6.1%	4.1%	7.6%	3.0%	6.5%	0.7%
+1 SD =		38.7%	36.1%	40.7%	27.7%	18.7%	5.4%	3.4%	4.3%	2.4%	5.0%	
+2 SD =		50.2%	45.8%	53.0%	37.6%	26.6%	7.4%	4.4%	6.5%	3.6%	8.0%	

Table 4. Weekly purse seine catch of sockeye in District 104 as percent of the pink catch, 1961 to 1988.

nbtc#3;sck-pnk.wk1;2/14/89;2100

	Statistical Week											
Year	26	27	28	29	30	31	32	33	34	35	36	37
1961		0.0%		72.9%	37.2%	25.8%	9.9%	4.5%	0.6%	0.4%	0.0%	
1962		333.6%	413.6%	201.8%	91.4%	52.2%	4.4%	1.1%	0.4%	0.6%	0.0%	
1963		1140.3%			21.6%	7.5%	4.1%	1.8%	1.2%	1.2%	0.0%	
1964		213.4%	120.3%	135.2%	94.4%	24.0%	7.2%	1.6%	0.8%	0.2%		
1965		12.8%	117.2%	71.5%	35.1%	29.8%	13.7%	6.9%	5.1%	0.9%		
1966			124.5%	82.7%	33.7%	13.0%	4.4%	0.8%	0.2%	0.3%	0.5%	
1967		753.3%	446.3%	347.1%	210.7%	74.4%	24.7%	17.6%				
1968		134.6%	71.8%	135.2%	73.9%	9.7%	1.8%	0.2%	0.6%	0.1%	0.1%	
1969			238.5%	84.8%	26.1%	23.1%	8.4%	5.2%	1.6%			
1970	0.1%		104.6%	6.4%	25.4%	35.4%	7.6%	2.6%	0.5%	0.4%		
1971								2.9%	1.9%	0.5%	0.2%	
1972			28.1%	20.8%	47.7%	40.2%	8.4%	4.7%	1.3%	0.5%	0.2%	4.3%
1973			74.5%	24.8%	20.1%	9.6%	4.7%	63.6%	0.8%			
1974			91.3%	172.1%	105.0%	28.8%	7.9%	1.7%	0.9%	0.2%	0.0%	
1975			34.1%	39.4%								
1976			142.0%	72.2%	40.1%				0.4%			
1977			58.3%	35.2%	27.8%	19.8%	10.4%	6.3%		1.5%		
1978		115.5%	47.4%	54.8%	13.1%	5.1%	1.7%	0.7%	0.4%	0.4%	13.6%	
1979		78.6%	41.3%	34.7%	29.6%	14.5%	0.0%	4.8%	9.1%			
1980		15.2%	75.9%	125.8%	42.6%	18.9%	6.0%	3.3%	0.4%	0.1%	0.4%	
1981			61.4%	63.4%	15.9%	3.7%	2.6%	3.7%	4.4%	1.7%		
1982		185.7%	200.7%	252.2%	106.7%	70.4%	7.6%	2.9%	1.9%	0.6%	0.2%	0.9%
1983			24.5%	19.4%	8.8%	4.8%	2.8%	2.1%	2.9%	3.2%		
1984		38.5%	36.4%	35.2%	25.3%	11.5%	3.6%	1.6%	0.7%	0.2%		
1985			64.0%	74.2%	23.0%	16.9%	4.2%	1.9%	1.5%	3.5%		
1986			24.3%	11.9%	7.2%	4.6%	1.9%	1.6%	0.9%	0.7%	1.1%	
1987			47.2%	44.2%	29.0%	15.9%	6.6%	3.1%	2.2%			
1988			170.9%	295.4%	184.7%	180.4%	56.4%	7.9%	2.4%	1.1%	1.4%	
1961 to 1988:												
Mean =	0.1%	251.8%	114.4%	96.7%	52.9%	29.6%	8.4%	6.0%	1.7%	0.9%	1.4%	2.6%
SD =		348.7	110.1	89.9	51.6	36.7	11.1	12.3	2.0	0.9	3.7	2.4
Min =	0.1%	0.0%	24.3%	6.4%	7.2%	3.7%	0.0%	0.2%	0.2%	0.1%	0.0%	0.9%
Max =	0.1%	1140.3%	446.3%	347.1%	210.7%	180.4%	56.4%	63.6%	9.1%	3.5%	13.6%	4.3%
+2 SD =		949.3%	334.7%	276.5%	156.2%	103.0%	30.7%	30.5%	5.7%	2.7%	8.8%	7.5%
1978 to 1987:												
Mean =		43.3%	62.3%	71.6%	30.1%	16.6%	3.7%	2.6%	2.4%	1.0%	1.5%	0.1%
SD =		67.3	51.4	71.2	29.0	19.8	2.4	1.2	2.7	1.4	6.5	
Min =		15.2%	24.3%	11.9%	7.2%	3.7%	0.0%	0.7%	0.4%	0.1%	0.2%	0.9%
Max =		185.7%	200.7%	252.2%	106.7%	70.4%	7.6%	4.8%	9.1%	3.5%	13.6%	0.9%
+2 SD =		178.0%	165.1%	214.0%	88.1%	56.2%	8.5%	5.0%	7.8%	3.8%	14.6%	

PROPOSED FISHING REGIME FOR DISTRICT 104 SEINE FISHERY

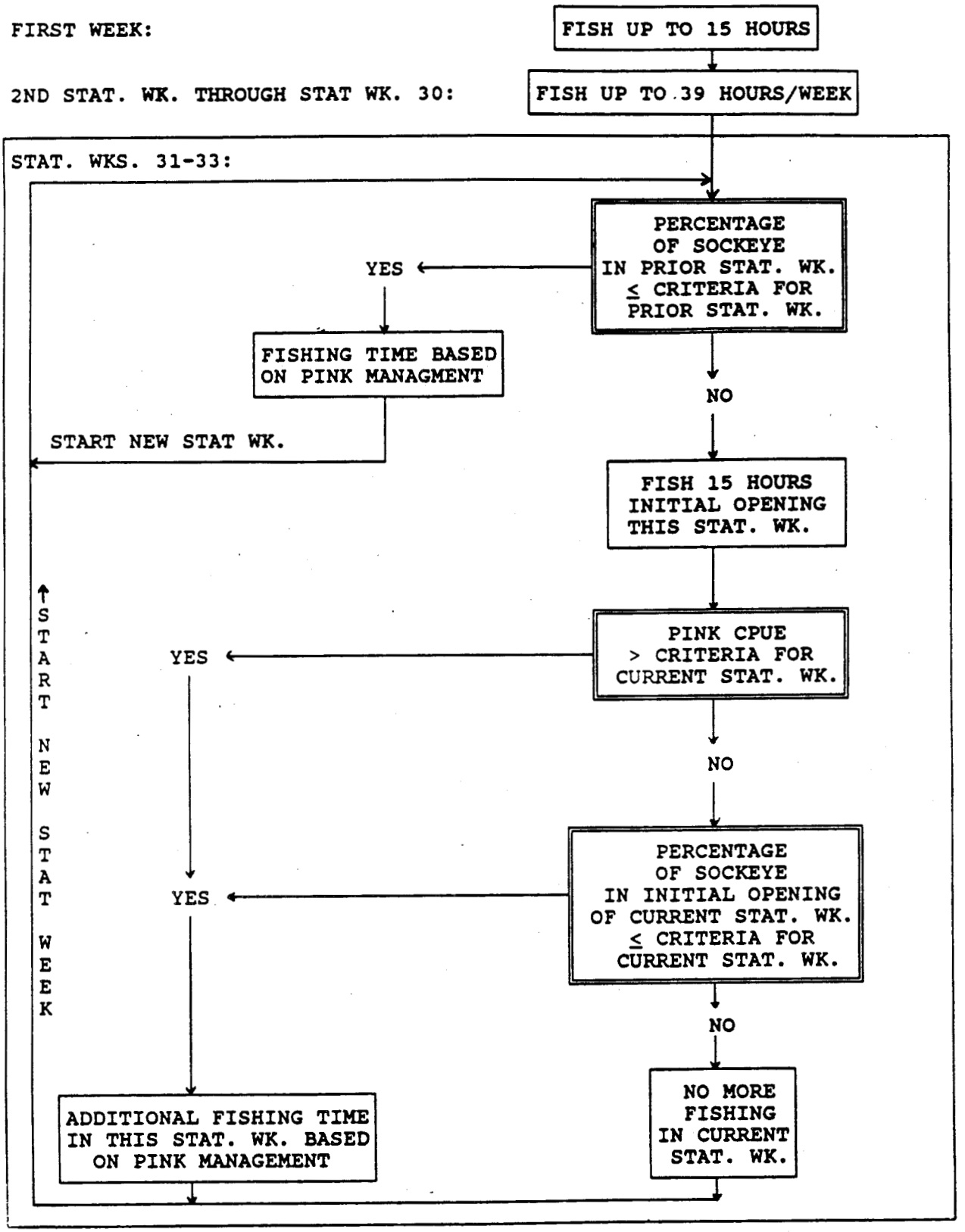

Figure 1. Flow chart of fishing regime for District 104 seine fishery as proposed by U.S.

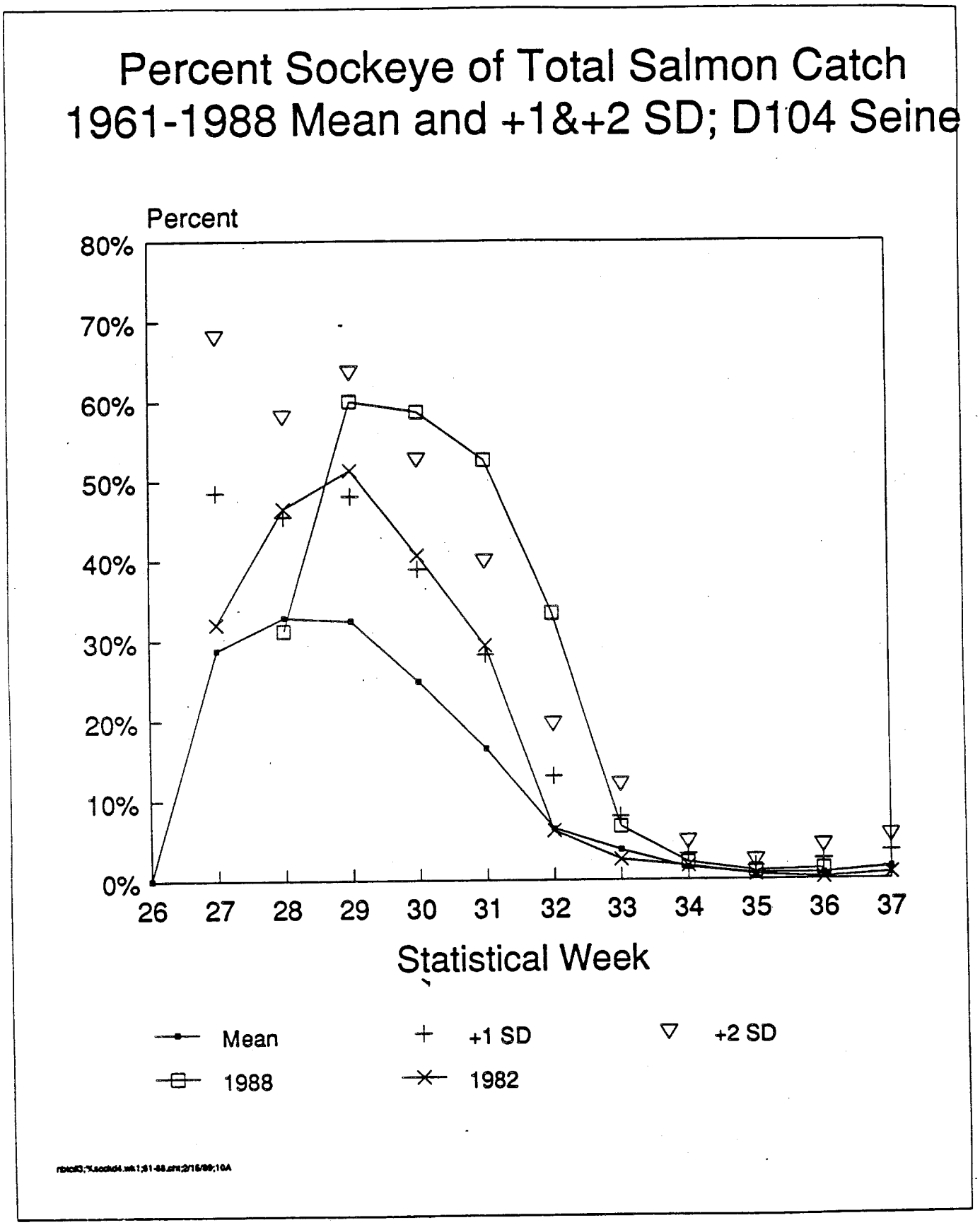
Percent Sockeye of Total Salmon Catch
1961-1988 Mean and +1&+2 SD; D104 Seine
Percent
80%
70%
60%
50%
40%
30%
20%
10%
0%
26
27
28
29
30
31
32
33
34
35
36
37
Statistical Week
Mean
+1 SD
+2 SD
1988
1982

Figure 2.

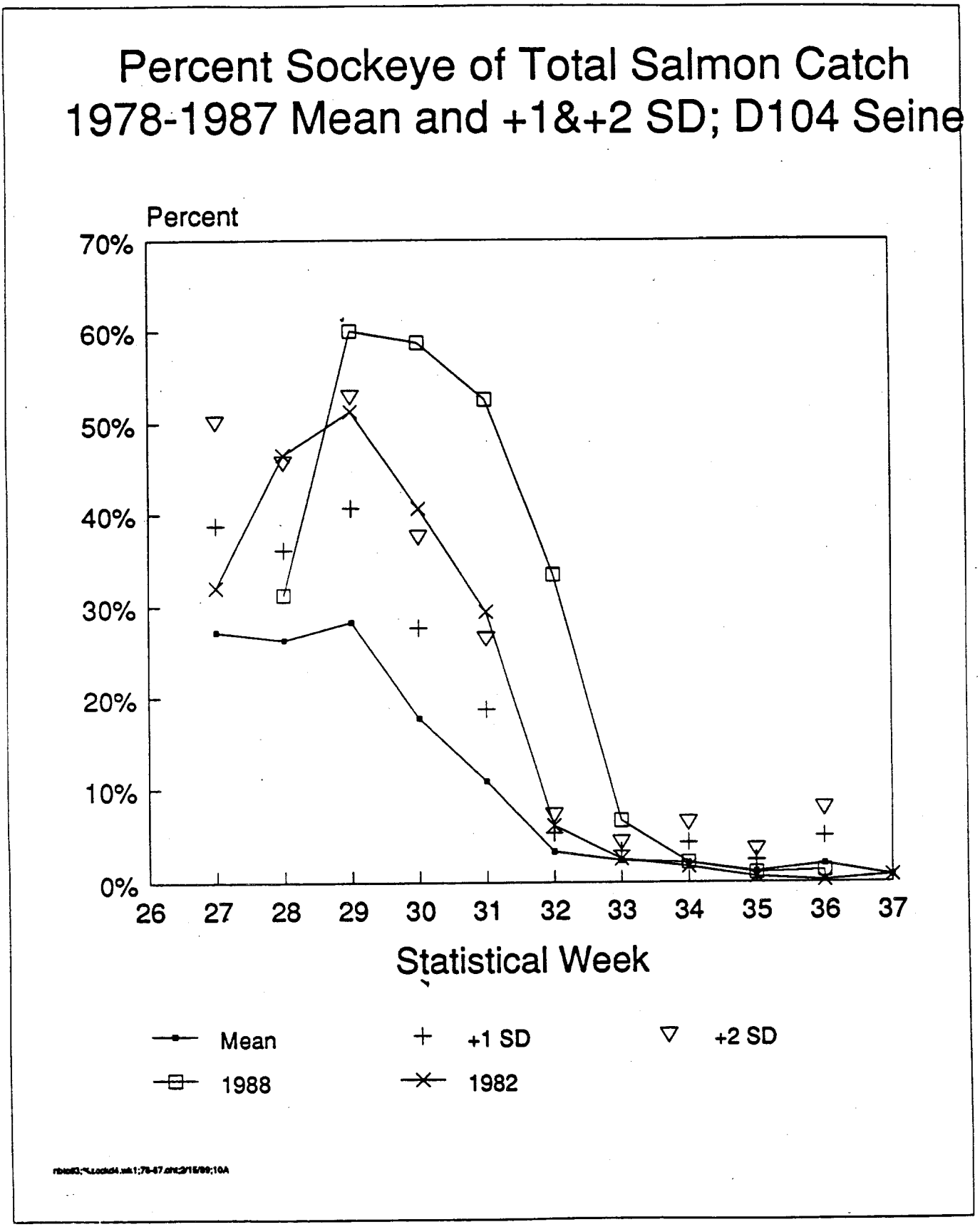
Percent Sockeye of Total Salmon Catch
1978-1987 Mean and +1&+2 SD; D104 Seine
Percent
70%
60%
50%
40%
30%
20%
10%
0%
26
27
28
29
30
31
32
33
34
35
36
37
Statistical Week
Mean
+1 SD
+2 SD
1988
1982

Figure 3.

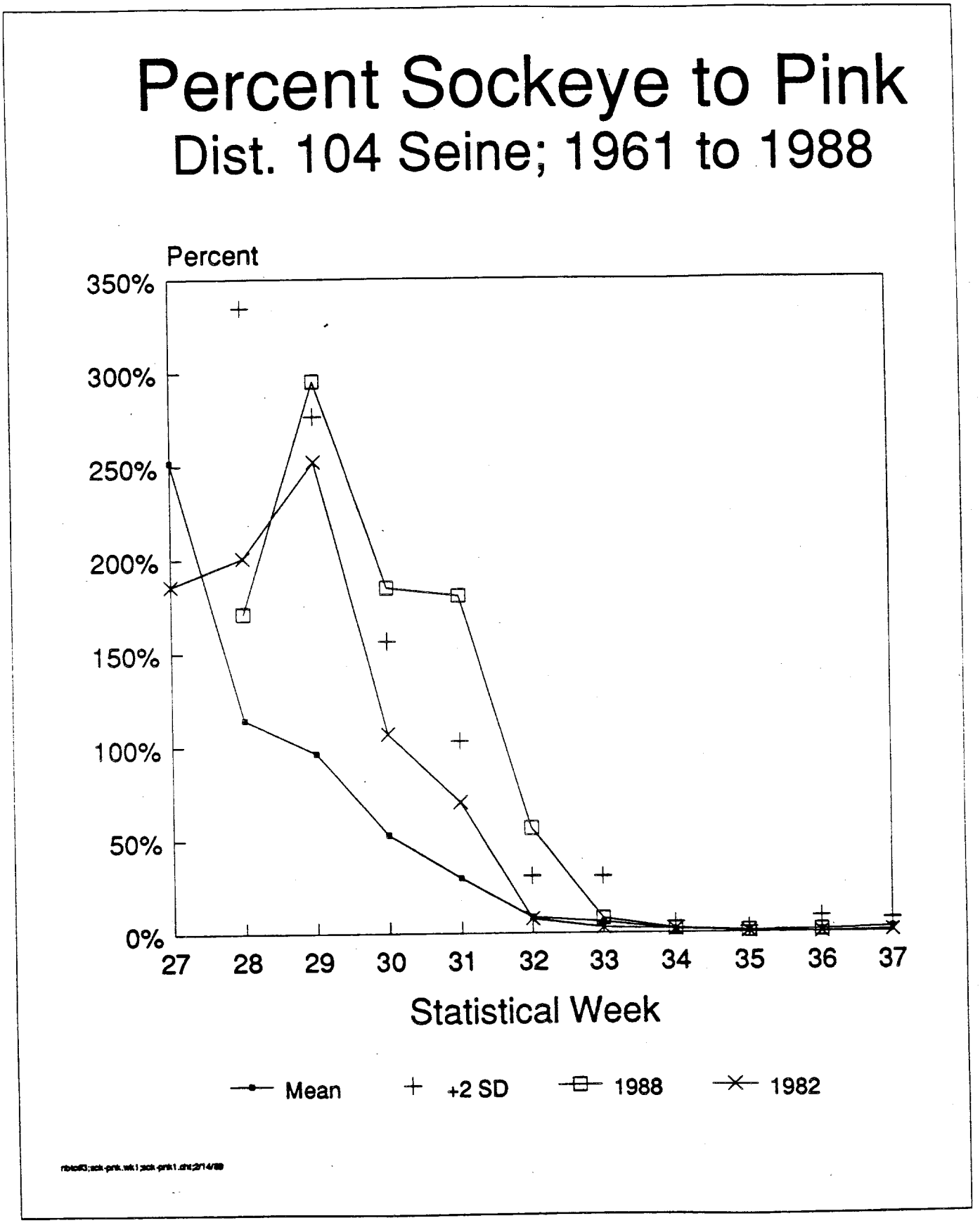
Percent Sockeye to Pink
Dist. 104 Seine; 1961 to 1988
Percent
350%
300%
250%
200%
150%
100%
50%
0%
27
28
29
30
31
32
33
34
35
36
37
Statistical Week
Mean
+2 SD
1988
1982

Figure 4.

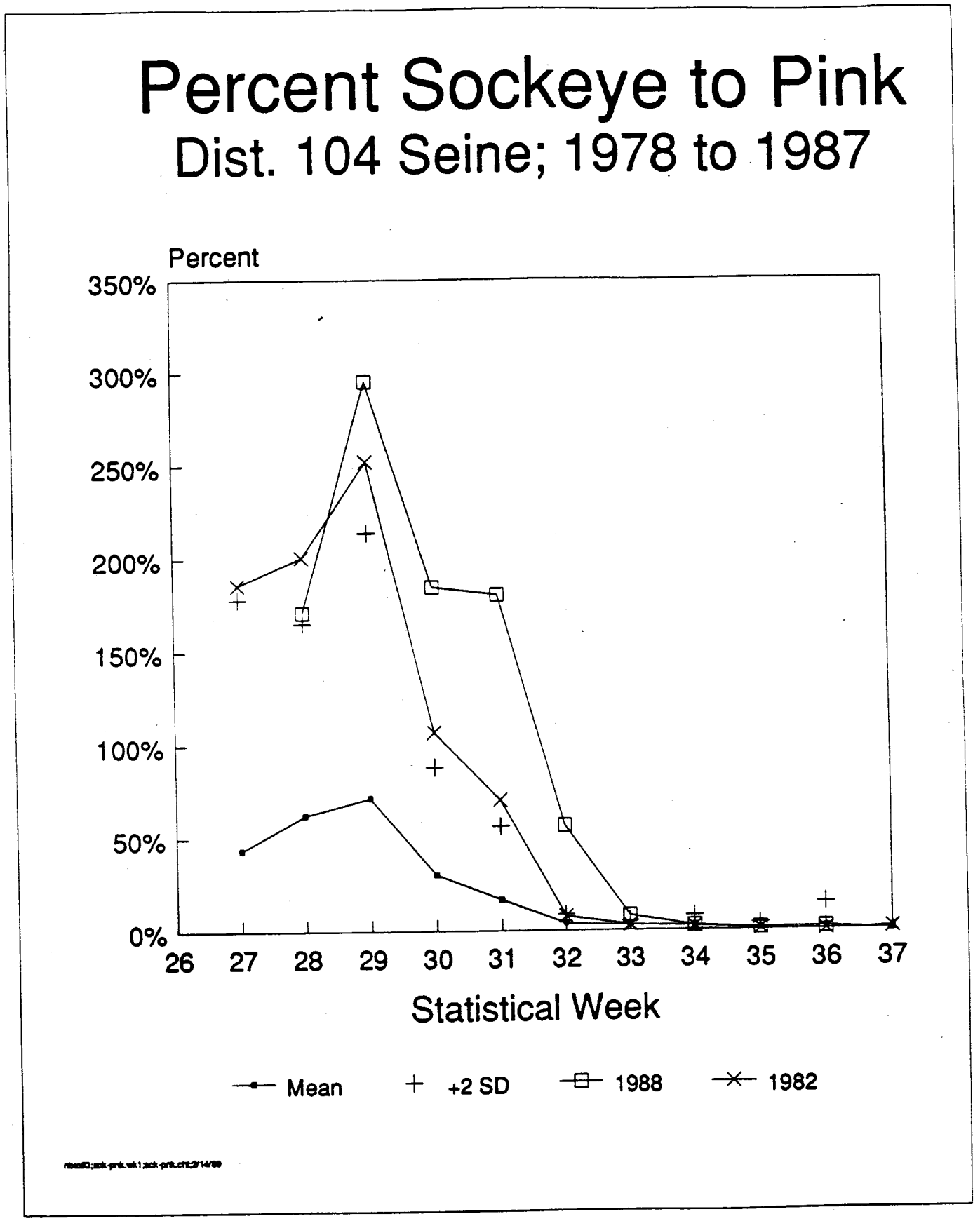
Percent Sockeye to Pink
Dist. 104 Seine; 1978 to 1987
Percent
350%
300%
250%
200%
150%
100%
50%
0%
26
27
28
29
30
31
32
33
34
35
36
37
Statistical Week
Mean
+2 SD
1988
1982

Figure 5.

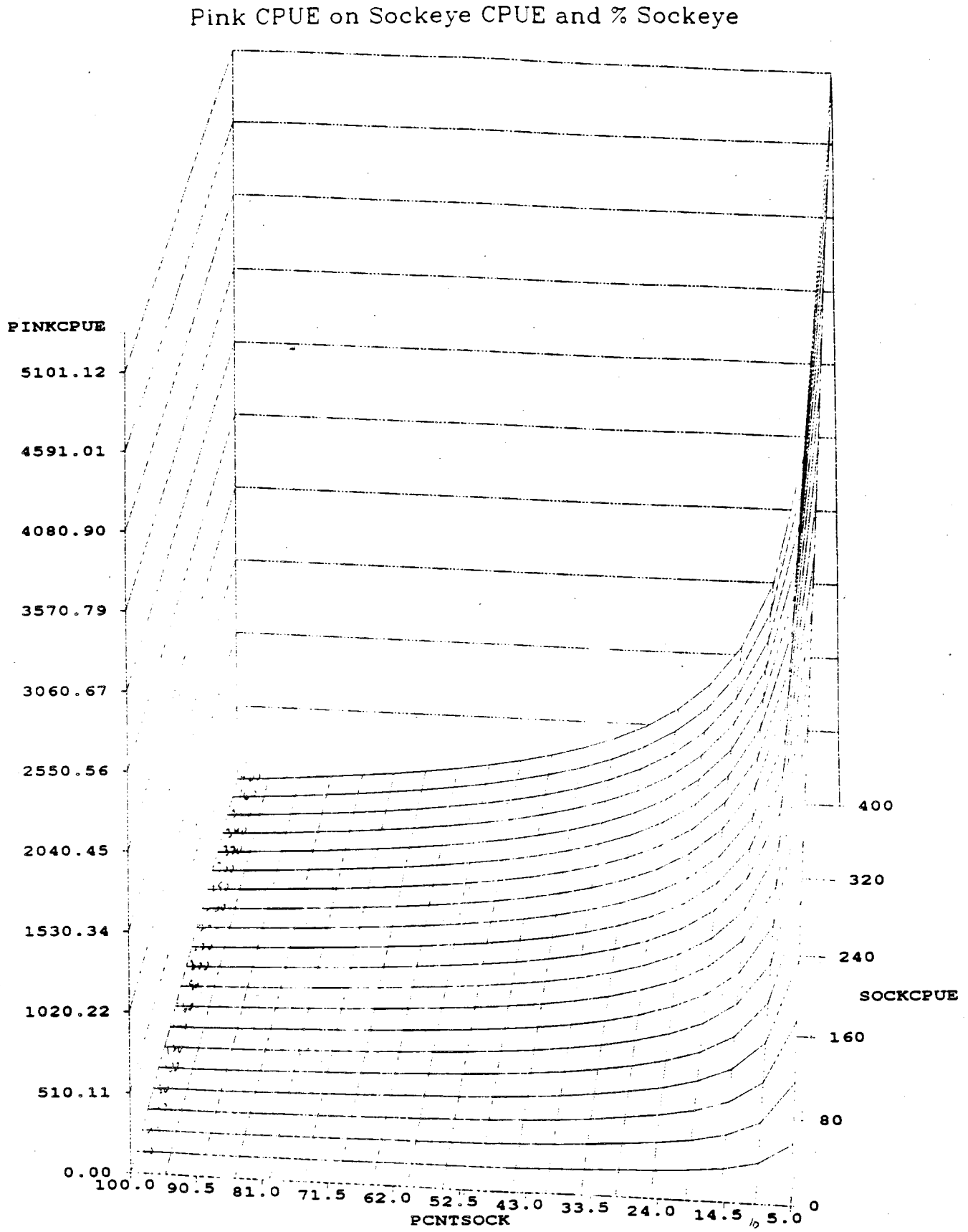

Figure 6. Simulated relationship between sockeye CPUE, percent sockeye, and pink CPUE.

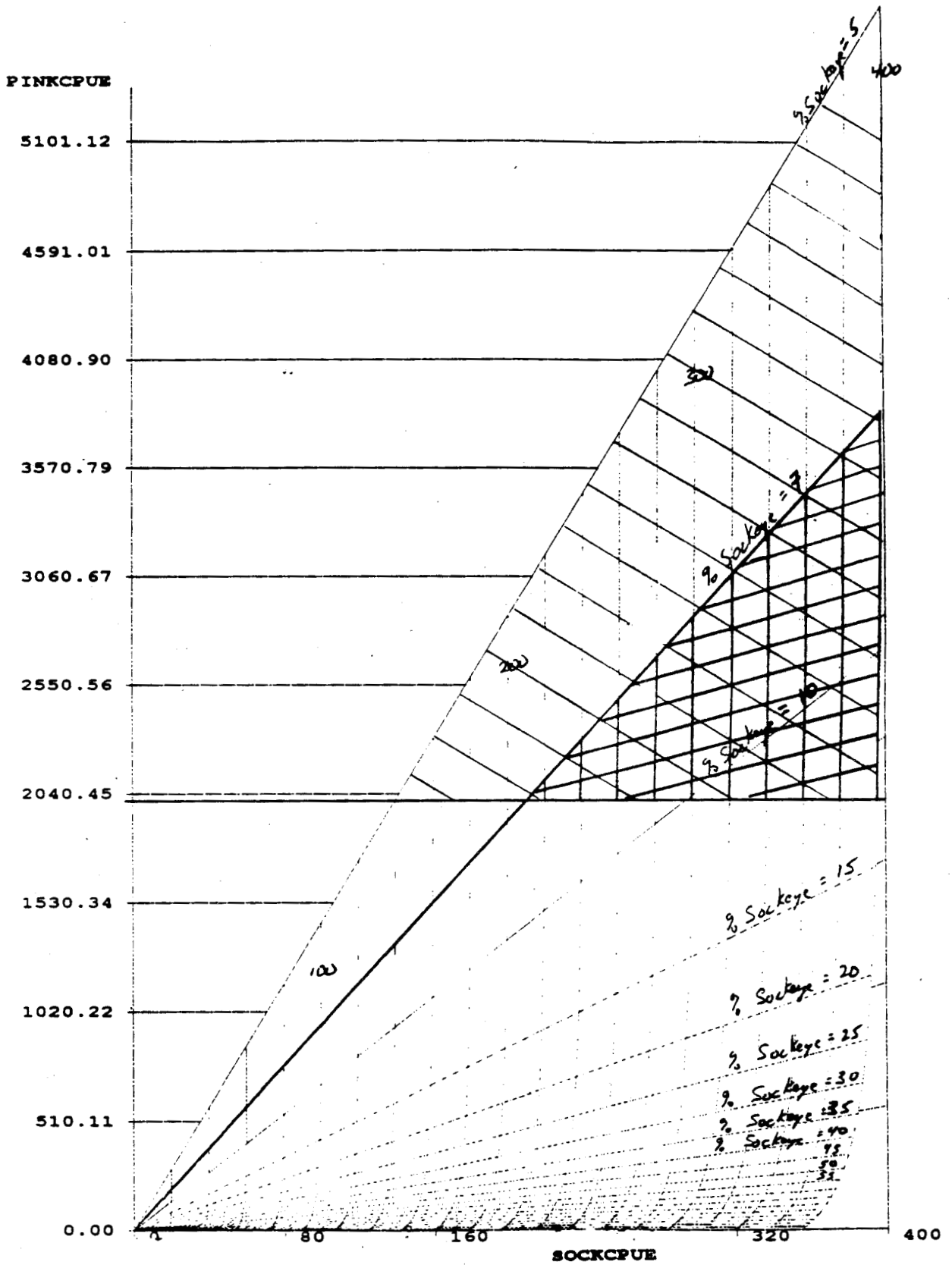

Figure 7. Simulated relationship between sockeye CPUE, percent sockeye, and pink CPUE (Figure 6. image rotated 90° on the Z axis). The cross hatched area represents a pink CPUE >2,000 fish per boat-day and a catch comprised of >7% sockeye.

Appendix A.1. U.S. Northern Panel position paper dated 20 January 1989 concerning Noyes Island (District 104) fishery.

U.S. NORTHERN PANEL
POSITION PAPER
NOYES ISLAND (DISTRICT 104) FISHERY

ISSUE

The Annex provisions for catch limits in District 104 are up for renegotiation this year. The United States supports continuation of the traditional early season fishery at Noyes Island. However, there is the danger that a set quota could lead to an overharvest of a poor run or series of poor runs. The United States proposes the use of defined fishing times with a ceiling to assure that we do not increase our interception rate of Canadian sockeye stocks.

BACKGROUND

The current Noyes Island fishing regime has proven generally satisfactory relative to the United States ability to access its own pink salmon stocks while realistically limiting the harvest of Canadian sockeye salmon. Our analysis indicates that the proportion of the Nass and Skeena sockeye runs harvested in District 104 has remained stable over the years. Numbers of Canadian sockeye salmon caught and their distribution throughout the district have fluctuated; this has been caused by variation in the size and patterns of the various component runs and by fishing effort needed to harvest Alaskan salmon stocks. While there have been fishing pattern changes within the district due to annual stock variations, there has been no redirection of effort on sockeye stocks.

MANAGEMENT INTENT

To realistically limit early season interceptions of Canadian sockeye salmon in the face of variation in run size and flooding of the area by increased numbers of enhanced fish.
To prevent higher harvests of weak sockeye returns that may occur under ceiling management.
To continue to provide access to United States pink salmon stocks after week 30.

SUGGESTED APPROACH

The early season 4-year quota at Noyes Island should be revised to incorporate a maximum fixed effort limitation based upon the average fishing time allowed by week during the initial four years of the Treaty. In addition, a ceiling of 560,000 sockeye salmon over 4-years would be in effect to prevent increased interception rates in the event of a series of seasons with high sockeye availability. This effort limitation would be 1 day (15 hours) in the initial statistical week and 2 days (39 hours) in each subsequent statistical week through statistical week 30.

Annex length 4 years.

Appendix A.2. Canadian Northern Panel position paper dated 20 January 1989 concerning U.S. interceptions of Northern B.C. sockeye.

Canadian Position
January 20, 1989

Issue: U.S. interceptions of Northern B.C. sockeye

Background:

Prior to the implementation of the Pacific Salmon Treaty, Canadian Northern Boundary fishermen expressed concern over the magnitude and growth of U.S. interceptions of Canadian salmon. Canadian support for the Treaty was dependent upon the successful negotiation of effective limitations of the U.S. catch of Canadian sockeye in S.E. Alaska. It was Canada's understanding that the 1985-1988 Annex arrangements would reduce interceptions and avoid undue disruption of net fisheries. Treaty performance after the first four years shows:

- The U.S. catch of Canadian sockeye in S.S.E. Alaska has increased from the base period.

- The U.S. catch in District 104 prior to week 31 exceeded the annex arrangement by 34,000.

- The U.S. catch of Canadian sockeye in District 104 after week 30 increased significantly since the treaty.

- The District 104 fishery was at times conducted as a target fishery on Canadian sockeye, which is inconsistent with Canada's understanding when the treaty was signed.

- The conduct of the Tree Point fishery has resulted in major disruption of Canadian Area 3 gillnet fisheries.

- The conduct of the Tree Point fishery does not permit co-ordinated inseason reaction to conservation concerns.

Management Intent:

Canada requires annex arrangements that effectively reduce the interception of Canadian sockeye in United States Northern Boundary Fisheries.

Suggested Approach:

The annual U.S. catch of Nass and Skeena sockeye will be limited to a maximum of 15% of the combined U.S. and Canadian catch of Nass and Skeena sockeye, but shall not exceed an annual maximum of 300,000.

These measures will permit the U.S. catch of Nass and Skeena sockeye to fluctuate with stock size each year but will not allow catches above the overall limit.

Any overage in the U.S. catch would be repaid in the following year by the U.S.

Appendix B.1. Last draft of the Annex for District 104 seine fishery prepared by the joint U.S. and Canada District 104 Working Group at the February PSC meeting in Portland. The draft is dated 16 February 1989 at 5:59PM.

2. With respect to sockeye salmon, United States shall:

a. During the period [1989 through 1992 *U.S.*] [1989 through ___ *Canada*], limit its purse seine fishery in District 104 to no more than 15 hours of fishing time during the statistical week [commencing the first Sunday of July--Statistical Week 27 in 1989 and 1990 and Statistical Week 28 in 1991 and 1992 *U.S.*] [Statistical Week 28 *Canada*] and to no more than 39 hours during each following statistical week through Statistical Week 30;

b. During the period [1989 through 1992 *U.S.*] [1989 through ___ *Canada*] the maximum four-year total catch of sockeye salmon in the purse seine fishery in District 104 through Statistical Week 30 shall not exceed [560,000 *U.S.*] [366,000 *Canada*] fish;

c. After Statistical Week 30 management in the District 104 purse seine fishery will be based on pink salmon abundance unless the percentage of sockeye salmon in the total catch of all salmon occurs as follows:

i. If in Statistical Week 30 the sockeye salmon catch percentage exceeds 24% then the initial fishing period in Statistical Week 31 will be 15 hours.

ii. If in the initial opening fishing period of Statistical Week 31 the overall sockeye salmon catch percentage exceeds 17% then no additional fishing time is permitted in Statistical Week 32 and the initial fishing period in Statistical Week 32 will be 15 hours.

iii. If in the initial opening fishing period of Statistical Week 32 the overall sockeye salmon catch percentage exceeds 7% then no additional fishing time is permitted in Statistical Week 32 and the initial fishing period in Statistical Week 33 will be 15 hours;

iv. [During Statistical Week 33 and subsequent fishing periods the overall sockeye salmon catch percentage will not exceed ___% [*Canada*].

v. It is understood that the weekly sockeye catch percentage contribution will be calculated from the catch of the first fishing period of the statistical week due to the short time frame to collect catch statistics between late week openings and the announcement for the following weeks initial opening. Both Parties also recognize that inseason estimates of percent contribution may vary from post-season sales slip totals;

vi. Due to the uncertain nature of the applications of a new management program, in (2)(c) this management approach will be evaluated by the joint Northern Boundary Technical Committee and Northern Panel after two years to determine its effectiveness, its overall impact on the management of the Southeast Alaska purse seine fishery and in order [to make necessary *U.S.*] [for the Northern Panel to consider *Canada*] adjustments in procedures used to implement the program;

vii. If in future years sockeye abundance in the District 104 fishery increases due to the contribution of enhanced fish from either Party, adjustments will be made in this program to reflect the impact of these contributions.

viii. [Compliance adjustments to be calculated as follows will be repaid by the U.S. on an annual basis: any sockeye harvest resulting from a total sockeye harvest percentage in excess of ten percentage points above the in-week performance percentages associated with Statistical Weeks 31, 32, and 33 will be repaid by reducing a number of fishing days, prior to Statistical Week 31 during the following year, on the basis of 20,000 sockeye per day as the accumulative

compliance adjustment reaches this amount over time. No more than one day prior to Statistical Week 31 will be deducted during any fishing season. In addition, any sockeye purse seine harvest from District 104 in Statistical Weeks 34, 35, or 36 in excess of 12% of the total salmon catch will be repaid in the same manner. *Canada*]

ix. [No compliance adjustment *U.S.*]

x. [(*U.S.*)If during Statistical Weeks 31, 32, and 33 the catch-per-unit-of-effort for pink salmon in the initial opening in District 104 purse seine fishery exceeds 2,000 fish per boat day, the sockeye percentage formulation of (2)(c) of this chapter will not be applied. *U.S.*]

xi. (*Canada*) Canada does not agree with the concept of a pink salmon CPUE management trigger.

xii. The arrangement in (2)(C) of this chapter will be in effect for 1989 and 1990 pending further evaluation of its effectiveness as outlined in subsection vi above.

Appendix B.2. District 104 Work Group notes dated 15 February 1989.

NOYES ISLAND WORK GROUP NOTES

U.S.	Canada
* In terms of our present position, we explained the effect of our statistical weeks/calendar shift on our management. The first Sunday in July in 1989 and 1990, falls on July 2 and July 1, respectively. This is the start of Stat. Wk. 27 on these two years (previous four-year annex always fell on Stat. Wk. 28). This shifts the start of Stat. Wk. 31 to July 30 in 1989 and July 29 in 1990, compared to July 24 in 1988. The effect is to transfer the restrictions under the Treaty into a time of increased pink abundance, hence the need for 560,000 rather than 480,000 in the previous annex.	* Canada was upset at the prospect of the Noyes Island fishery beginning in Stat. Wk. 27. They hadn't considered the effects of the ending date of Stat. Wk. 30, they were only considering how a Stat. Wk. 27 start would look to their fishermen. After our explanation, they understood the impact of the stat. week shift into a time of increased pink abundance but were still concerned about the appearance of the Stat. Wk. 27 start. They also expressed the need for some sort of limit on catch for the whole season. They were willing to look at the season in two components, before and after Stat. Wk. 30.
* In a Northern Panel Bi-lateral meeting, we had alluded to making use of their percent of sockeye to catch concept. They inquired about this, so we explained in a plan that would trigger management behavior to restrict fishing time in Stat. Wk.s 31, 32, and 33 if an agreed sockeye to total catch ratio was exceeded in	* Canada's concern with this proposal was that we were not accountable for high numbers of Canadian sockeye in our catch. Our management behavior-based proposal still allows for the potential of high catches of reds during our 15 hour periods in Stat. Weeks 31, 32, and 33. They proposed some sort of

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Week 30. After this was first laid out, we pointed out to Canada that it was a major concession for the U.S. to discuss an annex after Week 30 that could impact our management of domestic stocks. Both sides agreed that all discussions were without prejudice. Our plan would work like this: our present position would regulate District 104 until the end of Stat. Wk. 30. In Stat. Wk. 30, if our catch of sockeye exceeded an agreed upon percentage of total catch (we have in mind 25%, but did not express this to Canada) it would limit fishing time at the start of Stat. Wk. 31 to 15 hours. If we exceed an agreed upon percentage in Week 31 (20%), we are confined to a 15 hour opening at the start of Stat. Wk. 32. If we exceed an agreed upon percentage in Stat. Wk. 32 (?%), we're confined to a 15 hour opening at the start of Stat. Wk. 33. Failing below the sockeye to total catch percentage during these weeks permits unencumbered pink salmon management. It was pointed out that this approach would have cut our sockeye harvest in 1988 a minimum of 110,000, up to 160,000, in addition to foregoing our harvest of domestic stocks available at this season long cap on our catch. The discussion then worked around to a proposal by Dave Peacock for a ratio limit. They proposed negotiating an acceptable percentage, with a risk adjustment, of management range, using the relationship between sockeye to pinks (Canada preferred) or to total run (U.S. preferred). The accounting period for sockeye would begin on Stat. Wk. 31: the percentage of reds to <pinks/total catch> would be managed to stay at the agreed upon percentage. Anything falling into the risk adjustment range or under would require no management action in the future. If the percentage fell above the risk adjustment range, the percentage would translate into a number of fish and would be accounted for before Stat. Wk. 31 in the following year. The District 104 season prior to Stat. Wk. 31 would be either similar to the present annex or the days/cap concept of our present position (still negotiable). The year 1989 could start off the annex with a 120,000 fish cap. As much of this scheme was developed on the spot, the discussion centered on possibilities with no numbers or

time.

* Our view of the Canada proposal was that we wanted to run some models of it in different scenarios to see what the pros and cons would be. We told the Canadians that their idea appeared to have merit. The discussion then centered around the translation of the percentage over the management range into a number that had to be subtracted the following season. Our fears are that in a year of high sockeye availability, while conducting management of domestic stocks, we would catch a high percentage of reds due to flooding. The percentage could translate into a number large enough to shut down the District 104 fishery in order to bring it back into the management range. We propose keeping the percentage of reds to total run as a percentage that would have to be brought back into range the following year.

percentages. They stated that any domestic management inseason to attain the range was up to us, as long as the end number was within the negotiated guidelines. The Canadian's did not like the idea of a percentage management range, because it still left open the possibility of high numbers of reds caught. They need a more definite accounting.

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Summary

The difference between the two positions is that the Canadian's want a season long accounting based on numbers of fish. Our view is that any annex that would deal with Stat. Wk. 31 and beyond could not inhibit our access to domestic stocks.

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Appendix B.3. District 104 Work Group notes dated 16 February 1989.

Noyes Island (District 104)

U.S.

Four-year Annex with provision for an evaluation of the post week 31 sockeye catch percentage evaluation after two years.

Pre-week 31 fishing day formula:

July 1 Wk.	27	28	29	30
1989	15	39	39	39
1990	15	39	39	39
1991		15	39	39
1992		15	39	39

Pre-week 31 sockeye catch limit - 560,000. Lid in case of high availability. We would be hindered from managing to the number, in years of low abundance by the number of days.

Canada

Annex length not firm.

Pre-week 31 fishing day formula (Dependant on Annex Length)

July 1 Wk.	27	28	29	30
1989		15	39	39
1990		15	39	39
1991		15	39	39
1992		15	39	39

Pre-week 31 sockeye catch of 366,000. The three-year payback is computed from base of 480,000, subtracting 80,000 to counter our proposal (560,000 - 80 over 480), and 34,000 for payback of "overage" during 1985-1988 Annex. Their "overage" is most inappropriate considering their conduct in this area.

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Post week 31 sockeye catch percentage of total salmon catch control program. Percentages the same--attached example.

No penalty -- review performance of this new program after two years. Inseason determination of CPUE and sockeye to catch ratio for inseason management is a new process, there will be some inaccuracy.

Week 33, 34, 35 -- sockeye catch percentage of the total catch will not exceed 12%. This percentage is well above past levels.

High sockeye to moderate pink salmon abundance during Stat. Wks. 31, 32, and 33 could excessively restrict our management -- could have repercussions throughout southern Southeast.

Using pink catch to boat-day (CPUE) takes precedence over the sockeye catch percentages. If the CPUE in a given week is over 2,000, we manage for pink stocks; the sockeye total catch provisions do not kick in.

Post Week 31 sockeye catch percentage of total salmon catch control program. Percentages the same -- attached example.

Penalty provision in the event a given weeks performance percentage is exceeded during a fishing period during that week.

Week 33, 34, 35, if the sockeye catch percentage of the total catch exceeds 12%, the portion of the sockeye catch over 12%.

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CPUE ranges, 1977 to 1988

Stat. Wk. 31 - 138 to 4644

32 - 935 to 6006

33 - 389 to 5000

BVA
2/16/89

Appendix C. What if sockeye are abundant simulation.

What would happen when sockeye are abundant:
nbtc#3,%sockd4.wk1;2/16/89 Look at the bottom of the worksheet, bub.
Year: 1988 filename: MODEL88 PRN

Actual catch and catch/boatday:

Statweek	chinook	sockeye	coho	pink	chum	Total	%Sockeye of total	Boatdays
26	0	0	0	0	0	0	ERR	
27	0	0	0	0	0	0	ERR	
28	10	16280	2581	9526	23743	52140	31.2%	132
29	68	130926	8826	44328	33980	218128	60.0%	376
30	64	101583	8819	54993	7517	172976	58.7%	114
31	1	30244	1302	16761	9133	57441	52.7%	73
32	24	211083	16843	374272	29331	631553	33.4%	348
33	5046	68003	21957	864652	56776	1016434	6.7%	446
34	2085	14727	10804	621188	31411	680215	2.2%	135
35	2795	15060	17134	1339243	60436	1434668	1.0%	439
36	13	3345	6080	231289	20137	260864	1.3%	156
37	0	0	0	0	0	0	ERR	0
								2219

Statweek Percent Sockeye With:

Statweek	Pink*2	Pink*3	Pink*4	Pink*5	Pink*6
26					
27					
28					
29					
30	44.6%	35.9%	30.1%	25.9%	22.7%
31	40.8%	33.2%	28.1%	24.3%	21.4%
32	21.0%	15.3%	12.0%	9.9%	8.4%
33	3.6%	2.5%	1.9%	1.5%	1.3%
34	1.1%	0.8%	0.6%	0.5%	0.4%
35	0.5%	0.4%	0.3%	0.2%	0.2%
36	0.7%	0.5%	0.4%	0.3%	0.2%

Actual pink salmon catch times x:

Statweek	*1	*2	*3	*4	*5	*6
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	9526	19052	28578	38104	47630	57156
29	44328	88656	132984	177312	221640	265968
30	54993	109986	164979	219972	274965	329958
31	16761	33522	50283	67044	83805	100566
32	864652	1729304	2593956	3458608	4323260	5187912
33	621188	1242376	1863564	2484752	3105940	3727128
34	1339243	2678486	4017729	5356972	6696215	8035458
35	231289	462578	693867	925156	1156445	1387734
36						

Actual: Catch per boat day (from Runtime):

Statweek	chinook	sockeye	coho	pink	chum	total
26	ERR	ERR	ERR	ERR	ERR	ERR
27	ERR	ERR	ERR	ERR	ERR	ERR
28	0.1	123.3	19.6	72.2	179.9	395.0
29	0.2	348.2	23.5	117.9	90.4	580.1
30	0.6	891.1	77.4	482.4	65.9	1517.3
31	0.0	414.3	17.8	229.6	125.1	786.9
32	0.1	606.6	48.4	1075.5	84.3	1814.8
33	11.3	152.5	49.2	1938.7	127.3	2279.0
34	15.4	109.1	80.0	4601.4	232.7	5038.6
35	6.4	34.3	39.0	3050.7	137.7	3268.0
36	0.1	21.4	39.0	1482.6	129.1	1672.2
37	ERR	ERR	ERR	ERR	ERR	ERR

Pink*2: Catch per boat day (from Runtime):

Statweek	chinook	sockeye	coho	pink	chum	total
26	ERR	ERR	ERR	ERR	ERR	ERR
27	ERR	ERR	ERR	ERR	ERR	ERR
28	0.1	123.3	19.6	144.3	179.9	467.2
29	0.2	348.2	23.5	235.8	90.4	698.0
30	0.6	891.1	77.4	964.8	65.9	1999.7
31	0.0	414.3	17.8	459.2	125.1	1016.5
32	0.1	606.6	48.4	4969.3	84.3	5708.6
33	11.3	152.5	49.2	2785.6	127.3	3125.9
34	15.4	109.1	80.0	19840.6	232.7	20277.9
35	6.4	34.3	39.0	1053.7	137.7	1271.1
36	0.1	21.4	39.0	0.0	129.1	189.6
37	ERR	ERR	ERR	ERR	ERR	ERR

Pink*3: Catch per boat day (from Runtime):

Statweek	chinook	sockeye	coho	pink	chum	total
26	ERR	ERR	ERR	ERR	ERR	ERR
27	ERR	ERR	ERR	ERR	ERR	ERR
28	0.1	123.3	19.6	216.5	179.9	539.3
29	0.2	348.2	23.5	353.7	90.4	815.9
30	0.6	891.1	77.4	1447.2	65.9	2482.1
31	0.0	414.3	17.8	688.8	125.1	1246.1
32	0.1	606.6	48.4	7453.9	84.3	8193.2
33	11.3	152.5	49.2	4178.4	127.3	4518.7
34	15.4	109.1	80.0	29761.0	232.7	30198.2
35	6.4	34.3	39.0	1580.6	137.7	1797.9
36	0.1	21.4	39.0	0.0	129.1	189.6
37	ERR	ERR	ERR	ERR	ERR	ERR

Pink*4: Catch per boat day (from Runtime):

Statweek	chinook	sockeye	coho	pink	chum	total
26	ERR	ERR	ERR	ERR	ERR	ERR
27	ERR	ERR	ERR	ERR	ERR	ERR
28	0.1	123.3	19.6	288.7	179.9	611.5
29	0.2	348.2	23.5	471.6	90.4	933.8
30	0.6	891.1	77.4	1929.6	65.9	2964.5
31	0.0	414.3	17.8	918.4	125.1	1475.7
32	0.1	606.6	48.4	9938.5	84.3	10677.8
33	11.3	152.5	49.2	5571.2	127.3	5911.5
34	15.4	109.1	80.0	39681.3	232.7	40118.5
35	6.4	34.3	39.0	2107.4	137.7	2324.8
36	0.1	21.4	39.0	0.0	129.1	189.6
37	ERR	ERR	ERR	ERR	ERR	ERR

Pink*5: Catch per boat day (from Runtime):

Statweek	chinook	sockeye	coho	pink	chum	total
26	ERR	ERR	ERR	ERR	ERR	ERR
27	ERR	ERR	ERR	ERR	ERR	ERR
28	0.1	123.3	19.6	360.8	179.9	683.7
29	0.2	348.2	23.5	589.5	90.4	1051.7
30	0.6	891.1	77.4	2412.0	65.9	3446.9
31	0.0	414.3	17.8	1148.0	125.1	1705.3
32	0.1	606.6	48.4	12423.2	84.3	13162.5
33	11.3	152.5	49.2	6964.0	127.3	7304.3
34	15.4	109.1	80.0	49601.6	232.7	50038.8
35	6.4	34.3	39.0	2634.3	137.7	2851.6
36	0.1	21.4	39.0	0.0	129.1	189.6
37	ERR	ERR	ERR	ERR	ERR	ERR

Pink*6: Catch per boat day (from Runtime):

Statweek	chinook	sockeye	coho	pink	chum	total

26	ERR	ERR	ERR	ERR	ERR	ERR
27	ERR	ERR	ERR	ERR	ERR	ERR
28	0.1	123.3	19.6	433.0	179.9	755.8
29	0.2	348.2	23.5	707.4	90.4	1169.6
30	0.6	891.1	77.4	2894.4	65.9	3929.3
31	0.0	414.3	17.8	1377.6	125.1	1934.9
32	0.1	606.6	48.4	14907.8	84.3	15647.1
33	11.3	152.5	49.2	8356.8	127.3	8697.1
34	15.4	109.1	80.0	59521.9	232.7	59959.1
35	6.4	34.3	39.0	3161.1	137.7	3378.5
36	0.1	21.4	39.0	0.0	129.1	189.6
37	ERR	ERR	ERR	ERR	ERR	ERR

Appendix D. Analysis of Canada's proposed payback.

nbtc#3;%sockd4.wk1;2/16/89;10a

What would have happened in 1988 under the payback proposal of 2/16/89 @0100hr:

Stat.Wk	[A] Target%	[B] Max % W/O Penalty	[C] Actual%	[E] Sockeye Catch Under PSC [W]-[Y]	[F] Catch Under PSC Mgmt. [X]-[Z]	[G] Maximum Allowed Catch [B]*[F]	[H] Sockeye Overage [E]-[G]	[I] Reduced Days in Yr+1<Wk31 [H]/20,000
26	-	-		-				
27	-	-		-				
28	-	-	0.312	16280	52140			
29	-	-	0.600	130926	218128			
30	0.240	-	0.587	101583	172976			
31	0.170	0.270	0.527	30244	57441	15509	14735	0.74
32	0.070	0.170	0.334	124539	383438	65184	59355	2.97
33	0.120	0.120	0.067	20401	304931	36592		
34	0.120	0.120	0.022	14727	680215	81626		
35	0.120	0.120	0.001	15060	1434668	172160		
36	0.120	0.120	0.013	3345	260864	31304		
37	0.120	0.120	-	-				
				453760	3303937	371071	74089	3.70

Actual catch in Stat.Wk	Chin	[W] Sock	Coho	Pink	Chum	[X] Total
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	10	16280	2581	9526	23743	52140
29	68	130926	8826	44328	33980	218128
30	64	101583	8819	54993	7517	172976
31	1	30244	1302	16761	9133	57441
32	24	211083	16843	374272	29331	631553
33	5046	68003	21957	864652	56776	1016434
34	2085	14727	10804	621188	31411	680215
35	2795	15060	17134	1339243	60436	1434668
36	13	3345	6080	231289	20137	260864
37	0	0	0	0	0	0
	10106	591251	94346	3556252	272464	4524419

Appendix D. (page 2 of 2.

Foregone catch in 1988 resulting from PSC annex:

Stat.Wk	Chin	[Y] Sock	Coho	Pink	Chum	[Z] Total
26						
27						
28						
29						
30						
31						
32	10	86544	6906	153452	1203	248115
33	3532	47602	15370	605256	39743	711503
34						
35						
36						
37						
Total	3542	134146	22276	758708	40946	959618

Catch we would have lost in Year+1 < Stat. wk. 31 (assuming Yr+1=1988):
Actual Days Fished=6.00, Pay-back days from Yr-1 = 3.70

Stat.Wk	Chin	Sock	Coho	Pink	Chum	Total	Actual Days Fished
26	0	0	0	0	0	0	
27	0	0	0	0	0	0	
28	5	8140	1291	4763	11872	26070	2days(39hr)
29	102	196389	13239	66492	50970	327192	3days(54hr)
30							1day(15hr)
31							
32							
33							
34							
35							
36							
37							
Total	107	204529	14530	71255	62842	353262	

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