

DRAFT MINUTES
Klamath Fishery Management Council -- Meeting #40
Eureka Inn, March 1, 1995
Eureka, California

ADMINISTRATION

8:30 a.m. Convene.

The meeting was called to order by Chair McIsaac with a quorum of members present (Attachment 1). Letters are on file for the alternates present today. The members introduced themselves and Parker gave an overview of the background materials pertinent to the meeting (attachment 2).

Q: Tricia, how would you characterize the comments you received on the minutes?

A: The comments add to the discussions, but do not alter the motions or actions.

#1. Review and approve the agenda (attachment 3).

Changes to the agenda: a) move election of the vice chair (Agendum #3) to tomorrow's agenda, b) add "identification of the next HAWG meeting date" as the last item on the agenda, and c) move Agendum #18 to between #3 and #4.

Q: Don, were you planning to discuss your proposed procedure for revisiting the spawning escapement floor at this meeting?

A:(Don) No, this isn't on the agenda because I intend for it to be addressed within the arena of the harvest allocation work.

**** Motion (Wilkinson):** For the purpose of discussion, I move that we approve both sets of minutes as amended.

Seconded by Troy Fletcher.

*****Consensus.** Minutes from the August and October meetings approved.

18. Report on status of Trinity re-authorization.

Grover: The Trinity Task Force recommends re-authorization to extend the restoration program to the year 2002. The draft legislation is in OMB right now and is expected to move through OMB to Congress as written. The timeliness of the legislation moving through Congress is a concern due to funding ceasing on September 30, 1995. I will provide copies of the draft legislation to you with the minutes, see new (attachment #18).

McIsaac: The letter in our packet indicates that there is communication between California and Bureau of Reclamation. LB, is there anything that you would like to add to what Jerry has said?

Boydston: No, not really, Mr. Chairman. The Trinity River work is carried out under our Inland Fisheries Division so I am not necessarily the right person for this description. At our salmon information meeting in Santa Rosa, I believe that Tim Farley (Inland Fisheries Division) indicated what communications we had with the Department of Interior for funding that project.

McIsaac: Jerry, what kind of a time window is there with respect to some sort of finality to this situation?

Grover: It could go up to the point where the Congress and Senate address 1996 negotiations. It could be temporarily extended.

(Update March 13: Trinity River legislation cleared OMB. It has been sent to the Hill.)

McCovey: What kind of proposals would go forth if it doesn't pass? Do we have backup plans?

Grover: Right now, the fiscal planning of the government is to cut. All programs and some agencies are being reviewed. To get additional monies may be difficult at this time.

McIsaac: We should put this on the fall agenda to discuss what we would do for backup monies.

McInnis: If the Trinity River program is not re-authorized, will the hatchery operation still continue? Will those operations include tagging and monitoring work on the success of hatchery operations?

Boydston: Operations of the hatchery are a separate contract from the Trinity Act . If authorization doesn't go through, then hatchery operations (spawning and feeding fish) will continue but monitoring would not occur. The hatchery funding does not even include a biologist.

Barnes: There are approximately one and three-quarter million dollars per year out of the Trinity program that is directed to the Department of Fish and Game for evaluation of the fisheries. There are various programs which you may want to look into to consider as back up plans. LB can tell you where the funding for that comes from, but you need harvest assessment in the river by the Department as well as the tribes. For this reason, we need the weir facilities as part of the minimal operation plan to predict ocean populations the following year.

McIsaac: It is certainly my feeling that operations should include more than just rearing hatchery fish. It should also be evaluation of whether or not you are meeting mitigation goals. I certainly feel tagging fish is an integral part of that strategy. I urge that the Service consider amending the existing contract to provide more comprehensive monitoring.

Boydston: Mark Zuspan, from the Trinity Program, is here and may be able to answer questions regarding what is covered under the current monitoring project.

Zuspan: Yearling fall chinook are marked. Coho and spring chinook are not marked. Seven and one half percent of restoration program funding goes toward this monitoring project.

Fletcher: Spring chinook and coho are really important. They need to be marked in order to

assess the impact on sensitive stocks. Is there any potential for any additional types of funding to monitor these important fisheries? National Marine Fisheries Service, and others, are going to have to have that information to assess the impact of different fisheries on these sensitive stocks. How are we going to even pursue basic fisheries if we don't know what is out there and what we are doing with the existing stocks?

McInnis: You are right. The needs are there. We are in the process of looking at spring chinook. I echo Grover's comments in regards to the climate for the federal budget right now. Right now, marine fisheries are prioritized as a priority budget area, so, hopefully, some good will come of that. As far as the elimination of government agencies, Commerce is one of the ones that is being considered for elimination. I hope it is in alphabetical order that shows Commerce as the first on the list. Commerce happens to be the department in which the National Marine Fisheries is, so I am not one to ask for long term commitments.

McIsaac: Monitoring of tags is critical to see if mitigation is being carried out. I urge that if things don't look good to continue monitoring then we should pursue having the mitigation contract for Trinity dam opened up for review.

Fletcher: Certainly we would not be in the situation that we are in except for the operation of those hydropower projects. Monitoring efforts are essential in regards to the performance and success of hatcheries mitigating for the lost habitat, and therefore the lost fish stocks..

Boley: I would like to take Jerry Barnes up on his offer to sit down for a few minutes and identify some minimal base program needs for monitoring. We need a program that would give us stock abundance projections for the next year, harvest rates for the past year by age class and structured harvest rates. We would also need to know what additional programs would be required for tribal/non-tribal shares for each of the different species.

Barnes: We are working on it now.

McIsaac: I suggest that, during the course of the day, other Council members think about Scott Boley's list to the Technical team so that before Jerry Barnes leaves later today we could give him a more comprehensive list. This more comprehensive list could be followed up on a later date should the mitigation contract be opened.

Bitts: I would like to add to that list. We need to know the present natural spawning component of the run compared to the present hatchery component of the run.

Boley: In the budgetary climate we are facing, we are going to be kidding ourselves if we don't recognize that funding is going to be pretty grim. We need to know what the no frills, minimal program is that would give us the required information.

Q. What kind of support is needed for ocean fisheries coded wire tag analysis?

A. Boydston: The ocean fisheries program is not threatened. It is nearly all funded by Fish and Game with some Sport Fish Restoration funding. These funding sources will continue the expansion for the ocean fisheries. The Klamath River component will likely continue. We as an agency and maybe we as a group, have to evaluate whether a little bit of information, or information from one half of the data base (i.e. Klamath side but not Trinity side), is worth the

expenditure. With regards to the daily needs, we basically have the tools right now to continue managing on a pre-season basis. We have a stock projection model that is based on the age composition information from the previous year. These are the kind of details the Technical Team needs to tell us for the basic minimum program. I don't know if the Council should be the ones clarifying what we need.

McIsaac: Jerry, is this something that you think the Technical Team could work on and provide us with a comprehensive mitigation associated monitoring needs list sometime soon?

Barnes: We could give you our best estimate of the basic minimum monitoring needs program very soon. It is pretty well fixed what the minimum needs are. Then you would have to segregate it by what is already in the funded program. For instance, as I understand it, the tribal fisheries are not dependent upon restoration funding and the entire Klamath side of the basin is not dependent upon restoration funding for spawning surveys and hatchery operations. So what you are really talking about is the no frills estimate of the data you need from the Trinity. George Kautsky has talked to us about the monitoring needs a couple of meetings ago. We have a list of all the current monitoring that we can compare to what we really need. The difficult part would be coming up with cost breakdown by species. Mark Zuspan may be able to answer: what does it cost to operate the Willow Creek weir on annual basis from August 1st through usually November?

Zuspan: I could estimate the total weir operating costs. It is harder to break the costs down by species.

Grover: Reclamation does have authority to provide funds for restoration. Money used for operation and maintenance of the Central Valley Project (e.g. hatchery operations) can also be used for monitoring fish populations. This is a different budget track than the restoration program funding.

McIsaac: I will put this item on the Agenda for tomorrow afternoon.

#4. Summary of PSMFC workshop on mass marking.

McIsaac: The recommendations of the group are that mass marking not involve chinook salmon at this time. A workshop was held in early December in Vancouver, British Columbia, under the auspices of the Pacific Salmon Commission. A considerable amount of talent was corralled to work out the practical details of whether or not it is feasible and desirable to mass mark hatchery fish. The conclusions and recommendations are available in printed form (Agendum #4). There is a very large written report that is part of that effort that has not yet been finalized. Part of the strategy is sharing all of these conclusions coast wide including seminars in Portland, San Francisco and Seattle. I understand there is one scheduled for Thursday, March 9, at 1 p.m. in conjunction with the PFMC meetings in South San Francisco. Here are the highlights:

- They considered a variety of effects on the Pacific Salmon Treaty and the ongoing management up and down the coast and talked about whether or not any marking situation could be applied.
- They talked about whether or not such a system could indeed actually protect wild fish.

- They also talked about logistical considerations that might make it work. Some of these include: 1) Changing from a 1 mm coded wire tag to a 1.5 mm coded wire tag with an extra boost of magnetism so that it could be detected a little easier. 2) The adipose fin should be used for mass marking as opposed to ventral fin clips, or other fin clips, because of: higher mortalities associated with other fin clips, regeneration of other fin clips and a variety of other problems. 3) To get around the question of "how do you tell an adipose clipped fish that has a tag in it" versus identifying a fish that does not have a tag in it? They discussed new technology for the dock samplers or the spawning surveyors that amounts to a wand that could be passed over the nose of the fish that beeps if there is a tag present. In a cannery type situation or hatchery situation, fish can be put into a fairly large tube that beeps if the fish is tagged. So the mechanics of using the coded wire tag system could to remain in effect and retain integrity for evaluation. They recommended that mass marking of hatchery fish include double index tagging. For example, if 200,000 hatchery fish are to be tagged and clipped, then there would have to be a second group of 200,000 fish that would be tagged but not clipped. These 2 groups would go out into the fishery. In the return from the fishery, you would have a measurement of how selective the fishery was. This is important to address the concerns that wild fish could be handled and rehandled without ever really knowing what the handling mortality is on those fish. By double index tagging, you would be able to calculate what that effect is.
- The final part of their recommendation was that they thought mass marking was only feasible for coho. They recommended that it not be done for chinook. Chinook are a bigger problem because a larger number of fish would have to be tagged. There is a questionable ability to mass mark chinook at the small size necessary for the spring fish that leave the hatchery in the fingerling stage. Large tags in coho could be detected, but tags in chinook may be harder to detect due to deeper tag penetration. In addition, recommending that it could be done for coho allows for more finite geographic application because cohos generally don't migrate as far as chinook do. Chinook tagging would obligate a program from Alaska to California. For coho, Puget Sound and Lower Georgia Strait could be used as an aggregate area or the OPI area could be used as an aggregate.
- They also recommended that if anyone is interested in mass marking hatchery fish, that they make an announcement 2 years in advance so that there could be some sort of coordination and obligation between all the affected agencies. For example, the Washington Department of Fisheries and the British Columbia Province have been talking seriously about a Puget Sound and South Georgia Strait aggregate. The Oregon Department of Fish and Wildlife considered this advanced protocol request and at the PSFMC meeting announced that they are interested in pursuing tagging 1995 brood coho salmon in the OPI area. Initial indications are that the State of Washington is certainly willing to do this.

Q. Was there any discussion about hooking mortality studies at this meeting?

A. There was a bit of discussion. They pointed out that the estimated mortality rate had been recently revised based on a study and if there are any changes for troll fishing mortality rates that they be based on the study. A representative of PCFFA questioned the validity of the current troll hooking mortality rate and suggested that the disaster relief funding run through PSMFC should fund a new study to clarify this issue. There was also some comment that Amendment 11 to the PFMC's Salmon Plan is binding. If there are further constraints on handling wild coho,

studies on mortality rates might give us information we need to determine if there could be any fishery at all on coho in marine waters.

Q. Boley: So, is the base recommendation to mark coho in the OPI area?

A. McIsaac: Yes. I'll also acknowledge that you don't try something like this on a one year time frame. We are talking about a 5 year commitment to any marking program. We will only do this if the major fish release agencies are committed to doing it for 5 years. Oregon Department of Fish and Wildlife was not in favor of reducing production to pay for mass marking. They are also not in favor of laying off biologists to pay for mass marking. Oregon Department of Fish and Wildlife feels it would be worth a 5 year demonstration to see if these benefits are worth the cost.

Q. Wilkinson: Can you tell us what the costs are?

A. McIsaac: For the 16 million coho released from the State of Oregon (10 million in the Columbia and about 6 million at a variety of facilities on the coast), the initial start up cost would be about \$600,000. This would include purchasing tagging trailers and tagging the fish. There would be extra cost for the tags and purchasing tubes, wands, etc. Annually it would then cost about \$600,000 to mass mark 16 million coho. So for the State of Oregon it would cost about \$1.2 million to get started and about \$600,000 per year thereafter. A much smaller figure would apply to the funding needed for the Federal Government's programs on the Columbia (2 hatcheries). The State of Washington would need a little more funding because they release a few more fish than Oregon does.

#5: Status of Technical Team Assignments.

A. 1994 postseason review

Barnes: Agendum #5, the corrected table of 1994 sport and commercial harvest divides the harvest into the 6 cells that we use in the Klamath Ocean Harvest Model. (Agendum #5C) As you can see, there is considerable difference between projected and actual landings.

Approximately 33% more Salmon were landed than projected. Because of the restrictions on harvest, the bulk of the impacts were south of Point Arena in the SOC cell. You can see that Klamath impacts in the SOC cell are small. I guess we were modeling a little over about 2% and it came out just a little less than that in the actual.

Q: Rich, do you remember approximately how many Klamath tags you recovered in the SOC cell?

A: Dixon: No.

Q: Isn't there a double expansion on actual harvest numbers for the percent of sampling and an expansion for the percent of fish that are tagged?

A: Barnes: If you look in the column labeled Klamath impact, it says 10,020 were projected. You have to add the in-river recreational projection of 1,400 to that to get 11,420 which is close to balancing with the projected tribal fisheries. You will also see that the actual ocean impact comes to approximately half of the projected ocean landings of Klamath fish. The actual impacts of in-river fisheries were almost exactly what they were projected.

Q: Which number is wrong for the tribal harvest?

A: Fletcher: The Yurok tribal harvest was 9,329. That is only 11 fish off from what was recorded on the megatable. I believe the Hoopa Tribe also felt their number was wrong; the number they gave for the Hoopa harvest was 2,360. When these corrected numbers are added up it comes to exactly what you have written (11,595). The total is right.

Boydston: I would like to bring up something that we talked about at our Harvest Allocation Work Group(HAWG) meeting. These projected impacts are based on preseason stock abundance estimates. You might look at this page and say, well, the ocean impact was something about $\frac{1}{2}$ of what it should have been. But, you need to remember that the 10,020 was based on preseason estimates. If we had perfect knowledge, we probably would have had the tribal fisheries catching closer to 8,000 fish and the non-tribal fisheries catching about 8,000 fish. I have asked Alan Baracco to go back through the data base using post season stock size estimates and impact rates. I will share this with the HAWG next time we get together. This exercise will give us a chance to look at what has happened over the years in terms of perfect knowledge and what we should have caught.

B. 1995 Stock size projections

Barnes: All of you should have received the stock prediction for 1995 done by the Salmon Technical Team (Agendum #5 B.1). The predictions are identical to the predictions in the preseason report from the Pacific Fishery Management Council. (Agendum #5.B.2)

Approximately 2/3rds of the Klamath Council were present at the Allocation Work Group meeting in Santa Rosa last week. We went into considerable depth about the stock predictions at the meeting. For the minority of the Council who were not present, I will go through this very quickly and give you just the facts. The stock prediction for the age 3 fish is 134,500. The stock prediction for age 4 fish is considerably down from last year-- 37,600 fish. The age 3 prediction is about twice that of the comparative '94 preseason prediction and the age 4 fish are approximately 50% of the comparative '94 season predictions. For last season's management, the postseason estimates were up for the 3 year olds and considerably down (about $\frac{1}{2}$) for the 4 year olds. Table 2 (Agendum #5 B.1) is a comparison of the pre and post season estimates. If you look at the 2 regressions that are in your PFMC report, you will note that the regressions (Figure 1 and 2) for both the age 3 fish and the age 4 fish, are forced through zero. This follows the direction from the Scientific and Statistical Committee (SSC) and the Salmon Technical Team (STT) of the PFMC to use conservative estimators in years of low abundance. In fact, the STT recommended that we force it through zero because of scientific credibility (e.g. when you have zero twos, then you can have zero threes). Otherwise, according to the model, you could have zero twos and the next year 7,000 threes and that's just not logical.

Q. Boley: Did the team discuss what to do when the stock size is projected to be in the mid point of the range?

A. Barnes: The computed Y-intercept would have given us approximately 155,000, instead of approximately 135,000, fish. Technical Team consensus was that, even though we are in the range of the data, we still needed to be conservative with our estimator. This was the primary reason that we used the zero intercept. We wanted to insure less risk to the resource. Incidentally, as you will see in the PFMC report this year, the STT did not modify the prediction

of the Klamath Technical Team. We are actually managing for that 35,000 escapement floor and so we are using conservative predictions. If we had no ocean or river fishery in '95 using these stock predictions, then we would have an in-river run of 82,000 fish. Using a 5 year average of the natural/hatchery split in the river, 51,000 fish or 62% would be spawning in natural areas. If we apply a 33-34% escapement rate, you would have a total spawning population of a little over 33,000 fish. Approximately 21,000 would spawn in natural areas. This is 14,000 under the floor which tells you that this year's management options are obviously not going to include full fisheries. Based on these predictions, there will be reduced in river and ocean fisheries.

Q. McIsaac: In the PFMC report, the graph on 4 year olds (Page II-9) shows the 1995 projections. Is the 1988 brood point correctly shown as zero?

Q. Barnes: That needs to be corrected. The brood point for 1988 should be at 20,000 (Figure II-4), Agendum 5B.

A. McIsaac: Is it just a typo in the graph or is the forecast lowered because of that?

A. Barnes: No. The regression is still correct.

Q. McIsaac: When I look at the '95 projections (Figure II-4), I see that the input value is between 20,000 and 30,000. At that level, there is a vertical stack of years that has ranged between the 1980 low point of about 30,000, up to the 1979 point of in excess of 80,000. If we correct for that 1988 data point, I see that most of the data points are above the line. How much conservative buffer is in these predictions? It is important to know how much conservatism is already in the base level and how much more we might want to add. It makes me think there is some buffer in already that is driving this regression through zero. The Salmon Technical Team has not recommended driving the regression through zero in the past. It is noteworthy that the recent year 4 year old forecasts have failed and they have all been too high. Do you know what the Y intercept for the standard statistical relationship would show for the forecast of fours on threes?

A. Barnes: In a few minutes, I'll find that regression in my pile of papers. If you had a computed Y intercept for age 4 on 3 for the Klamath for 1995, the age 4 population would have been 52,400 fish which is 45% more than projected currently. This was an alternative that the technical team examined during our stock projection meeting a few weeks ago. If you are interested in receiving a copy, I can have Bev distribute it. I can see why the technical team elected to use the forecast that they did. I think the Over Fishing Review Report recommended that conservative choices be made throughout the management process to further enhance the ability to get to the 35,000 natural spawning escapement floor. I think we just need to be aware of both the "conservative" and the "neutral" choices of regression equations.

McIsaac: Similarly, looking at the age 3 ocean population graph (Figure II-3), we see the 1995 projection is not outside the data set anymore. It has 6 points that are to the left of it. It looks like two of those points are very close to the line, 3 are above it, and only one is below it. I want to get a handle on the conservative buffer. What would it have looked like with a computed intercept?

Barnes: You would have gotten 20,000 more fish with a computed intercept.

Q. How is the forecast of hatchery contribution made?

A. Barnes: That was determined by using the average of the last 5 years. The team did not consider that to be a conservative estimator. We thought it was most indicative of populations with low abundance. And, as you will remember, the prediction for the hatchery percentage for 1994 shown in last year's preseason report was 52%. When we looked at the river population this year it was 70%. However, that was confounded this year probably to more of a degree on the Klamath side than it has in the past by the large percentage of Iron Gate fish that were forced to remain in the river and spawn. A considerable number of "hatchery intent" fish were found in Bogus Creek and some were found in the Shasta River. These were all hatchery fish that were counted as natural spawners. I might point out that, in the long term, any fish, irrespective of the parentage, that spawns in the river is considered a natural fish under the definition that we have been using for these many years. This year, for instance, that figure of 70% natural fish is obviously inflated by the many first generation hatchery fish that spawned naturally. Our estimate of the 62% naturals is based on the 5 year average. This was not conservative, it was simply that we thought the population this year best reflected what actually occurred in the last 5 years.

McIsaac: Jerry, you indicated that last year was the first year we deviated from the normal 74% natural proportion of the run. Can you recall what the assumption was last year and how it turned out? What is the assumption for this year?

Barnes: Last year we used a partitioned cohort analysis that gave us the ability to partition out the 4 different populations for the Klamath and the Trinity (e.g. #1 Klamath natural, #2 Klamath hatchery, #3 Trinity natural, and #4 Trinity hatchery). This was done in order to make separate predictions for the four populations by looking at the cohorts. It is highly dependent on what happened the previous year. If I remember ours was 54% and the STT reduced it to 49%.

McIsaac: I am not so much interested in the rationale behind it, just the performance of it. We always used 74% and then last year something else was used.

Barnes: That was because of the partitioned cohort method. It was not correct for the reason that I have given. It was underestimated by a considerable amount.

McIsaac: Do you remember what it actually turned out to be?

Barnes: It was 70% this year which includes all those first generation hatchery fish in the Klamath.

McIsaac: And what are the expectations for this year?

Barnes: 62 percent based upon the 5 year average of the hatchery/natural split.

McInnis: My recollection was that we did not have a fixed 74% proportion. We looked at a long term average and therefore, it did not change substantially from year to year because we were only adding one more data point.

Barnes: Well we had a decreasing trend. The primary thing was the 5 year period of low abundance.

C. 1995 KOHM

Barnes: We are capable of looking at alternatives that may develop for the Klamath Ocean Harvest Model (KOHM). The KOHM calibrations for the last few years are really sketchy because of the lack of a representative fishery in most of the cells. For example, this year, we only had one cell where we had a significant fishery and that was in the southern California cell. We are looking at a long term average with respect to the Sacramento Central Valley Index and with the Rogue Index. If you want any more explanation on the KOHM. Rich Dixon could answer your questions.

Q.(Boley): I'd be interested to see what is being done with the KOHM that is different from last year, or the year before, with regards to calibration. Are we using the same base period? Has there been any consideration to date of actual model performance over the last 3 years?

A.(Dixon): Yes, the base period is still the years from 1986 to 1990 (Agendum #5C). There has been no change in the calibration process. We set all the cells to full fishing to come out with a 56% overall harvest rate.

Q. (McIsaac): Rich, I have a question on adding to the base period. In the Klamath Management Zone sport fishery, there was not full fishing all year long, but there was full fishing in the month of May this year, why would you not activate the base period for the month of May based on last year's fishery?

A.(Dixon): We decided to stay with the same base period used in the past.

Q. (McIsaac): What is the rationale that adding more years by monthly cells is not going to add to the knowledge? I notice on our sheet that the Klamath Fishery Management Zone catch was exceeded last year. The projected impact was 10,800, but the catch went to 12,100. This was a substantial point of concern in my office. LB explained that some of this is due to errors in the forecast compared to the true abundance. This gets into questions of southerly shifting and all of that. If you use the 5 year data set, wouldn't you think more years would be helpful in getting a broader perspective on southern/northern shifts or was there exactly 2.5 years in 5 that were southerly and 2.5 years in the 5 that were northerly?

A. (Dixon): Again, the 5 years that were selected were selected in full. In 3 of the 5 years, there had to be some minor adjustments because of less than full fisheries in the various cells. A Salmon Technical Team member could discuss this further. The question of "why don't we add more cells?" has been brought up every year and every year it has been decided to go with the 5 year base period that we used in the past.

Boley: When we looked at our hatchery/natural ratios, we didn't use a long term average. We decided that we were going to look for 5 year average because of the trend and we decided to look at management at the floor. We decided that we'd be conservative and drive it through zero even though most of the points lay above the line. The model has not performed well in the last 4 years, yet the fishery model calibration has not changed. Why are we still just going on with business as usual?. Why we are not updating the model every few years?

McIsaac: In particular, monthly cells show where there was a full amount of fishing. When you have full fishing for the full month of May in a full area like the KMZ sport and you sample it

heavily and get a lot of tags, then you have learned something more than you knew before. It seems like this information could be used to update that particular cell in the KOHM. Why can't we do this?

Boydston: Well, what is missing is the comparable information from the cells that were not fished. The KOHM is basically a 6x4 matrix that has 6 fishing areas in 4 months in the season (May through August). In this past year, you have 24 cells there and this last year, you have only gotten data for 11 cells. So, how do you update the model if you only have data for 11 cells? What do you do about the missing ones? If one or two cells are missing then the technical people estimate a figure for the missing data. In the case of only having data for 11 out of 24 cells, you would almost have to be reconstructing a whole fishery. The KOHM has some base years, each of which produces an estimate of impact, and then it averages those base years. So you would be averaging incomplete data.

McIsaac: What do think will happen in the May cell for the KMZ sport for 1995?

Dixon: I don't know.

McIsaac: Can any one help me with the question of the Rogue River mouth terminal fishery in the summer. Last year there was some tissue taken for genetic stock identification (GSI) and while it was not the desired sampling level, it did meet the minimal threshold level. The GSI test found Klamath fish, Sacramento fish, Rogue fish and some Columbia River fish. We even found Snake River fish. If we get around to looking for an option for Rogue River mouth terminal fishing in 1995, will any of that information be used or we will be using the KOHM cell estimate for the 5 year base period?

Dixon: That is out of my area. I don't know.

McIsaac: Any other questions on the capacity of the KOHM for our use here this week?

BREAK RECONVENE 10:45

6. Report from the Harvest Allocation Work Group.

Wilkinson: The Harvest Allocation Work Group (HAWG) has met twice since our last Council meeting. We met in Brookings, January 18th and 19th and we also met in Santa Rosa, February 21st, 22nd and 23rd. There are many items on the table for discussion of the HAWG. In my opinion, there is progress. This work group has not scheduled any further meetings, but we intend to at least meet informally today or tomorrow to try to decide when our next meeting will be. I would ask the Chair to entertain comments from other HAWG members on their opinions or attitudes about our process.

McIsaac: Are there any other members of the HAWG subcommittee that would like to comment on the proceedings? Seeing none, I might just amplify one of the points Keith has made. He has mentioned the word progress. Although he gave a very brief report, there has been significant dialogue on items that will result in a long range plan and add some stability to the situation. A variety of subjects have been discussed and maybe we will have an opportunity to talk about these discussions at some point during the next few days. I would just amplify that I think progress has been occurring in those discussions and while the fruit may not be borne for the 1995 season, I

would hope that it could result in a look at some stability and some improvements for the resource and the fisheries beyond 1995.

#7. Other proposed options to achieve Council goal in '95.

McIsaac: #7 and #8 and #10 are all agenda items that move us towards the goal of having this Council make some recommendations that would be considered by the PFMC. Next week, PFMC will be meeting in order to send 3 options out for public review that address ocean salmon fishing. Usually, this Council meets for a couple of days in February and a couple of days in March for a time frame of about 4 days. The meat of those discussions is now scheduled for the balance of today and could even continue into tomorrow morning. At this point in time, it is appropriate for any Council members who have any ideas on how they would like to see these options that might go out for public review get bounced around for discussion.

Wilkinson: I am not going to avail myself of the opportunity to put any of my own options out for discussion, but I did attend a meeting of the Klamath Management Zone Fisheries Coalition (KMZFC) yesterday and they may like to report to this Council. In the audience is Bob Jones, KMZFC member and a member of the Salmon Advisory Sub-panel for Oregon Recreational Ocean Fisheries. He might be able to give you an indication of the results of yesterday's meeting of the KMZFC. He may also summarize the meeting of the Oregon Coalition in Newport.

McIsaac: Keith, before we hear from Mr. Jones, the Council should entertain discussion on the base allocation between ocean and river or between tribal and non-tribal harvest categories. Is anyone on the Council interested in making a motion that might set these particular boundaries? There is ongoing litigation involved and maybe Mr. Bitts would want to comment.

Bitts: Yes, we do have an appeal in process against the decision rendered last Fall by the Secretaries of Commerce and Interior over the allocation of 50% to the tribes. We expect a result in that appeal about 1 year from now (plus or minus a couple of months). We expect oral arguments to be heard sometime this summer and we have high hopes for that appeal. However, pending that appeal, the decision at the District Court affirming the 50% allocations for tribes is basically the prevailing legal definition of tribal fishing rights. This Council is bound by its long term plan (e.g., follow the law and observe the prevailing legal definitions), so I suspect that this will be one of the few times that representatives from Commerce and Interior will agree with what I have to say; I suspect that we will be bound to 50% sharing between tribal and non-tribal fisheries this year and that the question in the range of options will occur within how we agree or fail to agree to define what is 50% sharing.

McCovey: I agree with you, Dave. I tend to agree that it is still up to interpretation how 50% is going to be determined.

**** Motion(McCovey):** The only thing that I am authorized to present for 1995 is the 50% option with fish-for-fish accounting, so I will put that on the table for consideration.

Seconded by Fletcher.

Discussion

Fletcher: Dave is exactly right. Right now, we can only support a fish-for-fish option out of this Council. We still have some technical considerations that have to be reviewed. In the future, we need to pursue in-depth review of the adult equivalent issues.

McIsaac: Rod McInnis, I received and I believe that the regional office received, a letter in response to this Council's prior consideration of the adult equivalency fish-for-fish and other accounting methods (agendum #7). The letter indicates that the National Marine Fisheries Service was going to do a little research on the history of this issue and perhaps offer some guiding comments.

McInnis: I don't have an absolute answer for you. What I can tell you is what I have found in discussing the adult equivalency issue with National Marine Fisheries Service (NMFS) Northwest Regional Office people. The Northwest Regional office is looking into adult equivalents not so much from a fishery allocation prospective, but also combining the mortality that occurs in other life stages and determining what the impact would be in terms of adult equivalents at dams, out migration, etc. With regard to fishery allocation and adult equivalency, the information that I gathered indicated that while there is a biological basis for chinook to have a probability of maturing in any given year of their life cycle, the probability of a 3 year old reaching the spawning grounds is less than the probability of a 4 year old reaching the spawning grounds. This biological basis serves as the foundation for what will eventually come down to be a negotiated agreement among the parties involved in the allocation arrangement. Therefore, if in this case, there is no agreement as to how these adult equivalents would be applied, we would be looking to receive a recommendation from the Pacific Council as occurred last year. Absent an agreement among the parties, allocation will be on a fish-for-fish basis.

Fletcher: I would just like to add a couple of things under what Rod said. It is not only the mortality associated with harvest but it is also the related fishery impact. I think that is where we really need to take a close look.

Boydston: First of all, I think that this motion is a little premature until the HAWG has completed a review of the document that California sent forward to the HAWG. It was mailed out to the members on February 14th, and there just hasn't been time to really review it yet. Rod, is fish-for-fish accounting going to be used as the default absent an agreement to some other kind of a sharing ratio?

McInnis: Yes, that is the way things are likely to go. I will say that, at this point, the record that is available for an action would have to include more information on adult equivalents and a more complete discussion of the adult equivalency issue than currently exists. Now, that discussion can be achieved without requiring complete agreement of all of the parties. The final decision on how this is to be ironed out will rest with the Department of Commerce.

Fletcher: I feel compelled to point out that we are still operating on an assumption. We lack legal clarification that adult equivalents are even called for in the Solicitor's opinion. Have you received any clarification on adult equivalents, Rod?

McInnis: As far as written clarification in a formal legal opinion, no I have not received feedback. We do have informal reactions from NOAA attorneys that the way the opinion is written adult equivalency could be interpreted to be part of the Solicitor's opinion. It does need further clarification.

Bitts: The Solicitor's opinion does allow for "up to 50% harvest, for a moderate standard of living, or whatever other agreement can be negotiated between parties," I just want to say, for the benefit of the people here who are non-tribal fishermen, that we have, over the course of many meetings, explored every avenue we could think of to ask the tribes if they would be willing to consider any scenario other than 50% allocation. The answer has uniformly been "no". The one exception is that the tribal representatives have certainly been willing to consider greater than 50% allocation for tribes. It is with this exception in mind that I come to the table aware that 50% is where we are going to be for this year. Secondly, we have a motion on the floor that is pending; I want to ask Pliny if his motion intends that fish-for-fish be one option forwarded from this Council or the only option forwarded from this Council?

McCovey: I intend it to be one option considered for forwarding.

Q: Rod, when do you feel that NMFS would complete this review on a regional basis of adult equivalents(or some other equivalent use)? Is that exercise to be completed before the April PFMC meetings, or are you looking a much longer time frame to complete that exercise?

A. (McInnis): That exercise was to have been completed several months ago. It is not within my control. All I can tell you is that my best guess, is that it will not be available for the April Council meeting. It is wrapped up in the Endangered Species Act reviews as well as fisheries management.

Fletcher: In our opinion 50/50 sharing on a fish-per-fish basis is THE option, not ONE of the options. It is the only option that the tribe will consider, particularly in light of the short time frame prior to April.

****Amendment to Motion:** Boydston: Provide for a second option as part of Pliny's motion -- provide for adult equivalent sharing that would be tentatively based on a 53/47 non-tribal/tribal arrangement subject to Technical Team review.

Seconded by Dave Bitts.

Discussion

Q.(McIsaac): Now do we go to Pliny for his consideration or do we have to vote on it before Pliny even will consider it?

A. (Wilkinson): If Pliny considered it a friendly amendment, it could be accepted without vote. If he considered it adversarial, it could force the vote on the amendment before he has voted on the original motion. My solution to the whole thing would be to ask Pliny if he would consider withdrawing his motion and the second. Therefore, the amendment to the motion would become null.

Q. (McCovey): Could I ask for a 5 minute caucus?

A. (McIsaac): Yes.

CAUCUS UNTIL 11:30

Discussion (continued)

McIsaac: We have a proposed amendment from LB that has been seconded. This proposed amendment would be considered first by Pliny as a friendly amendment. If he decides that it is a hostile amendment then it would need to be voted on separately. Also in Pliny's court is a suggestion from Keith that he consider withdrawing his original motion and rewording it in some other manner. Pliny, what would you like to do?

McCovey: I would have to speak against the amendment. It is a hostile amendment simply because we don't have the data yet. It seems like we are shooting at a moving target. It seems like the percentages have changed. I would have to have more time to look it over.

McIsaac: What do you want to do with Keith's suggestion that you withdraw your original motion? Do you still want your original motion out there?

McCovey: I would still like to have my original motion considered.

McIsaac: Then we are in a position to vote on the proposed amendment by LB.

Wilkinson: I want to speak in opposition to the amendment and motion. I feel a responsibility as Chairman of the HAWG to have discussed these issues in that forum prior to acting on them here.

Boydston: I would like to see Pliny's motion with my amendment go forward because it really compels us to ask them to review both methods of counting. I am very concerned that we are going to get back to the HAWG and absent a motion of this nature, still be stalemated as to what we will go forward with. If we go forward with the motion, it tells us to do our work. I hope that everybody will consider this in voting on both the amendment and the main motion.

McCovey: I think that one of the things that we need to look at right now is the timing to bring things forward to the PFMC.

McIsaac: I would urge this Council to try to do what it can to give some recommendation to the Pacific Council. Oregon's interpretation of the Solicitor's language, is that ocean fish should have less adult equivalent value than fish going upriver. It is similar to a currency exchange between the U.S. and Canada and that is all it is. Remember that the Pacific Council is looking for 3 options. A high one, a low one, a middle one, or 3 of the same or however you want to consider them. I would hope that everybody's interest at this table could be accommodated in the range of options and that people would not try to preclude any consideration of a position and viewpoint on something that may, in the final result, not have a major affect with regard and at least let some technical folks tell us what it might be.

Bits: I share the hope that part of these issues could be accommodated by the range of options. However, I don't think there is any version of 50% that will accommodate the interests of non-tribal fishermen. It is simply that we are compelled by prevailing law to follow 50/50 sharing. This Council is asked by Congress to make recommendations on allocations to the PFMC. If all we are going to do is recommend one option, then the function of this Council basically becomes automatic and superfluous. The only thing the Council has left to do is determine allowable harvest in the first place. So, I would certainly hope that we would be able to decide on a range

of recommendations. I would support fish-to-fish accounting as one of the range of recommendations, but I won't support it if it is the only recommendation from this Council.

Fletcher: The only range of options that I think we could make, that the Solicitor's opinion allows, is the fish-for-fish 50/50 sharing option. As we heard earlier from Rod, it is not likely that we are going to get some clear legal clarification prior to April. The tribes are concerned because, at the HAWG meeting in Brookings, we discussed some percentages that were a little in the favor of tribal allocation. I think some of the latest percentages have swung the other way -- to come out in favor of the non-tribal fisheries. So, obviously, there has been a little adjustment and moving around of the parameters. I want to wait until the rest of the technical people have time to have a good look at it. I don't see that happening before the end of next week. So I can only support a 50/50 fish for fish scenario.

McIsaac: Rod McInnis, did you say that we would get legal clarity before April? Or that your review of adult equivalency use in the Pacific Region would be done by April? .

McInnis: My recollection, which is very fuzzy, is that this Council asked for a further clarification on the adult equivalency issue and whether or not the Solicitor's opinion accommodated or anticipated use of adult equivalencies. I cannot recall if it did that in a written format or if there is a commitment from Fish and Wildlife Service to go back and ask for that kind of a clarification. Is my recollection shared by anyone else on this Council?

Grover: We have not heard any movement on this issue in quite sometime.

Fletcher: My main concern is that when you couple some of the legal uncertainties with the definite technical uncertainties, then certainly we are going to have a lot of debate. We are looking at something that may be unrealistic to do in April.

Boydston: I think this technical stuff is driven too hard. It's the same table that you used for 50/50 adult equivalents. You just look at a different column. That is the only technical difference-- rather than figuring out landings, you look over at the impact column. It is the same analysis; it depends on how you define it.

Fletcher: In Brookings, we had a table that showed a 1.4% favor to the Tribal harvest, now the information we have is a 3% swing in favor of non-tribal harvest. This leads me to believe that there have been some technical changes that may be contentious and may require some debate amongst our legal people and our technical people.

McIsaac: L.B.'s motion would allow technical review to go forward. Just looking at fish-for-fish would shut that opportunity off.

Fletcher: I don't believe that those types of review will occur for the '95 season in a timely enough manner to allow us to make that informed decision.

McIsaac: But suppose they might be able to, would you want to preclude that technical work or not?

Fletcher: After talking with my technical advisors, I have learned that are not going to be make any comments on the parameters within that time frame.

Wilkinson: After listening to several compelling points of view, I still remain in opposition to the amendment and to the original motion for the very same reason I stated earlier. I certainly would, as a result of this discussion, like to hear a single motion on the range of options that might include a lot of our concerns.

McIsaac: Perhaps we could re-state L.B.'s proposed amendment into a range.

Boydston: My amendment would be to include in Pliny's motion a second option for sharing that would consider adult equivalents as the basis for the allocation and tentatively, subject to technical review, the allocation would be 53% non-tribal/47% tribal and those numbers are based on landed fish, calculated from adult equivalents. We would have 2 considerations in the range. One option would be fish-for-fish. The second option would be based on adult equivalents.

McCovey: I am still bound by the long term plan for the Klamath Council. The plan states that we will go with the legal interpretation. Until that legal interpretation is changed, I still have to go with the current 50/50 option on a fish-for-fish basis.

McIsaac: Rod, last year was there interpretation that 50/50 as referenced in the Solicitor's opinion, was meant to be fish-for-fish, or was this the decision of the Council (out of consideration for the technical difficulties described by the STT and lack of consensus in other arenas)? My question goes right to the heart of the matter, is there a legal opinion that stands or was last year a default situation?

McInnis: Last year was a default situation. The advice to the Pacific Council was that adult equivalents appeared to be accommodated under the Solicitor's opinion but that was the opinion of one more attorney. The Solicitor's opinion was not written in such a way that it clearly precluded every consideration of adult equivalents. It was the position of the Department of Commerce that given the variety of interpretations that could be put on adult equivalents and the lack of a consensus, that the Pacific Council should make a recommendation based on a fish-for-fish allocation.

McIsaac: Is it possible that the position might be repeated in 1995 for the same reason?

McInnis: That is certainly a possibility.

McIsaac: I would urge the Council members to think of this motion as something that preserves all of their positions and does not disallow anyone's position.

McInnis: I am responding for the NMFS and Department of Commerce. The opinion that I am rendering is my opinion of what our attorney's opinion would be. The only authoritative source for any further interpretation of that opinion would be the Solicitor's. I am offering what I can at this table as a member of this Council, I cannot offer more than that when we talk about the legal aspects.

Fletcher: I just want to point out that, it is clear that nothing was clear. Because nothing was clear, we had to clearly go with fish-for-fish. Since we are only talking about recommendations for '95, I don't see anything wrong with presenting one option, and that is the 50/50 fish-for-fish.

Wilkinson: I need clarification. Troy said we are only talking '95, yet I did not hear that in the original motion.

McIsaac: Pliny could you clarify if your motion refers to only 1995?

McCovey: Yes, my motion is for 1995.

Wilkinson: Well, we are starting to deal with a moving target up here. I have been raising opposition because of lack of definition. I assumed that we were discussing a motion that looked into perpetuity which caused me some major concerns. This clarification really changes the motion. I suggest, Mr. Chairman, that pursuant to further discussion, any action on this motion be deferred until after lunch.

McIsaac: Any further discussion? I think Keith has an excellent idea. Let's recess for lunch and then let's get back together at 1:15.

LUNCH ADJOURNMENT **RECONVENE 1:15 PM**

#7. Other proposed options to achieve Council goal in 1995 (continued)

McIsaac: Is there any further discussion on L.B.'s proposed amendment?

Fletcher: We are not prepared to vary from our original position that this Council's recommendation needs to be a fish-for-fish 50/50 sharing proposal. We would vote against the proposed amendment. We would not get in the way of any options that others would wish to forward to the Pacific Council involving how they divide up the 50/50 harvest in terms of your own non-tribal fisheries.

McIsaac: Any further discussion? Call for the question on this proposed amendment:

California Commercial Salmon Fishing Industry	Yes
Pacific Fishery Management Council	Abstain
California In-River Sport Fishing Community	Yes
California Department of Fish and Game	Yes
Non-Hoopa Indians Residing in the Klamath Area	No
Hoopa Indian Tribe	No
National Marine Fisheries Service	Yes
Department of the Interior	Yes
California Offshore Recreational Fishing Industry	Yes
Oregon Commercial Salmon Fishing Industry	No

McIsaac: The Proposed amendment to the motion failed. Is there any further discussion on the primary motion? Call for the question:

California Commercial Salmon Fishing Industry	No
Pacific Fishery Management Council	No
California In-River Sport Fishing Community	No

California Department of Fish and Game	No
Non-Hoopa Indians Residing in the Klamath Area	Yes
Hoopa Indian Tribe	Yes
National Marine Fisheries Service	No
Department of the Interior	No
California Offshore Recreational Fishing Industry	No
Oregon Commercial Salmon Fishing Industry	No

McIsaac: **Motion failed.** Would the Council like to make any recommendation whatsoever to the Pacific Council on the first fork in the road on Harvest Allocation in '95?

Bitts: Could we defer further discussion of this agenda item and proceed to Agenda Item #12? It appears lines are drawn on this as to how we approach 50/50. Perhaps we could move on to deal with other issues then come back to this later.

Grover: I'd like to point out that we do have a public comment period scheduled. Maybe there is a "Solomon" in the audience.

McIsaac: Good point. I had intended to ask for public comment before we got to the point of any recommendations relative to sharing within the non-tribal portion (i.e., what proportions of the harvest would go to the fresh water fishery and what proportion would go to KMZ sport fishing). Then, we will follow up on Dave's idea. I am concerned about this Council again being represented as a fairly impotent decider in terms of critical questions. That is what we will be portrayed as when next week comes and we don't have a recommended range of options.

Bitts: I object to that statement because I feel that in previous years we actually have made useful recommendations on ranges of options to PFMC. I would hope that we can still do that this year.

McIsaac: I think what Dave might be referring to is the motion that passed this Council last year that allowed for both positions to go forward.

Public Comment: Is there anyone in the audience who wishes to testify regarding this question of harvest allocation?

Mike Orcutt: It certainly seems to me, in terms of what the public is viewing here, that somehow the tribes appear unreasonable. The 2 no votes in the last motion, give the perception to the public that the tribes are being unreasonable. It is just that the tribes view things a little more conservatively. There are several items that are major considerations in the technical report from DFG that haven't been put forth in the discussions yet. Examples include: the lack of a predictor for 2 year olds, the inclusion of all impacts, and all fisheries in terms on non-Indian impact and Indian impact. Those are major items.

Carol Davis, commercial salmon troller from Brookings, Oregon: I just went down to the California Department of Fish and Game and I purchased my fees for the right to fish. We are a part of the Klamath Management Zone. We have had very few fishing chances in the last 10 years. I appreciate the fact that we had a few chances to fish last year. We enjoyed being able to fish out of our home town. I am still a commercial salmon troller. I make my living from catching salmon. I spent most of my time down in Half Moon Bay. I spent a lot of money down there. So

the money does not go to my community and I resent the fact that I cannot stay home. I really would like to stay home. I understand the situation but I just don't want you to forget that there are still commercial salmon trollers in the KMZ. Thank you.

Bob Jones: I had hoped to share with you the season shaping options we had talked about on February 28th, but we are still at a preliminary step in building the total season as to whether it is going to be 50/50 fish-for-fish or something else. I will tell you that we have a consensus with the Coalition. We are going to request a season that was similar in nature to 1993. We are not looking for any marathon fisheries. We are not looking for "get on the water, get off the water" opportunities. We are going to be asking for a few days in every month of the summer to have an opportunity to fish. We had hoped that we would be at a point of identifying what would be our quota then working with you on season shaping. We thought we would go through the process of in-river taking their share, commercial taking their share, and, as happened in '93 and '94, that the Zone Sport would be allocated 17%, the same as in past years. Rather than burden you now with days of the week, or limits of fish per day, or any of those kinds of things, I would rather have you spend the time figuring out how you are going to get the original allocation split.

Fletcher: It is going to be 50/50 sharing between tribal/non-tribal so that should help you get some information to start the process.

Jones: We can probably work with that, but I would have preferred to have a consensus from the Council on whether they agreed to 50/50 fish-for-fish sharing or L.B.'s proposal. I would have felt much more secure going forward and explaining to our group that this came out of the Council, but we are not at that spot yet.

McIsaac: If no one else is interested in testifying this afternoon, we will close the public comment period for now.

Council discussion (continued): Are there any other sharing motions or any other management options that the Council would like to recommend?

Boydston: If it is the appropriate time, I would like to make a motion with regard to non-tribal sharing between the ocean and river fishing sectors.

****Motion:** I propose that the river sport fishery have the same proportion of sharing as we have used for the last 2 years--12%. One additional provision this year would be that if there is any surplus of fish from the KMZ sport fishery that it be rolled into the river sport fisheries based on preseason modeling.

McIsaac: We have a motion on the floor that is silent to exactly how the non-Indian share is counted, but, however it is counted, it will be shared 88% marine and 12% fresh water sport. I would expect that we might have a subsequent motion to talk about the marine segment that would get to the sport/commercial sharing.

Seconded by Virginia Bostwick.

Q. (Bitts): Are you saying that if for any reason, there is an unused portion of the KMZ ocean sport quota, that it should be rolled into the in-river sport fishery?

A. (Boydston): That is correct. It would be based on preseason modeling. Let's say we had a 10,000 quota in the zone for chinook salmon and of that 2,000 were Klamath fish. Now of those 2,000 fish a percentage, say 50%, will be maturing fish. So you have 1,000 maturing Klamath fish allocated to the KMZ sport fishery. If you caught 1/2 of your quota, you got 500 fish but you had a quota of 10,000 so that would mean that you have foregone opportunity to catch 500 maturing Klamath which you would then assign to the river sport fishery.

Q. (Wilkinson): LB, would you include the 17% ocean allocation in your motion?

A. (Boydston): I accept Keith's suggestion to amend my original motion to provide for a 17% allocation of the ocean allocation of Klamath fall chinook to the KMZ sport fishery for the period from now to August 31st.

Bitts: I would like to say a couple of things in support of the motion with the amendment. First, fish remaining in the sport quota as of August 31st can only be taken and counted as this year's fish if they are taken in the river. This is a point in favor of this procedure. If fish are taken in the ocean after September 1st, then they are counted as next year's fish. Secondly, for the last 3 years, non-tribal fisheries have failed to catch 50% of the fish harvested, so I would support this motion and amendment package as a small measure to help non-tribal fisheries attain their share.

Boley: Although I support your concept of rollover, I have not been very successful with getting the concept through to the Pacific Council. In our deliberations last year, didn't we consider a rollover concept only between the recreational fishery and the August troll fishery?

McIsaac: I believe we did. During discussion, we will take a rare opportunity to recognize some of the audience who may be able to help us with these deliberations.

Bob Jones: Last year, I came before this Council and we talked about season shaping for the zone sport. At that time, I talked with Scott Boley and we discussed any fish that were left over in the sport season that were not used as part of the quota would be used in a commercial fishery in the zone. Now that was talked about in front of this Council last year and that was carried forward as far as I can remember. So it went from any left over fish last year in the zone sport to a commercial fishery but it had to take place in the zone so the zone reaped the benefit of the income that was produced there.

Boley: I think Bob's recollection is correct.

McIsaac: I will be looking to recommend strategies where there are no left overs in the KMZ sport fishery. I view this as some sort of small accident insurance.

Bitts: I have to wonder if we are going to be able to have a sport fishery in the zone in July and August given that we were virtually unable to have such a fishery last year due to coho constraints. I am not going to oppose the motion but I want to back off and reflect about it a little bit. If we knew in July that the KMZ sport season was over (because of coho constraints) and if we knew that there were fish still available, I might like to see those fish used in a different manner.

McIsaac: What you might expect to hear from Oregon next week on coho is that the forecast is up from last year. Last year the forecast was about 140,000 and we expected to see 125,000

spawners. This year the forecast is 219,000 so even with the 20% impact the spawning escapement would be around 175,000. Even in a worst case situation, the runs are expected to be about 40% better than last year. We are probably looking for 3 options to go out and the side boards are not zero and 20 but somewhere in between. We expect fisheries north of Cape Falcon to have one option that would involve coho fishing or directed coho fishing on northern stocks that would carry some coho impact. Sport fishing south of Falcon would be, at the same level as last year and will have about 1/2 the impact because of the recalculation of hooking mortalities for the sport fishery. So we are looking for 3 options and I think one of those would be very constrained--it would come very close to the 200,000 goal. I am not sure what the other two options are going to be. We will not go to the extreme of a 20% impact. After just considering state and Federal listing, we don't think that this forecast is strong enough to have it be a year to go right to the extreme. I still think that at the end of the April meeting, there should be a season on the books for KMZ fisheries to catch the 17% of the ocean share. If that doesn't work out, it would be by accident, not by design.

Bits: That may be an encouraging report from the point of view of KMZ sport/ocean fishing. Maybe it will be possible to structure the season like that. In either case, I would certainly like to have this kind of rollover in the "tool box" (i.e. available for use if appropriate). I am certainly not going to vote against it.

Boydston: This would be a message that we would be sending to the F&G Commission because they set the river regulations.

Wilkinson: I'll call for the question.

McIsaac: Jerry, do you want to point something out to us?

Grover: I wanted to point out to you that since you are dealing with a floor escapement, whatever you roll out of the ocean fishery into the in-river fishery, would take away from the escapement. You are dealing with a fuller year and my simple analysis would be that if you only met 1/2 of the quota for the KMZ for sport fisheries, that may be indicative of low abundance which means that you might be below the floor. These fish would probably come out at the expense of a spawning escapement; they would be below the quota.

McIsaac: Question has been called for. I will run through the roll call again.

California Commercial Salmon Fishing Industry	Yes
Pacific Fishery Management Council	Abstain
California In-River Sport Fishing Community	Yes
California Department of Fish and Game	Yes
Non-Hoopla Indians Residing in the Klamath Area	Abstain
Hoopla Indian Tribe	No
National Marine Fisheries Service	Abstain
Department of the Interior	Abstain
California Offshore Recreational Fishing Industry	Yes
Oregon Commercial Salmon Fishing Industry	Yes

Q: How did ODFW vote?

A. (McIsaac): As the Chair, I'll vote to add to unanimity or to prevent a motion from failing.

**** Motion (Boydston):** I move that we send forward a recommendation to allocate: 1) 12% of the non-tribal allocation to the river sports fisheries and, 2) 17% of the total ocean allocation to the KMZ sport fisheries.

Seconded by Dave Bitts.

Discussion

Q. (Grover): Would the motion, drop the rollover feature of the unused portion and use it for increasing the escapement above the floor?

A. Boydston: That could be the effect.

McIsaac: By "that could be the effect" you meant the reference to the floor. As far as dropping the rollover feature, would that be the only difference between this motion and the last one?

Boydston: Yes, that is the difference.

Bitts: There are other ways and reasons why the fishery might fail to achieve the quota and I certainly hope we don't find ourselves here next year asking "how come?" for the 4th year in a row.

Boley: I have similar concerns. I have noted over the years that we have had a lot of motherhood building to our predictions in various degrees. In particular, we are talking about floor level escapement because "its the floor, its the minimum, we should try to not go below that." We now have an applicable law, a maximum too as far as tribal/non-tribal sharing.

McIsaac: Call for the question on this motion from LB:

California Commercial Salmon Fishing Industry	Yes
Pacific Fishery Management Council	Yes
California In-River Sport Fishing Community	Yes
California Department of Fish and Game	Yes
Non-Hoopa Indians Residing in the Klamath Area	Abstain
Hoopa Indian Tribe	Yes
National Marine Fisheries Service	Yes
Department of the Interior	Yes
California Offshore Recreational Fishing Industry	Yes
Oregon Commercial Salmon Fishing Industry	Yes
Oregon Department of Fish and Wildlife	Yes

McIsaac: Are there any further motions that the Council would like to make relative to shaping fisheries this year? One motion we considered last year had to do with in-river fisheries. We just passed a motion as a recommendation to the Pacific Fishery Management Council. Is the Council interested in passing a recommendation in the form of a motion to the In-River Managers to

structure their fishing seasons as we did last year--to try to avoid impact on expected weaker natural stocks?

Fletcher: I can let you know what the Yurok Tribe will do as far as structuring their season. We will take a look at what will be projected to be the weak stocks in the basin and we will structure our season in terms of constraining fish effort to lessen our impact on those weak stocks. We have continuously done that over the last several seasons and we have done that in view of the stocks in the Shasta River, the Scott River and some of the upper Klamath stocks. We also did that last year to protect some of the Trinity River stocks.

Bostwick: When do you think salmon from the Scott and Shasta will pass the estuary?

Fletcher: These are some of the first stocks to enter the river. We'll see them in the estuary beginning in the last week in July or the first or second week in August. The Trinity River stocks generally come in a little bit later (last week in August through the first weeks in September). We have information on these stocks from monitoring the gillnet fishery in the estuary.

Q. (Bitts): Troy, if some of the stocks you are trying to avoid come in during the first and last week of August, doesn't that leave you a pretty short window for harvest?

A. (Fletcher): We look at fitting our season around the weak components of the run. Last year we were shut down more than 50% of the time.

Bostwick: It looks like the allocation to in-river sport will be so small as to hardly worth the effort.

Fletcher: In the past, the tribes have met with DFG to try to design fishing regulations that work out better for anglers. Maybe we can do that again this year.

Bitts: I agree with Virginia. I believe that full-on sport fisheries in the river will harvest only about 10% of the in-river run. Since we are not looking at full-on sport fisheries this year, I don't think it is appropriate to ask for only a 4-5% harvest rate.

McIsaac: Any further discussion on the Agenda Item of "developing a range of options for '95 management actions in the ocean or the river"?

Bitts: I am going to be in a difficult position next week as a representative of all California Commercial Fishermen because some of my friends from the south are a little bit jealous of that 17% of the Klamath Zone sport share. Speaking as a guy who happens to live in the zone and have friends in that business, I am very glad to see such a recommendation go from this Council. I hope this Council sticks with the 17%.

CAUCUS reconvene at 2:30 PM.

New Agenda Item: Report from Wilkinson on the Oregon Industry Meeting

Wilkinson: As a result of the Coalition meeting held on Monday in Newport, we will be looking at a Rogue spring chinook fishery and a Rogue fall chinook fishery. We may also have a repeat of

the Chetco "bubble" fishery. All of these, of course will certainly be dependent upon how the modeling worked out.

#7 Other proposed options to achieve Council goal in 1995

**** Motion (Boydston):** For 1995 management, we recommend a guideline to the SAS that any commercial fisheries between Point Arena, California and Cape Arago, Oregon be managed under quotas during the period May through August.

Seconded by Fletcher.

Discussion

Wilkinson: The fisheries that I mentioned earlier all operated under quotas in the past.

Bitts: LB, is this a scenario that you basically see as being necessary when we are managing for the floor?

Boydston: I see this as a recommendation that has come from the Technical Team. It mainly pertains to an area of relatively high impact on Klamath chinook. The margin for error is much more critical in that area (as opposed to outside the southern California cell or north of Coos Bay) where the stock composition includes only a very small amount of Klamath fish.

Bitts: If we found ourselves in a situation where stock abundance had been under predicted, would not that type of management ensure that non-tribal fisheries fail to meet their share?

Boydston: The problems with a high Klamath impact has been in part due to wide open fisheries. There has been a large catch, a high Klamath contribution, and a high Klamath impact. Yet, I believe that the Technical Team has shown that had quotas been in place the Klamath impact would have been much less than it was.

Boley: I tend to agree with LB. When you look at the Klamath impact and you look at trying to achieve a certain harvest rate and you look at the uncertainty in predictors and stock size, successes and so on that in fact having some fringe areas where you don't have quotas works pretty well. It worked pretty well last year and it has worked pretty well in the past. In areas where you have a high Klamath impact, the quotas actually give you some assurity of not blowing out your Klamath impact portion of that assessment.

Q. (McIsaac): LB would you consider a friendly amendment to your motion to include sport fisheries in this area? This will reflect recent practice.

A.(Boydston): No. The KMZ sport fishery has traditionally been managed under quotas, but the area from Point Arena to Shelter Cove has not. I am just addressing the California side here and just a relatively minor fishery (see from the tables in Attachment xx). To manage that fishery under quota would be very expensive for the Department.

McIsaac: Call for the question:

**** Consensus.** Two abstentions (Troy Fletcher and Pliny McCovey).

McIsaac: Are there any further motions for the Council to consider on Harvest Sharing?

No.

#12 Technical Team assignments.

McIsaac: The Technical Team might have the capacity to give us an idea of what kind of ocean harvest rate and what kind of fresh water harvest rate might be involved under fish-for-fish accounting. Perhaps they could even give us the harvest rates that would have occurred under LB's prior failed motion of 53/47 sharing.

Barnes: We made one run of the harvest model that assumed 50/50 sharing on a fish-for-fish basis. I have that document to give, out to the Council (Agendum #7).

Fletcher: It needs to be noted that this is absent any technical review by the Technical Team. It is one management entity's run of the model.

McCovey: Our staff would have to look at the data and make a determination on it before we could endorse it.

McIsaac: Is there any other business then under Harvest Allocation? We are well ahead of the agenda. Are there any thoughts from the Council about strategies for completing the meeting? We are now at Agenda Item #13 with a couple of items remaining from the morning. We could continue today until we are finished, but, I am not sure if there is a public that would come in tomorrow and be disappointed. What are the wishes of the Council with regard to pursuing a finish today or reconvening tomorrow to try to stretch the meeting into 2 days?

Wilkinson: If we are able to complete the agenda today, it might be an excellent opportunity for the HAWG to utilize a portion of tomorrow to meet.

McIsaac: I think that is an excellent idea. I would encourage the Council members who are part of that subcommittee to stay for that meeting.

#13 Report on the high priority of data needs from Pacific Fisheries Management Council

Boley: At our October meeting, we had flagged some issues that were high priority data needs from this Council (including some data needs required for fishery evaluation). These were brought to the attention of the Pacific Council in November. Some additional funds may be available through National Marine Fisheries Service.

Boydston: The letter that Scott is referring to is from Larry Six to Rollie. It addresses his questions and we did put in a suggestion that Department of Commerce might consider providing funding assistance in the Trinity River situation.

McInnis: I don't have any additional information to add.

#14 Council discussion on seeking funding for high priority data needs (e.g. Klamath Task Force).

Can staff clarify this agenda item a little bit? Is this associated with what we were scoping about this morning?

Parker: The Task Force Request for Proposals for the 1996 work plan has a deadline of April 14. The Council may wish to assign proposal writing to the Technical Team for data needs projects.

Fletcher: The Technical Work Group had mentioned that gaining more information on some of the spring chinook considerations would be desirable.

McIsaac: Do you have a particular proposal in mind for spring chinook?

Fletcher: No. I just thought it would be good for us to know that the Task Force is starting to become more aware of spring chinook.

McIsaac: We ought to think about having the Technical Team list activities associated with the potential fallout of Trinity re-authorization money. This list of some base programs relative to monitoring the mitigation could be forwarded to Jerry Grover for his discretionary use to try to reopen mitigation consideration with the Bureau of Reclamation.

Bitts: Hopefully, these other sources of funding (e.g. funding to cover mitigation responsibilities) will come available.

Grover: The question becomes more a matter of timing because the Bureau of Reclamation can't make monies available from the budget they already submitted to Congress. So therefore, we may miss the window for 1995. The next window of opportunity might be in '96.

McIsaac: Any further discussion on this agenda item? Okay, we will pass at this time on submitting any new proposals.

#16: Review of Endangered Species Act Listings

McInnis: Coho aren't listed yet. As far as coho goes, there have been technical memoranda prepared and recommendations made on the Evolutionarily Significant Units (ESUs) that should be used for considering listing coho under the Endangered Species Act. The status of each of those ESU's has been forwarded to the Northwest Regional Director. The Northwest Region has prepared recommendations that have been forwarded to our headquarters office for review. At this point, action on this has been put on hold pending completion of review of some additional information that should feed into the listing decision. I would expect that the stage that we are looking at is not a "listing" but a "proposed listing". That proposed listing would not be expected to come out in time to make a real impact on the 1995 season. Now, for steelhead. There is a coast wide review of steelhead stocks that has been completed. The managers in the State and tribes have been asked to take a look at the data that has been compiled to determine whether or not there should be listings of steelhead and what the ESU for steelhead should be. The petition for Klamath Mountain Province steelhead is running ahead of the schedule. The expanded unit that includes the Illinois River and from Cape Blanco down to and including the Klamath River. The petition is in our headquarters office for final review on the decision.

Bitts: How would a listing of steelhead affect the Pacific Council managed fisheries?

McInnis: I don't know. I don't believe there would be any direct affect on Pacific Council managed fisheries. I mention this to the Klamath Council because under the Klamath Act we have purview over steelhead as well as coho and chinook.

Fletcher: It would be nice if we could get this soon because of the water management issues that are coming up with the Bureau of Reclamation. By March 15 there is going to be a water management plan on the Klamath side. It would be good to let the Bureau take listing into account when they come up with their water management plan.

McInnis: I believe that you or somebody from your Fisheries Staff has the technical documents that would indicate what the status of the steelhead runs are.

Bitts: If the steelhead are listed, will we still be able to fish for them below Mad River Hatchery?

McInnis: Hatchery runs may be treated differently under the Endangered Species Act.

McIsaac: Have things progressed far enough that you have recommendations from the scientists?

McInnis: The scientists don't make recommendations for listing. Their assessment stops short of that. We are at co-manager review right now. We have tried to make the listing process a more open process because each time we have gone off and done something, we have found out that maybe there was something else that needed to be considered. In an attempt to make the other resource management entities an integral part of making sure all the information is on the table, we sent out a technical memorandum on the steelhead reviews 3 weeks ago. There was a meeting last week in Sacramento that California Dept. of Fish and Game, Klamath Tribes (Hoopa, Yurok, Karuks, and the Klamath) and federal agencies were invited also. We have tried to do a better job of getting advice from the states and tribes on steelhead. One hitch is that the steelhead ESU is ahead of the coast wide review..

McInnis: National Marine Fisheries Service (NMFS) last fall made a commitment to proceed with reviews of all other anadromous stocks; to see if any other listings under the Endangered Species Act were warranted. There are other reviews, of course, that include chinook, pinks, and cutthroats. The commitment for that was to complete the status reviews by the end of January 1996. Well, in order to assure that we do our best to meet that schedule, we received a petition from Oregon Natural Resource Council (ONRC). That petition was received right about the first week of February and so I would anticipate a complete petition with everything necessary for chinook review. So sometime on or about 1996, we will be coming back to you and maybe sharing with the co-managers all of the information that we collected on chinook.

#17 Re-appointment status

Grover: The Act names the number of entities that sit on the Task Force and the Council. It also identifies the appointing authorities. The Act also states that every 4 years you need to have a new appointment (or a renewal of an appointment) as a housekeeping measure. 1995 is one of those forth years. Correspondence has come out from our office in Yreka alerting the members that they need to proceed with those appointments. Dave Bitts mentioned that his name has gone to the Governor for consideration. My paperwork has gone to Interior for consideration. I think

this re-appointment step is one of those little things that we need to have to completed if we are going to have a viable council with people who are able to participate in voting.

Bitts: We received a letter from the Governor's office acknowledging that they had received my paperwork.

McInnis: The Secretary of Commerce has 2 appointments to this Klamath Council. One is a representative from the Pacific Fisheries Management Council (PFMC) and the other is a representative from the Secretary of Commerce. We have already requested and received a letter from the PFMC indicating that Scott Boley is their desired representative. A recommendation to reappoint the SW Regional director to this Council has been forwarded to our headquarters staff. The immediate problem is nobody in our headquarters has gone through this process of attaining staff for the Klamath Council. We are trying to figure out the process. Some progress has been made.

7. Other Proposed Options to Achieve Council Goal in 1995 (Continued)

Boydston: Two handouts are available (Agendum 7.1 and 7.2. These will be discussed more at the HAWG meeting.

Q. (Bitts): On handout 7.1, what does tribal share 0.893 mean?

A. (Barnes): This is the same harvest rate model as we used last year. The one exception is the figure for shaker mortality. The figure on this incorporates the mix between sport and commercial shaker mortalities that the PFMC agreed to last year. Since the ocean harvest rate is modeled to be less than full harvest (10%) and terminal harvest rate is modeled to 32%, the figures are adjusted to get a balance. At the top of the handout 13,500 ocean adult harvest plus 1,800 in-river recreational harvest gives you 15,300. This balances against the tribal adult harvest of 15,300. The very bottom, left hand corner of the document shows a spawning escapement that was applied to each age class. The natural:hatchery ratio was 62% for 1995 leaving you a 35,000 natural escapement and about 21,000 hatchery escapement.

Bitts: On age 3 fish, isn't the maturation rate more like 38%?

Barnes: The maturity rate varies. It is the product of the annual update of the cohort analysis. It was 33.7% this year.

Q. (Bitts): Has the ocean harvest rate on 3's been changed? I thought it was assumed to be somewhat lower than the harvest rate on 4's because of the lower vulnerability factor of 3 year olds.

A: (Dixon): No, to my knowledge, the harvest rate has not been changed.

McInnis: How does the percent legal factor in?

Dixon: Eighty percent of the three year olds that are contacted are legal and 20% are smaller than the size limits.

McInnis: I am surprised to see that we have constant harvest rate on fish that don't have the same vulnerability. In the numbers that you present here, it wasn't clear to me how you can have a contact rate for 3 year olds that is less than for 4s and 5s. Fewer of those that are contacted can be retained because of the legal size and yet we still have an ocean harvest rate that is the same as for the 3s as for the 4s and 5s.

Dixon: I am the one who puts in that harvest rate. It is not a result of the ocean contact rates, percent legal, or anything like that, it is an entered value.

McIsaac: In a season where you are only going to have a 10% ocean harvest rate versus the normal season where the contact rate is a lot higher, does this model assume (with all the closures that are going to be modeled in for seasons) that 88% of the 3 year olds will encounter a hook?

Boydston: Since I was involved in the original development of this model, I may be able to provide clarification. 10% is the coefficient (i.e. driver). It gets the model working, but if you want to determine the age for fish, you want the actual harvest rate for those fish. This is due to taking the 10%, multiplying it by the .88 and multiplying that by the % legal to get the percentage of the 3 year olds that will be landed. Then you have got the numbers of 3 year olds there as stock status. You have got 134,500; take that number times 10% times .88 times .80 and that will give you a landed catch of 3 year olds. Now to get the non-landed mortality, you go through that same process except when you to the percent legals, it would only be 20% sub-legal and then you multiply that times the shaker mortality to get the shaker deaths. So the 10% is the driver. We used to have factor for 2 year olds but that is not in here. It just basically says that for 3 year olds, 88% are vulnerable as 4 year olds.

Q: Could you say then that 88% of the 3 year olds do not encounter a hook?

Boydston: No, it depends on what harvest rate you put in there. If you put in 100% harvest rate, you would be encountering 88% of the 3 year olds.

McInnis: Twice I have heard the 2 year olds are not in there. Are they just not on this table or are they not considered in the model? If their impact is not modeled at all, how do we move to deal with the 53/47 sharing? How do you deal with adult equivalents if you are not looking at 2 year olds in the model?

Boydston: Well, we are dealing with 2 year olds in the catch, whether they are in the model or not, they count in the ocean fishery. Any 2 year olds that are caught are included in the ocean catch. I don't recall how we used to deal with them other than maybe using an average recruitment. I think the team decided that using an average recruitment over a certain number of prior years was felt to be a very shaky projection method so we decided not to project 2 year olds. There is a little bit of conservatism here in the allowable catch. If you put the 2 years old in there, there would be a few more fish for harvest, but not many.

McIsaac: Further questions on this handout? Seeing none, let's move along. All I have left on the Agenda is the follow up for #18 that we talked about earlier today. #19 is a discussion of our April meeting. We postponed a discussion on the Vice Chair and some sort of a roll call for interest on a Harvest Allocation Work Group meeting tomorrow. Jerry Barnes, do you want to tell us where you are at on this compilation of a list of minimal chores associated with in river sampling and cost?

Barnes: This would come under the heading of reducing risk and to our taking the least risk alternative and what I would propose to the Council for a minimal needs assessment. Since we talked about it earlier today, I've had a little quorum with the chair, some of our Team members, and with Mark Zuspan. I propose that we flesh this out and put together a short report. It will be cycled through the Tech Team and through the Department of F&G and we will include cost for this minimal needs assessment program. Then we'll present it to the Council prior to the April meeting in Portland (Attachment A).

McIsaac: So, Jerry Grover, if we give you this list during the early part of April, is that sufficient time with regard to your window of opportunity for proposing it to the Bureau in consideration for mitigation funding?

Grover: I would have to address that question to the Bureau. We need to pursue the opportunities and make sure we are not precluded from consideration. We will argue dollars later.

McIsaac: Let's bring it up as an Agenda Item at the April meeting.

Bitts: Jerry, do you have, or do you need a motion from this Council for that kind of support?

Grover: I think that given what we said this morning, I have got it already. I plan on reporting back to the Council after contact with the Bureau.

#3 Elect vice-chair

McIsaac: I understand there are still some discussions that need to take place prior to addressing this item, so I would like to postpone this agenda item to our April meeting.

#19 Identification of agenda items for the April 2 Klamath Council meeting in Portland. Identification of future meeting dates and locations.

McIsaac: We have a proposed agenda in our packet. Agenda items will include a: report from the HAWG and a status report on the funding situation on the Trinity.

Postpone the meeting time until 3 p.m. on Sunday.

Wilkinson: We should also allow for impromptu evening meetings. Could we set some additional time aside?

McIsaac: Ron, can you refresh our memories on the administrative difficulties with impromptu meetings?

Iverson: The Federal Advisory Committee Act requires us to provide advance public notice of meetings where Council action will be taken.

Grover: Perhaps we could schedule another Council meeting Wednesday night to allow impromptu caucus to occur between Sunday and Wednesday.

McInnis: This seems like it would be acceptable, since the public who wishes to comment will be

at the meeting location already (in association with Pacific Council meeting).

McIsaac: Let's meet on Wednesday from 7-8 p.m. If we need to announce impromptu meetings between Sunday and Wednesday, we will post a notice in the hotel.

Barnes: Do you need the official presence of the Technical Team to model possible options?

McIsaac: I'll leave that up to the Chair's prerogative.

Wilkinson: The HAWG meeting is scheduled for 9 a.m. until noon tomorrow.

Adjourned.

KLAMATH FISHERY MANAGEMENT COUNCIL MEETING
 March 1-2, 1995: Eureka, California

Klamath Fishery Management Council members present:

Dave Bitts	California Commercial Salmon Fishing Industry
Scott Boley	Pacific Fishery Management Council
L.B. Boydston	California Department of Fish and Game
(for Al Petrovich)	
Virginia Bostwick	California In-River Sport Fishing Community
Troy Fletcher	Non-Hoopa Indians Residing in the Klamath Conservation Area
Jerry Grover	U.S Department of Interior
(for J. Lisle Reed)	
Paul Kirk	California Offshore Recreational Fishing Industry
(for Jim Walters)	
Pliny McCovey	Hoopa Indian Tribe
Donald McIssac	Oregon Department of Fish and Wildlife
Don McInnis	National Marine Fisheries Service
(for Gary Matlock)	
Keith Wilkinson	Oregon Commercial Salmon Fishing Industry

Attendees:

Greg Bryant	National Marine Fishery Service
Jim Craig	U.S. Fish and Wildlife Service, California Coastal FWO
Carol Davis	Commercial Trollers and Coalition
E.B. Duggan	Community of Willow Creek
Frank Erickson	Yurok Fisheries
Ron Iverson	U.S. Fish and Wildlife Service, Klamath River FWO
Robert Jones	Klamath Coalition
George Kautsky	Hoopa Valley Tribe
Dale Lacky	Trinity County Chamber of Commerce
Peter Larra	Yurok Fisheries
Bill Long	California Department of Fish and Game
Terry Metherny	The Union Newspaper
Mike Maahs	Klamath River Technical Advisory Team
Tim McRoy	Northcoast Environmental Center
Mike Orcutt	Hoopa Valley Tribe
Tricia Parker	U.S. Fish and Wildlife Service, Klamath River FWO
Dennis Pecaut	Self
Ronnie Pierce	Self
Don Rivard	Bureau of Indian Affairs
Gene Schnell	Self
Dale Webster	Yurok Tribe
Bev Wesemann	U.S. Fish and Wildlife Service, Klamath River FWO
Jim Welter	Klamath Coalition
Desma Williams	Yurok Tribe
Mark Zuspan	California Department of Fish and Game

DOCUMENT LIST

		<u>Status</u>
Attachment#1	List of people present	Attached to draft minutes
Attachment#2	Document list	Attached to draft minutes
Attachment#3	Final Agenda	Attached to draft minutes
Agendum#2	Comments on October minutes from Bitts and Polos	Handed out at meeting
Agendum #4	Selective Fisheries Assessment, McIsaac	Handed out at meeting
Agendum #5	Sport and Commercial Harvest Table (corrected copy)	Handed out at meeting
Agendum #5A	DFG Megatable-Spawner Escapement	Handed out at meeting
Agendum #5B	Ocean Stock Size Projections 1995, TAT	Handed out at meeting
Agendum #5B	PFMC Report excerpt	Handed out at meeting
Agendum #5C	Calibration of the Klamath Ocean Harvest Model for 1995, Dixon	Handed out at meeting
Agendum #7	NMFS response re: adult equivalents	Sent to McIsaac
Agendum #7.1	Harvest Rate Model 2-27-95, CCFWO	Handed out at meeting
Agendum #7.2	Harvest Rate Model 3-1-95, CCFWO	Handed out at meeting
Agendum #18	Letter regarding Trinity re-authorization From Patterson to McIsaac, 2/6/95	Copies made for distribution at meeting
Agendum #18	Draft Trinity Re-authorization	Hand out at Apr 2 meeting
Agendum #19	April 2 Draft Agenda	Handed out at meeting
<u>Other items in binder</u>		
	Operating Procedures	Copies in binders
	Motion/Amendment Form	Copies in binders

February 14, 1995

FINAL AGENDA
Klamath Fishery Management Council -- Meeting #40
March 1-2, 1995
Eureka Inn, Eureka CA

March 1

ADMINISTRATION

8:30 am Convene. Introduce members. Review background materials (Parker).

1. Review and approve agenda.
2. Approve minutes of meetings held: August 1 and October 20-21.
3. Elect Vice-Chair

TECHNICAL REPORTS

9:15 4. Summary of PSMFC workshop on mass marking (McIsaac)

9:30 5. Status of KRTAT assignments (Barnes):

- A. 1994 Postseason review
- B. 1995 Stock size projections
- C. 1995 KOHM

10:45 BREAK

1995 MANAGEMENT SEASON

11:00 6. Report from the Harvest Allocation Work Group (Wilkinson)

11:45 7. Other proposed options to achieve Council goal in 1995

12:30 LUNCH

1:30 8. Council discussion

- 3:45 9. Public Comment
- 4:00 10. Action: Develop a range of options for the 1995 management season
- 5:00 Recess

MARCH 2

- 9:00 Convene. Announcements.
- 9:15 11. Action: Develop a range of options for the 1995 management season (continued)
- 10:30 Break
- 11:45 12. Technical Team Assignments
- 12:00 Lunch

ADDITIONAL COUNCIL DISCUSSION ITEMS

- 1:30 13. Report on the high priority data needs that were forwarded to the PFMC (Boley)
- 1:45 14. Council discussion on seeking funding for high priority data needs (e.g. Klamath Task Force)
- 2:30 15. Action: Assignment to Technical Team to develop proposals
- 3:00 16. Review of ESA listings (McInnis)
- 3:15 17. Report from members on re-appointment status
- 3:30 18. Report on status of Trinity re-authorization
- 4:00 19. Identification of agenda items for the April 2 Klamath Council meeting in Portland. Identification of future meeting dates and locations (e.g. the fall meeting could be held in Yreka).

ADJOURN

Draft 2/17/95
Internal

Klamath Fishery Management Council
Meeting #40
March 1-2, 1995

Handouts

Status

Agendum #5	Stock size projections	Mailed with final agenda 2/15
Agendum #5	1994 landings table	Expected 2/21 from Dixon
Agendum #5.A	Preseason Report	Expected 2/27 from Coon
Agendum #5B	Ocean Stock Size	KRTAT
Agendum #18	Letter regarding Trinity re-authorization From Peterson to McIsaac, 2/6/95	Copies made for distribution at meeting

Other items in binder

Operating Procedures	Copies in binders
Motion/Amendment Form	Draft in Ron's box

February 13, 1995

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March 1-2, 1995
Eureka Inn, Eureka CA

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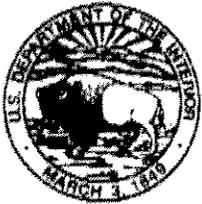
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ADJOURN

Agendum #2



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Coastal California Fish and Wildlife Office
1125 16th. Street, Room 209
Arcata, California 95521
(707)-822-7201

December 07, 1994

MEMORANDUM

TO: Patricia Parker, Fishery Biologist, KRFRO
Yreka, CA

FROM: Jim Craig, Fishery Biologist

SUBJECT: Corrections to Draft Oct 20-21 KFMC minutes

Regarding Barry Collins statements (answers) on pg.14 concerning hatchery and natural fish and escapement counting; Barry is espousing the DFG party line based on their hatchery manual and not necessarily that which is actually occurring.

At the recent Klamath River Basin Fisheries Task Force meeting in Klamath Falls, CDFG's Paul Hubbell gave these numbers; 14,566 chinook entered Iron Gate Hatchery (IGH), 13,808 of which were adults. 2,333 non ad-clip adults were left ventrally (LV) fin clipped and returned to the river (29 of which showed up later at the Shasta River racks in addition to 22 ad-clips). Hubbell conceded that not all of the fish trying to access IGH were handled. In fact, the fish ladder was closed off virtually the entire time after October 7 (egg take met at IGH) with no further fin clipping etc occurring. By the way, all of the ad-clips and LV clipped fish seen at the Shasta River rack were observed after October 7. Two independent and knowledgeable sources have told me that the total estimated return to IGH was close to 30,000 fish. So it appears that IGH handled approximately 1/2 of the return to the hatchery. An estimated 15,000 fish were never allowed to access the ladder, were never LV clipped, and probably attempted to spawn "naturally" in the Klamath River or nearby tributary. Right or WRONG, these fish will probably be considered part of the natural 35,000 escapement.

In addition, CDFG does not do "carcass counts" on the mainstem, CCFWO does. As Tom Shaw pointed out in his memo to you (Nov 7, 94), the spawning crew does not routinely examine carcasses for marks, spawning condition etc.,. The crew is responsible for counting redds and that's pretty much it. Anything else they can accomplish during their full days is a bonus and provides ancillary data only. CDFG does use the CCFWO redd count information to estimate numbers of spawners in the mainstem. Since only a small percentage of returning IGH fish are actually marked and returned to the river, and since nobody really looks for those marks in the mainstem anyway, how CDFG comes up with an estimate of hatchery and natural contribution to the mainstem area is beyond me.

I don't know if any of this information could be used to correct another person's statement but I thought I'd point out some obvious inconsistencies between what CDFG says is going on and what is actually going on.

Jim

OPTIONAL FORM 99 (7-80)

FAX TRANSMITTAL

of pages **1**

To Patricia Parker	From Jim Craig
Dept./Agency USFWS	Phone # CCFWO
Fax # 916 842 4517	Fax #

YUROK TRIBE

FISHERIES PROGRAM

P. O. Box 218
Klamath, CA 95548

(707)-482-2841
(707)-482-0384 (fax)

December 7, 1994

TO: Tricia Parker, Fishery Biologist, KRFRO

FROM: Joe Polos, Fisheries Program Manager

SUBJECT: Comments on minutes of Oct. 20-21 KFMC meeting.

My first general comment is that the two weeks that are being allowed for comments are not sufficient. Due to the myriad of committees, teams, work groups, etc. that many people are involved in I think at least three weeks and preferably four weeks should be allowed.

Page 9. The answer referring to the letter from the Yurok Tribe to Mike Ryan concerning flows at Iron Gate Dam (IGD) is incorrect. The minimum flows identified in the FERC license are 1,300 cfs, not 900 cfs as stated in the answer. The letter from the Yurok Tribe refers to the 900 cfs which the BOR said that they would release in September. The letter also states that the Tribe considers this amount (900 cfs) "far below the amount necessary for the protection of fishery resources".

Page 10, answer by Fletcher. Add to the last sentence "... intervened in the process" to state "... intervene in the process to ensure that the BOR fulfilled its promise to provide 900 cfs below IGD in September and throughout the spawning/rearing season".

Page 12. Yurok Tribal Fishery. "(allows fishing 5 days/week)" should read "(allows fishing 6 days/week during the fall fishery)".

Page 15. Comment by Fletcher concerning the low escapement in tributaries (sub-basin stock strength). Replace "these different maturity rates." with "the different run timing of the Klamath and Trinity stocks and attempt to afford protection to the weaker stock."

Page 25. Clarification of harvest rate management and variable recruitment (I don't know if you want to put all of this in the minutes. I hope this will clarify some of the confusion)

Under harvest rate management, ocean and inriver harvest rates are determined the by stock-recruit equilibrium model. In this model, factors for the productivity of the stock

(alpha) and the Klamath Basin (beta), along with factors specific to the various fisheries that impact the stock and biological factors specific to the stock (ie maturity rates, etc) are used to determine MSY harvest rate combinations for ocean and inriver fisheries. The output of this model provides ocean and inriver harvest rate combinations that allow 33% of a brood to spawn. These harvest rate combinations are for equilibrium conditions. Since recruitment varies from year to year, with the constraint of the 33% brood escapement rate, the harvest shares are the only variable that can deviate from equilibrium. The variable recruitment creating variable age composition of the ocean stock leads to the variation in harvest shares if the equilibrium harvest rate combinations are used. Under 50/50 annual harvest sharing, the variability in the system is transferred from the harvest shares to the escapement rate.

Under harvest rate management, harvest rates that should provide 33% brood escapement are applied to the ocean and inriver populations so the difference in recruitment (which creates the shift in equilibrium age composition in the ocean) does not matter. It is the 35,000 natural escapement floor that necessitates a reduction in harvest rates which, in affect, is managing for a higher brood escapement rate. When this occurs, the stock is no longer being managed by harvest rate and is then managed by an escapement goal.

Page 40. Fletcher Comment (top of page): Statement should read: "No, not to define the Trust relationship between the Tribes and the Bureau."

Page 40. Fletcher Comment. statement should read: "The lower Klamath River has been identified as an area in need of a larger work plan. For example, the Yurok Tribe is currently developing a restoration plan for the Lower Klamath Basin with the California Coastal Conservancy and Simpson Timber Company."

TRISH -

comments on minutes of Oct. KFMC meeting by Bitts:

p. 7: 3000 tags were recovered in troll fishery south of Pt. Arena; 140 were fall Klamath. I don't recall anything about 10,000 total tags recovered.

p. 14: add to my comment: in the past, that definition has been: a fish spawning in gravel is a natural spawner. I believe I said this.

p. 15: I believe my comment was also to the effect that at recent ocean harvest rates, it's difficult to achieve any further protection of weak stocks within the Klamath basin by further ocean restrictions.

p. 24: I was thanking staff as much for presenting us the background materials ahead of time as for reviewing them.

p. 30: Jerry Barnes' comment at top of page needs work: '90 was the first year of low escapements, not '91.

p. 38: after etc., insert "as Klamath populations rise," ; our catches will increase... then our access.... Impact rates on Klamath stocks will not rise, but numbers of Klamath fish caught will, as Klamath populations continue to rise--even after access to other stocks has maxed out.

I don't understand Kautsky's comment at all.

Did I say the difference between the '93 and '94 seasons?

p. 42: Hooking mortality rates will drive ocean fisheries, especially if coho are listed. They won't drive the listing of coho. Logging etc. plus politics will do that.

Thanks,
Dave

MEMORANDUM

To: Klamath River Technical Advisory Team Date: February 27, 1995

From: Rich Dixon, CDFG

Subject: Calibration of the Klamath Ocean Harvest Model (KOHM) for 1995.

Calibration: The KOHM has been calibrated over the five base years (1986-1990) and scaled to 1995 expected stocks strengths. Calibration for each of the base years involved the determination of Klamath fall chinook exploitation rates by age using harvest rate information from the cohort analysis distributed to model cells based on coded-wire tag estimates in the commercial and recreational fisheries as summarized in the partitioned data base. For age-3 distribution, only fingerling tag codes were used, for age-4 distribution, all tag codes were used. The exceptions to that method were for age-3 distributions in 1989 and 1990, when there were so few recoveries in ocean fisheries from fingerling codes that all codes were used.

After calibration, 1988-1990 exploitation rates were adjusted in some model cells when fisheries were restricted, so that 1988, 1989, and 1990 were comparable to 1986 and 1987. Adjustment factors for 1988 were as described in Alan Baracco's memo to the Team dated March 10, 1989. Adjustment factors for 1989 and 1990 were those used in modeling the option adopted by PFMC for each of those years.

Stock scaling factors by age for Klamath chinook were computed from the appropriate ocean population size compared to the projection for 1995 (Table 1).

Other stocks (Central Valley and Rogue) were scaled relative to the expected population size in 1995 (Table 2). In the model, the two northern and two KMZ cells are scaled for other stocks based on the method in the March 10, 1989 memo using the 1986-88 average for all five years (Table 3). The scaling of the two southern cells was based solely on the CVI.

The above procedures prepared the model to be structured for 1995 option analysis. This structuring involved the additional step of replacing fall catches and Klamath impacts with those that occurred after August 31, 1994, expressed as summer equivalents (Table 4). Klamath impacts were taken from the Stock Projection Report.

After all above procedures were completed, the KOHM was ready to be used for 1995 option analysis (different quotas in the KMZ, time/area closures north and south of the KMZ, etc.). The summary sheet of model output is shown as Table 5. It shows a harvest rate of about 56% on age-4 Klamath fish, with a quota in the KMZ recreational fishery of 28,600.

Table 1. Klamath Population Sizes and Scaling Factors

		Estimate or projection	Scale
Age 3	1986	604,000	0.22
	1987	416,400	0.32
	1988	604,200	0.22
	1989	129,700	1.04
	1990	114,200	1.18
	1995	134,500	
Age 4	1986	56,100	0.67
	1987	192,900	0.19
	1988	109,100	0.34
	1989	185,000	0.20
	1990	68,700	0.55
	1995	37,600	

Table 2. Other Stock Sizes and Scaling Factors

CVI	Size	Scaling Factors
1986	906.6	0.72
1987	812.9	0.80
1988	1,229.1	0.53
1989	660.7	0.99
1990	570.6	1.15
1995	654.0	
Rogue	Size	Scaling Factors
1986	113.3	0.17
1987	138.6	0.14
1988	62.2	0.31
1989	22.4	0.86
1990	18.4	1.05
1995	19.3	

Table 3. Scaling Factors for Other Stocks in the KOHM

KMZ Other Stock Scalers

1986 $(0.37 * 0.72) + [(1-0.37) * 0.17] = 0.37$
 1987 $(0.37 * 0.80) + [(1-0.37) * 0.14] = 0.38$
 1988 $(0.37 * 0.53) + [(1-0.37) * 0.31] = 0.39$
 1989 $(0.37 * 0.99) + [(1-0.37) * 0.86] = 0.91$
 1990 $(0.37 * 1.15) + [(1-0.37) * 1.05] = 1.09$

NOR and CSB Other Stock Scalers

1986 $(0.49 * 0.72) + [(1-0.49) * 0.17] = 0.44$
 1987 $(0.49 * 0.80) + [(1-0.49) * 0.14] = 0.46$
 1988 $(0.49 * 0.53) + [(1-0.49) * 0.31] = 0.42$
 1989 $(0.49 * 0.99) + [(1-0.49) * 0.86] = 0.92$
 1990 $(0.49 * 1.15) + [(1-0.49) * 1.05] = 1.10$

Table 4. 1994 Fall Catches and Klamath Impacts

Area	Klamath	
	Age 3 Sum. Equiv.	Age 4 Sum. Equiv.
NOR	0	0
CSB	0	40
KMZ-T	0	0
KMZ-S	0	30
FTB	0	0
SOC	<u>0</u>	<u>100</u>
Total	0	170

Total Chinook

NOR 5,000
 CSB 2,100
 KMZ-T 1,000
 KMZ-S 1,600
 FTB 4,900
 SOC 6,300

KLAMATH OCEAN HARVEST MODEL:
 EXPLOITATION RATE
 USING 86-90 BASE PERIOD

VERSION: 95_0
 DATE: 2-27-95
 TIME: 02:40 PM

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL-94	MAY-95	JUNE-95	JULY-95	AUG-95
NOR	1.000	1.000	1.000	1.000	1.000
CSB	1.000	1.000	1.000	1.000	1.000
KMZ-T	1.000	1.000	1.000	1.000	1.000
KMZ-S	1.000	1.000	1.000	1.000	1.000
FTB	1.000	1.000	1.000	1.000	1.000
SOC	1.000	1.000	1.000	1.000	1.000

1995 CALIBRATION

KLAMATH ADULT OCEAN LANDINGS	80300
KLAMATH INRIVER HARVEST IMPACTS	0
KLAMATH TOTAL SPAWNING ESCAPEMENT	40900
KLAMATH NATURAL SPAWNING ESCAPEMENT	25400
AGE 4 KLAMATH HARVEST RATE	56%

KLAMATH LANDINGS - ESTIMATES: L(ijk)

AGE 3	FALL-94	MAY-95	JUNE-95	JULY-95	AUG-95	TOTAL
NOR	0	10	40	750	540	1340
CSB	0	420	970	11320	8760	21470
KMZ-T	0	120	4130	1170	1180	6600
KMZ-S	0	260	1480	1660	410	3810
FTB	0	1540	4960	8410	1100	16010
SOC	0	1590	4570	2510	350	9020
AGE3 TOT	0	3940	16150	25820	12340	58250
AGE 4	FALL-94	MAY-95	JUNE-95	JULY-95	AUG-95	TOTAL
NOR	0	50	90	320	90	550
CSB	40	850	870	5010	1450	8180
KMZ-T	0	160	1840	650	420	3070
KMZ-S	30	20	200	500	160	880
FTB	0	1160	2310	1730	210	5410
SOC	100	770	1590	480	40	2880
AGE4 TOT	170	3010	6900	8690	2370	21140

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS

	FALL-94	MAY-95	JUNE-95	JULY-95	AUG-95	95 TOT
NOR	5000					
CSB	2100					
KMZ-T	1000	2500	19500	5800	8700	36500
KMZ-S	1600	900	9300	13800	4600	28600
FTB	4900					
SOC	6300					
TOTAL	20900					

KLAMATH CONTRIBUTION-AGE 3 + 4 COMBINED

AREA	FALL-94	MAY-95	JUNE-95	JULY-95	AUG-95
NOR	0.0%	0.9%	1.0%	5.2%	6.2%
CSB	1.9%	6.6%	9.8%	20.7%	23.6%
KMZ-T	0.0%	11.2%	30.6%	31.4%	18.4%
KMZ-S	1.9%	31.1%	18.1%	15.7%	12.4%
FTB	0.0%	9.1%	11.5%	14.3%	5.0%
SOC	1.6%	1.6%	5.7%	4.5%	1.5%

SELECTIVE FISHERIES ASSESSMENT

Notes for PSC Workshop - December 2, 1994

- CONCEPT:**
- Apply a visible mark to hatchery fish
 - Retain marked fish, release unmarked fish

QUESTIONS:

- Do selective fisheries save wild salmon?
- Can the viability of the Coded-Wire-Tagging (CWT Program be Maintained?

RELEVANCE TO PACIFIC SALMON TREATY:

- Potential management approach to increase escapements and reduce exploitation rates on unmarked stocks
- Potential effects on viability of Coded-Wire-Tagging (CWT) program
 - Bilateral commitment
 - Vital to management of chinook and coho coastwide
 - No viable alternative now available for stock-specific assessments
- PSC requested Coho and Chinook Technical Committees to conduct a study of selective fisheries in October 1993
 - How much would selective regulations reduce fishery harvest rates on unmarked fish?
 - Effects on catches?
 - Effects on incidental mortality?
 - To what degree can selective fisheries be expected to increase escapements?
 - Under what conditions?
 - Can impacts be reliably measured for evaluation?
 - Feasibility for chinook and coho?
 - Potential positive and negative impacts on CWT program and fishery management?
 - Could negative impacts be overcome?
 - What are the logistics for implementation?
 - Mark of choice?
 - Required changes in marking and sampling programs?
 - Estimated start up and annual costs?

CONCLUSIONS

(Coho only - Assuming adipose fin clip as selective mark)

Impacts on unmarked stocks:

- Reductions in selective fishery harvest rates:
 - Sport 70% - 80%
 - Troll 60% - 70%
 - Net 10% - 50%
- Reductions in landed catch:
 - 30% - 70% in selective fishery
 - Total landed catch of marked and unmarked fish across all fisheries does not increase
- Increases in incidental mortalities: 100% - 400% (could be equivalent to as much as 35% of the landed catch)
- Relationship between landed catch and incidental mortalities is significantly altered
- Factors affecting results
 - Release and drop-off mortality
 - Ratio of marked to unmarked fish
 - Marking mortality
 - Retention regulations & mark recognition
 - Fishery harvest rates
 - Management of other fisheries
 - Frequency of recapture

Impacts on stock escapements and exploitation rates

- Varies by stock characteristics and selective fishery implementation
 - Escapement for some stocks can be expected to increase by up to ___ along with decreases in exploitation rate of ___. For other stocks, potential benefits can be expected to be much more modest.
 - For some stocks and implementation scenarios, slight decreases in escapements and increases in exploitation rates can occur (e.g., stocks not significantly affected by selective fisheries, but impacted indirectly by quota management).
- Benefits increase when:
 - Selective fisheries have larger impacts on stock
 - Potential for subsequent harvest by non-selective fisheries is low

Logistic considerations:

- Interagency cooperation required.
- Implementation of selective fisheries would entail a coordination of substantial number of "pieces" (technology, marking and sampling, stock assessment and management planning tools, etc.)
- Mark of choice: Adipose fin clip, 1-1/2 length CWTs, and electronic tag detection
- Estimated costs of implementation in Georgia Strait and Puget Sound
 - \$3 million (US\$) capital expenditures
 - Canadian costs = \$1.7 million (CAN\$)
 - U.S. costs = \$1.5 million (US\$)
 - \$2 million (US\$) annual expenditures
 - Canadian costs = \$1.2 million (CAN\$)
 - U.S. costs = \$0.8 million (US\$)
- Lead time required: 2 years minimum to put technology in place, once decision is made to proceed. Interagency coordination could take longer.
- Assuming that ad-clips are employed as the selective mark, "partial" implementation is not an option, i.e., marking fish first and deciding later whether or not to implement selective fisheries. The presence of a much larger number of marks in a fishery would inevitably affect the ability to recover CWTs once marking occurs.

Selective fisheries would affect many important management and stock assessment tools

- Improved sampling and mark detection technology increases reliability of CWT recovery data
- Improved estimation of marked hatchery fish contributions can provide information on relative abundance of unmarked stocks.
- Selective fisheries would, without adjustments to tagging and sampling programs, jeopardize the viability of the CWT program.
- Implementation of selective fisheries would negate the primary assumption that enables current management tools to be used for assessment of fishery impacts on wild stocks.

MAINTAINING THE VIABILITY OF THE CWT SYSTEM

Viability is defined in terms of not increasing uncertainty and management risk to unacceptable levels.

- Best hope of evaluating impacts of selective fisheries lies in CWTs, not escapements.
- Extensive changes in tag detection and sampling programs would be required to maintain quality of recovery data. In particular, voluntary CWT recovery programs for sport fisheries would have to be replaced by systematic catch sampling.
- Interagency coordination is required; unilateral implementation would severely disrupt the viability of the CWT program.
- During phase in/out time periods for selective fisheries, there is a risk that management capabilities would be degraded, along with a diminished ability to collect useful CWT recovery data.
- Single index group tagging would only be useful for evaluating impacts on tagged fish.
 - Lose the capacity to use CWTs to assess impacts on unmarked fish
- Double index group tagging (releases of marked-tagged and unmarked-tagged groups) can recover most, but not all information presently provided by the CWT program.
 - The independence of individual CWT experiments to assess impacts on wild fish would be lost, regardless of whether or not wild fish are tagged. Wild fish tagging experiments would need to be accompanied by double index group tagging of representative hatchery fish to provide useful information.
 - Adequate numbers of fish must be tagged in each index group (i.e., doubling the number of tags released)
 - Gain capacity to evaluate total brood impact of all combined selective fisheries on stock exploitation rates
 - Under the most optimistic assumptions, differences in total stock exploitation rates between marked and unmarked groups must be at least 10% for reliable detection, given current tagging levels and sampling rates.
 - Probable loss of the ability to allocate incidental mortality losses among selective fisheries. This loss in information would become more important for assessment of wild stocks, fisheries management and allocation (for interjurisdictional and domestic legal obligations) as significance of incidental mortalities increases.
- Substantial changes would be required in cohort analysis procedures, management models, and abundance estimation. The feasibility of making necessary changes has not been determined.

RECOMMENDATIONS

Adipose fin clips hold the most promise as a selective mark for achieving potential benefits of selective fisheries. Use of this mark should be accompanied by the use of 1-1/2 length CWTs, electronic tag detection, and improved sampling programs.

- Feasible for coho
- Not recommended for chinook
 - Questionable ability to mass mark at present
 - Uncertainty regarding tag detection capabilities at present
 - Release mortalities
 - Life history complexities and altered mortality schedules
 - Far-north migratory behavior substantially expands implementation impacts

Evaluation is required to estimate actual effects of selective fisheries. Potential biological impacts presented herein are hypothetical, based upon simulation modeling procedures that have shown that results are highly sensitive to uncertainty in key parameter values. At a minimum, double index group tagging must be employed.

Because of interjurisdictional implications, a protocol for consideration of selective fishery proposals should be established. The role of the PSC should be clarified, as well as the obligations of the Parties to maintain a viable CWT program. A minimum of two years notice should be provided prior to initial implementation of selective fisheries to allow for: development, acquisition, and installation of tag detection equipment; design and implementation of required changes to catch sampling programs; and development of new stock assessment and management planning tools.

CORRECTED

1994 SPORT AND COMMERCIAL HARVEST (EXCLUDING FALL 1994)

AREA	TOTAL LANDINGS		KLAMATH IMPACTS	
	PROJECTED	ACTUAL	PROJECTED	ACTUAL
NOR	18,300	14,800	450	162
C&B	12,200	2,000	1,650	0
KMZ-T	2,300	400	460	73
KMZ-S	10,800	12,100	1,750	880
FTB	2,800	11,200	330	161
SOC	256,600	388,600	5,380	4,218
TOTAL	303,000	429,100	10,020	5,494

INRIVER ADULT KLAMATH FALL CHINOOK HARVEST

FISHERY	PROJECTED	ACTUAL
TRIBAL		
YUROK	9,440	9,488
HOOPA	2,360	2,360
TOTAL	11,800	11,595
RECREATIONAL	1,400	1,768
GRAND TOTAL	13,200	13,263

Date: 23 Feb, 1995

DEC 29 1994

DEC 15 1994

Memorandum

Informational

Date : December 13, 1994

To : Mr. Boyd Gibbons, Director
Mr. Charles Raysbrook, Acting Chief Deputy Director
Mr. Al Petrovich, Deputy Director
Mr. Banky Curtis, Deputy Director
Mr. Tim Farley, Chief, Inland Fisheries Division
Mr. Rolf Mall, Chief, Marine Resources Division
Mr. Richard Elliott, Regional Manager, Region 1

From : Department of Fish and Game

Subject : Klamath River Basin Fall Chinook Salmon Spawner Escapement,
In-river Harvest and Run-size Estimates, 1978-1994

The attached table is for your information.

Please note that all figures for years, 1978 through 1993,
are final; 1994 figures are preliminary, and subject to revision.



Paul M. Hubbell, Supervisor
Klamath-Trinity Program
Field Operations

Attachment

- cc: Mr. Forrest Reynolds, IFD
- Mr. Gene Fleming, IFD
- Mr. L.B. Boydstun, MRD
- Mr. M. Ralph Carpenter, IFD
- Mr. Terry Mills, IFD
- Mr. Tim Curtis, IFD
- ~~Mr.~~ Alan Baracco, MRD-Rancho Cordova
- Mr. Don Weidlein, Region 1
- Mr. Randy Benthin, Region 1
- Mr. Robert Corn, Region 1
- Mr. Mark Pisano, IFD-Yreka
- Mr. Mark Zuspan, IFD-Arcata
- Mr. Barry Collins, IFD-Arcata
- Mr. Bernard Aguilar, IFD-Weaverville
- Mr. Michael Dean, IFD-Weaverville
- Mr. Bill Jong, IFD-Arcata
- Mr. Michael Wallace, IFD-Arcata

KLAMATH RIVER BASIN FALL CHINOOK SALMON RUN-SIZE,
HARVEST AND SPAWNER ESCAPEMENT--1994 SEASON^{1/}

The 1994 adult fall chinook salmon run into the Klamath River system has again turned out to be significantly smaller than that projected pre-season. It is, however, the largest run recorded since 1989. This year's grilse return is the largest recorded since 1988.

Earlier this year, based on management decisions affecting the 1994 season fishing regulations, fisheries scientists projected that 81,200 adult fall chinook salmon would return to the Klamath River this fall. Using this figure, they projected an in-river harvest of 14,300 adults, with the remaining 66,900 going to natural and hatchery spawning escapements. The following table presents, in abbreviated form, 1994 pre-season adult harvest and spawner escapement projections, along with corresponding post-season estimates.

	Preseason projection	Postseason estimate (*)
<u>Harvest</u>		
Indian net	11,800	11,595 (98.3)
Angler	1,400	1,768 (126.3)
Net & angler mortalities (unlanded)	1,100	963 (87.5)
Subtotals	14,300	14,326 (100.2)
<u>Spawner Escapement</u>		
Natural	35,100	33,361 (95.0)
Hatchery	31,800	14,536 (45.7)
Subtotals	66,900	47,897 (71.6)
Totals	81,200	62,223 (76.6)

*Percent of projected figures in parentheses.

Complete run-size, harvest and spawner escapement figures for both adults and grilse for years, 1978-1994, are presented in the accompanying table.

^{1/} Prepared December 12, 1994 by the California Department of Fish and Game, Klamath-Trinity Program.

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates, 1978-1994 *

SPAWNER ESCAPEMENT

	1978			1979			1980		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	915	6,925	7,840	257	2,301	2,558	451	2,412	2,863
Trinity River Hatchery (TRH)	1,325	6,034	7,359	964	1,335	2,299	2,256	4,099	6,355
Subtotals	2,240	12,959	15,199	1,221	3,636	4,857	2,707	6,511	9,218
Natural Spawners									
Trinity River basin (above Willow Creek, excluding TRH)	4,712	31,052	35,764	3,936	8,028	11,964	16,837	7,700	24,537
Salmon River basin	1,400	2,600	4,000	150	1,000	1,150	200	800	1,000
Scott River basin	1,909	3,423	5,332	428	3,396	3,824	2,245	2,032	4,277
Shasta River basin	6,707	12,024	18,731	1,040	7,111	8,151	4,334	3,762	8,096
Bogus Creek basin	651	4,928	5,579	494	5,444	5,938	1,749	3,321	5,070
Main Stem Klamath River (excluding IGH)	300	1,700	2,000	466	4,190	4,656	867	2,468	3,335
Misc. Klamath tributaries (above Hoopa and Yurok Reservations)	735	2,765	3,500	147	1,068	1,215	500	1,000	1,500
Hoopa and Yurok Reservation tribs.	-- b	-- b	-- b	100 c	400 c	500 c	250 c	400 c	650 c
Subtotals	16,414	58,492	74,906	6,761	30,637	37,398	26,982	21,483	48,465
Total Spawner Escapement	18,654	71,451	90,105	7,982	34,273	42,255	29,689	27,994	57,683

IN-RIVER HARVEST

	1978			1979			1980		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	122	854	976	216	484	700	835	727	1,562
Trinity River basin (above Willow Creek)	-- d	-- d	-- d	765	1,157	1,922	2,456	998	3,454
Balance of Klamath system	1,960	840	2,800	1,200	500	1,700	2,600	2,771	5,371
Subtotals	2,082	1,694	3,776	2,181	2,141	4,322	5,891	4,496	10,387
Indian Net Harvest*									
Klamath River (below Hwy 101 bridge)	--	--	--	--	--	--	495	9,605	10,100
Klamath River (Hwy 101 to Trinity mouth)	--	--	--	--	--	--	272	1,528	1,800
Trinity River (Hoopa Reservation)	--	--	--	--	--	--	220	880	1,100
Subtotals	1,800	18,200	20,000	1,350	13,650	15,000	987	12,013	13,000
Total In-river Harvest	3,882	19,894	23,776	3,531	15,791	19,322	6,878	16,509	23,387

IN-RIVER RUN

	1978			1979			1980		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	22,536	91,345	113,881	11,513	50,064	61,577	36,567	44,503	81,070
Angling Mortality (2% of harvest) f	42	34	76	44	43	87	118	90	208
Net Mortality (8% of harvest) f	144	1,456	1,600	108	1,092	1,200	79	961	1,040
Total In-river Run	22,722	92,835	115,557	11,665	51,199	62,864	36,764	45,554	82,318

(continued on next page)

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estima
1978-1994 *

SPAWNER ESCAPEMENT

	1981			1982			1983		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	540	2,055	2,595	1,833	8,353	10,186	514	8,371	8,885
Trinity River Hatchery (TRH)	1,004	2,370	3,374	4,235	2,058	6,293	271	5,494	5,765
Subtotals	1,544	4,425	5,969	6,068	10,411	16,479	785	13,865	14,650
Natural Spawners									
Trinity River basin (above Willow Creek, excluding TRH)	5,906	15,340	21,246	8,149	9,274	17,423	853	17,284	18,137
Salmon River basin	450	750	1,200	300	1,000	1,300	75	1,200	1,275
Scott River basin	3,409	3,147	6,556	4,350	5,826	10,176	170	3,398	3,568
Shasta River basin	4,330	7,890	12,220	1,922	6,533	8,455	753	3,119	3,872
Bogus Creek basin	912	2,730	3,642	2,325	4,818	7,143	335	2,713	3,048
Main Stem Klamath River (excluding IGH)	1,000	3,000	4,000	1,000	3,000	4,000	200	1,800	2,000
Misc. Klamath tributaries (above Hoopa and Yurok Reservations)	500	1,000	1,500	600	1,500	2,100	140	1,270	1,410
Hoopa and Yurok Reservation tribs.	--- b	--- b	--- b	--- b					
Subtotals	16,507	33,857	50,364	18,646	31,951	50,597	2,526	30,784	33,310
Total Spawner Escapement	18,051	38,282	56,333	24,714	42,362	67,076	3,311	44,649	47,960

IN-RIVER HARVEST

	1981			1982			1983		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	536	1,714	2,250	1,252	3,539	4,791	60	750	810
Trinity River basin (above Willow Creek)	1,456	3,174	4,630	2,554	2,321	4,875	116	2,360	2,476
Balance of Klamath system	5,260	1,095	6,355	8,678	2,479	11,157	175	1,125	1,300
Subtotals	7,252	5,983	13,235	12,484	8,339	20,823	351	4,235	4,586
Indian Net Harvest *									
Klamath River (below Hwy 101 bridge)	912	23,097	24,009	290	4,547	4,837	12	800	812
Klamath River (Hwy 101 to Trinity mouth)	1,104	8,405	9,509	1,195	8,424	9,619	121	5,700	5,821
Trinity River (Hoopa Reservation)	449	1,531	1,980	314	1,511	1,825	30	1,390	1,420
Subtotals	2,465	33,033	35,498	1,799	14,482	16,281	163	7,890	8,053
Total In-river Harvest	9,717	39,016	48,733	14,283	22,821	37,104	514	12,125	12,639

IN-RIVER RUN

	1981			1982			1983		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	27,768	77,298	105,066	38,997	65,183	104,180	3,825	56,774	60,599
Angling Mortality (2% of harvest) f	145	120	265	250	167	417	7	85	92
Net Mortality (2% of harvest) f	197	2,643	2,840	144	1,159	1,303	13	631	644
Total In-river Run	28,110	80,061	108,171	39,391	66,509	105,900	3,845	57,490	61,335

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimation
1978-1994 *

SPAWNER ESCAPEMENT

	1984			1985			1986		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	764	5,330	6,094	2,159	19,951	22,110	1,461	17,096	18,557
Trinity River Hatchery (TRH)	766	2,166	2,932	18,166	2,583	20,749	3,609	15,795	19,404
Subtotals	1,530	7,496	9,026	20,325	22,534	42,859	5,070	32,891	37,961
Natural Spawners									
Trinity River basin	3,416	5,654	9,070	29,454	9,217	38,671	20,459	92,548	113,007
(above Willow Creek, excluding TRH)	216 g	1,226 g	1,442 g	905	2,259	3,164	949	2,716	3,665
Salmon River basin	358	1,443	1,801	1,357	3,051	4,408	4,865	3,176	8,041
Scott River basin	480	2,362	2,842	2,227	2,897	5,124	683	3,274	3,957
Shasta River basin	465	3,039	3,504	1,156	3,491	4,647	1,184	6,124	7,308
Bogus Creek basin									
Main Stem Klamath River	200	1,350	1,550	156	468	624	196	603	800
(excluding IGH)									
Misc. Klamath tributaries	150	990	1,140	646	4,214	4,860	606	4,919	5,525
(above Hoopa and Yurok Reservations)	-- b	-- b	-- b	50 h	80 h	130 h	-- b	-- b	-- b
Hoopa and Yurok Reservation tribs.									
Subtotals	5,285	16,064	21,349	35,951	25,677	61,628	28,942	113,360	142,302
Total Spawner Escapement	6,815	23,560	30,375	56,276	48,211	104,487	34,012	146,251	180,263

IN-RIVER HARVEST

	1984			1985			1986		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	175	548	723	1,479	2,427 i	3,906	704	2,456	3,160
Trinity River basin (above Willow Creek)	393	736	1,129	5,442	154 i	5,596	3,438	12,039	15,477
Balance of Klamath system	384	2,056	2,440	4,274	1,001 i	5,275	5,266	6,532	11,798
Subtotals	952	3,340	4,292	11,195	3,582 i	14,777	9,408	21,027	30,435
Indian Net Harvest *									
Klamath River (below Hwy 101 bridge)	132	11,878	12,010	132	5,700	5,832	191	15,286	15,477
Klamath River (Hwy 101 to Trinity mouth)	183	5,622	5,805	476	3,925	4,401	377	5,033	5,410
Trinity River (Hoopa Reservation)	140	1,170	1,310	947 j	1,941 j	2,888 j	286	4,808	5,094
Subtotals	455	18,670	19,125	1,555	11,566	13,121	854	25,127	25,981
Total In-river Harvest	1,407	22,010	23,417	12,750	15,148	27,898	10,262	46,154	56,416

IN-RIVER RUN

	1984			1985			1986		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	8,222	45,570	53,792	69,026	63,359	132,385	44,274	192,405	236,679
Angling Mortality (2% of harvest) f	19	67	86	224	72	296	188	421	609
Net Mortality (2% of harvest) f	36	1,494	1,530	124	925	1,049	68	2,010	2,078
Total In-river Run	8,277	47,131	55,408	69,374	64,356	133,730	44,530	194,836	239,366

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimation
1978-1994 *

SPAWNER ESCAPEMENT

	1987			1988			1989		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	1,825	15,189	17,014	609	16,106	16,715	831	10,859	11,690
Trinity River Hatchery (TRH)	2,453	13,934	16,387	4,752	17,352	22,104	239	11,132	11,371
Subtotals	4,278	29,123	33,401	5,361	33,458	38,819	1,070	21,991	23,061
Natural Spawners									
Trinity River basin (above Willow Creek, excluding TRH)	5,949	71,920	77,869	10,626	44,616	55,242	2,543	29,445	31,988
Salmon River basin	118	3,832	3,950	327	3,273	3,600	695	2,915	3,610
Scott River basin	797	7,769	8,566	473	4,727	5,200	1,188	3,000	4,188
Shasta River basin	398	4,299	4,697	256	2,586	2,842	137	1,440	1,577
Bogus Creek basin	1,208	9,748	10,956	225	16,215	16,440	444	2,218	2,662
Main Stem Klamath River (excluding IGH)	65	863	928	164	2,982	3,146	214	1,011	1,225
Misc. Klamath tributaries (above Hoopa and Yurok Reservations)	237	3,286	3,523	418	4,167	4,585	248	3,239	3,487
Hoopa and Yurok Reservation tribs.	-- b	-- b	-- b	55 k	820 k	875 k	40 k	600 k	640 k
Subtotals	8,772	101,717	110,489	12,544	79,386	91,930	5,509	43,868	49,377
Total Spawner Escapement	13,050	130,840	143,890	17,905	112,844	130,749	6,579	65,859	72,438

IN-RIVER HARVEST

	1987			1988			1989		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	146	2,455	2,601	124	3,367	3,491	137	1,328	1,465
Trinity River basin (above Willow Creek)	923	9,433	10,356	2,735	9,341	12,076	209	3,054	3,263
Balance of Klamath system	4,367	8,281	12,648	2,552	9,495	12,047	1,921	4,393	6,314
Subtotals	5,436	20,169	25,605	5,411	22,203	27,614	2,267	8,775	11,042
Indian Net Harvest*									
Klamath River (below Hwy 101 bridge)	36	39,978	40,014	138	36,914	37,052	0	37,130	37,130
Klamath River (Hwy 101 to Trinity mouth)	117	8,136	8,253	173	9,667	9,840	120	4,961	5,081
Trinity River (Hoopa Reservation)	262	4,982	5,244	267	5,070	5,337	71	3,474	3,545
Subtotals	415	53,096	53,511	578	51,651	52,229	191	45,565	45,756
Total In-river Harvest	5,851	73,265	79,116	5,989	73,854	79,843	2,458	54,340	56,798

IN-RIVER RUN

	1987			1988			1989		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	18,901	204,105	223,006	23,894	186,698	210,592	9,037	120,199	129,236
Angling Mortality (2% of harvest) f	109	403	512	108	444	552	45	176	221
Net Mortality (8% of harvest) f	33	4,248	4,281	46	4,132	4,178	15	3,645	3,660
Total In-river Run	19,043	208,756	227,799	24,048	191,274	215,322	9,097	124,020	133,117

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates, 1978-1994 *

SPAWNER ESCAPEMENT

	1990			1991			1992		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	321	6,704	7,025	65	4,002	4,067	3,737	3,581	7,318
Trinity River Hatchery (TRH)	371	1,348	1,719	205	2,482	2,687	211	3,779	3,990
Subtotals	692	8,052	8,744	270	6,484	6,754	3,948	7,360	11,308
Natural Spawners									
Trinity River basin	241	7,682	7,923	382	4,867	5,249	2,563	7,139	9,702
(above Willow Creek, excluding TRH)	596 l	4,071 l	4,667 l	143	1,337	1,480	547	778	1,325
Salmon River basin	236	1,379	1,615	146	2,019	2,165	965	1,873	2,838
Scott River basin	118	415	533	10	716	726	66	520	586
Shasta River basin	53	732	785	20	1,261	1,281	556	598	1,154
Bogus Creek basin									
Main Stem Klamath River	59	505	564	8	572	580	234	366	600
(excluding IGH)									
Misc. Klamath tributaries	30	694	724	9	495	504	153	280	433
(above Hoopa and Yurok Reservations)	17 k	118 k	135 k	0 k	382 k	382 k	59 k	474 k	533 k
Hoopa and Yurok Reservation tribs.									
Subtotals	1,350	15,596	16,946	718	11,649	12,367	5,143	12,028	17,171
Total Spawner Escapement	2,042	23,648	25,690	988	18,133	19,121	9,091	19,388	28,479

IN-RIVER HARVEST

	1990			1991			1992		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	58	291	349	19	314	333	13	20	33
Trinity River basin (above Willow Creek)	22	328	350	94	1,177	1,271	158	314	472
Balance of Klamath system	2,020	2,934	4,954	573	1,892	2,465	3,949	668	4,617
Subtotals	2,100	3,553	5,653	686	3,383	4,069	4,120	1,002	5,122
Indian Net Harvest*									
Klamath River (below Hwy 101 bridge)	13	3,648	3,661	7	3,902	3,909	124	1,152	1,276
Klamath River (Hwy 101 to Trinity mouth)	141	3,447	3,588	25	5,016	5,041	200	3,687	3,887
Trinity River (Hoopa Reservation)	36	811	847	30	1,280	1,310	42	946	988
Subtotals	190	7,906	8,096	62	10,198	10,260	366	5,785	6,151
Total In-river Harvest	2,290	11,459	13,749	748	13,581	14,329	4,486	6,787	11,273

IN-RIVER RUN

	1990			1991			1992		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	4,332	35,107	39,439	1,736	31,714	33,450	13,577	26,175	39,752
Angling Mortality (2% of harvest) f	42	71	113	14	68	82	82	20	102
Net Mortality (6% of harvest) f	15	632	647	5	816	821	29	463	492
Total In-river Run	4,389	35,810	40,199	1,755	32,598	34,353	13,688	26,658	40,344

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimate
1978-1994 *

SPAWNER ESCAPEMENT

	1993			1994		
	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners						
Iron Gate Hatchery (IGH)	883	20,828	21,711	758	11,475 m	12,233
Trinity River Hatchery (TRH)	736	815	1,551	4,251	3,061	7,312
Subtotals	1,619	21,643	23,262	5,009	14,536	19,545
Natural Spawners						
Trinity River basin (above Willow Creek, excluding TRH)	2,465	5,905	8,370	3,150	11,209	14,359
Salmon River basin	456	3,077	3,533	426	3,833	4,259
Scott River basin	265	5,035	5,300	462	2,367	2,829
Shasta River basin	85	1,341	1,426	1,411	3,947	5,358
Bogus Creek basin	431	3,285	3,716	619	7,585	8,204
Main Stem Klamath River (excluding IGH)	31 n	647 n	678 n	620 n	3,228 n	3,848 n
Misc. Klamath tributaries (above Hoopa and Yurok Reservations)	92	2,470	2,562	154	1,126	1,280
Hoopa and Yurok Reservation tribs.	0 h	98 h	98 h	0 h	66 h	66 h
Subtotals	3,825	21,858	25,683	6,842	33,361	40,203
Total Spawner Escapement	5,444	43,501	48,945	11,851	47,897	59,748

IN-RIVER HARVEST

	1993			1994		
	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest						
Klamath River (below Hwy 101 bridge)	23	669	692	231	538	769
Trinity River basin (above Willow Creek)	172	391	563	308	366	674
Balance of Klamath system	1,730	2,112	3,842	2,121	864	2,985
Subtotals	1,925	3,172	5,097	2,660	1,768	4,428
Indian Net Harvest*						
Klamath River (below Hwy 101 bridge)	62	3,017	3,079	81	4,313	4,394
Klamath River (Hwy 101 to Trinity mouth)	80	5,127	5,207	78	5,016	5,094
Trinity River (Hoopa Reservation)	33	1,492	1,525	94	2,266	2,360
Subtotals	175	9,636	9,811	253	11,595	11,848
Total In-river Harvest	2,100	12,808	14,908	2,913	13,363	16,276

IN-RIVER RUN

	1993			1994		
	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals						
In-river Harvest and Escapement	7,544	56,309	63,853	14,764	61,260	76,024
Angling Mortality (2% of harvest) f	39	63	102	53	35	88
Net Mortality (2% of harvest) f	14	771	785	20	928	948
Total In-river Run	7,597	57,143	64,740	14,837	62,223	77,060

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates,
1978-1994 a/ (continued)

Page 7 of 7

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- a/ Prepared December 12, 1994. All figures are California Department of Fish and Game (CDFG) counts/estimates unless otherwise indicated. All figures for Iron Gate and Trinity River hatcheries represent counts of fish entering those facilities. All spawner escapement figures for the Shasta River basin for 1978-1987, plus those for Bogus Creek basin for 1980-1991 are based on counts made at counting stations located near the mouths of those streams. All remaining spawner escapements and all harvest figures are estimates developed from data obtained through ongoing field investigations in the Klamath-Trinity system. Figures for years through 1993 are final; 1994 figures are preliminary, subject to revision.
- b/ Figure not available.
- c/ USFWS estimate.
- d/ In 1978, the Klamath River system sport salmon fishing season was closed August 25. There was essentially no sport harvest of fall chinook in the Trinity River basin in 1978.
- e/ USFWS estimates for years through 1982; 1983 through 1993 estimates jointly made by USFWS and Hoopa Valley Business Council Fisheries Department (HVBCFD); 1994 estimates jointly made by HVBCFD for the Hoopa Reservation and Yurok Tribal Fisheries Department for the Yurok Reservation.
- f/ Factors for non-landed catch mortality calculated by the Klamath River Technical Advisory Team (KRTAT, 1986, "Recommended Spawning Escapement Policy for Klamath River Fall-run Chinook").
- g/ U.S. Forest Service estimate.
- h/ HVBCFD estimate. Estimate for streams in Hoopa Reservation only.
- i/ In 1985, the Klamath River system sport salmon fishing season was closed to the taking of all salmon below the U.S. Highway 101 bridge from September 9 through December 31; the Klamath from the U.S. Highway 101 bridge to Iron Gate Dam and the Trinity River from its mouth to Lewiston Dam were closed to the taking of salmon 22 inches and longer from September 23 through December 31, 1985.
- j/ Estimates for Hoopa Reservation portion of catch (=947 grilse and 1,941 adults) are of catch occurring during open fishing periods only.
- k/ Estimates jointly made by USFWS and HVBCFD.
- l/ Final figures for Salmon River basin natural spawners shown in the December 11, 1991 table were incorrect. Corrected figures, plus necessary revisions to the 1990 totals, are presented here.
- m/ Figure does not include 2,333 adults that, following entry into Iron Gate Hatchery, were returned to the river alive and unspawned, and which are presumed to have spawned naturally.
- n/ CDFG estimate based on USFWS redd count data.

Ocean Stock Size Projections and Appropriate Harvest Levels
for Klamath River Fall Chinook, 1995 Season 1/

by

Klamath River Technical Advisory Team

SUMMARY

Ocean stock size projections for Klamath River fall chinook salmon are 134,500 and 37,600 for age-3 and age-4 fish, respectively. The age-3 projection is approximately twice that of the comparative 1994 preseason projection (69,000). The age-4 projection is 55 percent of the comparative 1994 preseason projection (68,600). The post-season estimates of age-3 and age-4 Klamath fall chinook were 98,500 and 33,300, respectively. Under the current Pacific Fishery Management Council (PFMC) Framework Plan (Amendment 9), 33 to 34 percent of each cohort be allowed to escape the fisheries to spawn, with the remainder available for harvest. In addition, Amendment 9 requires that no less than 35,000 natural spawners be provided in all years.

In the absence of ocean and river fisheries in 1995, the stock strength predictions will produce a 1995 spawning population of 82,000 adult fish, 50,900 of which will spawn in natural areas. Harvest levels (ocean and river combined) that provide a 33 percent escapement rate would produce a spawning population of 33,300 adult fish, of which 20,600 would spawn in natural areas.

1/ Prepared February 10, 1995.

INTRODUCTION

This report presents ocean stock size projections for Klamath River fall-run chinook in 1995. The current Framework Plan of the PFMC specifies an escapement rate for Klamath River fall chinook of between 33 and 34 percent. The plan also requires a minimum escapement of 35,000 naturally spawning adult fish. Naturally spawning adult fish are defined as age-3 or older fall chinook spawning outside of the hatchery environment regardless of their origin. Appropriate ocean and inriver harvest levels of Klamath River fall chinook are determined from the Klamath River Technical Advisory Team's (KRTAT) Harvest Rate Model (HRM) using age-specific stock abundance projections (KRTAT, 1986).

DATA AND ANALYTICAL METHODS

Klamath River fall chinook contribute to ocean and inriver fisheries primarily as age-3 and age-4 fish and, secondarily, as age-2 and age-5 fish. Stock abundance predictions are developed for all adult age classes (age-3, -4, and -5) in this report.

Age-3 Fish

Regression analysis with the y-intercept forced through zero was used for the age-3 ocean stock size projection. This model was selected to reduce positive bias associated with projections at low stock size. Further, this procedure is consistent with recommendations of the PFMC Salmon Technical Team and the Scientific and Statistical Committee. The regression was based on ocean stock size estimates of age-3 fish during 1982 through 1993 (brood years 1979 through 1990) regressed on inriver run-size estimates of age-2 fish the year before, excluding brood years 1980 and 1985 (Table 1). The 1980 brood was omitted because survival between age 2 and 3 was reduced severely (El Niño effect). The 1985 brood was omitted because of its poor fit with other data points in the relationship (i.e. excessive age-3 ocean recruitment from a relatively low age-2 inriver run size) (Figure 1).

Age-3 stock sizes have been projected pre-season since 1985 using similar methods to those described above. The performance of these projections may be evaluated by comparison with post-season estimates of ocean stock size (Table 2). Post-season ocean stock-size estimates for age-3 fish were calculated using cohort reconstruction methods for hatchery and natural components of the stock that accommodates the varying maturity rates between years as described in KRTAT, 1990. Age-3 ocean abundance in 1994 (Table 1) was estimated by applying the average age-3 maturity rate for completed broods to the age-3 inriver run-size for 1994.

TABLE 1. Estimated Number of Fall-run Chinook Salmon by Age Entering the Klamath River During 1981-1994 in Thousands of Fish, Including Estimates of Ocean Population Sizes. a/

RETURN YEAR	INRIVER AGE COMPOSITION					TOTAL ADULTS	OCEAN IMPACT RATE BY AGE		OCEAN POPULATION BY AGE			TOTAL
	AGE 2	AGE 3	AGE 4	AGE 5	AGE 3		AGE 4	AGE 3	AGE 4	AGE 4		
1981	28.1	64.0	14.3	1.8	80.1	0.42	0.66	246.6	45.6	292.2		
1982	39.4	30.0	33.9	2.6	66.5	0.60	0.65	344.5	106.7	451.2		
1983	3.8	35.8	20.7	0.9	57.5	0.30	0.70	103.8	84.9	188.7		
1984	8.3	29.6	15.2	2.3	47.1	0.15	0.43	102.9	29.2	132.1		
1985	69.4	30.7	32.7	0.9	64.4	0.27	0.29	138.0	46.0	184.0		
1986	44.5	167.9	26.9	TR	194.8	0.32	0.52	604.0	56.1	660.2		
1987	19.0	120.7	88.0	TR	208.7	0.38	0.53	416.3	192.9	609.3		
1988	24.0	136.5	53.5	1.2	191.3	0.39	0.45	604.2	109.1	713.4		
1989	9.1	15.5	105.1	3.3	124.0	0.22	0.43	129.7	185.0	314.7		
1990	4.4	9.1	26.6	0.2	35.8	0.65	0.61	113.5	68.7	182.2		
1991	1.8	14.4	18.1	0.1	32.6	0.10	0.21	43.8	24.9	68.7		
1992	13.7	7.3	18.3	1.0	26.7	0.03	0.04	21.2	20.0	41.2		
1993	7.6	47.9	8.0	0.6	56.5	0.11	0.11	100.6	10.7	111.3		
1994	14.8	31.8	29.2	1.2	62.2	0.04b/	0.06	98.5	33.3	131.8		

a/ Ocean harvest rate and ocean population size for age 3 fish in 1981 and age 4 fish

in 1981 and 1982 from CDFG, 1989; all others after KRTAT, 1990.

b/ 1994 age 3 harvest rate computed based on the average ratio of age 3 to age 4 (69%).

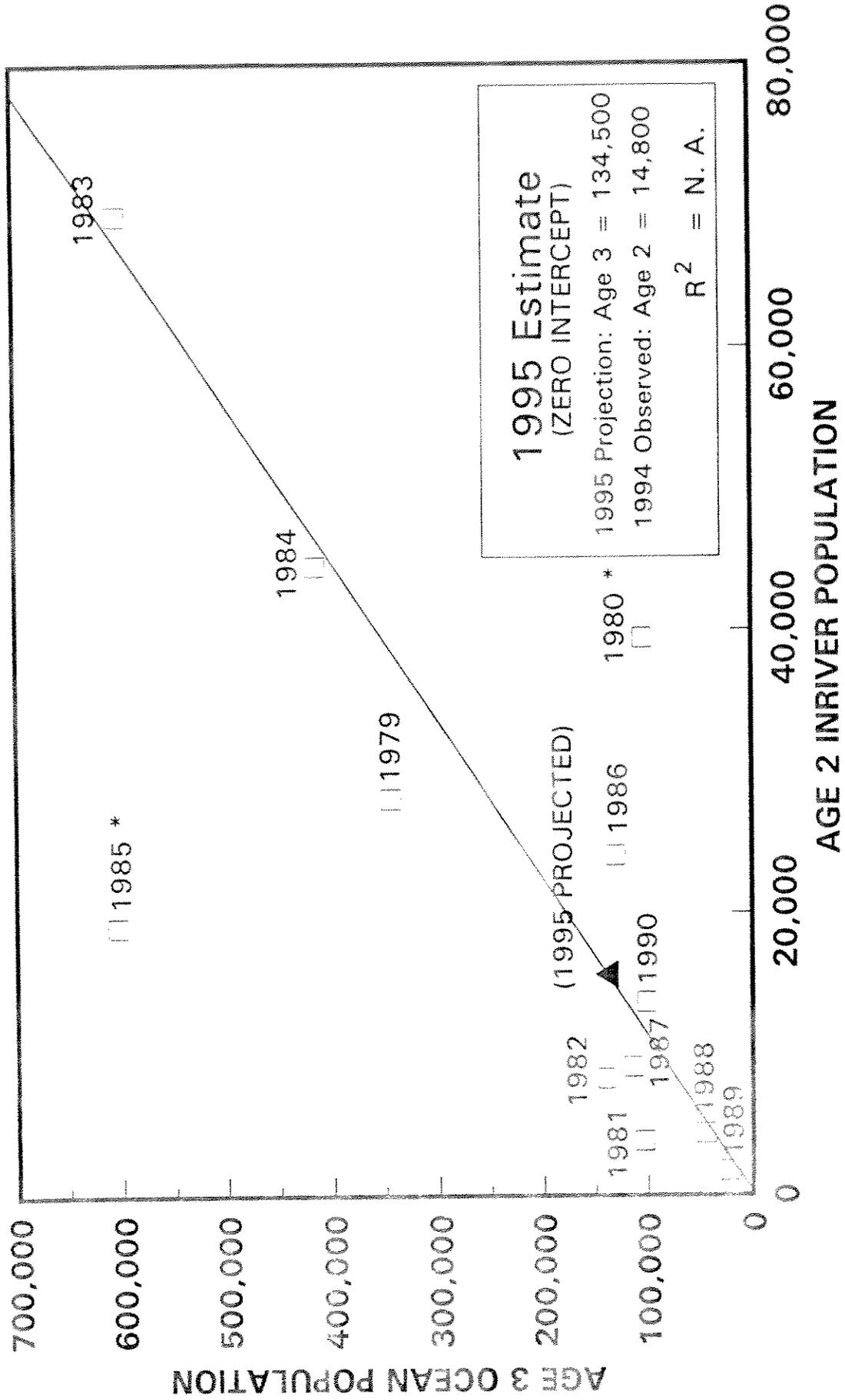
Table 2. Comparisons of Pre-and Post-season Ocean Abundance Estimates for Ages 3 and 4 Klamath River Fall Chinook, 1985-1994 Seasons

Age	Season	Preseason estimate	Postseason estimate	Pre/post
3	1985	56,500	138,000	0.41
	1986	213,000 ^a	604,000	0.35
	1987	255,900	416,300	0.61
	1988	185,400	604,200	0.31
	1989	225,300	129,700	1.74
	1990	239,500	113,500	2.11
	1991	88,100	43,800	2.01
	1992	25,000	21,200	1.18
	1993	147,200	100,600 ^b	1.46
	1994	69,000	98,500 ^b	0.70
4	1985	45,500	46,000	0.99
	1986	53,000	56,100	0.94
	1987	164,900	192,900	0.85
	1988	149,100	109,100	1.37
	1989	172,400	185,000	0.93
	1990	40,100	68,700	0.58
	1991	35,700	24,900	1.43
	1992	35,800	20,000	1.79
	1993	31,300	10,700	2.93
	1994	68,900	33,300 ^b	2.07

^a A 75 percent jack count adjustment was applied because most of the jacks were in the Trinity River. Also, the basin jack count was outside the database.

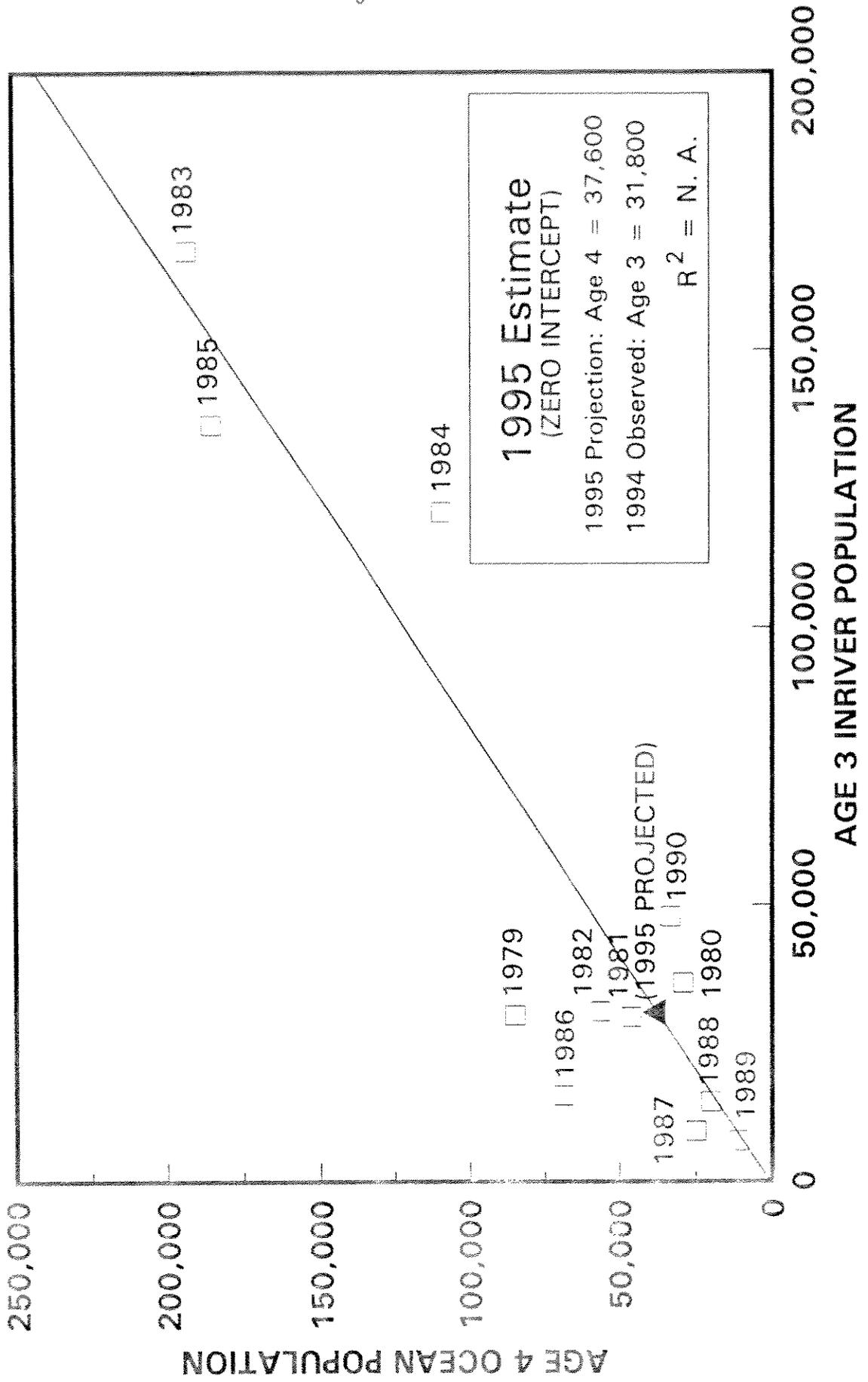
^b This is a very preliminary estimate as the cohort has not nearly completed its life cycle.

FIGURE 1. AGE-3 ON AGE-2 KLAMATH FALL CHINOOK
1979 - 1990 BROOD YEARS



* Excluded From regression

FIGURE 2. AGE 4 ON 3 KLAMATH FALL CHINOOK
1979 - 1990 BROOD YEARS



Age-4 Fish

The same regression method applied for age-3 fish was used for age-4 fish, except that all years were included (Table 1). The relationship between age-4 ocean abundance estimates and inriver run-size estimates of age-3 fish of the same cohort is shown in Figure 2. An age-4 maturity rate in 1994 (1990 brood) of 0.94 (average 1979-1989 maturation probability from cohort reconstruction) was used to produce a post-season ocean stock size estimate because the cohort is not yet complete. The performance of the age-4 predictor is summarized in Table 2.

Age-5 Fish

The age-5 abundance prediction of 1,600 fish is based on the age-4 inriver run-size estimate for 1994, an age-4 maturation probability of 0.94, and an estimated overwinter survival rate of 0.80.

Proportion of Adult Spawners Using Natural Areas

The 1995 inriver run is predicted to be 82,000 in the absence of fishing. The projected number of adults spawning in natural areas is 50,900. This projection was derived by applying the average proportion of natural spawners (62 percent) in the total spawning population during 1990-94. This period is believed to best reflect conditions expected to occur in 1995.

The 1994 prediction was 52 percent natural spawners (PFMC, 1994). The post-season estimate of the 1994 natural escapement is 70 percent (CDFG, 1994). The 1994 natural escapement includes an unknown number of hatchery fish. This is especially apparent in the Klamath River below Iron Gate Hatchery where 2,333 chinook entered the hatchery in excess of broodstock needs. These fish were subsequently marked and returned to the river. Numbers of these fish were recovered in Bogus Creek and Shasta River. In addition, adipose-marked salmon were recovered in both of these sub-basins. Further, the 1994 operations at Iron Gate Hatchery excluded an additional undocumented number of fish that arrived at the hatchery intake but were denied entry.

STOCK PROJECTIONS AND APPROPRIATE FISHERY LANDING LEVELS

Ocean abundance projections for Klamath River fall chinook in 1995 are as follows:

Age 3:	134,500 fish
Age 4:	37,600 fish
Age 5:	1,600 fish

These age specific stock-size projections prior to fishing in 1995 when inserted into the HRM, without ocean or river fisheries, would produce 82,000 spawning adults in the fall of 1995, 50,900 of which would spawn in natural areas. If full fishing (33 to 34 percent brood escapement rate) occurs on the projected ocean populations the spawning escapement would be 33,300 adults, of which 20,600 would spawn in natural areas. This is 14,400 fish below the 35,000 escapement floor.

Ocean landings of Klamath River fall chinook in 1994 late season (September-November) ocean fisheries totaled 180 summer fishery equivalents, including 175 age-4 fish and 5 age-5 fish (Table 3). In previous years, these landings have been subtracted from the ocean allocation in the coming year.

TABLE 3. Calculations of September-November, 1994, Ocean Fishery Landings of Klamath River Fall Chinook

Brood year (Age Class)	Number ocean CWT's	Summer equivalent CWT's	Inriver CWT's	Total inriver	BY CWT expansion factor	Ocean landings
1992(3)	0	0	0	31,778	0.00	0
1991(4)	12	10	1602	29,234	18.25	175
1990(5)	1	1	199	1,211	6.09	5
						Total = 180

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CHAPTER II

CHINOOK SALMON ASSESSMENT

SACRAMENTO RIVER FALL CHINOOK

Predictor Description

The Council's framework amendment escapement goal for Sacramento River fall chinook is a range of 122,000 to 180,000 adults. The fall stock comprises over 90 percent of the escapement of all chinook stocks utilizing Central Valley streams and hatcheries. The Central Valley index (CVI) has been developed as an index of abundance for the combined Central Valley chinook stocks. The CVI is computed as the sum of ocean fishery chinook harvests in areas south of Point Arena and the Central Valley spawning escapement of adult chinook in the same year (Table II-1).

Predictor Performance

Prior to 1989, the CVI was projected by the Salmon Technical Team (STT) based on CVI levels in recent years with general consideration given for brood year natural escapements, hatchery releases and the previous year jack run. The preseason point projections for the CVI from 1985-1988 ranged from 58 to 79 percent, and averaged 68 percent, of the postseason CVI estimates (Table II-2). Prior to the El Niño years of 1983-1984, the CVI had been relatively stable, but from 1985-1988 it increased significantly. The STT has used the relationship between the Central Valley jack estimate for the year prior compared to total Central Valley abundance of adults as the best indicator for CVI abundance since 1991.

The 1994 abundance index projection for the CVI of 503,000 chinook was based on the jack to CVI relationship. The postseason estimate for the 1994 CVI was 577,800 fish, 15 percent above the preseason projection. The postseason estimate of 72 percent for the Central Valley ocean exploitation index was 36 percent higher than the preseason projection of 53 percent.

1995 Stock Status

Ocean abundance of Central Valley chinook stocks is expected to be somewhat higher in 1995 than the past four years. The CVI projection for 1995, based on the jack to CVI relationship, is 654,000 fish (Figure II-1).

Evaluation of 1994 Regulations on 1995 Stock Abundance

The ocean exploitation index for the Central Valley increased dramatically, from 50 percent in 1985 to 78 percent in 1988, but declined 3 percentage points in 1989 when abundance was lower (Table II-1). It increased 4 percentage points in 1990, but declined to 72 percent in 1991, 71 percent in 1992, and 72 percent in 1993 and 1994 in response to more restrictive commercial and recreational fisheries south of Point Arena. Effort shifts of trollers from northern ports to more southern ports have contributed to a higher Central Valley ocean exploitation index since 1985. Greater restrictions also have been applied to fisheries north of Point Arena in recent years

TABLE II-1. Indices of annual abundance and ocean fishery impacts on California Central Valley chinook in thousands of fish. (Page 1 of 1)

Year	Ocean Chinook Landings South of Pt. Arena			Hatchery and Natural Escapements of Central Valley Adults			Abundance Index (Ocean + River Totals)	Ocean Exploitation Index (Percent) ^{a/}
	Troll	Sport	Total	Fall	Other ^{b/}	Total		
1970	226.8	111.1	337.9	190.5	55.6 ^{c/}	246.1	584.0	58
1971	150.7	166.3	317.0	190.6	62.0	252.6	569.6	56
1972	229.8	187.6	417.4	99.6	46.1	145.7	563.1	74
1973	422.5	180.9	603.4	227.1	27.1	254.2	857.6	70
1974	282.7	141.6	424.3	205.6	35.7	241.3	665.6	64
1975	234.4	92.7	327.1	159.2	47.6	206.8	533.9	61
1976	237.9	68.6	306.4	168.8	43.8	212.6	519.0	59
1977	263.8	76.6	340.4	148.7	42.8	191.5	531.9	64
1978	291.0	65.9	356.9	136.9	17.1	154.0	510.9	70
1979	234.1	108.5	342.6	167.9	11.3	179.2	521.8	66
1980	294.3	77.1	371.4	155.9	31.6	187.5	558.9	66
1981	289.9	73.8	363.7	189.3	18.7	208.0	571.7	64
1982	418.4	122.5	540.9	177.2	36.8	214.0	754.9	72
1983	178.2	53.0	231.2	121.0	14.2	135.2	366.4	63
1984	221.7	78.7	300.3	197.5	17.6	215.1	515.4	58
1985	212.3	121.8	334.1	308.9	19.0	327.9	662.0	50
1986	502.5	114.8	617.3	259.0	30.3	289.3	906.6	68
1987	446.8	152.8	599.7	188.0	25.2	213.2	812.9	74
1988	830.5	130.4	960.9	244.9	23.3	268.2	1,229.1	78
1989	363.8	130.9	494.7	149.6	16.4	166.0	660.7	75
1990	336.2	112.6	448.8	108.3	13.5	121.8	570.6	79
1991	254.6	62.1	316.7	112.3	15.1	127.4	444.1	72
1992	163.5	66.7	230.2	85.3	7.6	92.9	323.1	71
1993	259.7	99.3	359.0	131.5	10.1	141.6	500.6	72
1994 ^{d/}	270.5	148.4	418.9	148.8	10.1 ^{e/}	158.9	577.8	72

a/ Ocean harvest landed south of Pt. Arena as a percent of the abundance index.

b/ Spring run of the current calendar year and late fall and winter runs of the following calendar year.

c/ Percent of adults in 1970 spring run assumed the same as 1971 (72 percent, 5,500 total).

d/ Preliminary.

e/ Winter run assumed to be the same as previous year.

TABLE II-2. Comparisons of preseason and postseason estimates for the CVI in thousands of chinook salmon. (Page 1 of 1)

Year or Average	Preseason	Postseason	Preseason/ Postseason
1985-1988	-	-	0.68
1985	524.8	662.0	0.79
1986	546.5	906.6	0.60
1987	592.9	812.9	0.73
1988	707.1	1,229.1	0.58
1989	625-885	660.7	0.95-1.34
1990	500-900	570.6	0.88-1.58
1991	466	444.1	1.05
1992	452	323.1	1.40
1993	501	500.6	1.00
1994	503	577.8	0.87

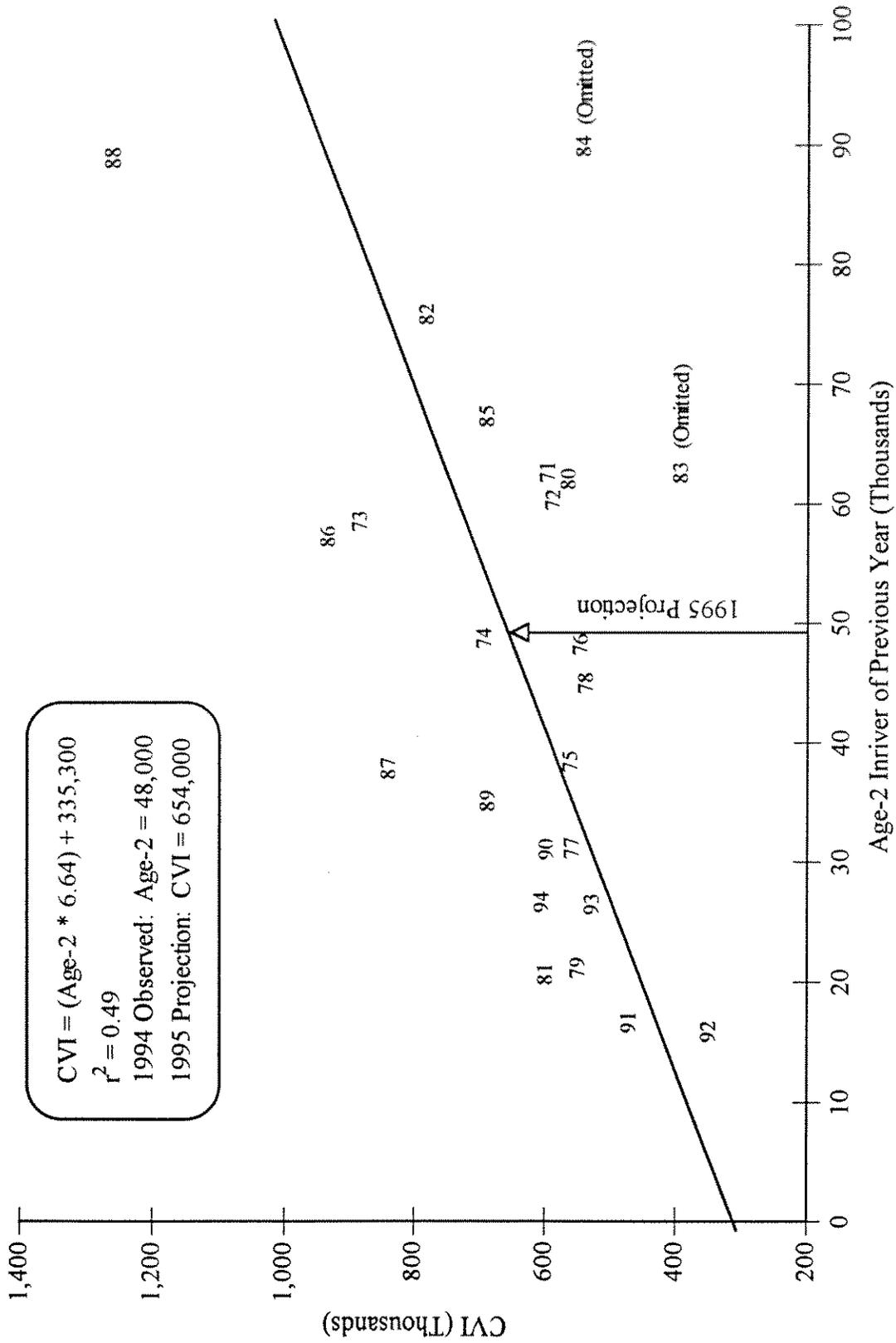


FIGURE II-1. Linear regression of CVI on inriver age-2 Central Valley chinook of the previous year, 1971-1994.
 (Years shown are CVI year, 1983 and 1984 omitted.)

to reduce impacts on Klamath River fall chinook. The restrictive regulations probably have provided a sanctuary for Central Valley chinook salmon, tending to offset somewhat the increased exploitation rate in the southern areas.

Regulations comparable to 1994 would continue to cause higher effort levels in the southern fisheries. The expectation is that a repeat of 1994 regulations will result in an ocean exploitation index similar to that observed in the previous four years of about 72 percent. Given the CVI abundance projection of 654,000 chinook, the escapement for Sacramento River fall chinook is expected to fall in the middle of the escapement goal range (Figure II-2).

KLAMATH RIVER FALL CHINOOK

Predictor Description

Linear regression analyses have been used for Klamath River fall chinook to relate ocean population estimates for age-3 and age-4 fish to inriver run size estimates of age-2 and age-3 fish, respectively, of the previous year beginning with the 1979 brood year. From 1986-1989, ocean population estimates, using cohort reconstruction, were based on California Department of Fish and Game inriver run size estimates for jacks and adults, U.S. Fish and Wildlife Service (USFWS) inriver adult age composition estimates, ocean exploitation rate estimates based on coded-wire tags (CWT) and fixed stock maturity rate estimates used in the Klamath River Technical Advisory Team (KRTAT) Harvest Rate Model (HRM). In 1989, KRTAT modified the cohort reconstruction methods previously used, determining river adult age composition and maturity rates from CWT data for each year. Since 1992, age composition has been determined by analyzing scales from throughout the basin.

The age-3 ocean population projection for 1995 is based on the 1979-1990 broods, omitting the 1980 brood because of El Niño effects and the 1985 brood because of its poor fit with the other data points in the relationship (Table II-3 and Figure II-3). The age-4 ocean population projection is based on the 1979-1990 broods (Table II-3 and Figure II-4.) For years of low stock abundance, particularly 1991-1993, the regression models have overpredicted stock size. This positive bias in preseason predictions has been partially responsible for the resulting low escapements in those years. For 1995, this bias is of concern for the population projection, because relatively low numbers of age-2 and age-3 fish returned to the river in 1994. The y-intercept of the regression relationship used to estimate ocean abundance has been run through zero to correct the observed bias.

Ocean fisheries harvest small numbers of age-2 and age-5 Klamath River fall chinook. The abundance of age-2 fish was not projected because no precursor to fish of that brood is available. The abundance of age-5 fish was projected by multiplying the age-4 ocean cohort size remaining at the end of the 1994 season (determined by dividing the age-4 river run size by the average maturity for the stock and then subtracting the river run) by the over-winter survival rate of 80 percent assumed in the HRM.

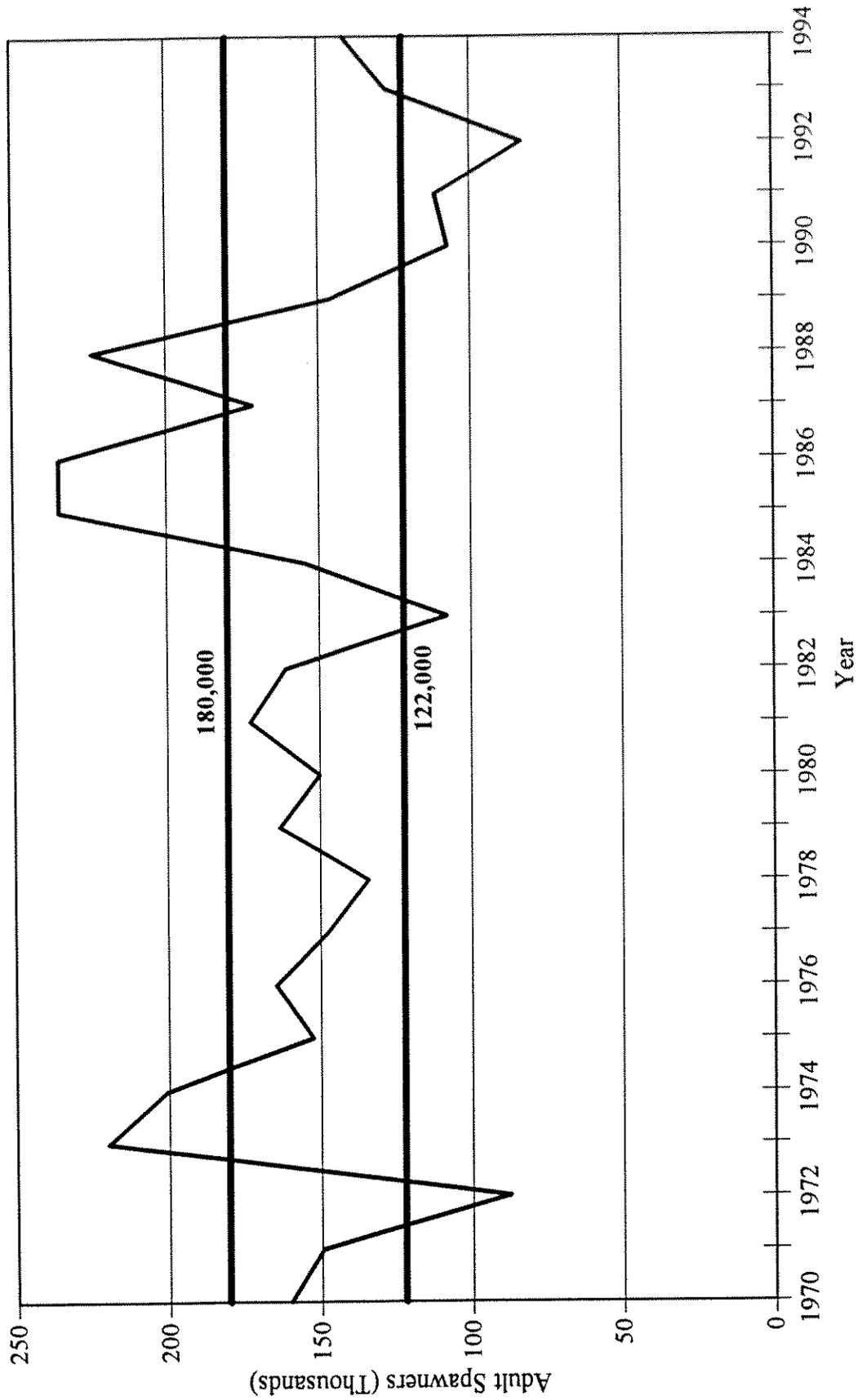


FIGURE II-2. Spawning escapements of adult Sacramento River fall chinook, 1970-1994, and the goal range for the stock of 122,000 to 180,000 adult fish (1994 estimate is preliminary).

TABLE II-3. Estimated number of fall chinook salmon by age entering the Klamath River in thousands of fish, including estimates of ocean population sizes.^{a/} (Page 1 of 1)

Return Year	Inriver Population by Age					Ocean Exploitation				Ocean Population by Age		
	Age-2	Age-3	Age-4	Age-5	Total Adults	Age-3	Age-4	Age-4	Age-3	Age-4	Age-4	Total
1981	28.1	64.0	14.3	1.8	80.1	0.42	0.66	0.66	246.6	45.6	292.2	
1982	39.4	30.0	33.9	2.6	66.5	0.60	0.65	0.65	344.5	106.7	451.2	
1983	3.8	35.8	20.7	0.9	57.5	0.30	0.70	0.70	103.8	84.9	188.7	
1984	8.3	29.6	15.2	2.3	47.1	0.15	0.43	0.43	102.9	29.2	132.1	
1985	69.4	30.7	32.7	0.9	64.4	0.27	0.29	0.29	138.0	46.0	184.0	
1986	44.5	167.9	26.9	b/	194.8	0.32	0.52	0.52	604.0	56.1	660.2	
1987	19.0	120.7	88.0	b/	208.7	0.38	0.53	0.53	416.3	192.9	609.3	
1988	24.0	136.5	53.5	1.2	191.3	0.39	0.45	0.45	604.2	109.1	713.4	
1989	9.1	15.5	105.1	3.3	124.0	0.22	0.43	0.43	129.7	185.0	314.7	
1990	4.4	9.1	26.6	0.2	35.8	0.65	0.61	0.61	113.5	68.7	182.2	
1991	1.8	14.4	18.1	0.1	32.6	0.10	0.21	0.21	43.8	24.9	68.7	
1992	13.7	7.3	18.3	1.0	26.7	0.03	0.04	0.04	21.2	20.0	41.2	
1993	7.6	47.9	8.0	0.6	56.5	0.11	0.11	0.11	100.6	10.7	111.3	
1994	14.8	31.8	29.2	1.2	62.2	c/	0.06	0.06	98.5 ^{d/}	33.3	132.7	

a/ Ocean exploitation rate and ocean population size for age-3 fish in 1981 and age-4 fish in 1981 and 1982 from CDFG 1989; all others after KRTAT 1990.

b/ Less than 50.

c/ Cannot compute for incomplete cohort.

d/ This is a preliminary estimate, based on average maturity rates, as the cohort has not completed its life cycle.

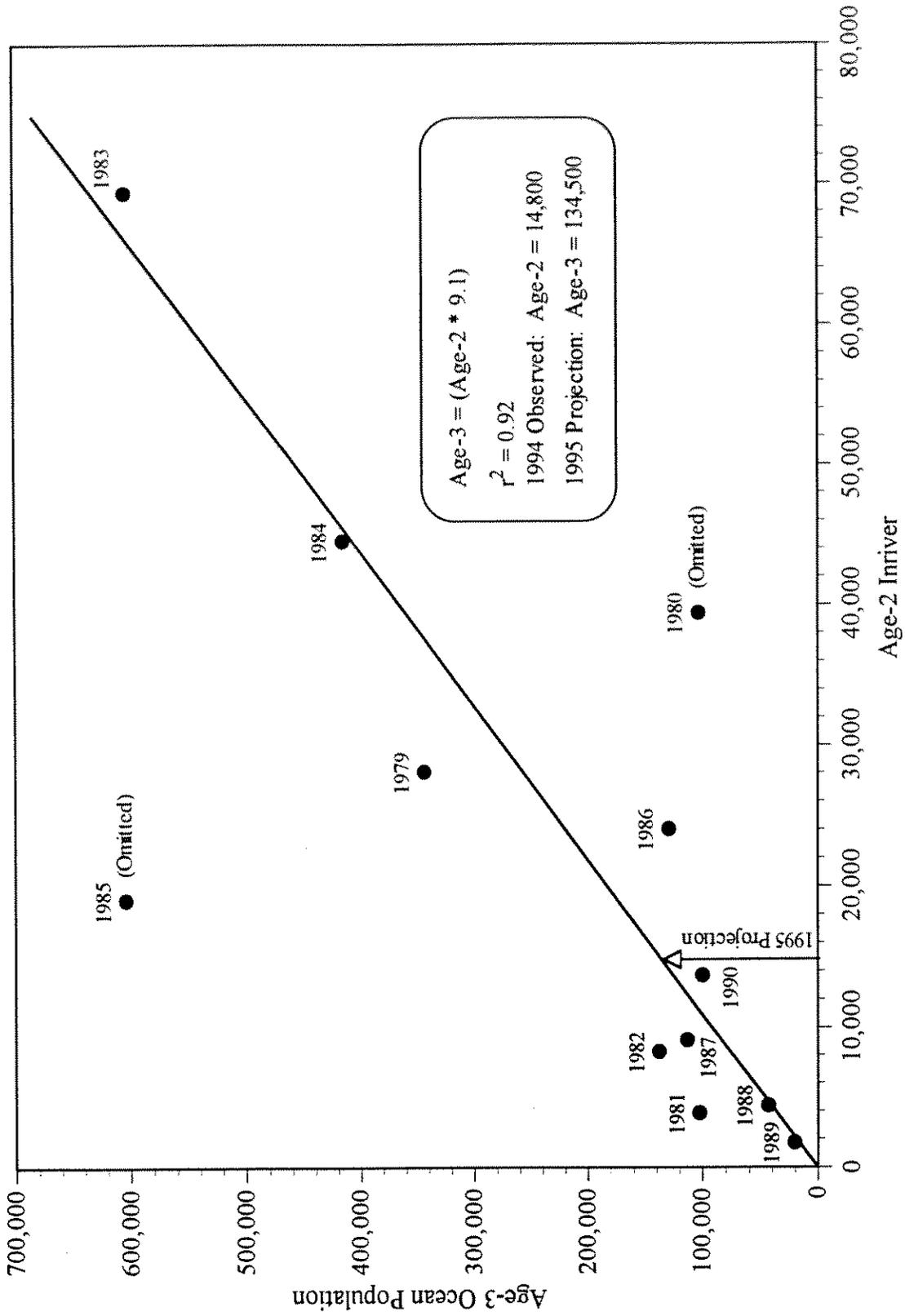


FIGURE II-3. Linear regression of ocean age-3 on inriver age-2 Klamath River fall chinook of the same cohort, 1979-1990 broods without 1980 and 1985 broods (years shown are brood years).

TABLE II-4. Comparisons of preseason and postseason ocean abundance estimates for age-3 and age-4 Klamath River fall chinook. (Page 1 of 1)

Age	Season	Preseason Estimate	Postseason Estimate	Pre/Postseason
3	1985	56,500	138,000	0.41
	1986	213,000 ^{a/}	604,000	0.35
	1987	255,900	416,300	0.61
	1988	185,400	604,200	0.31
	1989	225,300	129,700	1.74
	1990	239,500	113,500	2.11
	1991	88,100	43,800	2.01
	1992	25,000	21,200	1.18
	1993	147,200	100,600 ^{b/}	1.46
	1994	69,000	98,500 ^{b/}	0.70
4	1985	45,500	46,000	0.99
	1986	53,000	56,100	0.94
	1987	164,900	192,900	0.85
	1988	149,100	109,100	1.37
	1989	172,400	185,000	0.93
	1990	40,100	68,700	0.58
	1991	35,700	24,900	1.43
	1992	35,800	20,000	1.79
	1993	31,300	10,700	2.93
	1994	68,600	33,300 ^{b/}	2.07

a/ A 75 percent jack count adjustment was applied because most of the jacks were in the Trinity River. Also, the Klamath River Basin jack count was outside the data base.

b/ This is a very preliminary estimate as the cohort has not completed its life cycle.

TABLE II-5. Summary of management objectives and performance for Klamath River fall chinook. (Page 1 of 1)

Year	Preseason Stock Abundance Projection			Postseason Stock Abundance Estimate		Preseason Impact Rate Target on Age-4 Fish ^{a/}		Adult Numerical Harvest Target		Actual Impact Rate on Age-4 Fish ^{b/}		Adult Actual Numerical Harvest	
	Age-3	Age-4	Age-3	Age-4	Ocean	River	Ocean	River	Ocean	River	Ocean	River	
1986	213,000	53,000	604,000	56,100	0.350	0.500	72,000	37,700	0.52	0.74	224,000	46,200	
1987	255,900	164,900	416,300	192,900	0.350	0.525	121,200	78,200	0.53	0.56	262,400	73,300	
1988	185,400	149,100	604,200	109,100	0.390	0.525	114,100	65,400	0.45	0.84	286,600	73,900	
1989	225,300	172,400	129,700	185,000	0.375	0.490	128,100	67,600	0.43	0.46	111,700	54,300	
1990	239,500	40,100	113,500	68,700	0.375	0.490	85,100	31,200	0.61	0.31	115,900	11,500	
1991	88,100	35,700	43,800	24,900	0.160	0.280	16,700	12,800	0.21	0.50	9,800	13,600	
1992	25,000	35,800	21,200	20,000	0.080	0.150	4,100	5,700	0.04	0.26	1,400	6,800	
1993	147,200	31,300	100,600	10,700	0.145	0.427	20,300	21,200	0.11	0.50	12,300	12,800	
1994 ^{c/}	69,000	68,600	98,500	33,300	0.090	0.200	10,400	13,200	0.06	0.26	6,000	13,400	

a/ Ocean impact rate target expressed as fraction of ocean stock projection. River impact rate target expressed as fraction of fish projected to enter the river.

b/ Ocean impact rate expressed as fraction of ocean stock abundance. River impact rate expressed as fraction of fish entering the river.

c/ Preliminary.

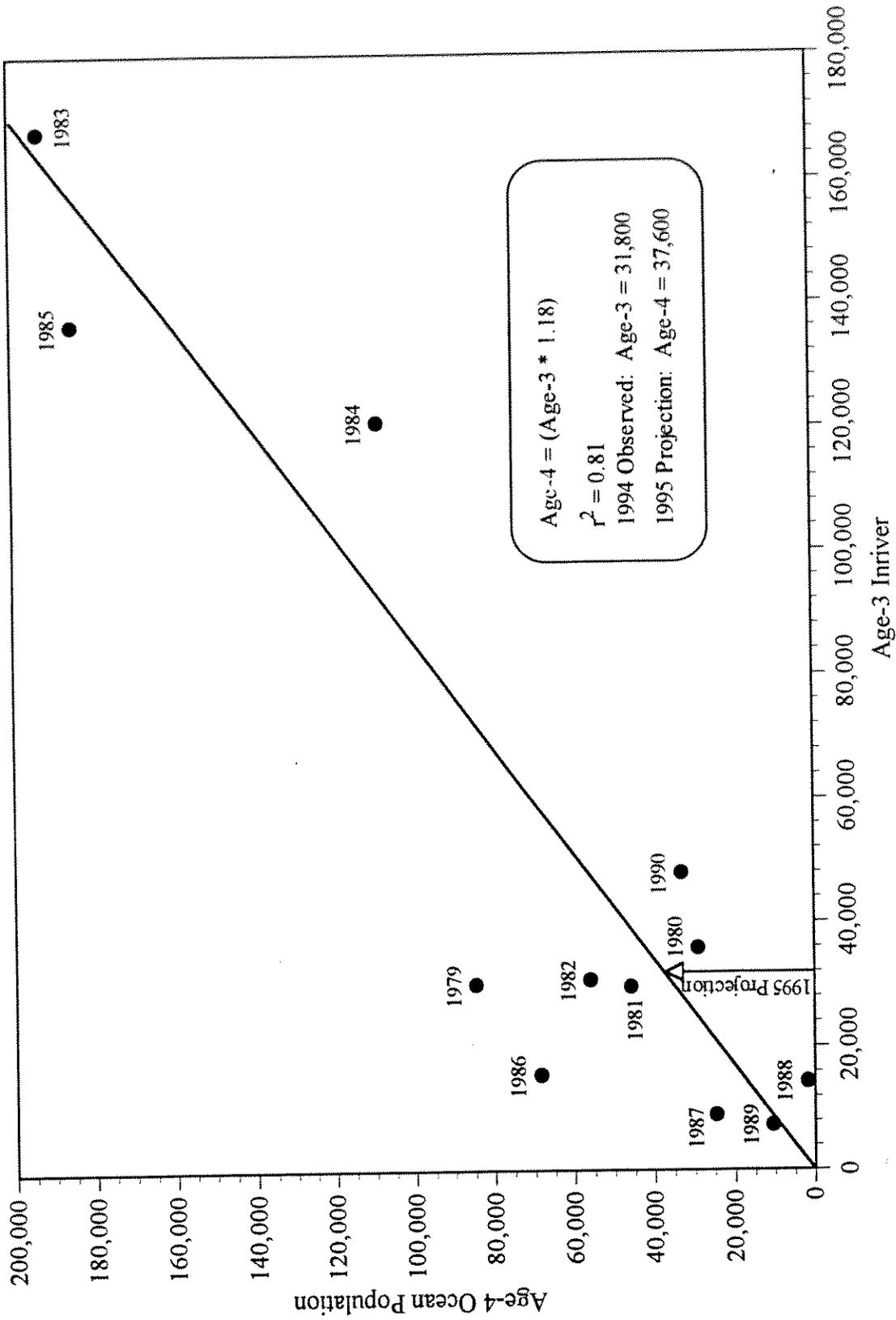


FIGURE II-4. Linear regression of ocean age-4 on innver age-3 Klamath River fall chinook of the same cohort, 1979-1990 broods (years shown are brood years).

Predictor and Fishery Performance

The preseason ocean abundance projections for age-3 fish since 1985 have ranged from 31 to 211 percent of the postseason estimates, using the KRTAT cohort reconstruction method (Table II-4). The age-4 preseason projections for these same years ranged from 58 to 293 percent of the postseason estimates. For years of low stock abundance, particularly 1991-1994, the regression models generally have overpredicted stock size. The Klamath River regression models have been updated each year using the revised data points for age-3 and age-4 fish and the postseason estimate for the age-2 and age-3 fish of the previous year.

Management of Klamath River fall chinook harvest since 1986 has been aimed at attaining specific harvest rates on fully vulnerable age-4 and age-5 fish in ocean and river fisheries (Table II-5). The Council has used a combination of quotas and time/area restrictions in ocean fisheries in an attempt to meet the age-4 harvest rate goal set each year. River fisheries have been managed on adult quotas (Indian net fishing) or partial quotas which trigger area closures (recreational fishing).

1995 Stock Status

The age-3 projection of 134,500 fish is approximately twice the 1994 preseason projection of 69,000 fish. The age-4 projection of 37,600 fish is 54 percent of the 1994 preseason projection of 68,600 fish.

Late-season (September through November) ocean fisheries in 1994 harvested an estimated 175 Klamath River age-4 fall chinook. These fish should be deducted from the ocean allocation in determining the actual allowable ocean harvest level in 1995.

In the absence of ocean and river fisheries in 1995, the above stock strength expectations, in conjunction with the average maturity rates observed for the 1979-1989 broods (34 percent, 94 percent and 100 percent for age-3, age-4 and age-5 fish, respectively) and expected spawner distribution would produce a 1995 spawning population of 82,000 adults, of which 50,900 would be expected to spawn in natural areas. Fishing levels (ocean and river combined) that provide a 33 percent escapement rate would produce a 1995 spawning population of 33,300 adult fish, of which 20,600 would be expected to spawn in natural areas, about 14,400 fish short of the spawning escapement floor of 35,000 adults.

Evaluation of 1994 Regulations on 1995 Stock Abundance

The Klamath Ocean Harvest Model (KOHM) has not yet been updated to evaluate 1995 ocean fishery options. The KOHM was developed for use in evaluating 1988 ocean fishery options and has been updated each year thereafter. When the model is recalibrated for 1995, it will be calibrated to the average 1986-1990 fishery observations and expected 1995 stock strengths for Klamath, Central Valley and Rogue chinook. A precise estimate of 1994 regulation impacts on 1995 stock projections for Klamath River fall chinook is not possible at this time. Nonetheless, in general, overall ocean impacts would be expected to be very low, as the age-4 exploitation rate in ocean fisheries in 1994 was only 6 percent.

The Council's framework plan goal for Klamath River fall chinook (Amendment 9) is to achieve a 33 to 34 percent escapement rate for each brood of fish, except that a minimum escapement of 35,000 natural adults is to be protected in all years. The amendment allows for any ocean and inriver allocation which meets the escapement rate goal if it also meets the minimum escapement floor. The regulations adopted in 1994 by the Secretary of Commerce were estimated pre-season to provide an inriver escapement of 81,000 adult fish and an ocean exploitation rate on age-4 fish of 9 percent. Ocean fisheries in 1994 are estimated to have harvested age-4 Klamath River fall chinook at a rate of 6 percent (Table II-6). An ocean allocation in 1995, similar to the overall ocean exploitation rate on age-4 fish adopted pre-season in 1994, would result in an inriver escapement of about 75,800 adults, of which about 47,000 would be expected to spawn in natural areas in the absence of any inriver fisheries.

OTHER CALIFORNIA COASTAL CHINOOK STOCKS

Other California streams that contribute to ocean fisheries include the Smith, Little, Mad, Eel and Mattole rivers and Redwood Creek. All of these streams support fall stocks and are believed to contribute to ocean fisheries primarily off the California and Oregon coasts. Information is insufficient to forecast ocean abundance levels for these stocks.

OREGON COASTAL CHINOOK STOCKS

Oregon coastal chinook stocks are categorized into two major subgroups based on ocean migration patterns. Although their ocean harvest distributions somewhat overlap, they have been labeled as either north or south/localized migrating.

Oregon Coastal North Migrating Chinook

North migrating chinook stocks include stocks north of and including the Elk River, with the exception of Umpqua River spring chinook. These stocks contribute primarily to ocean fisheries off British Columbia and southeast Alaska, and to a lesser degree off Washington and Oregon.

Predictor Description and 1995 Stock Status

Specific techniques have not been developed to make quantitative abundance predictions for these stocks. Qualitative expectations are based on strong parental year spawner escapement. Spawner escapement is assessed yearly on nine selected streams from the Nehalem through Coquille rivers. Peak spawning counts of adults are obtained from standard index areas on these rivers and monitored to assess stock trends (Review of 1994 Ocean Salmon Fisheries, Appendix B, Table B-11). Natural fall chinook stocks from the Nehalem River on the north Oregon coast south to the Elk River near Humbug Mountain dominate production from this subgroup. Also present in lesser numbers are naturally produced spring chinook stocks from several rivers and hatchery spring and fall chinook produced in the Trask, Nestucca, Salmon, Yaquina, Alsea, Coos and Elk rivers.

The generalized expectation for these stocks in 1995 is for a continuation of average to above average abundance, as observed in recent years. Record adult spawners per mile observed during 1985-1992 are a primary indicator that these stocks are generally healthy.

TABLE II-6. Harvest levels and rates of age-3 and age-4 Klamath River fall chinook (biological years are defined as Sept. 1 through Aug. 31 for ocean fisheries). (Page 1 of 1)

Year	Ocean Fisheries							River Harvest		
	KMZ			North of KMZ	South of KMZ	Subtotal	Ocean Total	Net ^{a/}	Sport ^{b/}	Total
	Troll	Sport	Subtotal							
HARVEST LEVELS (thousands of fish)										
Age-3										
1986	30.0	3.8	33.8	58.1	103.1	161.2	195.0	8.1	18.1	26.2
1987	24.9	6.0	30.9	43.6	84.7	128.3	159.2	11.4	11.4	22.8
1988	29.5	7.6	37.1	44.3	155.0	199.3	236.4	12.5	15.6	28.1
1989	0.7	5.3	6.0	12.1	10.3	22.3	28.3	2.7	0.9	3.6
1990	1.3	8.8	10.1	43.1	20.2	63.3	73.4	1.3	1.4	2.7
1991	0.0	1.5	1.5	0.8	2.2	3.0	4.5	2.1	2.0	4.1
1992	0.0	0.0	0.0	0.5	0.0	0.5	0.5	1.0	0.7	1.7
1993 ^{c/}	0.0	1.3	1.3	1.1	8.7	9.8	11.1	5.4	3.0	8.4
1994 ^{c/}	0.1	0.4	0.4	0.0	3.5	3.5	3.9	4.5	0.7	5.2
Age-4										
1986	3.6	0.5	4.1	12.1	12.9	25.0	29.1	17.0	2.9	19.9
1987	13.8	3.0	16.8	48.5	36.7	85.3	102.0	41.0	8.5	49.5
1988	6.0	2.9	8.9	12.4	27.8	40.2	49.1	38.6	6.2	44.8
1989	12.4	8.1	20.6	34.1	24.4	58.5	79.1	41.0	7.7	48.7
1990	1.1	2.7	3.8	29.5	8.7	38.2	42.0	6.0	2.2	8.2
1991	0.1	0.7	0.7	0.7	3.7	4.5	5.2	7.6	1.4	9.0
1992	d/	d/	0.1	0.7	0.1	0.8	0.9	4.4	0.4	4.8
1993 ^{c/}	0.0	0.0	0.0	0.4	0.8	1.2	1.2	3.8	0.2	4.0
1994 ^{c/}	d/	0.6	0.7	0.4	1.0	1.4	2.1	6.6	0.9	7.5
HARVEST RATES										
Age-3										
1986	0.05	0.01	0.06	0.10	0.17	0.27	0.32	0.05	0.11	0.16
1987	0.06	0.01	0.07	0.10	0.20	0.31	0.38	0.09	0.09	0.19
1988	0.05	0.01	0.06	0.07	0.26	0.33	0.39	0.09	0.11	0.21
1989	0.01	0.04	0.05	0.09	0.08	0.17	0.22	0.17	0.06	0.23
1990	0.01	0.08	0.09	0.38	0.18	0.56	0.65	0.14	0.15	0.30
1991	0.00	0.03	0.03	0.02	0.05	0.07	0.10	0.15	0.14	0.28
1992	0.00	0.00	0.00	0.03	0.00	0.03	0.03	0.14	0.10	0.23
1993 ^{c/}	0.00	0.01	0.01	0.01	0.09	0.10	0.11	0.11	0.06	0.18
1994 ^{c/}	d/	d/	d/	0.00	0.04	0.04	0.04	0.14	0.02	0.16
Age-4										
1986	0.06	0.01	0.07	0.22	0.23	0.45	0.52	0.63	0.11	0.74
1987	0.07	0.02	0.09	0.25	0.19	0.44	0.53	0.47	0.10	0.56
1988	0.05	0.03	0.08	0.11	0.25	0.37	0.45	0.72	0.12	0.84
1989	0.07	0.04	0.11	0.18	0.13	0.32	0.43	0.39	0.07	0.46
1990	0.02	0.04	0.06	0.43	0.13	0.56	0.61	0.23	0.08	0.31
1991	d/	0.03	0.03	0.03	0.15	0.18	0.21	0.42	0.08	0.50
1992	d/	d/	d/	0.03	0.00	0.04	0.04	0.24	0.02	0.26
1993 ^{c/}	0.00	0.00	0.00	0.04	0.07	0.11	0.11	0.48	0.03	0.50
1994 ^{c/}	d/	0.02	0.02	0.01	0.03	0.04	0.06	0.23	0.03	0.26

a/ Provided by USFWS, Arcata.

b/ Provided by CDFG.

c/ Preliminary data.

d/ Harvest level less than 50 fish or harvest rate less than 0.005.

South/Localized Migrating Chinook

South/localized migrating chinook stocks include Rogue River spring and fall chinook, and fall chinook from smaller rivers south of the Elk River. These stocks are important contributors to ocean fisheries off Oregon and northern California. Another central Oregon stock, Umpqua River spring chinook, contributes primarily to ocean fisheries off Oregon and California, and to a lesser degree off Washington, British Columbia and southeast Alaska.

Predictor Description and 1995 Stock Status

Quantitative abundance predictions are not made for these stocks, although an abundance index for Rogue River fall chinook has been developed. General trends in stock abundance for southern Oregon coastal chinook stocks are assessed through escapement indices (Review of 1994 Ocean Salmon Fisheries, Chapter II and Appendix B, Tables B-8, B-9 and B-10).

Umpqua River and Rogue River Spring Chinook

Umpqua and Rogue rivers spring chinook contribute to ocean fisheries primarily as age-3 fish. Jacks (chinook less than 24 inches) counted over Winchester Dam (Umpqua River) and Gold Ray Dam (Rogue River) consist of both age-2 and age-3 fish. Thus, jack counts in one year cannot be directly used to predict the abundance of age-3 fish for the following year. However, both jack and adult counts in 1994 indicate one of the lowest returns observed since 1960, and it is expected that abundances in 1995 will be depressed (Review of 1994 Ocean Salmon Fisheries, Appendix B, Table B-9).

Rogue River Fall Chinook

Rogue River fall chinook contribute to ocean fisheries principally as age-3 through age-5 fish. Mature fish enter the river each year from mid-July through October, with the peak run occurring during August and September. Historic assessments of abundance have been based on observations of carcass counts during spawning surveys (Review of 1994 Ocean Salmon Fisheries, Appendix B, Table B-10).

For the purposes of ocean impact modeling, a Rogue River fall chinook ocean abundance index has been developed based on carcass counts, ocean exploitation rates and cohort reconstruction methods (Table II-7). Linear regression analysis is used to relate the Rogue River fall chinook ocean abundance index for age-3, age-4 and age-5 fish to inriver carcass counts of age-2, age-3 and age-4 fish, respectively, of the previous year. The inriver age composition estimates are based on scale sampling of carcasses. Ocean exploitation rates are based on Klamath River fall chinook CWT analysis since 1979 because Rogue River fall chinook ocean exploitation rate information is not available. The ocean harvest distribution and age composition of both Rogue and Klamath fall chinook are similar. The Rogue River fall chinook ocean abundance index for 1995 is not available at this time.

TABLE II-7. Rogue River fall chinook inriver run and ocean population indices. (Page 1 of 1)

Return Year	Inriver Run Index in Thousands of Fish ^{a/}					Ocean Impact Rate (percentage) by Age ^{b/}		Ocean Population Index in Thousands of Fish ^{c/}				
	Age-2	Age-3	Age-4	Age-5	Total	Age-3	Age-4-5	Age-3	Age-4	Age-5	Total	
1977	1.9	0.8	0.3	0.0	3.0	40	60	13.7	1.5	0.1	15.3	
1978	1.0	6.1	2.3	0.1	9.5	40	60	72.7	6.0	0.3	78.9	
1979	0.2	1.0	6.5	0.0	7.7	36	68	16.6	30.0	0.1	46.7	
1980	0.4	0.2	0.9	0.6	2.2	43	75	9.3	7.8	2.5	19.5	
1981	1.0	3.1	0.9	0.3	5.2	42	66	13.6	4.0	0.8	18.5	
1982	0.7	1.3	1.3	0.1	3.4	60	65	14.3	3.9	0.4	18.5	
1983	0.2	0.6	0.9	0.0	1.7	30	70	6.0	3.5	0.1	11.5	
1984	0.2	0.8	1.1	0.1	2.2	15	43	10.9	4.0	0.1	15.0	
1985	2.5	1.3	3.5	0.6	7.9	27	29	13.9	6.8	0.9	21.7	
1986	3.2	12.8	2.4	0.5	18.9	32	52	105.1	7.1	1.1	113.3	
1987	2.8	8.5	19.8	0.4	31.5	38	53	90.9	46.9	0.8	138.8	
1988	0.9	3.2	16.5	1.0	21.6	39	45	22.1	38.3	1.8	62.2	
1989	0.5	1.3	4.0	2.1	7.8	22	43	10.5	8.3	3.6	22.4	
1990	0.0	0.3	1.4	0.2	1.9	65	61	12.4	5.5	0.6	18.4	
1991	0.2	0.4	1.9	0.5	2.9	10	21	3.6	3.2	0.6	7.5	
1992	0.5	0.3	1.5	0.5	2.8	3	4	2.5	2.3	0.5	5.3	
1993	0.3	3.5	1.5	0.5	5.7	8	11	25.3 ^{d/}	1.6	0.6	27.5	
1994	NA	NA	NA	NA	NA	NA	NA	7.2	14.4	0.6	22.2	
1995	-	-	-	-	-	-	-	NA	NA	NA	NA	

a/ Index based on carcass counts in spawning survey index areas. Carcass counts in 1978, 1979 and 1980 adjusted for prespawning mortality. Age composition developed from carcass scale sampling.

b/ Exploitation rates since 1979 are based on Klamath River fall chinook cohort analysis.

c/ Based on cohort reconstruction methods. Index values for 1994 predicted from regression equations; postseason estimates are not available.

d/ Preliminary; complete cohort not available. Used mean maturity rate to derive estimate.

Other Stocks

Information is insufficient to forecast the abundance of fall chinook from other smaller rivers south of the Elk River. These stocks are minor contributors to general season mixed stock ocean fisheries.

Evaluation of 1994 Regulations on 1995 Stock Abundance

Given the 1994 regulations and the predicted 1995 Oregon coastal chinook stock abundance, it is expected that the aggregate Oregon coastal chinook goal of 150,000 to 200,000 naturally spawning adults will be met. The north migrating stocks are projected to provide the majority of this spawner escapement. The 1995 stock abundances for north migrating stocks are expected to remain at average to above average abundance, as observed in recent years. The 1995 stock abundances for south/localized migrating stocks are not available at this time but are expected to be similar to levels observed in 1994.

CHINOOK STOCKS NORTH OF CAPE FALCON

Columbia River Spring Chinook

Predictor Description and Past Performance

Preseason estimates of the abundance of Columbia River spring chinook stocks are based on observed abundance of recent age classes of the ocean escapement. Forecasts of abundance assume that river returns of younger age classes of a brood reflect abundance of the remaining, as yet immature, ocean resident segment of the brood. Annual ocean escapement forecasts are provided to the STT by the staffs of Columbia River management agencies. Separate forecasts are made for upper and lower Columbia River runs, which have distinct management objectives.

Council area fisheries have only a minor impact on the ocean escapement of upper Columbia River spring chinook stocks. The contribution of these stocks is generally one percent or less of the total chinook catch north of Cape Falcon. The STT has not undertaken a review or assessment of abundance estimation methodologies for these stocks.

Lower Columbia River spring chinook stocks, including the Cowlitz, Kalama, and Lewis rivers stocks, are important contributors to Council area fishery catches north of Cape Falcon. Willamette River spring chinook generally contribute to the more northern Canadian and southeast Alaskan ocean fisheries. The Oregon Department of Fish and Wildlife technical staff has reviewed the performance of preseason forecasts of Willamette River spring chinook and found the average absolute difference between preseason and postseason estimates to be 14 percent for the 1980-1994 period.

Ocean escapement levels predicted for the Columbia River spring chinook runs of the current year will not be affected by 1995 Council fisheries because most of these fish will have left ocean waters prior to the start of the Council fisheries seasons. In modeling ocean impacts, recent trends of average levels of ocean escapement are used in depicting the current status of spring stocks in Council areas.

1995 Stock Status

The 1995 adult upriver spring chinook ocean escapement is projected to be a record low 12,000 fish, 76 percent below the 1994 preseason estimate of 49,000 adults, and 43 percent below the observed 1994 return of 21,100 adult fish. The 1995 forecast continues the substantial 1994 decline from recent improvements (1985–1990 and 1992–1993) in the depressed status of this stock.

In recent years, the natural component has comprised about one-third of the upriver spring chinook run, compared to approximately 70 percent of the run when the original escapement goal was developed. The 1985–1990 and 1992–1993 increases from the poor returns in the early 1980s are primarily the result of increases of hatchery stocks. The natural stock component remains severely depressed, with Snake River spring/summer chinook now listed as endangered under the Endangered Species Act.

For 1995, the Columbia River Technical Advisory Committee (CRTAC) has projected an ocean escapement of Snake River wild spring chinook at 1,300 adult fish, based on the 1990–1994 average proportion of the upriver Columbia River spring chinook run comprised of wild Snake River spring chinook. The 1994 ocean escapement of Snake River wild spring chinook was 2,500 adult fish.

The 1995 ocean escapement of Willamette River spring chinook is projected to be 48,500 adult fish. A 1995 Willamette River return of 48,500 spring chinook is 33 percent below the 1994 preseason estimate of 72,000 adult fish, but similar to the observed 1994 run of 48,800 adult fish. This would be the fourth consecutive year that the Willamette Fish Management Plan goal of 100,000 Willamette River spring chinook returning to the Columbia River was not achieved.

Columbia River Summer Chinook

Predictor Description and Past Performance

In the past, the STT has used recent year averages of inriver run size to project returns of the upriver summer chinook stock. Specifically, the STT has used the three-year average of previous ocean escapements to project the current year inriver run size. For 1994, CRTAC developed a predictive technique which compares the ratio of adult returns to the average jack return at Bonneville Dam from the previous two years. After reviewing these data, CRTAC used the recent five-year average (1989–1993) adult to jack ratio to predict the 1994 inriver run size. The 1989–1993 period was used because it incorporated the most recent data and included the primary brood years contributing to the 1994 return. The CRTAC summer chinook predictor performed quite well for 1994, underpredicting the actual return by 11 percent. CRTAC used the same methodology (applying the 1990–1994 average adult to jack ratio) to project the 1995 return of adult summer chinook.

The upriver summer chinook run size increased steadily from 18,000 to 33,000 adult fish between 1983–1987; however, the summer chinook run generally has declined since then. The 1994 return of 17,600 adult summer chinook was 11 percent above the preseason expectation.

HARVEST RATE MODEL(DEVELOPED BY USFWS, ARCATA)

DATE: 2-27-95
TIME: 12:17 PM

OCEAN ADULT HARVEST	13,500
INRIVER ADULT HARVEST	17,200
TRIBAL ADULT HARVEST	15,300
NON-TRIBAL ADULT HARVEST	15,300
INRIVER REC. ADULT HARVEST	1,800
NAT SPAWNING ESCAPEMENT	35,000

TRIBAL SHARE = 0.893
RIVER REC SHARE OF
NON-TRIBAL HARVEST = 0.120

AGE	OSC	PERCENT LEGAL	SHAKER MORT	PERCENT MATURING	NATURAL MORT	OCEAN HARVEST RATE	TERMINAL HARVEST RATE
3	0.88	80.0%	0.25	33.7%	0.20	0.10	0.32
4	1.00	100.0%	0.00	93.6%	0.20	0.10	0.32
5	1.00	100.0%	0.00	100.0%	0.20	0.10	0.32

AGE	STOCK STATUS	PREV FALL	POTENTIAL CONTACTS	CONTACTS	OCEAN LANDINGS	SHAKER DEATHS	OCEAN IMPACTS
3	134500	0	118360	11789	9431	599	10030
4	37600	175	37425	3728	3903	0	3903
5	1600	5	1595	159	164	0	164
SUM		180			13497		14096

AGE	REMAIN POP	ADULT RIVER RUN SIZE	RIVER CONTACT RATE	RIVER IMPACT RATE	RIVER DROPOFF RATE	RIVER IMPACTS	RIVER HARVEST
3	124470	41996	0.59	0.19	0.074	7949	7364
4	33697	31551	1.00	0.32	0.074	10122	9377
5	1436	1436	1.00	0.32	0.074	461	427
SUM	159604	74983				18531	17167

AGE	SPAWNING ESCAPE.	PROP IN NAT AREAS	NATURAL ESCAPE.	ADULT ESCAPEMENT	ADULT NAT ESCAPE.
3	34048	0.62	21109		
4	21429	0.62	13286		
5	975	0.62	605		
SUM	56452		35000		

ADULT ESCAPEMENT 56452
ADULT NAT ESCAPE. 35000



United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, California 95825-1898

FEB 9 1995

IN REPLY
REFER TO:

MP-150
ADM-13.00

FEB 6 1995

Dr. Donald O. McIsaac
Klamath Fishery Management Council
P.O. Box 1006
Yreka, California 96097-1006

Subject: Funding of Monitoring Activities on the Trinity River Beyond
September 30, 1995 (Your Letter Dated December 30, 1994)

Dear Dr. McIsaac:

Thank you for your letter regarding the conclusion of the Trinity River Restoration Act (Public Law 98-541) (Act). As you are aware, the Act authorizes the funding of the subject monitoring activities and specifies that this authority ends September 30, 1995. Absent new legislation, there is a lack of clear authority to continue Federal involvement in monitoring activities on the Trinity River; we share your concern over the potential loss of data that may result. We have recently advised the California Department of Fish and Game of the situation.

The Trinity River Task Force has endorsed draft legislation to extend the program for a period of 5 years and to provide for necessary operation and maintenance costs (including required monitoring) in the future. The draft legislation has been forwarded to the Administration for submittal to Congress.

Should you have any questions or require any further information, please contact Mr. Chip Bruss at (916) 979-2482.

Sincerely,

Roger K. Patterson
Regional Director