MEMBER STATES
ALASKA
CALIFORNIA
IDAHO
OREGON
WASHINGTON

EXECUTIVE DIRECTOR
LAWRENCE D. SIX
TREASURER
G.L. FISHER

PACIFIC MARINE FISHERIES COMMISSION

528 S.W. MILL STREET
PORTLAND, OREGON 97201
PHONE (503) 229-5840

31 January, 1984

REVISED FINAL MINUTES OF 1983 MARK MEETING
February 1, 1983--Portland, Oregon

I. PRELIMINARY BUSINESS

A. Introductions

Committee members and other meeting participants introduced themselves and gave a brief statement of work responsibilities pertaining to tagging and fin marking (see list of attendees-Attachment 1).

John Harville noted that throughout the year the RMPC will be trying to catch up on the backlog of CWT Recovery Reports and stated that the States are now in the position to help by getting data to the RMPC. Due to the heavy workload, there has been some restructuring of responsibilities. Ken Johnson will continue to manage the Center publications and overall implementation of the Center operations. The overall implementation of policies and functions will be the major responsibility of the Director's office.

B. Review of Agenda

The agenda was approved with the following three additional items:

I.C	Approval of January 1982 Minutes
III.C	ADFG Proposal for multi-species tag code
IX.	Other Business

C. Approval of 1982 Minutes

The minutes of the January 1982 Mark Meeting were considered briefly by the Committee. Due to the approval of the minutes being an addition to the agenda, it was stated that if there were any suggestions or comments, the participants should contact the staff regarding them. The minutes of the January 1982 Mark Meeting were approved on that basis.

Johnson (PMFC) also noted that the 1982 meeting minutes had been distributed in February, 1982 with a request that they be reviewed for accuracy. One discrepancy was noted by Cole (USFWS) and the resultant revision was mailed to all meeting participants.

II. HIGH SEAS SAMPLING PROGRAM

A. Report by Alex Wertheimer

Alex Wertheimer (NMFS-AK) presented an update on foreign-fleet high seas CWT recoveries. The data presented was obtained in part from a report compiled by Michael L. Dahlberg (NMFS-Auke Bay) in 1982, entitled "Report of Incidence of Coded-Wire Tagged Salmonids in Catches of Foreign Commercial and Research Vessels Operating in the North Pacific Ocean and Bering Sea during 1980-1982." Tag recoveries have come from two sources: the foreign groundfish fishery operating in the U.S. FCZ, and Japanese commercial and research gillnet vessels.

1. Foreign Groundfish Fishery--U.S. FCZ

Chinook are the predominant species of salmon caught in the foreign trawl fleet, making up more than 90% of the incidental salmon catch. Since U.S. observers began sampling the incidental salmon catch for CWT's in 1981, a total of 190 tags have been recovered, 189 of which were from chinook. Tag recoveries from the foreign groundfish fleet have come principally from the California to Washington coastline (181 of 189 recoveries). Although incidental catch of salmon is lower in this area than in the Gulf of Alaska or Bering Sea, the higher proportion of hatchery fish in the area as well as more intensive observer coverage results in higher tag recovery rates. All tags recovered in this area originated in the Pacific Northwest, with 87 percent from south of the Columbia River.

In the Gulf of Alaska, six tags have been recovered from chinook salmon. Two originated from Cook Inlet in Alaska. The other tags are important range extensions for chinook. One fish originated in the Babine River and is a westward extension of chinook salmon from Canadian stocks. The other fish originated from the Oregon coast, and are westward extension of chinooks stocks from south of the Columbia River. Previous high seas tagging studies on chinook salmon had placed the eastern Gulf as the western limits of stocks from these regions.

There were also two tags recovered from chinook salmon in the Bering Sea. These are the first records of chinook from Pacific Coast stocks occurring in the Bering Sea. One fish originated from Cook Inlet, the other from the Elk River in southern Oregon.

2. High Seas Gillnet Sampling

There have also been 23 recoveries of coded wire tags by Japanese high seas gillnet sampling since 1980, 18 being from steelhead trout. One steelhead recovered in the mothership fishery represents a westward range extension for a known stock

of North American steelhead. Recoveries in research vessel catches have occurred along 145,W and 180, longitude transects and have included steelhead from Washington, Idaho, and British Columbia. There have also been five recoveries of coded-wire tagged coho in Japanese Research vessel catches, all of Alaska origin. Four were released by NMFS at Little Port Walter and one was released by the Metlakatla Indian Community.

Sampling in the Japanese gillnet fisheries is limited, especially for steelhead trout. While there are U.S. observers on the motherships when that fleet is fishing in the U.S. FCZ east of 175,E, steelhead are not sampled because the U.S. prohibits landings on the motherships. The Japanese land-based salmon fleet (200-300 vessels), operating south of the FCZ and east of 175,E, does land steelhead. There is, however, no mechanism for sampling this catch. In addition, there is concern that the recent expansion of a Japanese gillnet fishery for squid into the eastern Gulf of Alaska may result in an increasing incidental catch of steelhead and other salmon of North America origin.

B. Additional Comments on High Seas Recoveries

1. Political Aspects

Dr. Robert Burgner (FRI) briefly reviewed the political situation involving steelhead landings on the high seas. INPFC regulations do not include steelhead as an official salmon species since the agreement language refers to "salmon" and not "salmonid" species. The U.S. position has been that steelhead are a sport fish and therefore a prohibited species both within and outside the U.S. FCZ. However enforcement only applies to the FCZ.

The U.S. does agree to the collection of steelhead for research purposes. Therefore it is hoped that the four U.S. observers on the Japanese motherships will be granted permission to spend a portion of their time on the catcher boats sampling the incidental steelhead catch before it is discarded overboard. This would provide access to tag recoveries as well as an estimate of total catch.

Additional data on the incidental catch of steelhead are important since electrophoretic studies suggest landings of both the land-based and mothership fisheries are of North American origin. In addition, the Asian Kamchatka stock is very similar in appearance to North American stocks, making visual differentiation almost impossible.

Concern was also expressed about the unknown impact of the Japanese land-based squid fishery on North American steelhead stocks. By agreement, the fleet moves north from 40,N Lat in June to 46,N in September, and then back south to 44,N in October, 42,N in November, and 40,N in December. The seasonal

movement is an attempt to remain south of the 15,C surface isotherm since salmonids typically occur in waters having colder surface temperatures. However, the 15,C surface isotherm does not always correspond well with the fleet's position. Furthermore, the combined nightly fishing effort of the fleet represents approximately 10,000 miles of 10 meter deep gillnets having mesh sizes similar to those used for the salmon drift-net fishery.

In view of these considerations, the Mark Committee unanimously adopted the following resolution calling for increased sampling of the Japanese high seas fisheries for steelhead CWT recoveries:

> "We strongly support the research plans proposed to INPFC Subcommittee on Salmon by U.S. scientists to study the problem of interceptions of North American steelhead by Japanese high seas drift gillnet fisheries. We urge that observers stationed on Japanese motherships be permitted to spend a significant proportion of their time on catcherboats and to sample captured steelhead for scientific purposes.
>
> We request also that Japan Fishing Agency establish methods to monitor its landbased salmon drift-net fishery for incidence of fin-clipped and coded-wire tagged salmonids, and its new high seas squid driftnet fishery for incidence of salmonids encountered and for coded-wire tagged salmonids."

2. Request for Steelhead Release/Migration Data

Dr. Burgner also noted that Japan, Canada, and the U.S. are preparing a joint report on the ocean migration and distribution of North Pacific steelhead stocks. This report is expected to be completed in about two years, and will be published in the INPFC Bulletin series. As one of the co-authors, Dr. Burgner urged that agencies report to him the proportion of their respective tagged and untagged hatchery releases and the timing of wild stock out-migrations.

It was noted that the estimates of tagged steelhead are available in the CWT Release Report. However, agencies will need to report all other non-CWT releases (including those with the Ad clip; see item III.1) and provide information on wild stocks in order to assist Dr. Burgner and his colleagues in this important project.

III. CHANGES TO 1982 REGIONAL AGREEMENTS

A. Adipose Clip Agreements for Steelhead

Sam Wright (WDG) briefly reviewed Washington Department of Game's proposal (letter dated 10/18/82) to have steelhead stocks from Washington coastal and Puget Sound regions exempt from the requirement of a coded wire tag in conjunction with an Adipose clip (single or in combination with other fin clips). WDG management felt the greatest value of the Adipose clip for these stocks was its use to selectively manage the harvest of co-mingled hatchery and wild fish (i.e. only Ad-clipped hatchery fish could be retained in the sport fishery). Wright also noted that substantial savings would be realized if wire tags were not required.

Art Tautz (BCFW) reviewed British Columbia's similar request (December 31, 1982) for a coded-wire tag exemption for Ad-clipped winter steelhead to facilitate management of their sport fishery. To date, all BCFW hatchery fish have been marked with coded-wire tags and the adipose clip. However, tag recoveries have shown that the winter steelhead stocks are not impacted significantly by existing commercial fisheries while summer run stocks are. Therefore, BCFW would continue to mark summer steelhead with both the Ad clip and coded wire tags. If the proposal were approved, it would provide major savings for the agency.

The Committee reviewed both proposals and generally concluded that the Ad clip had a greater value as a management tool for these steelhead stocks. It was also suggested that from a practical standpoint, it probably was not necessary to sequester the Ad clip for steelhead in the Columbia River. Duke (IDFG) concurred and noted that Idaho was considering a similar management approach. Cole (USFWS), however, objected since the USFWS and several Indian tribes will continue to use the Ad clip with wire tags on coastal Washington and Puget Sound steelhead stocks. Hence straying of untagged Ad-clipped hatchery steelhead could prove to be a serious problem for their programs.

ODFW therefore recommended that all proposed uses of the Ad-only clip without tags for coastal Washington, Puget Sound, and British Columbia steelhead stocks be treated as all other fin marks and thus require prior review and approval by the Mark Committee. WDG and BCFW agreed to follow this procedure. As a result, USFWS withdrew its objection since this procedure would ensure coordination between agencies using the Ad-only clip and those using the Ad and CWT in the same region. The Mark Committee approved this procedure.

In summary, this action permits coastal Washington, Puget Sound, and British Columbia steelhead to be adipose clipped without tags as long as the marks are regionally coordinated and approved prior to their use.

This procedure is identical to that followed by California and Oregon in using the previously approved Ad-no CWT clip on steelhead stocks originating south of the Columbia River. Alaskan and Columbia River steelhead stocks still continue to require a CWT with the Adipose clip.

Committee members also agreed to review prior to next year's meeting the possibility of completely desequesting the Ad clip for steelhead. Agencies requiring CWTs for Columbia River steelhead studies were urged to consider alternative fin marks to the Ad-CWT mark.

B. Tribal Representation on Mark Committee

Gary Graves (NWIFC) reviewed the NW Indian Fisheries Commission's request for direct tribal representation on the Mark Committee. He noted that the USFWS provides technical assistance to tribes and has represented tribal interests on the Committee in the past. However, given the growing tribal involvement in salmon production and tagging, NWIFC feels it is now appropriate for the tribes to be directly represented. This representation also was recommended strongly by participants at the Workshop on Coded Wire Tag Experimental Design (March, 1982).

The issue of dual responsibility of reporting tag recovery data was raised by Washington Department of Fisheries. Graves agreed that problems exist but felt there is a definite commitment to provide recovery information. Upon review, the Committee accorded NWIFC's request for voting representation on the Mark Committee (See Attachment 2, page 1). Graves agreed to notify PMFC as soon as the representative was selected.

C. Request for Multi-Species Tag Code

Karen Crandall (ADFG) brought to the Committee's attention a letter from ADFG requesting exemption from the restriction of using only one code for a particular species in order to mark post-emergent chum and sockeye fry in the Cook Inlet area with the same tag code. The intention was to minimize handling and sorting stress on the fish. The Committee reviewed the request and approved it on the basis that only ADFG's recovery program be impacted if any recoveries occurred. However, questions were raised relative to the validity of the experimental design of the study. It was therefore recommended that agencies should be sure there is an in-house review for these type of requests before coming before the Committee.

IV. REVIEW OF RMPC CODED WIRE TAG RECOVERY REPORT FORMAT

A. Inclusion of "Ad-No Tag" Data

The usefulness of including "Ad-No Tag" data in the PMFC tag recovery reports was considered. Committee members decided that it had little or no value in regional reports and could be omitted in

the future. However, the data does have limited value for recovery agencies in evaluating head lab efficiencies, etc. Therefore, agencies will continue to report Ad-no CWT recoveries to the RMPC for inclusion in the regional data base.

B. Proposed Freshwater Escapement Report Format

Committee members compared a proposed freshwater escapement report format (structured by tag code) with the standard recovery report format (organized by fishery, area within the fishery, and then by all tag codes within the area). Committee members recommended that the new format be used for hatchery, spawning ground, fish trap, river sport, and other similar recoveries since the vast majority of data users are interested in recoveries compiled by tag code rather than by fishery and area.

Johnson (PMFC) indicated that a identical approach would be attempted this coming year for all recoveries in the marine fisheries. Committee members supported this goal but felt that it would be desirable to maintain both report formats in order to meet the different needs of researchers and management.

C. Season Summary of Tag Recoveries

The season summary report, as presently constituted, lists total estimated recoveries by tag code in all major fisheries. The NMFS staff working at Jones Beach on the Columbia River (juvenile outmigrant study) requested that the total observed also be included since this information is needed for their studies. This recommendation was approved by the Committee.

D. Season Summary and Mismatched Species/Tag Code Recoveries

Johnson noted that the Season Summary section in the Recovery Report includes tag recoveries in British Columbia net and troll fisheries. However the data have not been finalized for 1978 and 1979 because a significant number of tags were reported recovered in a species other than that reported for the code.

The discrepancies occur when the fish are misidentified at the time of sampling or when the wrong species is tagged inadvertantly. Bailey (CDFO) commented that to the extent possible, British Columbia corrected such errors. However, it was their policy to print unresolved tag code/species mismatches.

The Committee recommended that all such tag recoveries (i.e. discrepancies unresolved by recovery agency) be disregarded by the RMPC when compiling regional data reports.

V. CODED WIRE TAGGING MANUAL AND STATISTICAL ISSUES

A. CWT Procedural Manual

John Harville reviewed for the Committee the goals of the two CWT workshops held during 1982 and complemented the Committee and other

participants on the high degree of support. Summaries of the workshops have been prepared by PMFC staff and distributed for review. These workshop documents are principally resource materials for the preparation of a CWT procedural manual, three chapters of which have been drafted to date. Committee comments and suggestions were requested in particular on the first two chapters and on the next steps that should be taken. It was noted that Larry Six (PMFC) will be spending time in the next several months rewriting the manuals to make them more functional. Ultimately PMFC will want to seek the agencies approval of the manual as a set of regional CWT tagging and recovery guidelines.

Lee Blankenship (WDF) agreed that the manual was important for establishing guidelines but questioned the value of style revisions in regards to manpower costs. Several others expressed that the manuals were too statistical in orientation and that the audience was ill-defined. It was agreed that for maximum value, the manual should be usable by field biologists, management, and decision makers who allocate the funds.

Karen Crandall (ADFG) suggested that an introductory chapter be used to state the objectives of the manual and provide generalized information on what the chapters apply to. After a lengthy discussion, there was a group consensus that a introductory chapter on "Basics" which applies to any section should be written for limited use by management, etc. In addition, a more detailed section including statistical information should be developed for people in the field.

It was suggested that perhaps revisions should await the results of the Statistical Committee's review (see V.2 below). John Harville agreed in principle but felt that some changes could take place before the statistical review is completed. However, the Statistical Committee will have a major impact on the final document.

B. Statistical Issues Raised at the CWT Workshops

A key recommendation of both CWT workshops was that PMFC convene a Statistical Committee to analyze the numerous statistical problems involving tagging, recovery, and estimation aspects of CWT studies. The Committee's charge was to resolve problems by either providing direct solutions or through the development of RFP's.

John Harville announced that PMFC intended to organize the Statistical Committee and convene them in early March. Probable members (as recommended by the Workshop) are Mel Seibel (ADFG), Vic Palermo (CDFO), Frank de Libero (WDF), Ken Hall (ODFW), a CDFG represenative, and Sam Bledsoe (UW/NMFS), a representative from the academic community. PMFC will provide travel expenses for member States because of the regional importance of the work.

C. Recommendation for new Committee on Documentation.

The CWT workshops also recommended that an operational Committee on Documentation be organized by PMFC. This Committee is expected to be a small technical group centered around CWT data processing work of the RMPC. The Committee will be convened at a later date as data needs become clearer.

VI. ALASKA PROPOSAL FOR SURCHARGE ON CWT PURCHASES

Alex Wertheimer (NMFS-AK) briefly reviewed an Alaskan proposal for a surcharge on the purchase on wire tags to be used for funding ocean and mainstream tag recoveries. The intent of the proposal was to distribute recovery cost fairly among all tagging agencies and also provide long term stable funding. Since the distribution of the request, however, Alex noted that he had received several negative responses and did not wish to push the issue. John Harville agreed that the concept is important but noted that funding is now budgeted and the job gets done. He recommended that the proposal be kept in mind for later use if needed.

Hall (ODFW) noted that in Oregon there is a legal mandate that private hatcheries pay for tag recoveries and suggested that other State agencies likewise insist that non-recovery agencies within their jurisdiction assist in recovery costs. Duke (IDFG) stated that Idaho agreed the costs should be shared by on the recovery end rather then on the tagging end since so many of their tagged fish never are recovered. John Harville noted that the approach used up to now has been that the States have shared the cost of tag recovery. He also noted that Bonneville Power Administration has now become involved and is providing $500,000 annually as their fair share for Columbia River tagging studies.

No Committee action was taken or recommended on the proposal.

VII. UPDATE ON CWT TECHNOLOGY

A. X-raying "No Tag" Heads

Jim Norton (ODFW) reported that following remagnetization, the NWMT 4 inch Omni-Directional Tube Tag Detector located 92% of the tags that had previously gone undetected by the conventional tag detectors (see Attachment 3A). He therefore proposed that head labs be allowed to use the tube detector in place of more costly x-ray procedures (i.e. 30¢/head, x-ray plate costs only). He noted there was a definite advantage to having final data at the end of the season.

Lee Blankenship (WDF) similarly reported a 90% recovery rate (see Attachment 3B) and noted that x-ray labor costs (21¢/head) were much more expensive than for the omni detector (2.1¢/head). Karen Crandall (ADFG) reported similar results (see Attachment 3C, item 5).

Committee recommendations:

1. The use of the Omni-Directional Tube Tag Detector is acceptable as an alternative to x-raying.

2. "Ad-no tag" heads should be handled by senior technicians since there is some error when unskilled people are using the omni detector.

B. Double Reading of Recovered Tags

The question of whether or not tags should be read twice by the recovery agency was discussed. Lee Blankenship (WDF) presented data (see Attachment 4) on WDF's costs for double reading of CWTs (26.5¢ per reading) and argued that the expense of the second reading could not be justified since their observed error rate was less than 1%.

Following discussion, the Committee agreed that the agency "in-house" error rate should be the determining factor. Agencies having an error rate less than 1% would not need to double read tags. Error rates greater than 1% would require double reading until the problem is eliminated. All agencies will therefore need to do some double readings as an annual quality control check on head lab decoding accuracy. Agencies are also requested to promptly advise the given recovery agency and the RMPC if a significant number of errors are found when verifying tag recoveries.

C. Dr. Keith Jefferts (Northwest Marine Technology) briefly reviewed recent developments by his company.

1. X-ray Readable Tags

An affordable, high-resolution x-ray model designed to read tags in live fish in the field has now been developed. Trial units are currently being used on the east coast.

2. Tag Detector/Conveyor Belt

A system has been developed which can remove tagged fish (in small samples) while processing 20-40 tons of fish per hour. In one field test, the unit was able to recover two tagged herring (100% of sample) which had been thrown into the hold of a vessel off loading 34 tons of herring. Possible applications include sampling high volume landings of pink and chum salmon for tag recoveries.

3. Computerized Tag Inventory

NWMT is now using a computer for tag inventory and invoicing. This system, coupled with improved wire tag inspection, will minimize the changes for human error and improve reliability of the CWT coding.

4. Out-migrant Fish Counter

A prototype "out-migrate detector" has been developed to simultaneously count the number of total fish and number of tagged fish being released. The system uses two registers to tally fish and tags as out-migration occurs through 16 tunnels. Tunnel diameter is one inch to maintain "single-file" passage.

5. Pricing Structure

Dr. Jefferts defended current prices for tags and equipment and emphasized that NWMT's total sales represent only 5% of the estimated $5.75 million now expended annually for tagging and recovery coastwide. He further noted that NWMT has borne all research and development costs over the years without any external subsidies.

The price of tags is expected to double within the next two years as a result of increased R & D and operational costs.

D. Silicon Chip Tags-Update

Earl Prentice (NMFS-Seattle) updated last year's report on the development of "silicon chip" tags. By mid-April, 1983, it is hoped that the size of the encapsulated tag will be reduced to 4.1 mm (length) x 1.4 mm (diameter). Once this occurs, the chip will be ready for testing in salmonids. The chip can be implanted subcutaneously in the interperitoneal cavity, the dorsal sinus cavity, or in the opercula musculature. Implantation is through a syringe-type hand held injector, with an automatic injector under development. These tags can be batch or indivdually numbered, with over 4.3 billion codes available. Life expectancy of the tags is 100 years or more. Estimated cost is $5 per tag.

On the basis of prototype testing with large scale chip tags, the new micro-scale tags are expected to be easily detected and decoded in live fish at a distance of two inches, whether the fish is stationary or swimming at maximum speeds. A hand held "transponder" is used to activate the chip tag and transmit the resultant signal to an accessary unit for decoding, visual display, and storage. The latter unit can be fitted with a RS232 plug for interfacing with a computer. Automatic decoding and storage ability will produce recovery data with a very high degree of accuracy.

VIII. OTHER BUSINESS

No items were discussed

IX. FIN MARK ALLOCATIONS FOR 1983

A total of 107 fin mark requests (17 chinook, 14 coho, 46 steelhead, 6 sockeye, 10 chum, 14 pink) were briefly reviewed and approved for use in 1983. Canada did not provide a list of request until the time of the meeting and therefore agreed to coordinate their requests with ADFG to ensure that no conflicts were present.

Participants in the 1983 Mark Meeting

Don Bailey (CDFO)

Thomas J. Berggren (BPA)

Lee Blankenship (WDF)

Ralph S. Boomer (USFWS)

Robert L. Burgner, Director (FRI/UW)

Richard Carmichael (ODFW)

Don Cole (USFWS)

Karen Crandall (ADFG)

Michael Delarm (NMFS, NW Region)

Rodney C. Duke (IDFG)

Bob Garrison (ODFW)

Lyle Gilbreath (NMFS)

Gary Graves (NWIFC)

Kenneth Hall (ODFW)

John Harville (PMFC)

Steve Hays (CC/PUD)

Dennis Isaac (ODFW)

Keith B. Jefferts (NWMT)

Ken Johnson (PMFC)

Dick Ledgerwood (NMFS)

Jeff Light (FRI/UW)

Jerry Lukas (ODFW)

Jeff McGowan (WDF)

William McNeil (OAF)

Bruce Monk (NMFS)

Charles Morrill (WDG)

Jim Norton (ODFW)

Dick O'Connor (WDF)

Steven K. Olhausen (USFWS)

Donn L. Park (NMFS)

Earl Prentice (NMFS)

Phil Roger (CRIFC)

Dan B. Romey (MIC)

Larry Six (PMFC)

Art Tautz (BCFW)

Steve Taylor (CDFG)

Alan Thomas (ODFW)

Craig A. Tuss (USFWS)

Alex Wertheimer (NMFS)

Sam Wright (WDG)

David Zajac (USFWS)

REGIONAL AGREEMENTS ON MARKING

I. Operational Procedures of the Mark Committee

II. Agreements on Use of Coded Wire Tags and Finmarks

COMMITTEE ON ANADROMOUS FISH MARKING AND TAGGING

"THE MARK COMMITTEE"

February 1, 1983

I. OPERATIONAL PROCEDURES OF THE MARK COMMITTEE

1. STANDARD OPERATION PROCEDURES OF THE MARK COMMITTEE

Fin mark requests and proposed restrictions on marking are reviewed and acted upon by the Mark Committee at the annual Mark Meeting in January-February. Agreement by consensus is used to reach decisions, with cooperation voluntary.

Two steps are involved in reaching Committee consensus:

a) Following a thorough discussion of an issue, the Chairman will lay out the apparent consensus of the Committee and then ask if there are any objections or disagreements. If none are raised, the Chairman will note that "agreement is without dissent or objections." This assures that a consensus has indeed been reached, and that a dissenting view has not been overlooked.

b) A 30-day review period will follow publication of the minutes to allow for agency reversal on an issue if an error had been made or if other factors required it. If no objections are received in writing during this 30-day period, the agreement would stand as written in the minutes and in the summary of the Regional Agreements. If an objection is received, Committee members would be polled to ascertain the course of action to be taken. Possible options include: reversal of action, delay action until the next meeting, or reconsider and seek a vote per Section II below.

2. RESOLUTION OF ISSUES WHEN CONSENSUS IS NOT REACHED

2.1 Voting Agreements

In the event of non-consensus on an issue, the situation will be resolved by a greater-than majority vote. Agreements on voting are as follows:

A) Each of the following Federal, State, and Indian agencies are entitled to one vote on an issue. *Eleven votes are possible.*

State/Federal/Tribes	Committee Representatives	Number of Votes
Alaska	Southeast Region South Central Region	1
Washington	WDF WDG	1
Oregon	ODFW (+ private hatcheries)	1
California	CDFG (+ private hatcheries)	1
Idaho	IDFG	1
USFWS	Regional	1
NMFS	Alaska Region Northwest Region NWAFC	1
Metlakatla	Metlakatla Indian Community	1
NWIFC	*Northwest Indian Fisheries Commission*	*1*
Canada	DFO (Federal level) BCFW (Province level)	1 1
	TOTAL:	11

(Voting Agreements Continued)

B) A 75% or greater vote is required to approve all non-consensus issues, and applies to the number of votes cast, excluding absences and abstentions. (Thus if all eleven votes were cast, nine would be required for affirmative action. If there was one absence or abstention, eight votes out of ten would carry affirmative action.)

C) The 30-day review period will apply to all decisions on non-consensus issues to permit a change in an agency's position if necessary.

D) Agencies may delegate a proxy for voting purposes. Proxy designation shall be in writing provided to the Mark Coordinator (Committee Chairman) prior to the start of business for the meeting.

E) The Mark Coordinator will provide a tentative agenda to the Committee at least two weeks before the Mark Meeting. It shall be the obligation of the individual agencies having significant issues for review to see that these are listed as items on the agenda. The Mark Committee will avoid making major decisions without prior announcement of the issue on the agenda.

F) In the event sub-units within a voting agency cannot agree on a position, the reasons for that disagreement should be thoroughly discussed at the meeting. The agency vote would be either "No" or "Abstain" in such a circumstance.

2.2 Situations of Non-Compliance with Regional Agreements

In the event of non-compliance of an individual or agency with a marking decision by the Mark Committee, peer pressure and efforts of the Regional Coordinator can be applied to encourage full cooperation. Failing in this, the Mark Committee can turn to the Executive Director of PMFC to approach the Agency Director(s) to work out an agreement.

3. Distribution of the Regional Agreements

The Regional Agreements will be published annually in the Mark List and the CWT Release Report. Publication will normally occur prior to the end of the 30-day review period following the distribution of the Mark Meeting Minutes. Therefore, if changes are later required because of agency reversal, an addendum will be distributed. This procedure will facilitate timely publication of the data reports.

Note: Italics on pages xii-xiii denote 1983 Mark Committee decisions

II. AGREEMENTS ON USE OF CODED-WIRE TAGS AND FINMARKS

1. RESTRICTIONS CONCERNING THE ADIPOSE FIN CLIP

1.1 Adipose-only Fin Clip: This clip is exclusively reserved as a flag to indicate the presence of a coded-wire tag in the snout of salmon for those CWT studies requiring ocean and main-stem river recoveries. Hence Adipose-clipped salmon must be tagged with a coded-wire tag or the clip cannot be used.

Coded-wire tags may also be used for those studies not requiring ocean or main-stem river recoveries. For such studies, however, some other "flag" (e.g. ventral or pectoral fin clips) must be used to facilitate CWT recoveries in the terminal fishery or at the hatchery.

This restriction applies to all coded-wire tagging of Chinook, Coho, Chum, Sockeye, and Pink salmon, and those steelhead stocks in the Columbia River system and Alaska.

1.2 Adipose-Clip in Combination: Combination fin clips which include the Adipose clip are reserved for use with CWTs on Chinook and Coho. However Pink, Chum, and Sockeye do not require a CWT if the Adipose is clipped in combination with other fin(s).

1.3 Current Steelhead Restrictions: Adipose clips (single or in combination) on Steelhead require a CWT if the stock originates in the Columbia River basin or in Alaska. Steelhead stocks in coastal Oregon, coastal Washington, Puget Sound, and British Columbia do not require a CWT for any use of the Adipose clip.

1.4 Future Restrictions on Steelhead: Any future restrictions on the use of the Adipose clip for Steelhead will take effect one year later because of the much lower flixibility in planning for marking studies.

1.5 Maxillary Clip: The Maxillary clip requires a CWT whenever used in combination with the Adipose clip (see exceptions in table) because of problems with being easily overlooked, regeneration, and the similarity to hook injuries.

1.6 Summary:

FIN CLIPS REQUIRING CODED-WIRE TAGS

SPECIES	FIN CLIP		
	Adipose Only	Adipose +Maxillary	Adipose + Other Fin(s)
Chinook	Yes	Yes	Yes
Coho	Yes	Yes	Yes
*Steelhead	*Yes	*Yes	*Yes
Sockeye	Yes	Yes	No Restriction
Chum	Yes	Yes	No Restriction
Pink	Yes	Yes	No Restriction

(*Steelhead limited to Columbia River System and Alaska)

2. ADDITIONAL RESTRICTIONS CONCERNING THE USE OF CODED WIRE TAGS

2.1 A tag code must not be re-used without the express approval of the Mark Committee.

2.2 The same tag code must not be applied to groups of fish containing more than one species or brood year.

2.3 Coded-wire tagged fish should not receive the Adipose-only clip (or Adipose-in-combination for Chinook, Coho, and some Steelhead stocks) if marine recoveries are not required.

2.4 Given the fact that the recovery agencies bear the cost of recovering and processing CWT's and associated catch statistics, the Mark Committee will review and approve any new coded-wire tag type before it can be used with the Adipose clip for ocean recoveries. This will insure that compatibility of tagging efforts is maintained with existing recovery programs.

2.5 At the present time, only binary wire tags are an approved coded-wire tag for general use. Rare earth tags have been approved for limited use on an experimental basis. Color-coded tags have been strongly discouraged by the Mark Committee for several years and are no longer in use by any tagging agency.

3. RESTRICTIONS ON FINMARKS OTHER THAN THE ADIPOSE FIN CLIP

3.1 Excision of Half a Fin: Half-excised fins are permitted, but are allocated and listed in the Mark List as if they were completely excised fins. However the nature of the partial fin clip will be noted in the "Objectives" column of the Mark List.

3.2 Ocean Recoveries: State agencies are no longer recovering fin marks from ocean fisheries on a regular basis except for the Adipose-only mark which indicates the presence of a coded-wire tag (see CWT Restrictions). Therefore multiple and single fin marks (excluding the Adipose clip) are to be used for localized recoveries.

3.3 Duplication of Fin Marks: Since fin marks are no longer used for ocean recoveries (excluding the Adipose mark), it is no longer practical to insist on no duplication of single or multiple fin marks except in the Columbia River system. The major criterion used by the Committee is whether or not the home streams of identically marked stocks are far enough apart to eliminate any significant amount of straying.

With respect to brood years, it is desirable to avoid using the same mark on two consecutive brood years of Chinooks, regardless of origin, since they tend to return over several years.

Oregon Subsequent CWT Recoveries from Remagnetized Heads
by OMNI-Directional Tube Tag Detector and X-ray Procedures

		1981	1982	Σ
A	Initial number of no-tags tested	1,198	679	1,877
B	Number of tags recovered by detector	134	44	178
C	Number of no-tags x-rayed	1,064	635	1,699
D	Number of tags recovered by x-ray	9	7	16
B/A	% of no-tags yielding tags by detector	11.2	6.5	9.5
D/C	% of no-tags yielding tags by x-ray	0.8	1.1	0.9
B/B+D	% of tags recovered by detector	93.7	86.3	91.8

WDF EVALUATION OF THE 360° OMNI DIRECTIONAL CWT DETECTOR

1. 1,038 no-tag snouts evaluated.
2. X-rays detected 49 tags (4.7%).
3. Prior to X-ray, the Omni detector detected 44 of the 49 tagged snouts, or failed to detect 5 tags. The Omni detector actually gave a strong signal to 154 snouts but 110 turned out to have no CWTs.
4. The Omni detector detected 90% of the snouts that were found by X-rays.
5. WDF detection costs for no tags:

	X-ray	Omni
Labor	$ .21	$ .021
Other	.086	.085
(Omni detector depreciated over 10 years)	$.296	$.106

WDF yearly costs - 5,000 heads:

X-ray = $1,480

Omni = $530 (sacrifice estimated 24 tagged snouts)

January 25, 1983

ALASKA'A CODED WIRE TAG PROCESSING LAB
Procedural Changes Implemented in 1982

In 1982 Southeast Alaska's coded wire tag recovery program, both the port sampling project and the tag processing lab, underwent major changes in both direction and control. As with all new programs, the season progressed with its fair share of problems and delays but many of the changes being implemented have or will benefit all agencies tagging fish along the coast.

In responce to a demand for higher quality data generated in a more timely fashion, the tag lab was moved from Sitka to Juneau. Increased funding permitted us to set up an adequate lab, to purchase new equipment and to hire enough personnel to fulfill most of our program's objectives. As a result of the change in direction and supervision and the availablity of increased funds, several changes were immediately implemented in our tag processing procedures. These relatively minor changes produced obvious benefits to the program. These changes were:

1. Juneau's tag lab now processes all coded wire tag bearing heads recovered from commerical and sport fisheries sampling programs. In addition, all heads recovered from state operated hatchery weirs and spawning racks and from escapement surveys are processed in Juneau. The processing of all heads at one location minimizes high tag and data loss experienced in previous years when less experienced technicians working in inadequate facilities in a number of locations attempted to process heads and read tags.

2. This year heads rather than snouts were collected by samplers and sent to Juneau. This is necessary because of poor tag placement and possible loss of tags when snouts are removed. Primary processing of heads and the removal of snouts is no longer the responsiblity of the samplers in the field. This freed up some of their time to perform their primary duty, sampling the catch for coded wire tagged fish.

3. Tags recovered were read twice by independent readers using newly purchased vidio camera/screen systems. This change in Alaska's procedures obviously resulted in more accurate tag reading and higher quality data.

4. Relocation of the lab to Juneau will enable us to interface and make use of data processing personnel and equipment not available to the project in Sitka. In the future, we will be able to generate "cleaner" data in a greater variety of formats within a more suitable time frame than previously possible.

5. In the recent past "no tag" heads were not x-rayed to confirm the absence of a coded wire tag. In 1982 this procedure was re-implemented. The benefits of this confirmation process are obvious. The purchase of new re-magnitization and tag detection equipment coupled with the implementation of a standard set of "no tag" operating procedures designed to ensure validity of that status, may eliminate the need for continued x-ray of "no tag" heads.

In 1982 tag lab personnel took 1,168 heads to the local hospital to be x-rayed to confirm their assigned "no tag" status. Of these, 34 (2.9%) were found to bear tags. The incidence of finding tags in previously determined "no tag" heads decreased over the season. This decrease is due to the purchase and use of new equipment and the refinement of procedures

In the first part of the season 103 heads were x-rayed and 5 tags were recovered (4.9%). During that period we only used Northwest Marine Technology's standard Field Sampling Detector and a 3 inch diameter demagnetizer purchased from McMaster-Carr Supply Co. Often because of poor tag placement and because the heads were larger than the diameter of the demagnetizer's coil, heads had to be split into two or more sections and each section remagnetized. We were concerned that this practice could cause us to loose tags. We would then be uncertain if we had lost a tag or if in fact there never was a tag in the head.

The recovery of the tags through x-ray dropped to 3.1% (840 heads x-rayed and 26 tags recovered) after we began to use NWMT's tubular 4 inch Omni-directional Tag Detector. Probably most of these undetected tags would have been found if we had been able to properly re-magnetize them.

In August we purchased a 6 inch diameter intermittant duty demagnetizer from McMaster-Carr Supply Inc. (Catalog #3188A31). After we began to use this peice of equipment in combination with the Omni-directional Tag Detector the tag recovery rate from x-ray dropped to 1.9%. It should be noted that the 3 tags recovered from the 225 heads x-rayed after this purchase probably were taken to be x-rayed by mistake. When brought back to the lab, all three heads gave a strong signal on the standard Field Sampling Detector even before being remagnetized. After this incident steps were taken to ensure that that mistake would not happen again.

With the use of the 4 inch Omni-directional Tag Detector and the 6 inch demagnetizer we feel that all full and half length tags can be detected. We intend to follow strict procedures to see that all steps are taken to ensure that all micro-wire tags are found. These procedures are:

1. Individual technicians will follow standard procedures of find tags including re-magnetization and use of the Omni-directional Tag Detector. This will include, when necessary, cutting a head into smaller peices so that it can pass down the 4 inch opening of the detector.

2. Any head determined by a technician to bear "no tag" will be set aside. Periodically the biologist in charge of the lab or the senior technician will try again to remagnetize and detect any missed tags. The "no tag" status will be assigned and heads discarded only after that status is confirmed.

Recommendation:

The Alaska Coded Wire Tag Processing Lab feels confident that if the procedures outlined above are implimented using NWMT's Omni-directional Tag Detector and the 6 inch demagnetizer all full and half length tags can be found with out the additional expense of x-raying "no tag" heads. This past year $1850 was spent on x-ray film alone and nearly $500 in overtime wages was paid to technicians who had to take heads to the hospital after normal working hours. In these times of limited funding this money could be better spent to improve other aspects of our tag recovery program. We therefore recommend that the requirement to x-ray "no tag" heads be waived for recovery agencies that purchase and use this equipment and who are willing to follow strict procedural quidelines that will ensure that all tags are being detected.

WDF COSTS TO DOUBLE-READ CWTs

Scientific Aide II (mid-step) @ $7.12/hour + $.348 (overhead and benefits) = $10.60/hour

Reading rate 40 tags/hour; for 50,000 tags cost is approximately 1,250 hours, or 8 man-months, which costs $13,250

Re-read 2,000 1982 Washington tags with 14 errors, or .7%

1980/81 response from other agencies for Washington tags was 29/5,281, or .55%

Other agencies

1981: 1981 Alaska, 525 with 26 errors, 4.95%

1981 NMFS, 120 with 0 errors, 0.00%

1980 California, 117 with 7 errors, 5.98%

1981 California, 74 with 6 errors, 8.1%

1981 Oregon, 4085 with 14 errors, .34%

1981 Canada, 3,024 with 18 errors, .59%

WDF Report