2004 MARK MEETING

Lewiston, Idaho: May 12-14, 2004

Agenda

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Final Minutes

May 12, 2004

1. General Business Items

Ken Johnson (PSMFC) welcomed Mark Committee members and other meeting participants. A special thanks was extended to Rodney Duke and IDFG for hosting the Mark Meeting in Lewiston. As was true in 1998, Rodney Duke and his staff members were again exceptional in making necessary housing and meeting arrangements, as well as arranging for pre-meeting tours for those who were able to arrive early, as well as a jet boat tour into Hell's Canyon after the meeting. A special thanks was also extended to Guy Thornburgh (CEO, Northwest Marine Technology Inc) for sharing a major portion of the cost of the jet boat trip.

> [Post script: The meeting was further enhanced on the first evening by a most incredible dutch oven feast provided at the Myrtle facility on the Clearwater River. Rodney Duke and several of his 'dutch oven cooking class' members served as chefs in providing an amazing number of dishes to select from. Everyone left that evening feeling stuffed because of second and even third helpings!!]

Mark Committee members and other meeting participants were introduced at the start of the Mark Meeting **(Attachment 1)**. There were no changes in committee membership. Three of the 14 Mark Committee members were not present. Tim Yesaki (Freshwater Fisheries Society of British Columbia) was absent and represented by Marc Hamer (CDFO). Steve Leask (MIC) was not present. Robert Bayley (NMFS-NW Region/Center; Portland Office) could not get travel authorization and was represented by Adrian Celewycz (NMFS-AK).

2005 Meeting Site and Date: The 2005 Mark Meeting will be hosted by the Canada Department of Fisheries and Oceans. Marc Hamer indicated that **Vancouver, BC** would likely be the site but consideration would be given to sites on Vancouver Island as well. The date of the 2005 meeting will be **April 20-22, 2005** (Wednesday-Friday).

2. Status of Mark Center Operations

A. Migration to new computer system (Jim Longwill, PSMFC)

1) <u>System Configuration</u>:

Migration of the CWT database to a new computer system was completed during this past year. Following an extensive review, a Dell/Intel-based server was selected with a Red Hat Linux based operating system and the Oracle DBMS.

- Dell server: PowerEdge 6650; 2 central processing units; 4 GB memory; external storage array; web server.
- Linux operating system: Red Hat Enterprise
- Oracle relational dbms: Standard edition; Database version 9i

This represents a total change from the previous SUN server using a Unix operating system (Sun Solaris) and the Ingres II relational database management system. The new system was

chosen on the basis of price, performance and 'off the shelf' full integration with Red Hat Linux and Oracle DBMS. The combination provides a system platform that has a solid performance history with much lower licensing and maintenance costs over the long term.

2) Architecture of 3 Oracle Instances (databases):

Three Oracle databases were created to handle production, website, and in-house development usages.

- CPRO: This is a production RMPC usage for managing all data loads and validations, updates, etc.
- CREP: This database handles RMIS website usage and is updated from CPRO on weekdays. It is used for the query-system only.
- CDEV: This is the development database and updated from CPRO on an 'as needed' basis for application and project development.

Updates are done using the Oracle Import/Export utility and the Oracle SQL-Loader utility. The entire system has been functioning very well thus far.

3) RMPC staff training:

Jim Longwill and Dan Webb completed full Oracle-DBA training courses during this past year. In addition, Ken Johnson completed an Oracle-SQL course.

B. Status of CWT Data Files (Dan Webb, PSMFC)

1) Annual review of the CWT data files:

Dan Webb reviewed the data status tables for each reporting agency's CWT release, recovery, and catch/sample data files. Particular attention was focused on existing 'holes' and agency plans to report the missing data. The review was done with a Power Point presentation based on snap shots of the various status tables on PSMFC's RMIS taken two days before the meeting.

Release Data**:** The CWT release data are largely current for all tagging agencies. There are a few minor holes that crop up from time to time, but the missing release records are typically submitted in a timely basis once their absence is known. However, a number of Nez Perce tag releases have remained unreported for some time. The Nez Perce tribal biologists are hoping to report their releases directly to the Mark Center but still continue to use CRITFC as the reporting agency to expedite reporting. Details are being worked out between CRITFC and the Nez Perce tribe.

Rodney Duke also raised the issue that some of their release data currently will not pass validation, primarily because of the way that blank wire is handled by the PSC data exchange formats. Discussion of the issue was deferred to Agenda 8, item B.

Recovery and Catch/Sample Data**:** The Recovery and Catch/Sample data files are current for all years up through 2002, with a few holes. Idaho has the biggest backlog and is missing years 1999-2003. CDFO is likewise missing catch data for 1999-2003. Explanations for the larger data gaps in reporting are provided below.

CDFG: Current for reporting ocean recoveries and catch/sample data. Progress on the inland recovery data continues to be made but much work remains.

CDFO: No backlogged recovery data sets. However CDFO has not completed its conversion to format 4.0. Therefore, U.S. data files forwarded from the Mark Center to Canada in format 4.0 are converted back into format 3.2 at the present time.

There is a problem, however, with CDFO's catch data for years 1999 to 2003 as the data sets have not passed validation. The reason is a data conversion problem with British Columbia's use of catch sample type '6' (Mark Incidence – Indirect Sample) for its sport fisheries. The voluntary recoveries from indirectly sampled sport fisheries are estimated rather than based on actual sampled fish. Hence with zero observed in the denominator of the conversion calculations, the conversion fails. CDFO was urged to complete its conversion to Version 4.0 so that this problem is eliminated. Solutions are currently being sought to resolve this problem so that the data are made available as soon as possible.

IDFG: Missing 1999-2003 data sets. Rodney Duke stated that Idaho is pushing hard to catch up. The Boise/Nampa office is now responsible for reporting the CWT data and Chris Harrington has been making steady progress. He has had to 'shoe horn' in this work while still dealing with the full work load of his current position.

QDNR: Missing the 2003 recovery set. Ron Olson noted that their data only involved terminal fisheries and escapement. Reporting is currently done in format 3.2.

2) Minor sets of incorrect records in the database:

Dan Webb also noted that a number of errors were recently found in the historical data by data users working on PSC related projects. Some of the errors were found to be introduced when agencies make changes to historical release or recovery data and then resubmit the respective data (i.e., release records or recovery records) without also submitting necessary changes in the other file. For example, a change of species in the release file almost certainly will impact any recoveries for that tag code. These types of errors are very hard to catch during validation as cross checking the huge recovery data table with the release data during validation passes isn't presently practical.

Several other errors were introduced following the Mark Center's conversion to Format 4.0 a few years ago. In that coding process, a number of validation checks were inadvertently lost in the new validation applications. These latter checks have now been added back to the Mark Center's data validation applications.

Duplicate Location Code short descriptions:

There are a small number of location codes that share the same short 'Name' (field 7) with one or more other location codes. The specifications require that the short 'Name' be unique within the State or Province and location code type. Said another way, a given location code can have the same description 'Name' across two or more location code types (e.g. type '3': release facility; '4': release site; and '5': stock). Likewise, different location codes can share the same description 'Name' as long as there isn't duplication at the location code type level.

Dan reported that he had forwarded the list of duplicate short 'Name' errors to the respective reporting agencies, and many of the errors had already been corrected.

Inconsistencies between releases and recoveries:

A number of errors were also found in which there was a species mismatch between the recovery record and the release record, and the tag status was '1' (tag read ok). This is allowable only if the tag status is '7' (unresolved discrepancy). Other common errors were recovery date earlier than release date, or recovery of a non-existent release tag code.

These errors have largely been corrected by the reporting agencies as well. However, a number still need to be corrected and Dan indicated that he will continue to work with the agencies until the errors are resolved.

Related Group ID problem:
The largest number of errors has been with the related group id in the release record. Its purpose was to provide a link to other related tag codes (e.g. double index marked groups) or unmarked release groups. The intent was that the linked release groups would be given the same 'related group id' number. Unfortunately, the specifications were somewhat confusing on this point. As a result, several agencies reported their related tag releases with a unique related group id for each of their related release groups.

IDFG has the largest set of releases with this error, with several other agencies having smaller numbers. The problem has been acknowledged in all cases and work is progressing on correcting the problem. In addition, the PSC Data Specifications document has been amended to specify that a given related group id must occur in a minimum of two release groups.

C. RMIS Feature: Saved CSV Lists (Dan Webb)

Dan Webb used a Power Point presentation to demonstrate a popular 'User List' feature that was implemented on RMIS for creating and saving CSV and HTML lists. The User List feature allows users to save the specific order of data elements selected in a data retrieval using the CSV format. That list or ordering of data elements can then be saved via copy and paste to the user's local computer. As such, users can now build their own unique list of data elements for CWT data retrieval in CSV format, and then 'cut and paste' their list(s) for future query runs.

D. New RMIS Forum with Enhanced Features (Jim Longwill)

The move to a new computer system was not without glitches, one of those being that the existing RMIS interactive user forum application 'broke' with the move off of the Sun Solaris system. Following extensive testing of various 'forums' now available on the web, the Mark Center purchased and installed a new forum application. It uses a software platform called Discus PRO 4.00 Â© 2002, Discus Ware, LLC.

This new forum software has a somewhat different appearance and different procedure for reading and posting messages. It is also more highly developed than the older software and has a more industry-standard appearance and functionality. It has proven easier to use, easier to manage, and has more flexibility than the older forum.

Features include the option for users to cut and paste from documents on their own respective computer. In addition, notification of the entire committee is automatically done each time a new article or response is posted. This has proved exceptionally

valuable in bringing everyone 'up to speed' prior to a meeting and thus increasing the productivity of the meeting.

An example of the current forum's 'offerings is given in **Attachment 2**.

3. Querying Problem for CWT Data as a Result of Non-required Fields being Null

Ken Johnson began the discussion by noting that RMIS data retrieval queries can generate erroneous data output if users chose selection criteria (i.e. data fields) that can be reported as a null value. The reason for this is that records with a null field are by-passed during data retrievals. This is normal for relational databases but it can trip up unaware data users.

The 'Run' field is one of those problematic optional fields and was often unreported in earlier years. Hence users need to be very careful when interpreting results generated using 'run' as one of the restriction parameters in their queries. A second problem field has been the two release dates (i.e.,'first release date' and 'last release date'). Because of incomplete historical release records, only one of the two dates is required, but this can be met with either one of the dates.

Jim Longwill noted that the Mark Center had become concerned about the possible magnitude of the null date problem but happily found that most releases (23, 467 out of 23,654 releases) are now reported with a last release date, and that is the one that RMIS applications use whenever a release date is specified. Even so, there still are 167 releases which only have the first release date reported. While a very minor percentage of the total releases, Jim emphasized that these releases still drop out and can bias reports generated with release date is part of a query. He also pointed out there are another 26 releases that have no release dates at all but these are all 'destroyed' releases and of no impact on any query.

There are two possible solutions for the null date problem. The first is to modify all of the RMIS reports so that first release date is used if the last release date is null. Ken Johnson noted that there is already one RMIS report that does this. However, the extra coding work would be very expensive. The Mark Center's preferred option would be to simply copy the first release date into the last release date for those 167 records now lacking a last release date. This would be a reasonable approximation of the correct last release date and would solve the null problem with only a tweak of effort. As such, the Mark Center plans to make this proposal to the PSC Data Standards.

There is also a need to somehow alert users of RMIS's query forms that certain fields are not required and thus could give erroneous results in some cases if selected. The Mark Center is considering two options to do this. The first option would be to add an asterisk to the headings of each data field that can be potentially null (i.e. not required when reporting). The second option would be to use green, yellow and red colors for identifying the nature of the data fields in the selection boxes of the query form. Green would imply required reporting (no nulls); yellow would be 'caution' when using certain fields (i.e. optional reporting); and red would represent high risk fields (also optional reporting but very problematic coverage in the historical data). At this point, the Mark Center is leaning towards using the colors because of the intuitive response to green, yellow and red colors.

4. Validation Rules for the CWT 'counts' Fields (Marianne McClure, CRITFC)

Marianne McClure noted that while this was a Data Standards issue, she wanted to discuss the new validation rules for counts under Format Version 4.0 as she didn't fully understand how to report fish that shed their tags. Under the old system (Version 3.2), she explained, the release counts were simply the numbers of fish with 'tags', 'shed tags' and 'untagged fish' released, with a tag loss field for redundancy. With Version 4.0, however, one can report information on CWT tagged fish having two different marks (i.e. CWT 1st Mark; CWT 2nd Mark) and their respective counts (CWT 1st Mark Count; CWT 2nd Mark Count). In addition, information is captured on untagged fish having up to two different marks (i.e. Non CWT 1st Mark; Non CWT 2nd Mark) and their respective counts (i.e. Non CWT 1st Mark Count; Non CWT 2nd Mark Count). As a result of the increased complexity (8 new fields versus 3 old fields), Marianne found it confusing on how to account for tag loss.

Marc Hamer responded that the Data Standards members realized that the 'shed tag fish' would now be numbered in with the untagged fish, such as mass marked fish with the Adipose only clip. As a result, the count of the tag loss component is lost. Therefore, tag loss is now captured as a percentage in a new field rather than a specific count as in Version 3.2.

Marianne explained that she understood that reasoning but she encountered a situation in which the fish group had two marks and she wanted to track tag loss for both marked groups. She continued that the validation rule for field 35 (Non CWT 2nd Mark Count) states that the field "*Must be absent if non_cwt_1st_mark_count is zero or absent*". And in her example, the tag loss was zero for the 2nd group of fish but she couldn't report zero because the record then failed validation. She further noted that the new tag loss field gives the percentage tag loss for the entire release. However, she argued these count fields for the two marks could be used to give actual tag loss counts for each mark.

Ron Josephson agreed that it probably could be done. However, the format was not designed to capture that level of information, nor would it be intuitive to other data users if it was done. After additional discussion, the consensus was that it wasn't practical to try and split out tag loss counts across two marked subgroups within a release group.

Adrian Celewycz then noted that he hadn't fully understood the intent of the new fields either. As a result, he had not been reporting the actual counts of the 'shed tags' in either of the Non CWT 1st Mark Count or Non CWT 2nd Mark Count fields. Rather, he had been simply using the number to compute the percentage tag loss.

ACTION: It was agreed that Data Standards should be advised of the existing confusion and asked to modify the PSC specifications document to give specific instructions on how to handle counts for tag loss fish.

5. Reporting of Preliminary Data for Fish Transfers (Marianne McClure)

Marianne also noted a minor data problem pertaining to juvenile fish which are transferred to the Tribes by other agencies. The transferring agency initially submits a preliminary release report that goes into the RMIS database, and identifies the agency as the release agency. Later, after the fish have been released by the Tribes, she then submits a final release report to the Mark

Center with a new release agency listed. These finalized records then fail validation because the transfer agency is already listed in the data base as the release agency.

Ron Olson commented that the way NWIFC has handled these types of transfers is to have an informal agreement worked out between the cooperative rearing agencies and the Tribes as to who is going to report a given release group. This informal procedure has worked very well with USFWS and WDFW. That way, there is no problem in having the wrong agency listed as the release agency in the preliminary data.

ACTION: CRIFTC will work out an informal agreement with USFWS and other agencies with respect to which agency is responsible for reporting the respective cooperative type release group.

6. Update on Mass Marking Legislation

A. FY 2003 Congressional Appropriations Bill

Mark Kimbel (WDFW) provided an update on Washington Congressman Norm Dicks' legislation passed in 2003 that calls for the mass marking of salmonids produced at federally funded or operated hatcheries, including but not limited to chinook, coho, and steelhead. The language of the legislation (**Attachment 3**) is quite vague and it has taken a number of meetings with the involved agencies and Congressman Dicks' staff to sort through the issues.

The first meeting was a coordination meeting that provided Congressman Dicks the opportunity to more fully explain the intent of his legislation. He also acknowledged that no operating funds were provided for the first year, and that implementation plans would have to be developed.

Following that first meeting, WDFW began to work with the Puget Sound Tribes to finalize marking plans for that area, while USFWS developed marking plans for their hatchery programs. The joint marking and funding proposal, however, was not particularly well received by Congressman Dicks as he wanted 100% marking unless there was a justifiable conservation issue for not marking.

Following rejection of the first plan, David Zajac noted that USFWS then began work on a new marking and funding proposal that included 100% marking. WDFW and the Tribes likewise began work on a new plan that came closer to 100% marking, and it was also expanded to include the Columbia Basin hatchery production. These plans were very recently presented to Congressman Dicks, with the outcome unknown at this point.

Ken Johnson reported that PSMFC, WDFW, and ODFW recently submitted a supplementary funding proposal ($861,307) to Congressman Dicks' office for the CWT Recovery Program in Oregon and Washington's lower Columbia Basin and coastal areas. He also emphasized that this new funding proposal was not double counted under the mass marking proposals (noted above) as it focuses strictly on CWT recovery efforts.

The supplemental funding is urgently needed to fulfill currently required salmon fishery sampling, CWT collection, data management, and stock assessment activities that are key elements of the West Coast and Oregon management of Columbia River salmonid stocks.

The current funding shortfall has resulted from recent increases in salmonid abundance, coupled with the widespread use of mass marking and introduction of selective fisheries. As in the case of the mass marking proposals, the fate of this proposal also remains unknown at this point but the odds are strongly against the funding being awarded.

B. Additional Appropriations Language. (Ron Josephson, ADFG)

Ron Josephson confirmed that Senator Ted Stevens (Alaska) had inserted a comment into the Congressional Record indicating that west coast hatchery chinook mass marked with the adipose clip should also be required to carry a CWT or receive some alternative mark. The difference was that Congressman Dicks' legislation had become law, while Senator Stevens' comments were neither binding nor law at this time.

Marianna McClure noted that 52 million fall chinook are slated to be mass marked with the adipose clip under Congressman Dicks' legislation. As such, she questioned whether Alaska was concerned. Ron acknowledged that Alaska was very concerned about the potential impact on its sampling program and other ramifications. However, it was not decided what course of action Alaska would take on this issue in the future.

7. Update on Mass Marking and Selective Fisheries on Hatchery Coho and Chinook

A. Alaska

Ron Josephson (ADFG) reported that Alaska has not changed its policy. There is no mass marking, electronic sampling, nor selective fisheries based on hatchery fish with the adipose clip.

B. British Columbia

Marc Hamer (CDFO) stated that Canada is not mass marking chinook or operate mark selective chinook fisheries. However, a chinook DIT study at Chilliwack Hatchery is still running. Coho continue to be mass marked, with no major changes from previous years. DIT programs for coho remain in place at Quinsam and Inch Creek hatcheries. Three other DIT coho tagging programs (Robertson Creek, Big Qualicum River and Chilliwack hatcheries) have been dropped. The overall picture is that hatchery production will drop about 20%, attributable in part to excessive escapements.

In context with this, Marc noted that CDFO is not interested in DIT marked chinook, given that they do not have selective fisheries on chinook nor are mass marking them. As a result, the sampling program in commercial fisheries is being changed. Samplers will no longer look for DIT tags in chinook having an intact adipose fin. All of the fish will still be electronically sampled because of the mass marking programs in Washington and Oregon. In the case of the freezer boats, some DIT recoveries will be made as only heads are available for sampling. However, under normal sampling conditions, if an 'adipose intact' chinook goes through the tag detection tube and 'beeps' (i.e. tag present), that information will be recorded but no attempt will be made to take the head and later recover the tag.

The primary reason for the new sampling plan is to reduce head lab processing costs. It presently costs about $15 to process a head, and an estimated thousand heads will be eliminated

for a savings of $15,000. An additional savings of unknown amount will be realized by eliminating blank wire marked fish having an intact adipose fin.

Marianne McClure stated that this selective sampling program will bias other DIT recoveries from CWT only marked chinook. Ron Olson (NWIFC) added that this will literally blow Washington's chinook DIT program out of the water, as well as ruin those CWT only marking programs being done to protect highly depressed chinook stocks in Washington. He also expressed a hope that this issue would be discussed in other forums as the U.S. agencies now spend a huge amount to DIT mark their indicator chinook stocks.

C. Washington

WDFW: Mark Kimbel noted that WDFW's mass marking program has been about the same for the past two years. Probably the most significant mass mark issue is that WDFW hadn't been able to reach agreement with the Hood Canal tribes to mass mark their production chinook. However, agreement was reached for the first time this year to mass mark one half of the production of one facility. This was viewed as a very positive development by WDFW.

The outcome of WDFW's proposal for additional Congressional funding will determine the level of Washington's compliance to Congressman Dicks' mass marking legislation. Mark emphasized that it was WDFW's intent to be in be full compliance if at all possible. He added that for all intents and purposes, WDFW now marks all of its steelhead and coho production statewide, and all chinook with the exception of the fall chinook in the Columbia Basin and on the coast.

NWIFC: Ron Olson reported that the Washington Tribes, in conjunction with the state, will be marking approximately 8 million out of 10.5 million chinook, and about 6 million out of 8.5 million coho in 2004. Those not being marked are predominately north migrating chinook from the Strait of Juan de Fuca and the coastal coho. Next year's plans remain up in the air..

USFWS: David Zajac added that USFWS's marking program was essentially status quo, plus or minus 20 million fish. The unknown factor remains the requested funding to fulfill the mandate of Congressman Dicks' legislation.

D. Oregon

Christine Mallette discussed ODFW's marking program for 2004 was similar to last year's marking program of 25 million fish.. Counting all species, 26.1 million fish (brood 2003) were marked in 2004 with various mark types (**Attachment 4**). Of these, 7.1 million were marked in coastal facilities and 19.0 million were marked in the Columbia River.

With respect to coho, a total of 6.0 million were marked, with the lion's share (5.03 million) being done in the Columbia Basin. When combining coastal and Columbia Basin, 500,000 were Ad+CWT marked, 4.7 million were Ad only marked and 775,000 were given a CWT only (DIT groups). This latter group includes 675,000 fish that were marked by USFWS at the Cascade Hatchery.

A total of 12.4 million spring chinook were marked, of which 2.8 million were coastal fish and 9.6 million were primarily in the Willamette River system. All but 276,000 received the Ad clip only or in combination with another fin clip.

A total of 2.1 million fall chinook were also marked with the Ad clip, nearly all of which also received a CWT. If the requested federal funding is received, there is a potential of adding 15 million more mass marked fall chinook in the lower Columbia River. Mass marking would begin with the 2004 brood, and full implementation would occur for the 2005 brood.

Oregon's selective fisheries are summarized in **Attachment 5**:

Willamette Spring Chinook: The 2004 forecast harvest is 109,400 fish with a 10% wild and 90% hatchery composition. The expected adipose clip mark rate is projected at 96% on hatchery fish and 86% on the aggregate run. Oregon is implementing the tangle net fishery to allow live capture and release of upriver listed spring chinook stocks. All sport fisheries in the Willamette Basin are restricted to marked fish only.

Upriver Spring Chinook:
A continued strong upriver spring chinook return (360,000) is forecast for 2004, with a run of 75% hatchery fish. The expected Ad clip rate is 65% for the total run. A selective sport fishery on marked fish will be held in both the mainstem and tributaries. A Treaty Indian non-selective commercial fishery was held in May 2004.

Summer Chinook: The 2004 forecast is 102,800 fish, exceeding the 85,000 goal. Plans call for a limited sport selective fishery for adipose fin marked fish, as well as Treaty Indian ceremonial and subsistence fisheries.

Fall Chinook: The 2004 fishery is currently being negotiated by the parties to 'U.S. vs. Oregon'. There have been no discussions about a mark selective fishery on fall chinook.

Coho: The 2004 ocean sport fishery will include a selective fishery on adipose marked hatchery coho. Hatchery coho quotas off the central Oregon coast is 75,000 fish, and 101,250 off the Columbia River mouth. In addition, the Buoy 10 fishery is expected to harvest about 25,000 marked coho. There will also be Columbia River mainstem and Select Area gill net fisheries focused on marked hatchery coho.

E. Idaho

Rodney Duke noted that IDFG's hatcheries are down approximately 2.5 million fish from last year's record production of 10.5 million fish **(Attachment 6).** Marking plans call for mass marking virtually 100% of Idaho's 2003 brood hatchery chinook, most of those being at Rapid River and Sawtooth complexes. Out of 7.8 million fish (expected production), 7.3 million will be adipose clipped., and of those, 910,000 will also be given a CWT. In addition, 135,000 will receive a LV or RV mark. Subsets of fish in these groupings will also be given a pit tag. Idaho uses 100% electronic sampling in the sport fisheries and returns at the hatcheries.

This year, there were no CWT groups marked at Sawtooth Hatchery. In addition, there was a shift in Idaho's PSC indicator stock. The Rapid River *spring chinook* stock was dropped and

replaced by the downstream Oxbow Hatchery *fall chinook* stock where approximately 100% of 200,000 fall chinook were Ad+CWT marked. The shift in indicator stocks was necessary of funding shortfalls, given PSC funding for tagging has been level funded for the past 18 years.

F. California

Bob Kano (CDFG) reported that California has been mass marking its steelhead production for many years now but has no plans yet to mass mark chinook or coho. Likewise, there are no plans for a selective fishery on salmon yet.

Only visual sampling is used to recover CWTs in chinook. There is no sampling for tagged coho as coho can not be retained in California's commercial and sport ocean fisheries. This is to protect the Oregon Coast Natural coho stocks (OCN) that are in trouble.

8. Marking Variance Requests for Adipose-Only Marking Studies

A. Five and Three Year Exemption: Snake River Chinook (IDFG, USFWS)

During last year's Mark Meeting in Sitka, there was a major discussion about the PSC Selective Fishery Evaluation Committee new role in reviewing proposals for mass marking and selective fisheries. As such, the Mark Committee decided that no action would be taken on Idaho's request for a three year marking variance for fall chinook and a five year variance request to mass mark their spring and summer chinook. Rather, Idaho's request would be reviewed by the Mark Committee in 2004 following a decision from SFEC on whether or not they will review Idaho's MM proposals annually.

Ron Olson noted that SFEC received almost an entire set of well prepared proposals during this past year, with the review focused primarily on protecting the integrity of the CWT system. The results of the SFEC review is now out in draft form. With respect to Idaho's stocks, Ron emphasized that the review did not see any impact to the CWT system from Idaho's spring and summer chinook marking programs since these stocks just don't occur in any significant numbers in the marine fisheries. As such, he ventured that SFEC will not require any further proposals for Idaho's spring and summer chinook.

On the other hand, Idaho's fall chinook behave more like the fall chinook stocks in the lower Columbia River and do show up in the various marine fisheries. As such, Ron expected that SFEC would request at least one more proposal as a follow up, along with the recommendation that there be an accompanying DIT tagged group.

Ron suggested that the Mark Committee allow SFEC to deal with this issue again. Rodney Duke concurred and recommended that the proposal be tabled relative to the Mark Committee. He stated further that given the political changes during the past several years, there was no further reason to bring Idaho's marking plans to the Mark Committee.

ACTION: The Mark Committee will not review Idaho's mass marking plans in the future. Special thanks were also extended to Rodney Duke for his cooperation over many years in providing marking proposals for Idaho.

B. Other Requests (including Use of Blank Wire)

1) ODFW Request for Ongoing Use of 'Blank Wire'

Christine Mallette apologized for not having a formal request distributed prior to the meeting. She explained that she was seeking approval to continue ODFW's blank wire marking program, identical to that done in 2003. In specific, 2004 plans call for blank wire tagging 430,000 Upriver Bright fall chinook (Umatilla River release site) and 50,000 summer steelhead for release into the Imnaha River. The sole purpose of the Upriver Bright fall chinook blank wire marking was to identify and prevent straying of Umatilla River releases in the Snake River system. She noted further that they do have associated CWT groups.

Norma Jean Sands (NMFS) asked how one could find these blank wire releases in the release file, and also identify the respective tag code associated with the release group. In the ensuring discussion, it was pointed out that the blank wire releases would be coded as tag type '16'. Marc Hamer also pointed out that blank wire isn't entered as a mark because of it would substantially add to an already unwieldy Marks table. However, users can link the blank wire releases with the representative tagged group if the releasing agency assigns a 'related group id' to the blank wire release, such as is now done for DIT releases. (*Mark Center comment: Unfortunately, this isn't always done for blank wire*). Jim Longwill (PSMFC) added that users can get at the data if they do a CSV download of raw data. He also noted that it wasn't an easy solution for users.

[This led to a major detour about the pros and cons of treating blank and agency only wire as marks. The discussion is captured below under Agenda Item 8.B, item 2).]

Upon returning to ODFW's request, Christine Mallette clarified that the ODFW blank wire releases would also be marked with an Adipose clip. She commented further that in the recent past, ODFW used to mark approximately three million Upriver Brights with blank wire for release in the Umatilla River. However this was scaled back to the present level of 430,000 fish because of shrinking funds. Mark Kimbel commented that WDFW had taken a similar path, and now only releases a miniscule number of fish with blank wire.

Marc Hamer stressed that Canada preferred not to see blank wire in their tag recovery lab but noted that there was no regional rule against the use of blank wire. This was confirmed with a quick review of the Regional Agreements. The only restriction found is that blank wire and agency only wire use requires a mark variance request, and that the proposal will be reviewed for its impact on the regional CWT recovery programs.

ACTION: ODFW's verbal proposal for blank wire tagging in 2004 was approved. However, a new five year written marking variance proposal is required next year. The written proposal will also need to provide an analysis of the number of expected recoveries of blank wire by the various recovery agencies. This proposal will then be reviewed yearly as stipulated in the Regional Agreements.

2) IDFG Request Regarding Data Exchange Specifications for 'Agency Only' and 'Blank Wire'

Chris Harrington (IDFG) noted that a large number of Idaho's release records continue to fail validation because of the way 'Agency only wire' and 'Blank wire' are handled in the PSC data exchange format. His written summary of the problem and his recommended solution are provided below. *Italics are used to identify editorial additions provided for additional clarification):*

"Agency only wire (or blank wire) is handled in the database by setting the tag type to '16', *('pseudo tag, blank wire)* and otherwise making it into a !BANG record *(i.e. assign the release group as 'non-associated').* I feel that this is a mistake. All records in the database have either a CWT or are a !BANG record. By handling agency only wire in the stated fashion, the wire tag becomes neither fish nor fowl. It is not truly a CWT, but it is not truly un-tagged either. I see no benefit in handling this information in this fashion, but there are some real situations where it will cause harm.

Idaho has used blank wire as part of studies within hatcheries that are terminated by the time of release. These fish then became part of a release group that was represented by a set of coded-wire tags. In another case, IDFG tagged fish for the Nez Perce Tribe where they wanted a release of CWT only fish, but saved money by having only a portion of that release receive a CWT, while the remainder received blank wire. The tag code in this case more accurately represents the blank wire fish than is normally the case, because the handling and marking of the fish was identical. However, under the current rules for data submissions, in both cases, the CWT cannot represent the blank wire because the blank wire must be in a separate !BANG record. This is putting form over function in the database, never a good design point. A person reviewing information in the database would have to be enlightened to be able to correctly expand one of those tag codes.

The solution to this problem is to handle agency only and blank wire as if they were a mark. The system of entering non-CWT marks on fish is not the best, but it is a functional solution to a difficult issue. Agency only wire could be handled in the same fashion. By doing so, both of the above scenarios would fit conveniently within the database schema without resorting to the contortion of tag type 16 on an untagged record. Give agency only wire a mark number and count it as a mark on un-tagged fish. This would include it in either truly unrepresented groups, or represented fish, and users of the database would not be confused as to its meaning.

Furthermore, agency only wire truly is a mark rather than a tag. The purpose of a CWT is to link a particular fish back to a rearing/release strategy. This can't be done with agency only wire, unless an agency has only one agency only release of a certain species/year pair. The value of agency only wire would be as a presence/absence measure rather than provide an accurate indication of the origin of a fish. This presence/absence is no different in use from a fin clip. In fact, agency only wire is used in a fashion that differs from a fin clip only in the detection organ used (eyes vs. ears in most cases). In addition to this, placement wire will give fish markers the opportunity to differentiate groups by placing wire in different locations around the body. Wire used in this fashion generally is not intended to be recovered. At that point, the agency only wire is no more and no less than a fin clip, and should be treated as such in all body locations from snout to tail.

In summary, agency only/blank wire is a mark, not a tag, and should be treated as such by giving it a mark number for inclusion in the non-CWT-mark fields. It should not be handled as a hermaphroditic pseudo mark as is currently the standard."

Chris Harrington fully agreed that changing blank wire to a mark could substantially increase the size of the Mark Coding Table. He argued, however, that the added size of the Mark Coding Table was more than worth the extra effort involved in working with a larger table. Others pointed out that it also afforded a direct way to retrieve the blank wire information from the database rather than have to use indirect options such as CSV raw data downloads or dependence on the release agency remembering to assign a related group id' to cross link with other groups.

There was general consensus during the subsequent discussion that blank and agency only wire should be treated as a mark. And to this end, the meeting rambled a bit as different ways were suggested on how to accomplish that in the database. In addition, it was noted that RMIS should be changed to allow data retrievals by tag type. The discussion was eventually curtailed as the issue really belonged to the Data Standards Working Group.

ACTION:

(1) No action was required by the Mark Committee on this blank wire issue.
(2) Chris Harrington agreed to submit a mark coding proposal to the PSC Data Standards Working Group.
(3) The Mark Center will add 'tag type' as a new RMIS query field for selecting tag releases to provide a direct method for capturing blank wire release information.

3) WDFW Request Regarding Incomplete Release Information on RMIS

IDFG is not the only agency interested in capturing blank wire releases as a mark. Debbie Milks, a biologist at WDFW's Snake River lab, submitted a letter (**Attachment 7**) during the Mark Meeting regarding incomplete release information captured for RMIS and the resultant problems in reconstruction of the 2003 run of fall chinook at Lower Granite Dam.

Susan Markey (WDFW) summarized the six key points in Debbie Milks' letter as she was not present.

(1) Missing releases in RMIS with respect to the Nez Perce Tribal releases of fall chinook. *Note: This problem was also discussed in Agenda Item 2.B. Solutions are underway to get these releases* reported.

(2) Inability to determine the percent retention of various marks where greater than one mark is used in a release group. This is a problem for WDFW's Snake River lab as they use multiple marks, and the current PSC format only allows for two marks

(3) Recoveries of visual implant tags (VIE) are not being recorded as marks. Susan was not clear if this was true just for fish recovered in the Snake River or if Debbie was referring to sport and commercial fisheries. She further noted that it was highly unlikely that samplers would be looking for VIE tags in the sport and commercial fisheries downstream of the Snake River.

(4) Request to revise the release data specifications to allow listing blank wire as BLANK, and agency only wire as the two digit prefix of the release agency with the word BLANK after it (e.g., 10BLANK for IDFG; 63BLANK for WDFW, etc). *Susan also noted that if the Mark Center does provide querying by tag type, it will resolve in large part this problem.*

(5) There is no tag loss information for blank tags. As such, release agencies using blank wire are requested to provide an estimated percent tag loss for their release groups.

(6) The sixth item involves tag recoveries from 1999-2002 at Lower Granite Dam, when the shunt was being used to pull out all fish with tag wire. Due to the large number of fish collected, only 50% of the elastomer-marked and 50% of the unmarked fish snouts were dissected and tags read. These unread fish are reported in the RMIS recovery tables as Tag Status code 8 ("Head not processed").

All of the recoveries, both read and unread snouts, from Lower Granite are reported as 'pass-through' (Sample Type code 7) sampled fish. There is no catch-sample record for pass-through fish; there are only recoveries. The recovery records from read snouts should have an expansion of about 2.0 when adjusted for the unread snouts; however, the reporting rules require these fish be given an expansion of 1.0. In addition, since there is no catch-sample record, no method exists by which to report the expansion factor calculation (tag adjustment for unprocessed snouts). The result is that the fish collected at Lower Granite Dam for 1999-2002 are being under reported. This is a Data Standards Working Group issue.

ACTION: The Data Standards Working Group will be asked to review Debbie Milks' request for help and find solutions where applicable and possible.

9. Electronic CWT Detection Workshops (NMT, PSMFC)

Geraldine Vander Haegen (NMT) reported on the results of two Electronic CWT Detection Workshops that was sponsored by NMT and PSMFC. The first workshop was held in PSMFC's old office building in Gladstone, Oregon on March 11, 2004. Over sixty participants were in attendance and seating was literally 'maxed' out. Most of the participants were from the Columbia Basin. The second workshop was held yesterday morning (May 12) at Clearwater Hatchery before the start of the Mark Meeting in the afternoon. Attendance was very good and included some Mark Committee members along with fishery biologists from USFWS, IDFG, and the Tribes.

The intent of the both workshops was to provide hands on training and maintenance of CWT electronic detection equipment. In addition, the workshops provided a forum for equipment users to both network (i.e. share information) and to have access to NMT technicians regarding concerns and questions about the equipment.

Geraldine noted that the two CWT detection workshops highlighted two particular needs in the use of electronic detection equipment. The first thing was evidence of a huge need for on-going training. This was seen with every agency that NMT has worked with. The second challenge is that almost no one is doing any re-sampling to evaluate the effectiveness of the electronic sampling (i.e. percent of missed tags). This is a critical check on how well the samplers and/or the equipment are doing.

Geraldine also indicated that NMT will be offering more informal workshops in the future. One potential workshop may be held in British Columbia if CDFO expresses an interest in the help. She also advised members of the Mark Committee to contact her if they wished for NMT to

come in and provide additional training. Minutes of the Gladstone workshop were provided at the Mark Meeting, and are also available on NMT's website.

10. Advisory on CWT Workshops in Near Future

A. "CWT Application and Recovery Workshop"

Ken Johnson reported that a third NMT and PSMFC workshop, *"CWT Application and Recovery Workshop"* was in the initial planning phase and tentatively scheduled for the fall (September 9, 2004) in Chelan, Washington. It will complement the two CWT Workshops on Electronic Tag Detection held earlier in Gladstone, Oregon (March 11, 2004) and yesterday at Clearwater Hatchery (Agenda item 9).

Under John Ransier's (NMT) leadership, the CWT workshop will focus on problems and solutions with CWT equipment and application techniques. Its primary function will be to help agencies improve the quality of their salmonid tagging operations. In order to minimize travel costs, the CWT workshop will follow a training workshop (September 8th) for operators of NMT Autofish and manual CWT tagging trailers.

B. "Future of the CWT Program: Challenges and Options" Workshop

A highly focused CWT workshop has been scheduled for June 7-10, 2004 in Lynnwood, Washington. Ken Johnson reported that the PSC sponsored workshop, **"***Future of the CWT Program: Challenges and Options***"** will examine the capabilities of the CWT program and various other marking methodologies to provide the necessary information for managing chinook and coho stocks along the Pacific coast. Problems of the CWT system and potential solutions for improvements will be considered along with discussion of other marking technologies. The workshop agenda is provided in **Attachment 8**.

By design, there hadn't been much publicity about the upcoming workshop. Given its problem solving focus, attendance is by invitation only and essentially limited to a highly qualified panel of eight scientists and a suite of presenters who will provide information to the panel. The panel in turn is charged with producing a comprehensive report by early fall on recommendations for changes to the CWT program and the potential role of alternative marking strategies. With respect to the latter, particular attention will be given to genetics based methods for obtaining stock data necessary to complete cohort analyses.

11. Review of the Mark Committee and the Annual Mark Meeting

Ken Johnson began the discussion by reviewing the gradual change in the Mark Meeting format over the years. For many years, it was a one day meeting and held in Portland each year. Typically it was a pressure packed day to complete the agenda in the allotted time, with the result that key issues often weren't discussed adequately. This led to a welcomed change of extending the meeting to two days with the third being reserved for field trips of interest to the Mark Committee. In 1991, the meeting was moved from Portland and hosted by ADFG in Juneau, Alaska. It has since rotated annually between Alaska, Idaho, British Columbia, Washington, Oregon, and California.

With the growing role of PSC's Selective Fisheries Evaluation Committee (SFEC), Ken noted further that the Mark Committee's role has also been changing. As such, he questioned the Mark Committee about the adequacy of the Mark Meeting format (i.e. issues addressed, length of meeting, time between meetings, rotation pattern, etc.).In addition, he voiced concern about the growing problem with Mark Committee members not being either allowed to attend or simply opting not to join the meeting.

Ron Olson was first to speak and expressed a strong support for continuing the rotation of the annual meeting on the basis of increased interest and expanded participation. He also noted that the first day is taken up with data management issues that aren't particularly the expertise of many on the committee. However, many agencies send additional staff that are versed in data management and the issues are of general value to the entire committee. Ken concurred with this latter point and noted while many of the data issues have to be deal with by Data Standards, they are still important at an educational process for the Mark Committee. Ron agreed and said that while there was some redundancy, he typically heard data issues at the Mark Meetings that weren't discussed at any other forum. And given the rapid changes in recent years, he wanted to meet annually at a minimum.

Rodney Duke also pointed out that the length of the meeting wasn't a major concern. Agencies would still need to send a representative to the meetings, whether it is one day or more. He also strongly endorsed the rotation as it gave him a far better understanding of the issues going on in other areas such as Canada, Alaska and the coastal states. Marianne McClure also pointed out that there just wasn't enough time to cover all aspects of the regional coordination during a one day meeting. Hence she fully supported both the longer meeting format and the field trips afterwards. Christine Mallette echoed very similar comments in supporting the existing formats. Mark Kimbel also stressed that the Mark Committee was playing a critical role in regional coordination and was very supportive of ongoing practices.

ACTION: None required. The Mark Meeting will continue as presently structured.

There was also some discussion about those Mark Committee members who weren't attending the Mark Meeting on a regular basis. This included representation for Metlakatla Indian Community, British Columbia "Fish and Wildlife", and NMFS-Northwest Region/Center.

Marc Hamer explained there have been major changes in British Columbia at the province level and Tim Yesaki's agency name has been changed to the Freshwater Society of British Columbia. They haven't done any CWT marking of steelhead for a long time. Ron Olson therefore suggested that perhaps CDFO could be assigned a second representative, much like NMFS has two assigned members on the Mark Committee, as a means of providing more balance to Canada's representation, particularly in terms of representation on the data management side. Marc agreed that it would be helpful and promised to explore the matter further.

It was also recommended that a letter be forwarded to NMFS Northwest Region/Center explaining the importance of representation on the Mark Committee, given NMFS's key role in marking issues in the Columbia Basin.

ACTION:

(1) Marc Hamer promised to explore the possibility of a second representative assigned to CDFO (with the same number of two votes) as a replacement for the non-participation by British Columbia's provincial fishery agency, Freshwater Society of British Columbia.
(2) Ken Johnson stated that he would make a personal contact with MIC to determine if they wish to continue as a member of the Mark Committee.
(3) A letter will be sent to NMFS encouraging renewed participation on the Mark Committee because of the agency's vital role in fish marking issues in the Columbia Basin. . (*Note: This letter was sent on July 29 to Mr. Bob Lohn, NW Region, and Dr. Usha Varanasi, NW Science Center, see* ***Attachment 9***).

12. Regional Agreements on Marking and Tagging Pacific Salmonids

Section III.2. of the Regional Agreements, entitled 'Required use of the Adipose Fin Mark with the CWT", was reviewed for accuracy given that there has been substantial changes in the use of the adipose clip in the past few years.

During the discussion, it became clear that the heading of the section was misleading. Today, the adipose clip is largely used as a mass mark for hatchery origin fish. The title was changed to 'CWT Required if Adipose Fin Clipped' to more accurately reflect the intent of the accompanying table that summarizes required CWT use when marking salmon and steelhead with the adipose clip. Minor changes were made to both the table and several of the accompanying footnotes.

The revised Section III.2 is listed below in italics. No attempt was made to highlight the specific changes. The complete 'Regional Coordination and Agreements' document is provided in **Attachment 10**.

III.2. CWT Required if Adipose Fin Clipped

Region	***Chinook***	***Coho***	***Steelhead***	***Sockeye***	***Chum***	***Pink***
Alaska	***Yes***	***Yes***	*No*	***Yes***[a]	***Yes***[a]	***Yes***[a]
Canada	***Yes***	*No*	*No*	*No*	*No*	*No*
Washington	*No*[b,c,d]	*No*	*No*	*No*	*No*	*No*
Oregon	*No*[b,c]	*No*	*No*	*No*	*No*	*No*
Idaho	*No*[c]	*No*	*No*	*No*	*No*	*No*
California	***Yes***	***Yes***	*No*	*No*	*No*	*No*

Where 'Yes', the only use of the Adipose clip is to indicate a CWT. *These requirements apply equally if the adipose is clipped in combination with another fin(s).*

a/ Adipose fin marked steelhead, sockeye, chum and pinks do not require a CWT because there is no coastwide recovery program for tags in these species. Alaska is an exception in requiring a CWT in adipose marked sockeye, chum and pinks.

b/ A CWT is presently required with the adipose fin clip for all chinook from the Strait of Juan de Fuca and coastal Washington and for fall chinook from the Columbia Basin.

c/ Use of a CWT with the adipose clip is currently being resolved for spring chinook from the mainstem Columbia River above Bonneville Dam. Adipose mass marking of Snake River spring chinook has been approved by majority vote of the Mark Committee.

d/ Use of the CWT with an adipose clip on summer chinook in the Columbia River remains unresolved. Adipose only mass marking of Snake River summer chinook has been approved by majority vote of the Mark Committee.

13. Report on PSC Selective Fisheries Evaluation Committee (SFEC) Activities

A. Analytical Working Group (Norma Jean Sands, NMFS)

Norma Sands reported that PSC Chinook and Coho Technical Committees now require estimates of the incidental mortality of CWT only marked fish taken and released in non-retention mark selective fisheries (MSF). This information is needed to more accurately model and track the impact of the various MSFs through time on indicator stocks. In the past, they have hand generated the estimates with considerable effort and time required in the process. However, with the growing role of MSFs, it is no longer practical to do these calculations manually. As such, they want to see these estimates made available in the Mark Center's RMIS database.

They have suggested that Data Standards Working Group and the Analytical Working Group (Selective Fisheries Evaluation Committee) now get together and determine if this should be done, and how it might be done. If it can be done, then the reporting agencies would be expected to provide estimates of 'imputed tag recoveries' at the time of submitting their respective tag recovery and catch/sample data files.

Norma acknowledged that it was not clear yet how this might be done but invited the Mark Committee to track the progress via the Forum on the RMIS website. Marianne McClure added that these imputed recoveries were important to others besides the PSC modeling efforts. She noted that this information would be valuable to any analyst trying to do a complete cohort analysis or complete survival analysis. Norma fully agreed and emphasized that by having the information reported to the Mark Center, it would be in standardized format. In addition, she pointed out that the imputed recoveries would also need to be reported for non-selective fisheries that did not use electronic detection to recover CWTs in unclipped chinook and coho.

Marc Hamer responded that CDFO is presently reviewing this proposal and hasn't reached any conclusions yet. He further cautioned that there were political elements involved as well and he couldn't predict how it might all play out.

B. Joint Coho DIT Analysis Workgroup

Ken Johnson gave a brief summary on the DIT coho research reported by the Joint Coho DIT Analysis Workgroup. The paper was published in the Northwest Fishery Resource Bulletin, Project Report Series No. 12 (November 2003) and entitled 'Analysis of Coho Salmon Double Index (DIT) Data for the Brood Years 1995-1997".

He noted that the premise of the DIT coho tagging was that if MSFs significantly impacted a stock, one should logically see higher numbers of unclipped CWT marked fish return to the

hatchery (i.e. escapement) relative to those CWT marked fish that were Adipose clipped and could be retained in the fishery if captured. Unfortunately the presented data don't present clear evidence at this point that DIT tagging can give reliable estimates of unmarked mortalities in MSFs.

A total of 37 DIT release groups were examined. Of those, 12 out of 37 were significant at the 0.05% level. While 10 out of the 12 significant groups did favor increased returns of the unmarked fish, the troubling thing was that the other 25 groups (68%) were insignificant. The study did note, however, that when averaged over all DIT releases and return years, there was a detectable impact of MSFs on exploitation rates.

The authors concluded that it was likely that the mortalities were too small to be detected using individual release groups. They also recommended that larger numbers of tagged fish needed to be sampled in order to detect the small impacts on an individual release group basis. This could be done by either increasing the size of the tag group or increasing the sampling level. They also noted that since most hatcheries sample their returns at or close to 100%, the only real option is to increase the size of the tagged DIT release groups.

Ron Olson responded that the study was based on the first three years of DIT tagging and that there were only limited MSFs at that time. As such, the data aren't necessarily indicative of what might be found with new data sets from more recent release groups. He also added that the report was highly conservative and very balanced, and that the authors remain confident that the predicted trends will prove out with increased tagging and sampling levels. Ron concluded that there just weren't enough recoveries in most of the groups to get a significant result. This could change if the MSFs are increased or the number of recoveries are increased.

Marianne McClure pointed out a conclusion that she had gotten from Marianna Alexandersdottir's (NWIFC) presentation on the DIT research. When the MSF is very small, you have an ability to estimate the impacts very precisely. However, it doesn't make much difference since the MSF is so small. Conversely, when the MSF is very big, the paired-ratio method used to estimate the unmarked to marked ratio (lamda]) can introduce large biases and thus not be a good method of estimating unmarked mortalities. She added that one of their conclusions was that it was better to design MSFs so that they are operating in close proximity with a non-selective fishery. This would provide a very good estimate of lamda, the unmarked to marked ratio, rather than having to depend on the unmarked to marked ratio at the time of release.

Ron Olson also added that he had spoken with Marianna Alexandersdottir just before coming to the Mark Meeting, and that she remained very optimistic that DIT tagging can yet achieve what is needed for at least some coho stocks. It will be a few years, however, before that can be fully resolved. He also noted that they are now looking at DIT analysis for chinook releases.

C. Regional Coordination Working Group (Ron Olson, NWIFC)

As U.S. co-chair, Ron Olson reported on recent activities of the Regional Coordination Working Group (RCWG). He noted that the Selective Fisheries Evaluation Committee's (SFEC) basic purpose was to evaluate potential impacts of mass marking and selective fisheries on the coastwide CWT system. As such, the viewpoint was from a PSC perspective on monitoring the

impact of PSC fisheries on stock rebuilding programs. Thus it doesn't cover all fisheries coastwide, such as those in California and those in Idaho.

Reviews and Reports: This past year, the Commission revised the terms and duties of the SFEC and working groups. The RCWG has two basic tasks. The first is to review all agency proposals for mass marking on a yearly basis. The first year's review was combined with the Analytical Working Group's report and published in September 2003. It is available on the PSC website. The report for 2004, *'Review of 2004 Mass Marking Proposals'* is out for internal review and should soon be available.

The second coordination task is to produce an annual report on mass marking, DIT releases, sampling, and mark selective fisheries. The report that came out in June, 2003, took too long to produce and probably wasn't widely read because the format included a lot of details. Therefore, this year's report has been substantially compressed and is currently out for internal review.

The mass marking review for last year was incomplete as there were a number of missing mass marking proposals. Even so, the proposals that were reviewed raised several over arching concerns. The first concern had to do with the adequacy of the chinook DIT program. In most cases, the DITs being marked primarily had to do with where the mass mark production was taking place. The more appropriate way to select stocks for DIT marking should be to evaluate where the marine mark selective fisheries were occurring and which stocks were being harvested in them. This should be a priority for the coming years.

This year, a nearly complete set of 22 mass marking proposals were received and reviewed. The proposals were limited to British Columbia, Washington, Oregon, and for the first time Idaho. All of the proposals had to do with on-going mass marking programs. Therefore, Ron cautioned that the expanded scope of Congressman Dicks' initiative for increased mass marking has not been addressed by the PSC forum, and that there would likely be different impacts on the fisheries and in the tag recovery labs.

Ron stressed that he hoped the SFEC co-chairs would send a letter soon to the agency directors reminding them that **the 2005 mass marking proposals are needed by the June 1st deadline**. He also noted that one part of the mass marking request template asks for projections on the numbers of expected recoveries in the various fisheries. Given that the instructions were vague, the answers to this question were pretty much 'apples and oranges' in last year's proposals. Thus it was difficult to analyze that beyond the level of state/province. This deficiency will be corrected with better instructions for next year's proposals.

DIT Marked Groups: The RCWG has been very consistent over the years in producing a listing of the coho and chinook DIT groups. This has been important as the agencies have invested a lot of time, effort, and money in marking those indicator groups. About the only significant change this year is that Oregon has dropped three DIT groups. Ron also commented that while the first DIT analysis report has been completed (see Agenda 13.B above), the results remain inconclusive and will require further analyses by the Chinook and Coho Technical committees and SFEC's Analytical Working Group. Key questions that still need to be answered include the correct number of fish to mark, necessary sampling rates, and identification of effective indicator stocks that would be intercepted in existing or future mark selective fisheries.

Range of Electronic Sampling: Questions also remain about the range of electronic sampling. At this time, there is a patchwork of areas where electronic sampling is done and areas where only visual sampling is done (e.g. Alaska, much of British Columbia, and California). Given the importance of protecting the integrity of the CWT system, can the CWT system continue to provide reliable results? The present view is that it can, given that there aren't a large amount of tag recoveries of marked fish from Oregon, Washington and Idaho being recovered in the northern waters. The key assumption is that these indicator stocks are returning back into fisheries where electronic sampling is used before being harvested in significant numbers. Ron stressed however that this assumption really needed to be analyzed more carefully.

Ron also voiced strong concern about Canada's ability to electronically sample their chinook fisheries if harvest levels increase in the future. He noted that at this time, CDFO has been able to electronic sample their chinook landings but the harvest is very small. In addition, CDFO has reported serious budget problems for funding its CWT recovery program. Ron concluded that it would be very helpful to resolve whether or not Canada will be able to maintain an adequate level of electronic sampling. *(Note: One evidence of this pressure is CDFO's announcement earlier in this meeting that they could no longer recover tags in CWT only marked chinook [adipose fin present] because of necessary cost saving measures. See discussion in Agenda 7.B).*

Mouth Wanding: Lack of conversion to mouth wanding is another concern. Based on research presented a couple of years earlier, some tags in larger chinook are missed unless the palette of the mouth is also rubbed. One problem was that the sharp teeth of the fish abraded the plastic housing of the wand. To fix this serious problem, NMT developed a titanium shield cap for the end of the wand. The cost of retrofitting the wand is $150. Ron noted that there was consensus that agencies should upgrade their wands but progress has been slow, in part because of budget restraints. To date, approximately 132 wands have now been retrofitted, with many more still to be upgraded. Ron therefore made a strong recommendation that every sampling agency have their wands retrofitted with titanic shields to minimize 'missed tags' in larger chinook. He also recommended that as an interim measure to minimize missed tags, agencies sample the larger chinook (over 80 cm fork length or ~ 20+lbs) by both standard sampling and mouth wanding.

Data Management Issues: Numerous issues still exist that need to be addressed by Data Standards Working Group. This includes problems with not all agencies converting to Format 4.0 and including the new fields designed to capture data on mass marking and selective fisheries. Other problems include incorrectly reported DIT groups when using the related group ID number, the entire issue of estimating imputed mortalities of unmarked fish, and finding an adequate way to provide a summary description table of the mark selective fisheries.

Mass Marking Rates: Ron presented a snapshot overview of mass marking levels of hatchery chinook and coho in the region of British Columbia, Washington and Oregon (*Idaho excluded*). For coho, 78% of the hatchery production is now mass marked with the adipose clip. Chinook mass marking is substantially lower at 45% for the region, with much of the Columbia River production unmarked at the present time. (Note: These levels will substantially increase with the full implementation of Congressman Dicks' legislation.)

Ron further explained that Idaho's production was not included in the above totals, in part because of time constraints and the lack of Idaho representative serves on the SFEC committee. To this end, Ron welcomed and encouraged future IDFG participation on the SFEC committee.

Sampling Rates: The Regional Coordination Working Group also looked at sampling rates across the region to determine if there were problems in under-sampling the landings. The results were a pleasant surprise, with averaged sampling rates well above 20% for the fisheries (freshwater and marine), and many hatcheries being sampled at the 100% level. He also pointed out that the marine fisheries typically are well above the 20% level, while the freshwater sport fisheries are often substantially lower than the regional goal of 20%. He emphasized, however, that the lower freshwater sampling rates also coincided with much lower numbers of fish in the catch. Thus the bulk of the fishery harvest is being sampled at excellent levels.

14. Idaho's Salmon Fishery and Harvest Management

Ed Schriever, Regional Fisheries Manager, gave an overview presentation on Idaho's salmon fishery and methods used for harvest management. He noted at the offset that salmon fisheries in Idaho were a little different in that they didn't happen very often. As such, it has been a relearning experience these past few years to manage the fisheries under ESA constraints and growing tribal interest in harvest management issues.

Idaho's salmon fisheries target unlisted hatchery stocks in the Snake River (Lewiston to Hells Canyon Dam), Clearwater River, and Salmon River. However, Idaho managers must also take into account incidental mortality on listed stocks. Spring chinook in the Clearwater River are not listed in the ESU as they were determined to be primarily a blend of re-introduced Carson and Rapid River stocks. Any harvest from the Grand Ronde, Imnaha, and Salmon River include ESA listed stocks and requires a permit from the NMFS for incidental take.

The salmon fishery has real time monitoring requirements and estimates of total harvest and ESA incidental take are made weekly. This differs sharply from the steelhead fishery where total harvest is determined by phone at the end of the season. One of the monitoring objectives is to ensure adequate brood spawning of the listed stocks. In addition, Idaho operates under a 50% harvest share agreement with the Tribes.

Idaho's harvest share and ESA allowed take are determined by the number of wild/natural fish that come across Lower Granite Dam. In effect, the 'clock' is reset at Lower Granite Dam and not dependent on ESA take and harvest levels set for the Oregon and Washington fisheries in the Columbia River. A sliding scale is used to determine incidental take. If the number of wild/natural fish over the dam is above 30,000, a 10% sliding scale applies. If it is less than 30,000, a 1% sliding scale is applied. Harvest share is based on number of hatchery fish minus brood need and then split 50/50 into state and tribal shares.

In addition to incidental take, Idaho managers must also take into account handling rates of wild/natural fish in fisheries on the Snake or Salmon rivers. If at any time the handling rate exceeds 30%, and even if the incidental take is well within ESA guidelines, IDFG will give serious consideration to closing the fishery permanently or on a short term basis.

Sampling of the fisheries is done by a random stratified creel census, including angler counts and interviews. This includes 254 miles open to fishing on the Clearwater River, 60 miles on the Snake River and 34 miles on the Salmon River. As a result, it requires a lot of effort to sample the fisheries. The sampling effort is designed to give a plus or minus10% estimate of the season end totals for harvest and incidental take. Key sampling objectives are to ensure that the state does not exceed its allotted 50% share of the harvest, and that the incidental take of listed stocks can be accurately documented for NMFS. As such, the CWT marking program is very important to Idaho in providing the necessary information to track harvest and take impacts.

In terms of history, a small fishery was conducted in Idaho in 1977. The next fishery occurred in 1998, with a harvest goal of 100 fish. In 2000, the goal was increased to 4,000 fish in the Clearwater River. It was also the year that the highest number of jack returns were seen. The year 2001 was a banner year, with over 22,000 spring chinook in the Clearwater River harvested in the sport fishery. The contribution from Dworshak NFH was strong, typical of previous years. However, a significant number of fish also came from Clearwater Hatchery and its satellite facilities which recently came into full production. A fairly good increase was also seen in the wild fish crossing Lower Granite Dam, and attributed to improved ocean conditions.

Given the strong returns, a new spring chinook sport fishery (NMFS permit required for incidental take) was opened for the first time in the main Salmon River out of Riggins, Idaho in 2001 and has been possible each year since then. This new fishery has taken considerable pressure off of the fishery held for many years in the Little Salmon River where shoulder to shoulder fishers targeted returning Rapid River hatchery fish. This older fishery does not require NMFS permits for incidental take as the fish are 99% Rapid River stock once they enter the Little Salmon River.

The Clearwater River spring chinook fishery has heavy pressure in the mainstem out of Lewiston but only accounts for 20% of the harvest as the fish move quickly through the corridor area. The balance of the harvest (~80%) is taken in the terminal areas where the fish bunch up and are more vulnerable to harvest. One of the terminal areas, referred to as the North Fork Clearwater River, is right at the Dworshak NFH ladder. A second terminal area is the Clear Creek hole at the mouth of the Clear Creek where the Kooskia NFH fish congregate before they enter the hatchery trap. The entire South Fork Clearwater River and the upper Lochsa River near the weir area also defined as terminal areas. The entire harvest is over in about six weeks.

One of the challenges faced in setting the salmon fisheries is run timing. The second is the size of the run over Lower Granite Dam. Both can be quite variable from year to year, thus preventing fixed opening and closing dates. This is primarily a problem for the public as it impacts when vacations are scheduled, etc. Another problem for harvest is river flow. When the river flow is high, the water is muddy and harvest drops sharply. Therefore, even if fish abundance is high, harvest will be low during high flow periods.

The steelhead fishery is quite different from the spring chinook fishery. The steelhead begin to show up in September, and then over winter in the mainstem rivers before ascending the tributaries in the spring. This subjects them to fishing effort for a long time as compared to the spring chinook which are available for only six weeks.

IDFG has several key management goals with respect to the salmon fisheries. The first is to maximize harvest by catching every allowable hatchery fish with an adipose clip or altered adipose fin (i.e. regenerated fin). Reasons for this include the intense public desire for fishing opportunities. Likewise, hatcheries don't want to have to truck excess returns back downstream for release with the hope of being harvested once broodstock requirements have been met.

A second key goal is to manage public expectations, particularly in view of unrealistically high expectations based on recent banner years of returning fish. This educational effort requires on-going public meetings to explain run projections and management plans for future fisheries. A major effort is also made to get public input on fishery proposals. As an example, Ed Shriever noted that IDFG asked for public input on the structure of the salmon fisheries. The first option was generous daily catch limits, with fishery closure dependent on reaching the allowable harvest limits. The second option was an uninterrupted set season spread out by having a lower daily catch limit. The response was almost unanimous for uninterrupted seasons spread out by lower daily harvest limits. This option was also very important to the recreation linked industries (lodging, food, travel, shops) as the salmon fisheries bring in $98 million for Idaho communities.

15. High Seas Sampling Program – 2002 Recoveries (Adrian Celewycz, NMFS)

Adrian Celewycz (NMFS-Alaska) presented his annual review of the high seas sampling program for CWT marked fish, including fisheries sampled and new range extensions for North American salmonid species. His complete report is provided below:

High-seas coded-wire tag (CWT) recoveries in 2002
By Adrian Celewycz, NOAA Fisheries, Auke Bay Laboratory
Presented to Annual Meeting of the Regional Mark Committee,
Pacific States Marine Fisheries Commission, Lewiston, ID, May 13, 2004

U.S. Domestic Groundfish Trawl Fisheries: In 2002, observers on US groundfish vessels in two domestic trawl fisheries on the high seas in the Gulf of Alaska and Bering Sea recovered 100 CWTs from a total of over 79,000 salmonids examined for tags. Chinook salmon comprised 100% of tagged fish recovered in these commercial trawl fisheries. All salmon are considered prohibited species in these high seas trawl fisheries and are harvested only as bycatch.

1) North Pacific Ocean: In the 2002 trawl fishery targeting whiting in the North Pacific Ocean off Washington-Oregon-California, over 1100 salmon were examined for CWTs: 92% chinook salmon, with coho salmon, pink salmon, and chum salmon comprising the other 8%. In 2002, responsibility for processing and reporting CWTs from the salmon bycatch of the whiting fishery passed from the Alaska Fishery Science Center (AFSC) of NMFS (or NOAA Fisheries) to the Northwest Region (NWR). No CWTs from this fishery have been reported into the PSMFC coastwide database for 2002 or 2003.

2) Gulf of Alaska: In the 2002 trawl fishery in the Gulf of Alaska, chinook salmon was the only species with CWT recoveries. Of the total of 1576 salmonids examined for CWTs, 71% were chinook salmon, 28% were chum salmon, and 1% were coho salmon. Of the 1576 chinook salmon examined, 22 CWTs were recovered for a tag occurrence rate of 2.0% for chinook salmon. This tag occurrence rate was higher than the tag occurrence rate of 1.4% in 2001. Because the total bycatch of chinook in this fishery was 12,921, a rate of 11.6 can be applied to the 22 CWT recoveries to come up with an approximation of 255 CWT chinook salmon in the total bycatch of chinook salmon in the trawl fishery in the Gulf of Alaska in 2002. This approximation of 255 CWT chinook salmon is 20% higher than the approximate number of 212 CWT chinook salmon in this fishery in 2000. This approximation

should not be considered an "expansion", however, because a true expansion would be calculated on a vessel-by-vessel basis in this fishery and would take into account the ratio of marked-to-unmarked fish released for each tag code. This approximation is calculated simply by multiplying the number of CWT chinook recovered by the ratio of total chinook captured over the number of chinook examined for CWTs.

3) Bering Sea-Aleutian Islands: In the 2002 trawl fishery in the Bering Sea-Aleutian Islands, chinook salmon was the only species with CWT recoveries. Of the 63,769 salmon examined for tags, 70% were chum salmon, with chinook salmon comprising the remaining 30%. Of the 19,134 chinook salmon examined, 78 CWTs were recovered for a tag occurrence rate of 0.4%, 4x higher than the tag occurrence rate in 2001. Because the total bycatch of chinook salmon in this fishery was 37,545, a rate of 2.0 can be applied to the 78 CWT recoveries to come up with an approximation of 153 CWT chinook salmon in the total bycatch of chinook salmon in the trawl fishery in the Bering Sea-Aleutian Islands in 2002, about 3x higher than the approximate number of CWT chinook in 2001 and 18x higher than in 2002.

Abundance of ESA-Listed Chinook Salmon Stocks: Information was presented on the historical (1981-2002) abundance of ESA (Endangered Species Act) listed chinook salmon in these high seas trawl fisheries. Historically, most of the high seas bycatch of the current ESA-listed ESUs (Evolutionarily Significant Units) has occurred in the North Pacific whiting fishery off Washington-Oregon-California, with the highest bycatch occurring mostly in the mid-1980s, when foreign vessels dominated this fishery. Bycatch of current ESA-listed ESUs has generally decreased since these fisheries became 100% domestic in the early 1990s. In 2000, however, bycatch of ESA-listed ESUs in the whiting fishery off Washington-Oregon-California increased to the highest level yet. Because CWTs from the North Pacific whiting fishery have not been reported into the PSMFC coastwide database since 2001, bycatch of ESA-listed ESUs in this fishery off Washington-Oregon-California is unknown for 2002.

Of the ESA-listed ESUs, only the Upper Willamette River chinook have a predominantly northward migration pattern that typically leads to the majority of bycatch being harvested in the Gulf of Alaska trawl fishery rather than the whiting fishery off Washington-Oregon-California. Historically, other ESA-listed ESUs such as Snake River Fall and Spring/Summer Chinook, Lower Columbia River Chinook, Puget Sound Chinook, California Central Valley Spring Chinook, and California Coastal Chinook recovered on the high seas are captured predominantly in the North Pacific whiting fishery off Washington-Oregon-California.

High Seas Research Programs: Recovery of CWTs in 2 high seas research programs was also described. First, juvenile salmon were captured in trawl surveys in the Gulf of Alaska and the Bering Sea by the Ocean Carrying Capacity (OCC) program, cooperative research conducted by NMFS and the Fisheries Research Institute (FRI) of the University of Washington School of Aquatic and Fishery Science, and supported by the North Pacific Anadromous Fish Commission (NPAFC). Out of 598 chinook salmon, 1039 coho salmon, 5621 sockeye salmon, 5681 chum salmon, and 2772 pink salmon examined, 12 CWT chinook salmon and 6 CWT coho salmon were recovered. Second, in Fisheries Agency of Japan gillnet research on the high seas; 2 CWT steelhead were recovered.

Range Extensions: Three new recoveries of CWT juvenile (ocean age-.0) fish during a U.S. NMFS survey in October 2002 at 64°06′N, 164°31′W (2 recoveries) and at 63°00′N, 165°58′W are northern extensions of the known ocean range of Yukon River chinook salmon. One recovery of an age 0.3 CWT hatchery (Ringold Springs, Washington) salmon at 56°27′N, 170°01′W is a northwestern extension of the known ocean range of Columbia River Basin and Washington chinook salmon in the eastern Bering Sea. One recovery of an age 0.3 coded-wire tagged hatchery salmon at 56°27′N, 170°01′W in March is a northwestern extension of the known ocean range of Columbia River Basin and Washington chinook salmon in the eastern Bering Sea. One recovery of an age 0.2 hatchery salmon at 56°08′N, 170°26′W in September 2002 is a northwestern extension of the known ocean range of Oregon chinook salmon in the eastern Bering Sea. One recovery of a North Washington Coast steelhead at 56°N, 145°W is a northern extension of the known high seas range.

Literature cited
Myers, K.W., A.G. Celewycz, and E.V. Farley, Jr. 2003. High seas salmonid coded-wire tag recovery data, 2003. (NPAFC Doc. 701.) SAFS-UW–0307. School of Aquatic and Fishery Sciences, University of Washington, Seattle, WA. 39 p.

16. ODFW Tag Lab Facing Challenges with Backlogged Heads to Process

Christine Mallette explained that ODFW's Clackamas Tag Lab processes recoveries from the main fisheries in season. However, hatchery and spawning grounds recoveries, etc, are backlogged as much as two years. Reasons for the backlog are two fold. The first is a continuing decline in federal funding over the past five or more years to operate the Clackamas Tag Lab. The second complicating factor has been the substantial increases in run returns during this same time period, coupled with 100% sampling of hatchery returns. The budget shortfalls have prevented the hiring of even temporary staff to ease the backlog of recovered heads.

The head recoveries for 2001 were finished earlier this year. In addition, the 2002 recoveries are nearly completed, with the exception of hatchery rack returns from the southern Oregon coast. The 2003 heads largely remain to be done.

Christine also emphasized that this bottleneck problem has been recognized by ODFW upper management and efforts are underway to find additional funding to process the backlogged heads. She noted however that nothing had materialized to date in terms of new funding but she remained hopeful that their lab would catch up soon.

Marianne McClure pointed out that the PSC chinook and coho technical committees need the escapement data for Oregon's indicator stocks on a timely basis in order to do their analyses and modeling work. Christine concurred and noted that ODFW had written a letter to the PSC technical committees in January 2004 to advise that the lab would likely not be able to produce the information in the time frame needed. Following that letter, the lab initiated a Herculean effort and focused on those particular recoveries, and was thus able to deliver the necessary data at the 'eleventh hour'.

Marianne acknowledged the great efforts of the lab in delivering the data last year but pointed out that the same problem will soon be upon them again for 2004 recoveries. As such, she asked if ODFW's head lab could include the indicator stock hatcheries with the 'priority one' ocean and Columbia River fisheries when processing the head recoveries. Christine responded that the lab already has a priority ranking. In-season fishery management is always given first priority, with fall chinook landing being highest in rank, and followed closely by PSC and PFMC data needs for ocean fisheries (including those key hatcheries with indicator stocks, such as Salmon River). As such, Christine was confident that the lab would be able to deliver the needed data, including the Salmon River recoveries, for the PSC tech committees within the required time frame.

Rodney Duke reported that IDFG's head lab has moved from Lewiston to Nampa, Idaho. He also noted that the lab was 100% caught up with their head processing. As such, he offered to help ODFW catch up on their backlog of unprocessed heads. This offer was warmly received by Christine Mallette, and she expressed a desire to work out the details.

17. Update on the Performance of MATS Trailers

ODFW: Christine Mallette reported that Oregon is using three newly acquired MATS (Marking and Tagging System) trailers. Tagging began in April, 2004. To date, the marking project at Umatilla Hatchery (Adipose+CWT) has been completed (April 5-30), with 569,713 fish marked in 136 hours at a rate of 4,183 fish/hour. This is much higher than anything accomplished last year.

Marking at Coles River Hatchery is ongoing and results are very preliminary: Adipose+CWT marking: 2,497 fish/hour (based on only 30,000 fish); and Adipose only: 4,573 fish/hour.

Overall, the tagging is going very well. There has been some downtime due to hard drive problems and sorter problems. However, the problems have been resolved quickly and ODFW is very pleased with the MATS trailers.

WDFW: Mark Kimbel reported that WDFW currently has two new and three older MATS trailers. Four of the trailers are in operation, with a little over three million fish marked to date. Much of the hatchery production has been fairly uniform in size, allowing up to 40,000 fish/ 8 hour shift. Like ODFW, there has been a little down time but help has been very timely, and marking has been going very well.

IDFG: Rodney Duke stated that IDFG has one MATS trailer and two under construction. The trailers have the standard automated marking lines plus a manual marking section where two crew members process oversized or undersized fish taken out of the sorter. Marking at Oxbow Hatchery resulted in 170,000 fish marked (Ad+CWT) in four 'eight hour' shifts. At Clearwater Hatchery, 168,000 fish were marked in 15 hours. Similar to WDFW and ODFW, Rodney reported excellent performance of the MATS trailers.

NMT: Guy Thornburgh commented that NMT is no longer doing any tagging services for the tagging agencies. The MATS trailers are now available on either a lease or purchase option. Guy also reported that five new trailers were under production. Two will go to NWIFC and three to the USFWS. The new 44 ft fifth wheel trailers will have six lines, double the sorter capacity, enhanced computer operated system and camera system, and a manual marking section in the rear of the units. Delivery is targeted for February 2005.

18. Re: 2003 Proposal to Consider Establishing Standards for Tag Detection and Survivals for Ad Clipped Fish (Ron Josephson, ADFG)

Ron Josephson remarked that he thought that this item had been taken off the agenda. But since it hadn't, he distributed a handout (**Attachment 11**) that summarized ADFG's test results with the hand wand, followed by verification of results with a V-Box. Over 964 chinook heads were wanded. Of these, 547 heads had tags. The wand did not give any false positive results (i.e. tag indicated but not present). They also found that external wanding missed 25 tags that were found with the V-Box. Of those, nearly all were found with mouth wanding.

Ron Olson did some fast calculations and estimated that ADFG's results were very similar to those results reported by other agencies. Approximately 5% of the tags were missed on the outside but nearly all were found on the inside. He estimated that they got nearly 98-99% recovery using both standard and mouth wanding.

19. Northwest Marine Technology (Guy Thornburgh)

Guy Thornburgh gave a brief update on NMT's research and development efforts. He reported that most of the new information had already been covered in previous agenda items. However, he noted that work had continued on their 4 inch tube detector that was discussed in last year's meeting:

> "The prototype model is a four inch tube (cross section: 2.5 x 4.0 inches) that is about the size of the current QCD and is due out this coming spring. The new model is being developed to go on a machine to vaccinate fish. It will replace the current QCD in the new AutoFish System and has the added advantage that it doesn't have to be tied to a MARK IV unit. As such, it will also be able to function as a stand alone sampling device. Most of the electronics are now pulled out of the tube and the tube is completely water proof"

Guy noted further that the advanced technology used for the four inch tube is now being ported to a larger 13 inch by 7 inch tube detector. It will be large and weigh a lot, but it is designed for hatchery use where size is not an issue.

20. OBT Company (Jan Kallshian)

Jan Kallshian (formerly with MicroMark) reported that after a break of a number of years, he has returned to the CWT world and has started a micro tag accessory and recycling business. His company is starting small and now offering replacement parts such as tag injectors, needles, cutters, and refurbished drive rollers. He also indicated that his parts will be compatible with existing equipment. In addition,

He also announced plans to reintroduce his version of alphanumeric coded wire tags made out of the same tag material now being used. Tags aren't for sale at this time. To keep price levels down, he would be using his 'Jack in the Box' model in that products would not be produced until orders are in hand. He also emphasized that he planned to outsource all production to keep his costs down. Thus there will be lead times of one to six months in advance for delivery. Lastly, he advised that he would be contacting their purchasing departments to get on their vendor lists.

21. Calcein as a New Experimental Mark

Ron Josephson reported that he has been involved in a marking experiment using calcein to mark chum salmon fry. Don Mortenson (NMFS) has been doing the research with funding from ADFG. Calcein is an organic compound that can be used to mark fish by either immersion or injection. It is a fluorescing compound that can be seen with ultraviolet light. A number of slides were shown illustrating the effect of marking at different levels of concentration and duration of immersion. Results demonstrate that it works well for marking the otoliths of newly immerged fish in addition to marking the scales.

It is not clear yet if this will work for adult fish (i.e., if the mark will persist). Results to date suggest that the mark doesn't persist well once exposed to light. As such, it isn't likely to be useful for scale marking but likely should be a persistent mark on otoliths.

Ron Olson also noted that Washington was also testing calcein as a mark and found that they had to return any left over solution to the company selling the chemical. As such, it was a major hassle.

5:00 pm. Meeting adjourned

Attachment 1

Mark Committee Meeting Attendees -- May 12-14, 2004

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